RECEIVED

4:15 pm, May 23, 2012

Alameda County
Environmental Health

FIRST SEMIANNUAL 2012 GROUNDWATER MONITORING REPORT

REDWOOD REGIONAL PARK
SERVICE YARD
OAKLAND, CALIFORNIA

Prepared for:

EAST BAY REGIONAL PARK DISTRICT
OAKLAND, CALIFORNIA

May 2012

STELLAR
ENVIRONMENTAL SOLUTIONS, INC.
GEOSCIENCE & ENGINEERING CONSULTING

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

May 8, 2012

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 Semiannual 2012 Groundwater and Surface Water Monitoring 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 the First Semiannual 2012 groundwater and surface monitoring and sampling activities conducted on March 22, 2012. In addition to the activities typically conducted during a monitoring event, the water quality parameters including dissolved oxygen and oxygen reduction potential were taken to assess the effectiveness of the oxygen release product injection conducted during February 2010.

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 either Mr. Matt Graul of the EBRPD or me (510-644-3123).

Sincerely,

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

Matt Graul
East Bay Regional Park District

cc: State of California GeoTracker System
Alameda County Department of Environmental Health ftp system

FIRST SEMIANNUAL2012 GROUNDWATER MONITORING 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

May 8, 2012

Project No. 2012-02

TABLE OF CONTENTS

Section **Page**

1.0 INTRODUCTION 1

Project Background 1
Objectives and Scope of Work 1
Historical Corrective Actions and Investigations 1
Site Description 3
Regulatory Oversight 3

2.0 PHYSICAL SETTING 6

Site Lithology 6
Hydrogeology 10

3.0 REGULATORY CONSIDERATIONS 12

Groundwater Contamination 12
Surface Water Contamination 12

4.0 FIRST QUARTER 2011 MONITORING ACTIVITIES 14

Groundwater Level Monitoring and Sampling 15
Creek Surface Water Sampling 17
Bioventing-Related Activities ..... **Error! Bookmark not defined.**

5.0 FIRST QUARTER 2011 ANALYTICAL RESULTS 19

Groundwater and Surface Water Analytical Results 19
Quality Control Sample Analytical Results 20

6.0 SUMMARY, CONCLUSIONS AND PROPOSED ACTIONS 22

Summary and Conclusions 22
Proposed Actions 23

7.0 REFERENCES 24

8.0 LIMITATIONS 30

TABLES AND FIGURES

Tables **Page**

Table 1 Groundwater Monitoring Well Construction and Groundwater Elevation Data – March 23, 2011 15

Table 3 Groundwater and Surface Water Samples – March 23, 2011 Analytical Results 20

Figures **Page**

Figure 1 Site Location Map 4

Figure 2 Site Plan and Historical Sampling Locations 5

Figure 3 Geologic Cross-Section Locations 7

Figure 4 Geologic Cross-Sections A-A' through C-C' 8

Figure 5 Geologic Cross-Sections D-D' through F-F' 9

Figure 6 Groundwater Elevation Map –March 23, 2011 16

Figure 7 Groundwater Analytical Results and Gasoline Plume – March 2011 21

Appendices

Appendix A Historical Groundwater Monitoring Well Water Level Elevation Data
Appendix B Groundwater Monitoring Field Documentation
Appendix C Analytical Laboratory Report and Chain-of-Custody Record
Appendix D Historical Groundwater and Surface Water Analytical Results

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 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

Historical remedial efforts have shown that residual hydrocarbons entrained in subsurface material and/or stratigraphic traps are continuing to release significant amounts of hydrocarbons into the groundwater. This report discusses the following activities conducted/coordinated by Stellar Environmental Solutions, Inc. (Stellar Environmental) for the first 2012 semiannual period between January 1 and June 30, 2012:

- 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

HISTORICAL CORRECTIVE ACTIONS AND INVESTIGATIONS

Other Stellar Environmental reports have discussed previous site remediation and investigations, site geology and hydrogeology, residual site contamination, the 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 principal phases of site work included:

- An October 2000 Site Feasibility Study Report for the site, submitted to ACEH, which provided detailed analyses of the regulatory implications of the site contamination and a request for the assessment and implementation of viable corrective actions.
- 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 Oxygen Release Compound (ORC™) injection proposed by Stellar Environmental and approved by ACEH in its January 8, 2001 letter to the EBRPD. Two phases of ORC™ injection were conducted—in September 2001 and July 2002.
- Groundwater monitoring and sampling, conducted on a quarterly basis since project inception (in 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. Bioventing activities have been discussed in bioventing-specific technical reports with updates provided in groundwater monitoring progress reports.
- An ORC™ injection pilot test, conducted by Stellar Environmental on March 10, 2009, to control historical high levels of hydrocarbons contamination that began to appear in September 2007 in source well MW-2.
- A Remedial Action Workplan (RAW), dated August 20, 2009, prepared by Stellar Environmental in response to a letter from ACEH. ACEH approved the RAW in a letter (dated October 2, 2009) to the EBRPD.
- An ORC™ injection conducted Q1-2010 over the full footprint of the plume to determine the effectiveness of achieving significant and sustained hydrocarbon concentration reductions.
- Conversion of surface and groundwater monitoring frequency from quarterly to semiannual by ACEH at the request of Stellar Environmental on behalf of Park District occurred in June 2011.
- In concurrence with ACEH, the site bioventing system having accomplished its' design purpose, was discontinued on July 18, 2011.

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:

- 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
- 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 Second Quarter 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 are no longer provided to ACEH.

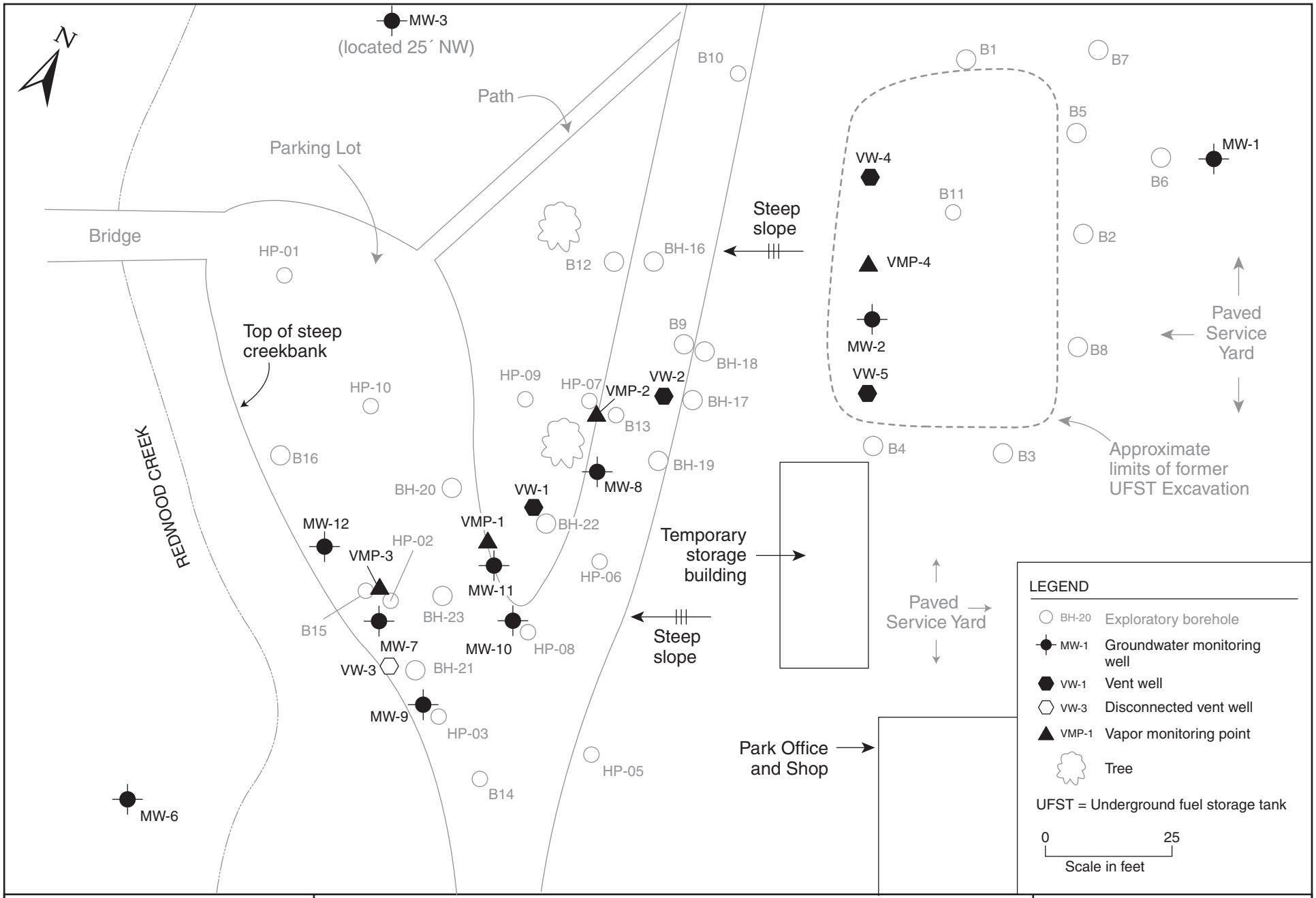
N

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 | APRIL 2011

2010-02-13

2.0 PHYSICAL SETTING

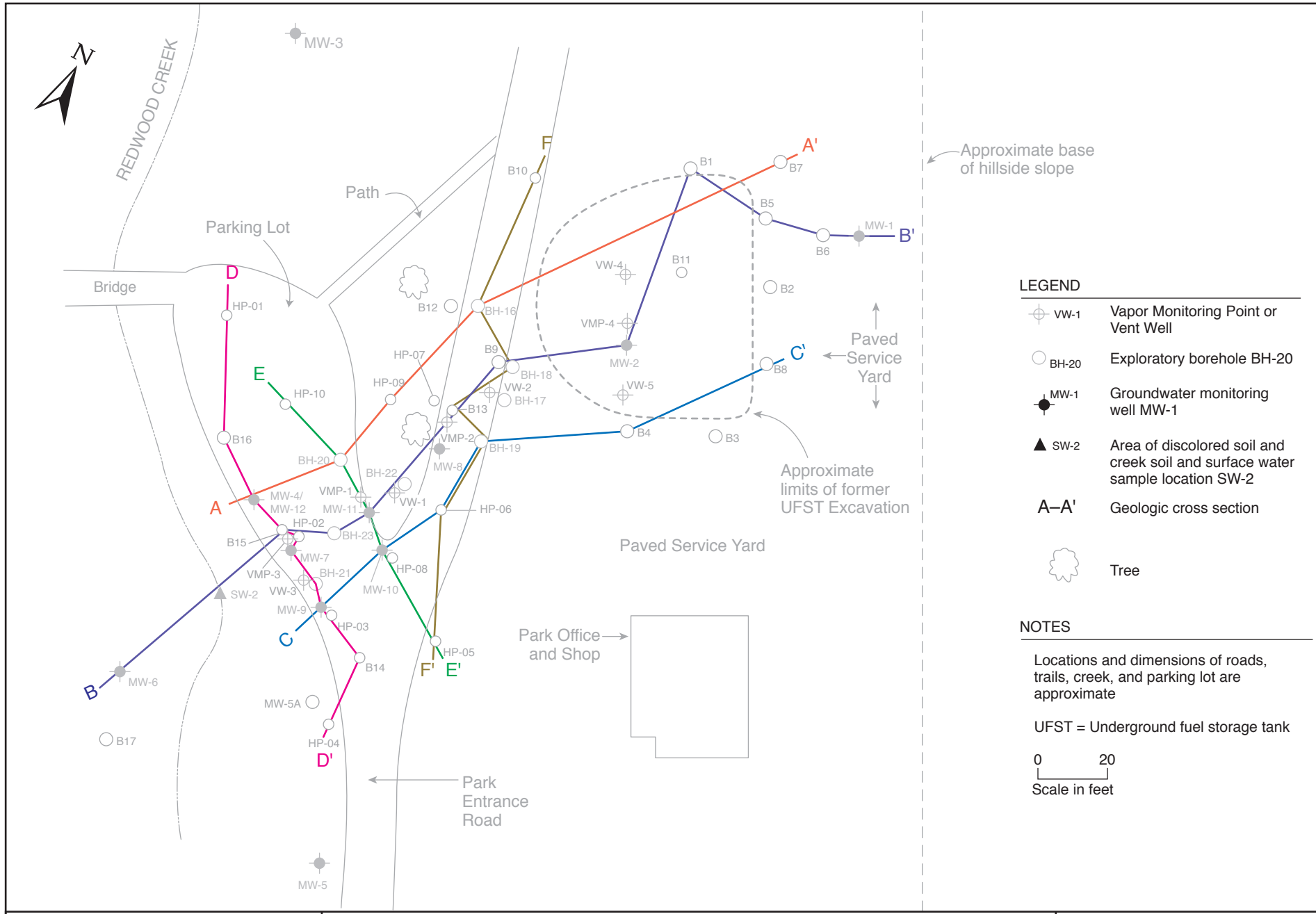
This section discusses the site hydrogeologic conditions based on geologic logging and water level measurements collected at the site since September 1993. Previous Stellar Environmental reports have included detailed discussions of site lithologic and hydrogeologic conditions. In May 2004, ACEH requested 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 locations 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 (soil type and bedrock depth). Additional information on water level depths, historical range of water levels, and inferred thickness of soil contamination are presented in a previous report (Stellar Environmental, 2004c) for cross-section B-B'.

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

A previous report (Stellar Environmental, 2004c) presented a bedrock surface isopleth map (elevation contours for the top of the bedrock surface) in the contaminant plume area. As shown in Figures 4 and 5, the isopleth map indicates the following: 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.



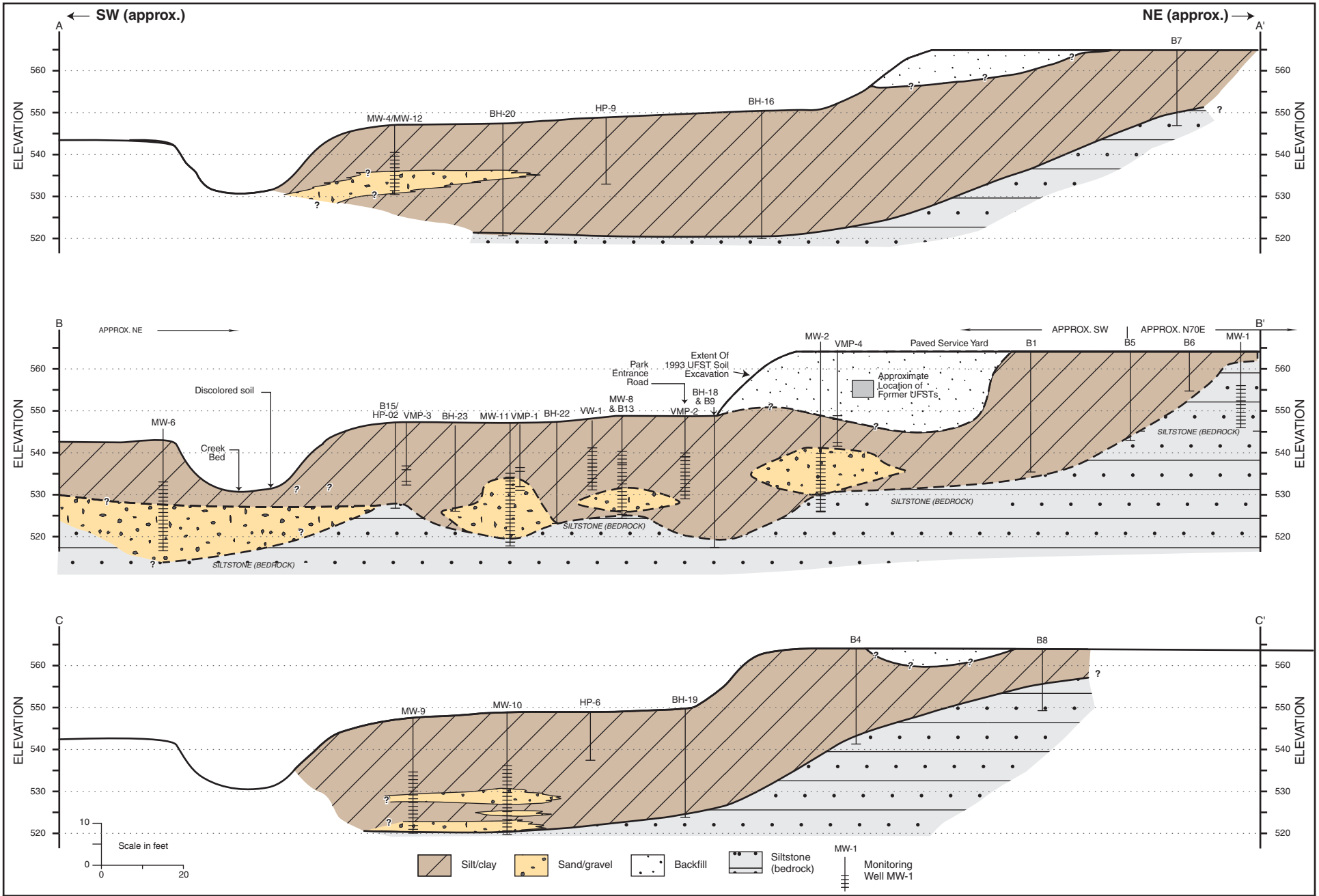
STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

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

Figure 3

by: MJC | MARCH 2008

2008-02-05



STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

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

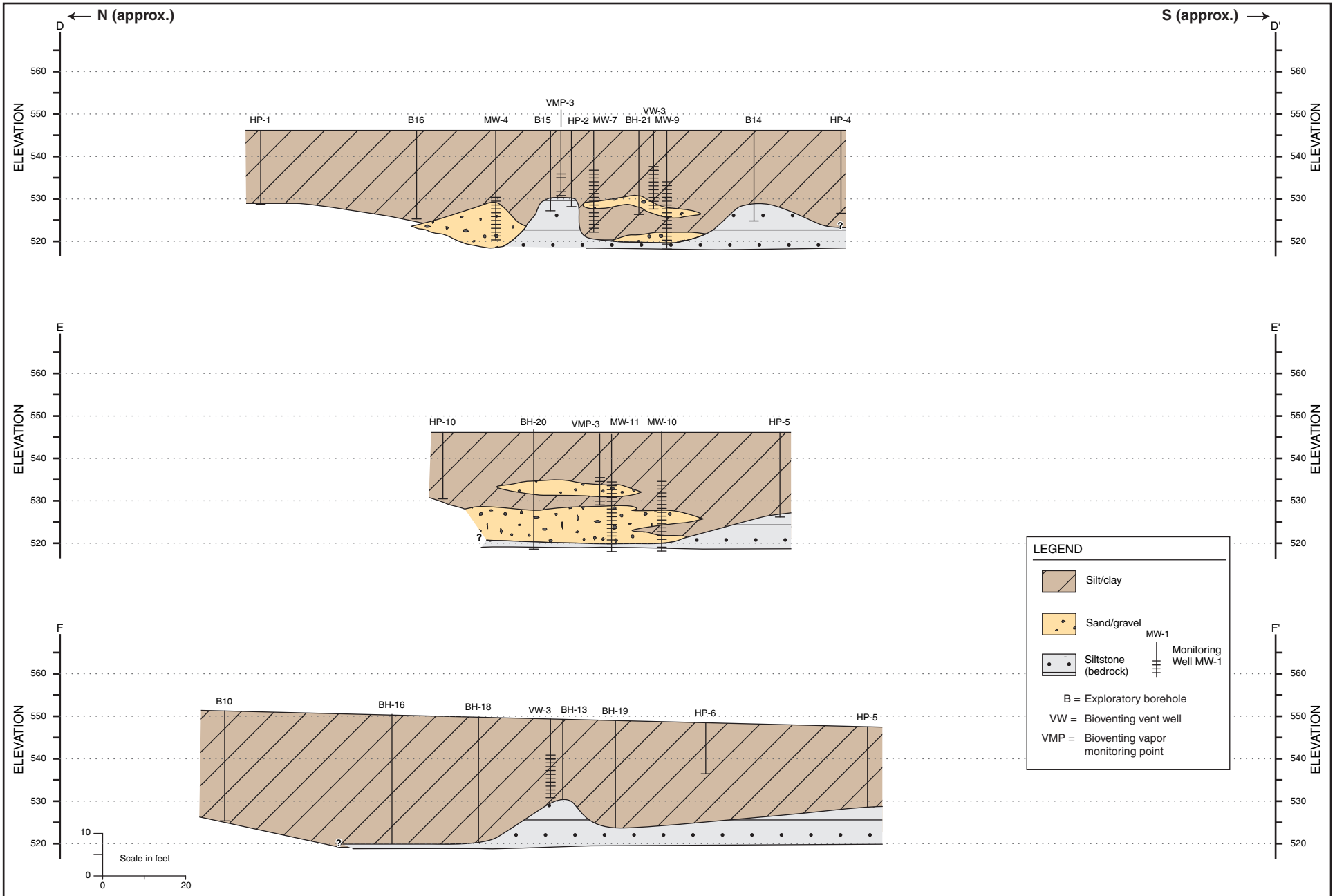
Redwood Regional Park Service Yard, Oakland, CA

Figure 4

by: MJC

DECEMBER 2007

2005-66-14



STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

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

Figure 5

by: MJC | DECEMBER 2005

2005-66-13

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

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

The bedrock surface, and overlying unconsolidated sediment lithology, suggests that it may have undergone channel erosion from a paleostream(s) flow 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 to 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 the surrounding area. As discussed in the previous subsection, local groundwater flow direction is likely more variable than expressed by groundwater monitoring well data due to local variations in bedrock surface topography.

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 UFST 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 one 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 one 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.

The following groundwater gradient information is based on the monitoring data contained in Section 6.0 of this report. 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 was measured at approximately 0.21 feet per foot. Downgradient from (west of) the UFST source area (between MW-2 and Redwood Creek) the groundwater gradient was approximately 0.11 feet per foot. The average groundwater elevation was 1.45 feet higher than the previous (September2011) event, with the greatest increase of 2.93 feet measured in MW-8 and the lowest increase measured in MW-7 of 0.37 feet. 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.

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 groundwater 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 5 (in Section 7.0), site groundwater contaminant levels are compared to two sets of criteria: 1) Water Board Tier 1 Environmental Screening Levels (ESLs) for residential sites where groundwater *is* a current or potential drinking water source; and 2) ESLs for residential sites where groundwater *is not* a current or potential drinking water source.

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

SURFACE WATER CONTAMINATION

As summarized in Table 5 (in Section 7.0), 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 (sample location 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 SEMIANNUAL 2012 MONITORING ACTIVITIES

This section presents the quarterly creek surface water and groundwater sampling, and analytical methods for the most recent groundwater monitoring event conducted in March 22, 2012. 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 workplan (Stellar Environmental, 1998a).

Groundwater and surface water analytical results are summarized in Section 7.0. Monitoring and sampling protocols were in accordance with the ACEH-approved workplan (Stellar Environmental, 1998a). Current First Quarter 2011 event activities included:

- Measuring static water levels in all 11 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);
- Post-purge measurement of dissolved oxygen (DO) and redox to monitor the effects of the February 2010 remedial ORC™ application. In addition, Stellar Environmental also analyzed wells MW-2, MW-7, MW-8 and MW-12 for alternate electron acceptors including nitrates, sulfates, biological oxygen demand (BOD), and chemical oxygen demand (COD) to determine the effect of the treatment; and
- Collecting Redwood Creek surface water samples for laboratory analysis from locations SW-2 and SW-3

The locations of all site monitoring wells and creek water sampling locations are shown on Figure 2 (in Section 1.0). Appendix A contains historical groundwater elevation data. Appendix B contains the groundwater monitoring field records for the current event.

Well construction information and current equilibrated groundwater elevation data are summarized in Table 1. Figure 6 is a groundwater elevation map constructed from the First Quarter 2011 event monitoring well elevation data.

Table 1
Groundwater Monitoring Well Construction
and Groundwater Elevation Data – March 22, 2012

Well	Well Depth	Screened Interval	TOC Elevation	Groundwater Elevation (3/22/12)
MW-1	18	7 to17	565.83	562.25
MW-2	36	20 to 35	566.42	546.42
MW-3	42	7 to 41	560.81	542.02
MW-5	26	10 to 25	547.41	531.83
MW-6	26	10 to 25	545.43	533.13
MW-7	24	9 to24	547.56	534.71
MW-8	23	8 to 23	549.13	539.34
MW-9	26	11 to 26	549.28	535.97
MW-10	26	11 to 26	547.22	535.51
MW-11	26	11 to 26	547.75	536.03
MW-12	25	10 to 25	544.67	535.69

Notes:

TOC = top of casing

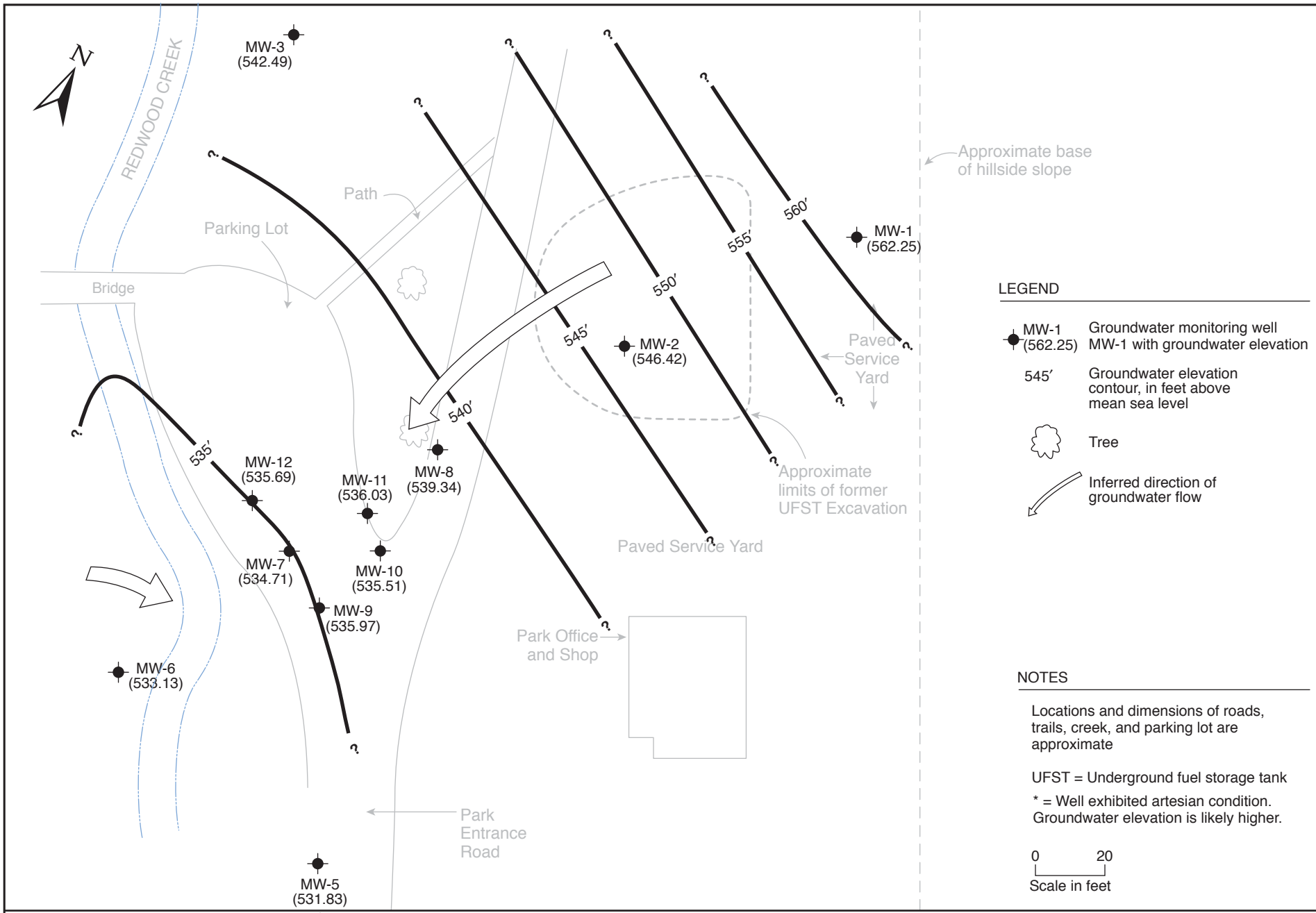
Wells MW-1 through MW-6 are 4-inch diameter; all other wells are 2-inch diameter.

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

GROUNDWATER MONITORING AND SAMPLING

Groundwater monitoring well water level measurements, purging, sampling, and field analyses were conducted by Blaine Tech Services under the supervision of Stellar Environmental personnel. As the first task of the monitoring event, static water levels were measured using an electric water level indicator. The wells to be sampled for contaminant analyses were then purged (by bailing and/or pumping) of three wetted casing volumes. Aquifer stability parameters (temperature, pH, electrical conductivity, and turbidity) were measured after each purged casing volume to ensure that representative formation water would be sampled. To minimize the potential for cross contamination, wells were purged and sampled in order of increasing contamination (based on the analytical results of the previous quarter).

The sampling-derived purge water and decontamination rinseate (approximately 59.5 gallons) from the current event was containerized in the onsite above-ground storage tank. Purgewater is accumulated in the onsite tank until it is full, at which time the water is transported offsite for proper disposal.



STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

GROUNDWATER ELEVATION MAP—March 22, 2012
Redwood Regional Park Service Yard, Oakland, CA

Figure 6

by: MJC | APRIL 2012

2010-02-17

CREEK SURFACE WATER SAMPLING

Surface water sampling was conducted by Blaine Tech services personnel on March 22, 2012. Surface water samples were collected from Redwood Creek location SW-2 (immediately downgradient of the former UFST source area and within the area of documented creek bank soil contamination), and at SW-3 (located approximately 500 feet downstream of the SW-2 location). In accordance with a previous Stellar Environmental recommendation approved by ACEH, upstream sample location SW-1 is no longer part of the surface water sampling program.

2010 ORC™ INJECTION EFFECTIVENESS INDICATORS

In Q1-2010, ORC™ was injected into a total of 24 boreholes in four zones throughout the plume and at various depths using direct-push drilling technology. Approximately 2,075 pounds of Advanced ORC™ was mixed in a 30 percent water/slurry mix and injected from the depth of the borehole to the subsurface. This was designed to treat and/or intercept accessible subsurface groundwater hydrocarbon contamination. One year later, this in-situ treatment appears to have been only marginally effective. The alternate electron acceptors measured during this Q1-2012 sampling event; which included nitrates, sulfates, biological oxygen demand (BOD), and chemical oxygen demand (COD) were analyzed to track the ORC™ utilization. One concern about the use of ORC™ is that other non-hydrocarbon-utilizing microorganisms will use the product as well, without the benefit of hydrocarbon reduction occurring as effectively. The oxygen demand exerted by extraneous oxygen sinks, such as nitrates and sulfates can then be estimated to evaluate its equivalent to the oxygen demand exerted by the contaminants of concern. Table 2 includes the results of these additional analyses.

The main active ingredient in Advanced ORC™ is calcium oxy-hydroxide. The optimal pH for hydrocarbon reduction is between seven and nine. The groundwater measured in site wells during this event had a pH range of 6.8 to 7.6, mostly within the optimum range. Under these conditions, the Advanced ORC™ remedy product will react to release hydrogen peroxide and oxygen. This allows for the initial chemical oxidation to take place; starting the breakup of the contaminants. The oxygen is then released more slowly, which will assist bioremediation over a period of up to 1.5 years.

Because only a moderate reduction in hydrocarbon contaminant concentrations has been observed in the key site wells since the injection, it is suspected that in addition to lithologic restraints, non-hydrocarbon utilizing microorganisms are utilizing the ORC™, preventing the breakdown of the residual hydrocarbons. This hypothesis is supported by the only rapid decrease in concentrations being observed in well MW-2, located in fill material in the historical excavation area, which would generally contain fewer microorganisms and lithologic restraints. This hypothesis can be tested by continuing to collect additional site chemical parameters in

subsequent semiannual monitoring events. Table 2 contains the results from the parameter analysis conducted during this Q1-2012 sampling event.

Table 2
Electron Acceptors and Oxygen Demand in Key Wells
March 22, 2012 Analytical Results

Location	Concentrations				
	Nitrates	Sulfates	BOD	DO	COD
MW-2	1.6	110	<5.0	22.57	23
MW-7	<0.05	2.0	<5.0	0.16	28
MW-8	0.06	43	<5.0	0.94	41
MW-12	<0.05	20	<5.0	0.15	33

COD = Chemical oxygen demand; BOD = Biological oxygen demand; DO = Dissolved Oxygen

Dissolved Oxygen

DO is the most thermodynamically favored electron acceptor used in aerobic biodegradation of hydrocarbons. Active aerobic biodegradation of petroleum hydrocarbon compounds requires at least one to two milligrams per liter (mg/L) of DO in groundwater. During aerobic biodegradation, DO levels are reduced in the hydrocarbon plume as respiration occurs. Therefore, DO levels that vary inversely to hydrocarbon concentrations are consistent with the occurrence of aerobic biodegradation.

The highest hydrocarbon concentrations (> 40,000 µg/L) were reported in well MW-2 in early 2009 before the initial injection of ORC™ in Q1-2009 which resulted in steady decreases in both TPHg and TPHg. The current DO in MW-2 is at its highest with relatively low hydrocarbon concentrations (< 1,000 µg/L) in this well. This suggests both that the ORC™ was effective there and that less active aerobic biodegradation is currently occurring thee now. Conversely at monitoring well MW-8, which had the highest concentration of hydrocarbons, the lowest DO concentration was measured. In this case the ORC™ was likely not as effective at being in contact with the hydrocarbon contamination in and around that well. Thus a low DO concentration can also signify a lack of effective aerobic biodegradation occurring as a result of less ORC™ penetration or utilization by the hydrocarbons.

During the First Quarter 2010 sampling event, DO concentrations in site wells ranged from 0.28 mg/L to 2.41 mg/L. During the Second Quarter 2010 sampling event, DO concentrations ranged from 0.30 mg/L to 24.01 mg/L. During the Q1-2011 event, DO concentrations ranged from 0.44 mg/L to 27.3 mg/L and from 0.66 mg/L to 24.38 mg/L in September 2011. In this event, DO concentrations ranged from 0.44 mg/L to 22.57 mg/L with the anomalous 22.57 mg/L being associated with MW-2. .

5.0 FIRST SEMIANNUAL 2012 ANALYTICAL RESULTS

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

GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS

First Semiannual 2012 site groundwater monitoring showed contaminant concentrations exceeded the groundwater ESL for total volatile hydrocarbons as gasoline (TVHg) and total extractable hydrocarbons as diesel (TEHd) in six of the seven wells sampled (MW-2, MW-7, MW-8, MW-9, MW-11, and MW-12). The ESL for benzene was detected in 4 wells but only exceeded the ESL in MW-8, MW-9 and MW-11. The ESL for ethylbenzene was exceeded in MW-7 and MW-8; the ESL for total xylenes was exceeded in MW-8. MTBE was detected in only one well (MW-10) but below the ESL.

The maximum concentration of TVHg and TEHd were detected in MW-7, located in the downgradient area of the plume. 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 area of the current event contaminant plume 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.

While contaminant concentrations remain elevated, a general decrease in the total concentrations of both gasoline and diesel was observed compared to the same quarter last year (March 2010).

No contaminants were detected above their respective laboratory detection limits in either surface water sample location SW-2 or SW-3 during this March 2012 sampling event.

Table 3
Groundwater and Surface Water Samples – March 22, 2012
Analytical Results

Location	Dissolved Oxygen (mg/L)	Contaminant Concentrations						
		TEHd	TVHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
GROUNDWATER SAMPLES								
MW-2	22.57	**610**	**460**	<0.5	<0.5	<0.5	<0.5	<2.0
MW-7	0.16	**3,500**	**6,400**	<0.5	<0.5	**110**	5.6	<2.0
MW-8	0.94	**790**	**1,200**	**11**	<0.5	**99**	**25.7**	<2.0
MW-9	0.35	**940**	**1,100**	**9.0**	<0.5	25	1.6	<2.0
MW-10	2.21	92	80	0.81	<0.5	1.5	<0.5	3.4
MW-11	0.13	**1,200**	**1,300**	**8.7**	<0.5	29	<0.5	<2.0
MW-12	0.15	**240**	**410**	<0.5	<0.5	1.9	<0.5	<2.0
Groundwater ESLs [(a)]	*NLP*	*100 / 210*	*100 / 210*	*1.0 / 46*	*4.0 / 130*	*30 / 43*	*20 / 100*	*5.0 / 1,800*
REDWOOD CREEK SURFACE WATER SAMPLES								
SW-2	NA	<50	<50	<0.5	<0.5	<0.5	<0.5	<2.0
SW-3	NA	<50	<50	<0.5	<0.5	<0.5	<0.5	<2.0
Surface Water Screening Levels [(b)]	*NLP*	*100*	*100*	*1.0*	*40*	*30*	*20*	*5.0*

Notes:

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

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

NA = not analyzed
NLP = no level published

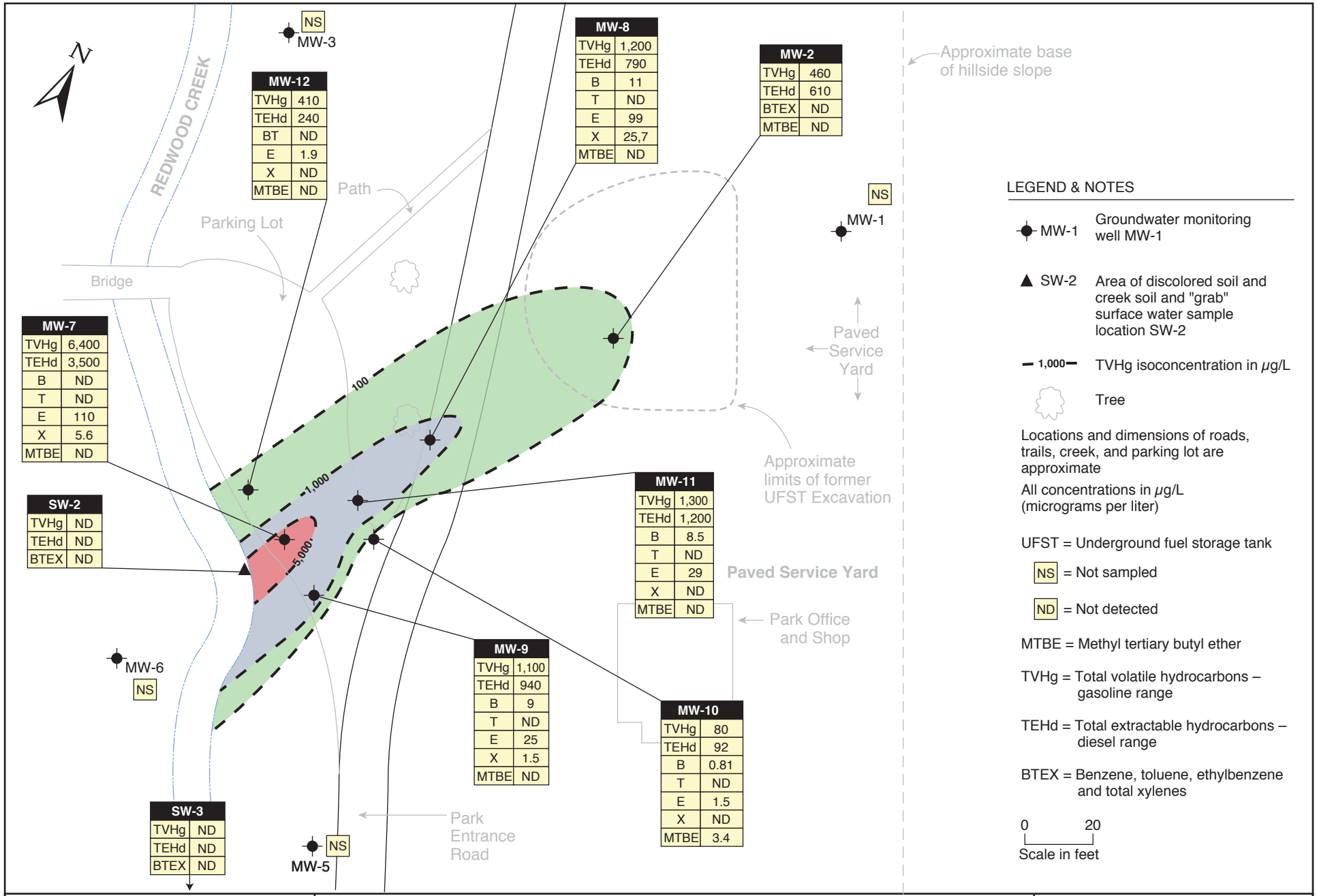
MTBE = methyl tertiary-butyl ether
TEHd = total extractable hydrocarbons - diesel range
TVHg = total volatile hydrocarbons - gasoline range

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

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

QUALITY CONTROL SAMPLE ANALYTICAL RESULTS

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



LEGEND & NOTES

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

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

All concentrations in µg/L (micrograms per liter)

UFST = Underground fuel storage tank

NS = Not sampled

ND = Not detected

MTBE = Methyl tertiary butyl ether

TVHg = Total volatile hydrocarbons – gasoline range

TEHd = Total extractable hydrocarbons – diesel range

BTEX = Benzene, toluene, ethylbenzene and total xylenes

0 20

Scale in feet

STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

ANALYTICAL RESULTS AND GASOLINE PLUME—MARCH 2012

Redwood Regional Park Service Yard, Oakland, CA

Figure 7

by: MJC | APRIL 2012

2010-02-18

6.0 SUMMARY, CONCLUSIONS AND PROPOSED ACTIONS

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

SUMMARY AND CONCLUSIONS

- Groundwater sampling has been conducted on an approximately quarterly basis since November 1994. A total of eleven site wells are available for monitoring; seven 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 TVHg, TEHd, benzene, ethylbenzene, and total xylenes in groundwater.
- Conversion of surface and groundwater monitoring frequency from quarterly to semiannual by ACEH at the request of Stellar Environmental on behalf of the Park District occurred in June 2011. Prior to June 2011, monitoring had been conducted on a quarterly basis since November 1994.
- On July 18, 2011, in concurrence with ACEH, the site bioventing system having accomplished its' design purpose, was discontinued.
- The primary environmental risk is discharge of contaminated groundwater to the adjacent Redwood Creek. A stream bioassessment (conducted between 1999 to 2000) 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 but generally only under low-creek flow conditions. No contaminants were detected above their respective laboratory detection limits in either surface water sample location SW-2 or SW-3 during this latest sampling event.
- 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) in siltstone bedrock. The saturated interval extends approximately 12 to 15 feet from top of bedrock through the capillary fringe. Groundwater elevations fluctuate seasonally, creating a capillary fringe that varies seasonally in thickness.

- The First Semiannual 2012 monitoring event detected TVHg and TEHd in all seven groundwater wells sampled with concentrations in excess of both the TVHg and TEHd groundwater ESLs in six of these seven wells (MW-2, MW-7, MW-8, MW-9, MW-11, and MW-12).
- The ESL for benzene was detected in 4 wells but only exceeded the ESL in monitoring wells MW-8, MW-9 and MW-11; the ESL for ethylbenzene was exceeded in MW-7 and MW-8; the ESL for total xylenes was exceeded in MW-8. MTBE was detected only in one well, MW-10 but below the ESL. Toluene was not detected this monitoring event.
- While contaminant concentrations remain elevated in this First 2012 Semiannual event, there was a decrease in all wells with the exception of a slight increase in TVHg and ethylbenzene in MW-7 during this event as compared to the September 2011 event.

PROPOSED ACTIONS

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

- Continue to monitor and sample the site wells and creek on a semiannual frequency.
- Discontinue monitoring the February 2010 ORC™ injection remedy effectiveness with the additional site chemical parameters to investigate whether microbial biodegradation activity is occurring preferentially in natural site constituents in competition with the target residual hydrocarbons. However, if another ORC™ remedy application is pursued, then a baseline monitoring should be conducted and subsequent monitoring events should include these additional chemical analyses.
- Continue to inform regulators of site progress and seek their concurrence with proposed actions.
- Continue to evaluate analytical results in the context of hydrochemical trends, groundwater contamination on Redwood Creek, and effectiveness of the corrective action to date.
- Continue to make required Electronic Data Format uploads to the State of California GeoTracker database, and upload an electronic copy of technical reports to the ACEH ftp system.

7.0 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. (Stellar Environmental), 2011a. Second Semiannual 2011 Groundwater Monitoring Report and Annual Summary Report, Redwood Regional Park Service Yard, Oakland, California. October 19.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2011b. First Quarter 2011 Groundwater Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. April 22.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2011c. Fourth Quarter 2010 Groundwater Monitoring and Annual Summary Report, Redwood Regional Park Service Yard, Oakland, California. January 28.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2010a. Third Quarter 2010 Groundwater Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. November 8.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2010b. Second Quarter 2010 Groundwater Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. July 12.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2010c. First Quarter 2010 Groundwater Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. April 20.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2009b. Remedial Action Workplan for Oxygen Releasing Compound ORC® Application to Source Area Contamination, Redwood Regional Park Service Yard, 7867 Redwood Road, Oakland, California. August 20.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

8.0 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 Stellar Environmental since September 1998. This report has been prepared in accordance with generally accepted methodologies and standards of practice. The Stellar Environmental personnel who performed this work are qualified to perform such investigations and have accurately reported the information available, but cannot attest to the validity of that information. No warranty, expressed or implied, is made as to the findings, conclusions, and recommendations included in the report.

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

APPENDIX A

Historical Groundwater Monitoring Well Water Level Data

HISTORICAL GROUNDWATER ELEVATIONS IN MONITORING WELLS

REDWOOD REGIONAL PARK SERVICE YARD

7867 REDWOOD ROAD, OAKLAND, CALIFORNIA

Well I.D.	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
TOC Elevation (a)	565.83	566.42	560.81	548.10	547.41	545.43	547.56	549.13	549.28	547.22	547.75	544.67
Date Monitored	Groundwater Elevations (feet above mean sea level)											
09/18/98	563.7	544.2	540.8	534.5	531.1	531.4						
04/06/99	565.2	546.9	542.3	535.6	532.3	532.9						
12/20/99	562.9	544.7	541.5	534.9	531.2	532.2						
09/28/00	562.8	542.7	538.3	532.2	530.9	532.0						
01/11/01	562.9	545.1	541.7	535.0	531.2	532.3	534.9	538.1				
04/13/01	562.1	545.7	541.7	535.1	531.5	532.4	535.3	539.8				
09/01/01	560.9	542.0	537.7	533.9	530.7	531.8	534.0	535.6				
12/17/01	562.2	545.2	542.2	534.8	531.4	532.4	534.8	538.4	534.6	535.7	535.2	
03/14/02	563.0	547.1	542.2	535.5	532.4	533.3	535.7	541.8	535.0	537.6	536.6	
06/18/02	562.1	544.7	541.1	534.6	531.2	532.2	534.8	537.9	534.7	535.6	535.3	
09/24/02	561.4	542.2	537.3	533.5	530.6	531.8	533.5	535.5	535.3	533.8	531.7	
12/18/02	562.4	545.0	542.0	534.8	531.5	532.5	534.6	537.1	536.5	535.2	532.8	
03/27/03	562.6	545.7	541.7	534.8	531.6	532.4	535.1	539.9	537.2	536.2	533.6	
06/19/03	562.3	544.9	541.5	534.8	531.3	532.3	534.9	538.2	536.9	535.7	533.2	
09/10/03	561.6	542.1	537.9	533.8	530.8	531.9	533.7	535.6	535.6	534.1	531.9	
12/10/03	562.4	542.7	537.6	533.7	530.9	531.9	533.7	535.2	535.5	533.8	531.7	
03/18/04	563.1	546.6	541.9	535.0	531.7	532.4	535.2	540.9	537.4	536.6	533.8	
06/17/04	562.1	544.3	540.7	534.3	531.0	532.1	534.6	537.4	536.5	535.1	532.7	
09/21/04	561.5	541.1	536.5	533.1	530.5	531.6	533.1	534.7	532.7	533.2	533.2	
12/14/04	562.2	545.3	541.7	534.7	531.4	532.2	534.6	540.4	536.7	535.5	532.9	
03/16/05	563.8	547.3	541.7	535.3	532.4	532.8	535.6	541.8	538.0	537.1	534.2	
06/15/05	562.9	545.9	541.6	535.0	531.7	532.5	535.0	540.0	535.0	536.1	535.6	
09/13/05	562.3	543.5	539.7	534.4	530.9	532.2	534.3	536.7	536.1	534.7	532.4	
12/15/05	562.2	544.3	541.4	(b)	531.0	532.2	534.5	537.3	534.1	534.7	534.9	535.1
03/30/06	565.8	548.6	542.7	(b)	533.9	534.4	536.2	542.3	536.4	537.3	537.6	535.7
06/20/06	563.6	545.4	541.6	(b)	531.5	532.5	534.9	538.6	534.6	536.2	535.5	535.0
09/29/06	561.9	542.8	539.0	(b)	530.7	532.1	535.1	536.1	533.7	534.6	534.7	534.7
12/14/06	562.9	544.2	541.5	(b)	531.1	532.3	534.7	536.7	534.0	534.8	535.2	535.0
03/21/07	562.5	545.2	541.7	(b)	531.4	532.4	534.9	539.3	534.6	535.6	535.6	535.1
06/20/07	561.5	543.5	540.8	(b)	531.0	532.4	534.6	537.1	531.1	535.2	535.3	534.9
9/14/2007	560.71	541.02	536.99	(b)	530.46	531.58	533.42	534.86	532.64	533.47	533.68	533.74
12/6/2007	560.62	541.22	536.85	(b)	530.68	531.48	533.21	535.08	532.62	533.3	533.61	533.64
3/14/2008	561.76	545.73	541.63	(b)	531.34	532.30	534.88	539.30	534.67	536.04	535.89	535.72
6/13/2008	560.92	543.61	540.6	(b)	530.83	532.02	534.42	536.86	533.81	534.84	535.16	534.67
9/18/2008	560.43	540.15	536.41	(b)	529.85	531.11	532.69	534.15	531.97	532.65	533.09	533.12
12/17/2008	561.11	540.88	536.77	(b)	530.68	531.67	533.26	534.04	532.35	532.94	533.29	533.66
3/16/2009	561.84	546.25	539.51	(b)	531.63	532.58	534.65	539.51	534.56	535.55	535.49	535.08
6/10/2009	561.05	545.02	541.38	(b)	531.02	532.08	534.45	537.94	534.08	535.40	535.18	534.96
9/25/2009	560.00	540.79	536.33	(b)	529.98	Dry	532.58	534.25	531.96	532.62	532.97	533.08
12/21/2009	560.93	543.49	541.22	(b)	530.96	532.06	534.03	536.17	533.46	534.13	534.57	534.69
3/29/2010	561.48	546.44	541.59	(b)	531.52	532.58	534.72	540.03	534.53	535.94	535.55	535.28
6/22/2010	561.17	545.62	541.40	(b)	531.26	532.41	534.63	538.90	534.37	535.62	535.27	535.21
9/28/2010	560.32	543.36	537.91	(b)	530.6	532.02	532.66	535.23	532.96	534.21	533.99	534.16
12/16/2010	561.33	545.52	541.51	(b)	531.11	532.31	534.52	537.21	534.00	534.38	535.10	535.15
3/23/2011	563.68	547.97	542.49	(b)	532.78	534.43	535.96	542.40	535.87	537.19	537.88	536.15
9/23/2011	561.03	543.54	539.52	(b)	530.81	532.31	534.34	536.41	533.59	534.67	534.85	534.86
3/22/2012	562.25	546.42	542.02	(b)	531.83	533.13	534.71	539.34	535.97	535.51	536.03	535.69

TOC = Top of well Casing

(a) TOC Elevations resurveyed on December 15, 2005 in accordance GeoTracker requirements.

(b) Well decomissioned and replaced by MW-12 in December 2005.

APPENDIX B

Groundwater Monitoring
Field Documentation

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 ~~2006-16~~ 2008-02

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

Project Manager Richard Makdisi
Telephone No. (510) 644-3123
Fax No. (510) 644-3859
Samplers: *(Signature)* [signature]

Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	Analysis Required: TVH-g (8015M)	BTEX/MTBE (8021)	TEH-D (8015)	Nitrate	Sulfate	BOD	COD	Remarks
MW-2		3/22/12	1340	W	Mixed		NP | HCl | H_2SO_4	N	8	X	X	X	X	X	X	X	
MW-7			1055					N	8	X	X	X	X	X	X	X	
MW-8			1214					N	8	X	X	X	X	X	X	X	
MW-9			1300					N	5	X	X	X					
MW-10			1046					N	5	X	X	X					
MW-11			1310					N	5	X	X	X					
MW-12			1222				H_2SO_4	N	8	X	X	X	X	X	X	X	
SW3			1330					N	5	X	X	X					
SW3			1320					N	5	X	X	X					

Relinquished by:	Date	Time	Received by:	Date	Time
Signature [signature]	3/22/12	1445	Signature [signature]	3/22/12	1445
Printed Peter Lowish (QTS)			Printed Micah Smith		
Company Stellar Environmental			Company C&T		

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

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

WELL GAUGING DATA

Project # 120382-PC1 Date 3/22/12 Client Stellar

Site RRPSY, Oakland

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	Notes
MW-1	0834	4					3.58	19.15		
MW-2	0830	4					20.00	37.40		
MW-3	0840	4					18.79	45.02		
MW-5	0846	4					15.98	27.01		
MW-6	0916	4					12.30	14.51		
MW-7	0856	2					12.85	25.32		
MW-8	0904	2					9.79	22.37		
MW-9	0859	2					13.31	30.28		
MW-10	0853	2					11.71	28.35		
MW-11	0908	2					11.72	28.70		
MW-12	0856	2					8.98	23.90		

WELLHEAD INSPECTION CHECKLIST

Date 3/22/12 Client stellar

Site Address Redwood Regional Park service Yard, Oakland

Job Number 120322-PC1 Technician PC

Well ID	Well Inspected - No Corrective Action Required	Water Bailed From Wellbox	Wellbox Components Cleaned	Cap Replaced	Debris Removed From Wellbox	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)
MW-1							X	
MW-2	X							
MW-3	X							
MW-5	X							
MW-6	X							
MW-7	X							
MW-8		X					X	
MW-9	X							
MW-10							X	
MW-11	X							
MW-12	X							

NOTES: MW-8 3/3 bolts missing MW-1 standpipe lid
MW-10 2/2 tabs stripped

TEST EQUIPMENT CALIBRATION LOG

PROJECT NAME RRPSY, Oakland - Stellar				PROJECT NUMBER 120322-PC1			
EQUIPMENT NAME	EQUIPMENT NUMBER	DATE/TIME OF TEST	STANDARDS USED	EQUIPMENT READING	CALIBRATED TO: OR WITHIN 10%:	TEMP. °C	INITIALS
Myron L	6210211	3/22/12 0615	4/7/10 pH	4.01/7.0/10.0	↓	11.0	E
			3900 µS	3896		11.2	
			2505 mV @ 10C	248.6		10.6	
YSI 550A		0620	DO → 100%	100.8		12.1	

WELL MONITORING DATA SHEET

Project #: 120322-8C1	Client: Stellar
Sampler: PC	Date: 3/22/12
Well I.D.: MW-2	Well Diameter: 2 3 (4) 6 8 ____
Total Well Depth (TD): 37.40	Depth to Water (DTW): 20.00
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]: 23.48	

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: _____

1 Case Volume	Specified Volumes	Calculated Volume
11.3 (Gals.) X	3 =	33.9 Gals.

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

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
0930	13.9	6.09	942.3	7,000	11.3	
0931		Well dewatered				
1340	14.4	6.15	950.1	61	—	

Did well dewater? (Yes) No Gallons actually evacuated: 16

Sampling Date: 3/22/12 Sampling Time: 1340 Depth to Water: 29.08 (2 Hr.)

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

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

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

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

D.O. (if req'd):	Pre-purge:	mg/L	(Post-purge:)	2.57	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	(Post-purge:)	94	mV

WELL MONITORING DATA SHEET

Project #: 120322-PC1	Client: Stellar
Sampler: PC	Date: 3/22/12
Well I.D.: MW-7	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth (TD): 25.32	Depth to Water (DTW): 12.85
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]: 15.34	

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

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

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

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

Time	Temp (°F or (°C))	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1016	11.4	6.98	683.5	263	2	
1023	11.7	6.78	689.7	181	4	
1029	11.9	6.84	690.8	123	6	

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

Sampling Date: 3/22/12 Sampling Time: 1035 Depth to Water: 13.20

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:)	0.16 mg/L
O.R.P. (if req'd):	Pre-purge:	mV	(Post-purge:)	-53 mV

WELL MONITORING DATA SHEET

Project #: 120322-PC1	Client: Stellar
Sampler: PC	Date: 3/22/12
Well I.D.: MW-	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth (TD): 22.37	Depth to Water (DTW): 9.79
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]: 12.31	

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

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

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

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

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1155	12.0	7.30	791.5	>1000	2	
1202	12.4	6.93	790.0	371	4	
1208	12.6	6.89	783.2	157	6	

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

Sampling Date: 3/22/12 Sampling Time: 1214 Depth to Water: 12.20

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:)	0.94 mg/L
O.R.P. (if req'd):	Pre-purge:	mV	(Post-purge:)	-78 mV

WELL MONITORING DATA SHEET

Project #: 120322-9C1	Client: Stellar
Sampler: PC	Date: 3/22/12
Well I.D.: MW-9	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 30.28	Depth to Water (DTW): 13.31
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 16.70	

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

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

2.7 (Gals.) X	3	=	8.1 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
1126	11.7	7.15	790.9	238	2.7	
1134	12.2	6.90	803.6	70	5.4	
1142	12.2	7.13	796.7	79	8.1	

Did well dewater? Yes (No) Gallons actually evacuated: 8.1

Sampling Date: 3/22/12 Sampling Time: 1300 Depth to Water: 14.71

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:)	0.35 mg/L
O.R.P. (if req'd):	Pre-purge:	mV	(Post-purge:)	-64 mV

WELL MONITORING DATA SHEET

Project #: 120322-9C1	Client: Stellar
Sampler: PC	Date: 3/22/12
Well I.D.: MW-10	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 28.35	Depth to Water (DTW): 11.71
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]: 15.04	

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

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

2.7 (Gals.) X	3	=	8.1 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
0951	12.8	7.62	732.6	311	2.7	
1000	12.8	7.51	746.1	104	5.4	
1008	12.8	7.55	742.0	221	8.1	

Did well dewater? Yes (No) Gallons actually evacuated: 8.1

Sampling Date: 3/22/12 Sampling Time: 1046 Depth to Water: 14.88

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:)	2.21 mg/L
O.R.P. (if req'd):	Pre-purge:	mV	(Post-purge:)	-58 mV

WELL MONITORING DATA SHEET

Project #: 120322-9C1	Client: Stellar
Sampler: PC	Date: 3/22/12
Well I.D.: MW-11	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 28.70	Depth to Water (DTW): 11.72
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]: 15.12	

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

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

2.7 (Gals.) X 3 = 8.1 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
1234	11.9	7.43	698.1	>1000	2.7	
1240	12.2	7.09	731.4	>1000	5.4	
1250	12.2	6.89	729.5	>1000	8.1	

Did well dewater? Yes (No) Gallons actually evacuated: 8.1

Sampling Date: 3/22/12 Sampling Time: 1310 Depth to Water: 14.87

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:)	0.13 mg/L
O.R.P. (if req'd):	Pre-purge:	mV	(Post-purge:)	-70 mV

WELL MONITORING DATA SHEET

Project #: 120322-9C1	Client: Stellar
Sampler: PC	Date: 3/22/12
Well I.D.: MW-12	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth (TD): 23.90	Depth to Water (DTW): 8.98
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 11.96	

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

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

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

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

Time	Temp (°F or (°C))	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1058	11.1	7.26	672.4	>1000	2.4	
1106	11.6	6.89	673.1	>1000	4.8	
1114	11.5	6.87	670.7	>1000	7.2	

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

Sampling Date: 3/22/12 Sampling Time: 1222 Depth to Water: 9.32

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:)	0.15	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	(Post-purge:)	-30	mV

WELL MONITORING DATA SHEET

Project #: 120322-RC1	Client: Stellar
Sampler: RC	Date: 3/22/12
Well I.D.: SW2	Well Diameter: 2 3 4 6 8 —
Total Well Depth (TD):	Depth to Water (DTW): creek sample
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade —	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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

Sampling Method: Bailer, Disposable Bailer, Extraction Port, Dedicated Tubing, Other: surface point

_____(Gals.) X _____ = _____ Gals.
1 Case Volume | Specified Volumes | Calculated Volume

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1330	10.6	7.30	512.2	15		

Did well dewater? Yes No Gallons actually evacuated:

Sampling Date: 3/22/12 Sampling Time: 1330 Depth to Water:

Sample I.D.: SW2 Laboratory: Kiff CalScience Other CAT

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

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

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

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	7.60 in mg	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	-41	mV

WELL MONITORING DATA SHEET

Project #: 120322-PC1	Client: Stellar
Sampler: PC	Date: 3/22/12
Well I.D.: SW3	Well Diameter: 2 3 4 6 8 —
Total Well Depth (TD): —	Depth to Water (DTW): —
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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

Sampling Method: Bailer / Disposable Bailer / Extraction Port / Dedicated Tubing / Other: surface water

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

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1320	10.5	7.33	4651	11		

Did well dewater? Yes No Gallons actually evacuated:

Sampling Date: 3/22/12 Sampling Time: 1320 Depth to Water:

Sample I.D.: SW3 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:	7.73 in cup mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	1 mV

APPENDIX C

Analytical Laboratory Report and Chain-of-Custody Record

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 ~~2006-16~~ 2008-02

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

Project Manager Richard Makdisi
Telephone No. (510) 644-3123
Fax No. (510) 644-3859
Samplers: *(Signature)* [signature]

Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	Analysis Required: TVH-g (8015M)	BTEX/MTBE (8021)	TEH-D (8015)	Nitrate	Sulfate	BOD	COD	Remarks
MW-2		3/22/12	1340	W	Mixed		NP | HCl | H_2SO_4	N	8	X	X	X	X	X	X	X	
MW-7			1055					N	8	X	X	X	X	X	X	X	
MW-8			1214					N	8	X	X	X	X	X	X	X	
MW-9			1300					N	5	X	X	X					
MW-10			1046					N	5	X	X	X					
MW-11			1310					N	5	X	X	X					
MW-12			1222				H_2SO_4	N	8	X	X	X	X	X	X	X	
SW3			1330					N	5	X	X	X					
SW3			1320					N	5	X	X	X					

Relinquished by:	Date	Time	Received by:	Date	Time
Signature [signature]	3/22/12	1445	Signature [signature]	3/22/12	1445
Printed Peter Lowish (QTS)			Printed Micah Smith		
Company Stellar Environmental			Company C&T		

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

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

WELL GAUGING DATA

Project # 120382-PC1 Date 3/22/12 Client Stellar

Site RRPSY, Oakland

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	Notes
MW-1	0834	4					3.58	19.15		
MW-2	0830	4					20.00	37.40		
MW-3	0840	4					18.79	45.02		
MW-5	0846	4					15.98	27.01		
MW-6	0916	4					12.30	14.51		
MW-7	0856	2					12.85	25.32		
MW-8	0904	2					9.79	22.37		
MW-9	0859	2					13.31	30.28		
MW-10	0853	2					11.71	28.35		
MW-11	0908	2					11.72	28.70		
MW-12	0856	2					8.98	23.90		

WELLHEAD INSPECTION CHECKLIST

Date 3/22/12 Client stellar

Site Address Redwood Regional Park service Yard, Oakland

Job Number 120322-PC1 Technician PC

Well ID	Well Inspected - No Corrective Action Required	Water Bailed From Wellbox	Wellbox Components Cleaned	Cap Replaced	Debris Removed From Wellbox	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)
MW-1							X	
MW-2	X							
MW-3	X							
MW-5	X							
MW-6	X							
MW-7	X							
MW-8		X					X	
MW-9	X							
MW-10							X	
MW-11	X							
MW-12	X							

NOTES: MW-8 3/3 bolts missing MW-1 standpipe lid
MW-10 2/2 tabs stripped

TEST EQUIPMENT CALIBRATION LOG

PROJECT NAME RRPSY, Oakland - Stellar				PROJECT NUMBER 120322-PC1			
EQUIPMENT NAME	EQUIPMENT NUMBER	DATE/TIME OF TEST	STANDARDS USED	EQUIPMENT READING	CALIBRATED TO: OR WITHIN 10%:	TEMP. °C	INITIALS
Myron L	6210211	3/22/12 0615	4/7/10 pH	4.01/7.0/10.0	↓	11.0	E
			3900 µS	3896		11.2	
			2505 mV @ 10C	248.6		10.6	
YSI 550A		0620	DO → 100%	100.8		12.1	

WELL MONITORING DATA SHEET

Project #: 120322-8C1	Client: Stellar
Sampler: PC	Date: 3/22/12
Well I.D.: MW-2	Well Diameter: 2 3 (4) 6 8 ____
Total Well Depth (TD): 37.40	Depth to Water (DTW): 20.00
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]: 23.48	

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: _____

1 Case Volume	Specified Volumes	Calculated Volume
11.3 (Gals.) X	3 =	33.9 Gals.

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

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
0930	13.9	6.09	942.3	7,000	11.3	
0931		Well dewatered				
1340	14.4	6.15	950.1	61	—	

Did well dewater? (Yes) No Gallons actually evacuated: 16

Sampling Date: 3/22/12 Sampling Time: 1340 Depth to Water: 29.08 (2 Hr.)

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

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

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

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

D.O. (if req'd):	Pre-purge:	mg/L	(Post-purge:)	2.57	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	(Post-purge:)	94	mV

WELL MONITORING DATA SHEET

Project #: 120322-PC1	Client: Stellar
Sampler: PC	Date: 3/22/12
Well I.D.: MW-7	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth (TD): 25.32	Depth to Water (DTW): 12.85
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]: 15.34	

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

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

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

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

Time	Temp (°F or (°C))	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1016	11.4	6.98	683.5	263	2	
1023	11.7	6.78	689.7	181	4	
1029	11.9	6.84	690.8	123	6	

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

Sampling Date: 3/22/12 Sampling Time: 1035 Depth to Water: 13.20

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:)	0.16 mg/L
O.R.P. (if req'd):	Pre-purge:	mV	(Post-purge:)	-53 mV

WELL MONITORING DATA SHEET

Project #: 120322-PC1	Client: Stellar
Sampler: PC	Date: 3/22/12
Well I.D.: MW-	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth (TD): 22.37	Depth to Water (DTW): 9.79
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]: 12.31	

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

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

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

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

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1155	12.0	7.30	791.5	>1000	2	
1202	12.4	6.93	790.0	371	4	
1208	12.6	6.89	783.2	157	6	

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

Sampling Date: 3/22/12 Sampling Time: 1214 Depth to Water: 12.20

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:)	0.94 mg/L
O.R.P. (if req'd):	Pre-purge:	mV	(Post-purge:)	-78 mV

WELL MONITORING DATA SHEET

Project #: 120322-9C1	Client: Stellar
Sampler: PC	Date: 3/22/12
Well I.D.: MW-9	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 30.28	Depth to Water (DTW): 13.31
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 16.70	

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

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

2.7 (Gals.) X	3	=	8.1 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
1126	11.7	7.15	790.9	238	2.7	
1134	12.2	6.90	803.6	70	5.4	
1142	12.2	7.13	796.7	79	8.1	

Did well dewater? Yes (No) Gallons actually evacuated: 8.1

Sampling Date: 3/22/12 Sampling Time: 1300 Depth to Water: 14.71

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:)	0.35 mg/L
O.R.P. (if req'd):	Pre-purge:	mV	(Post-purge:)	-64 mV

WELL MONITORING DATA SHEET

Project #: 120322-9C1	Client: Stellar
Sampler: PC	Date: 3/22/12
Well I.D.: MW-10	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 28.35	Depth to Water (DTW): 11.71
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]: 15.04	

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

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

2.7 (Gals.) X	3	=	8.1 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
0951	12.8	7.62	732.6	311	2.7	
1000	12.8	7.51	746.1	104	5.4	
1008	12.8	7.55	742.0	221	8.1	

Did well dewater? Yes (No) Gallons actually evacuated: 8.1

Sampling Date: 3/22/12 Sampling Time: 1046 Depth to Water: 14.88

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:)	2.21 mg/L
O.R.P. (if req'd):	Pre-purge:	mV	(Post-purge:)	-58 mV

WELL MONITORING DATA SHEET

Project #: 120322-9C1	Client: Stellar
Sampler: PC	Date: 3/22/12
Well I.D.: MW-11	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 28.70	Depth to Water (DTW): 11.72
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]: 15.12	

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

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

2.7 (Gals.) X 3 = 8.1 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
1234	11.9	7.43	698.1	>1000	2.7	
1240	12.2	7.09	731.4	>1000	5.4	
1250	12.2	6.89	729.5	>1000	8.1	

Did well dewater? Yes (No) Gallons actually evacuated: 8.1

Sampling Date: 3/22/12 Sampling Time: 1310 Depth to Water: 14.87

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:)	0.13 mg/L
O.R.P. (if req'd):	Pre-purge:	mV	(Post-purge:)	-70 mV

WELL MONITORING DATA SHEET

Project #: 120322-9C1	Client: Stellar
Sampler: PC	Date: 3/22/12
Well I.D.: MW-12	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth (TD): 23.90	Depth to Water (DTW): 8.98
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 11.96	

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

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

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

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

Time	Temp (°F or (°C))	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1058	11.1	7.26	672.4	>1000	2.4	
1106	11.6	6.89	673.1	>1000	4.8	
1114	11.5	6.87	670.7	>1000	7.2	

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

Sampling Date: 3/22/12 Sampling Time: 1222 Depth to Water: 9.32

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:)	0.15	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	(Post-purge:)	-30	mV

WELL MONITORING DATA SHEET

Project #: 120322-RC1	Client: Stellar
Sampler: RC	Date: 3/22/12
Well I.D.: SW2	Well Diameter: 2 3 4 6 8 —
Total Well Depth (TD):	Depth to Water (DTW): creek sample
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade —	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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

Sampling Method: Bailer, Disposable Bailer, Extraction Port, Dedicated Tubing, Other: surface point

_____(Gals.) X _____ = _____ Gals.
1 Case Volume | Specified Volumes | Calculated Volume

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1330	10.6	7.30	512.2	15		

Did well dewater? Yes No Gallons actually evacuated:

Sampling Date: 3/22/12 Sampling Time: 1330 Depth to Water:

Sample I.D.: SW2 Laboratory: Kiff CalScience Other CAT

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

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

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

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	7.60 in mg	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	-41	mV

WELL MONITORING DATA SHEET

Project #: 120322-PC1	Client: Stellar
Sampler: PC	Date: 3/22/12
Well I.D.: SW3	Well Diameter: 2 3 4 6 8 —
Total Well Depth (TD): —	Depth to Water (DTW): —
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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

Sampling Method: Bailer / Disposable Bailer / Extraction Port / Dedicated Tubing / Other: surface water

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

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1320	10.5	7.33	4651	11		

Did well dewater? Yes No Gallons actually evacuated:

Sampling Date: 3/22/12 Sampling Time: 1320 Depth to Water:

Sample I.D.: SW3 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:	7.73 in cup mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	1 mV

APPENDIX D

Historical Groundwater and Surface Water Analytical Results

HISTORICAL GROUNDWATER MONITORING WELLS ANALYTICAL RESULTS

REDWOOD REGIONAL PARK SERVICE YARD, OAKLAND, CALIFORNIA

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

Well MW-2									
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**
1	Nov-94	**66**	*< 50*	**3.4**	*< 0.5*	*< 0.5*	**0.9**	**4.3**	*NA*
2	Feb-95	**89**	*< 50*	**18**	**2.4**	**1.7**	**7.5**	**30**	*NA*
3	May-95	*< 50*	*< 50*	**3.9**	*< 0.5*	**1.6**	**2.5**	**8.0**	*NA*
4	Aug-95	*< 50*	*< 50*	**5.7**	*< 0.5*	*< 0.5*	*< 0.5*	**5.7**	*NA*
5	May-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	**—**	*NA*
6	Aug-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	**—**	*NA*
7	Dec-96	*< 50*	*< 50*	**6.3**	*< 0.5*	**1.6**	*< 0.5*	**7.9**	*NA*
8	Feb-97	*< 50*	*< 50*	**0.69**	*< 0.5*	**0.55**	*< 0.5*	**1.2**	*NA*
9	May-97	**67**	*< 50*	**8.9**	*< 0.5*	**5.1**	*< 1.0*	**14**	*NA*
10	Aug-97	*< 50*	*< 50*	**4.5**	*< 0.5*	**1.1**	*< 0.5*	**5.6**	*NA*
11	Dec-97	**61**	*< 50*	**21**	*< 0.5*	**6.5**	**3.9**	**31**	*NA*
12	Feb-98	**2,000**	**200**	**270**	**92**	**150**	**600**	**1,112**	*NA*
13	Sep-98	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	**—**	**7.0**
14	Apr-99	**82**	**710**	**4.2**	*< 0.5*	**3.4**	**4.0**	**12**	**7.5**
15	Dec-99	**57**	*< 50*	**20**	**0.6**	**5.9**	*<0.5*	**27**	**4.5**
16	Sep-00	*< 50*	*< 50*	**0.72**	*< 0.5*	*< 0.5*	*< 0.5*	**0.7**	**7.9**
17	Jan-01	**51**	*< 50*	**8.3**	*< 0.5*	**1.5**	*< 0.5*	**9.8**	**8.0**
18	Apr-01	**110**	*< 50*	**10**	*< 0.5*	**11**	**6.4**	**27**	**10**
19	Aug-01	**260**	**120**	**30**	**6.7**	**1.6**	**6.4**	**45**	**27**
20	Dec-01	**74**	**69**	**14**	**0.8**	**3.7**	**3.5**	**22**	**6.6**
21	Mar-02	*< 50*	*< 50*	**2.3**	**0.51**	**1.9**	**1.3**	**8.3**	**8.2**
22	Jun-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	**—**	**7.7**
23	Sep-02	**98**	*< 50*	**5.0**	*< 0.5*	*< 0.5*	*< 0.5*	**—**	**13**
24	Dec-02	*< 50*	*< 50*	**4.3**	*< 0.5*	*< 0.5*	*< 0.5*	**—**	*< 2.0*
25	Mar-03	**130**	**82**	**39**	*< 0.5*	**20**	**4.1**	**63**	**16**
26	Jun-03	*< 50*	*< 50*	**1.9**	*< 0.5*	*< 0.5*	*< 0.5*	**1.9**	**8.7**
27	Sep-03	**120**	*< 50*	**8.6**	**0.51**	**0.53**	*< 0.5*	**9.6**	**23**
28	Dec-03	**282**	*<100*	**4.3**	**1.6**	**1.3**	**1.2**	**8.4**	**9.4**
29	Mar-04	**374**	*<100*	**81**	**1.2**	**36**	**7.3**	**126**	**18**
30	Jun-04	*< 50*	*< 50*	**0.75**	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	**15**
31	Sep-04	**200**	*< 50*	**23**	*< 0.5*	*< 0.5*	**0.70**	**24**	**16**
32	Dec-04	**80**	*< 50*	**14**	*< 0.5*	*2.9*	**0.72**	**18**	**20**
33	Mar-05	**190**	**68**	**27**	*<0.5*	**14**	**11**	**52**	**26**
34	Jun-05	**68**	*< 50*	**7.1**	*< 0.5*	**6.9**	**1.8**	**16**	**24**
35	Sep-05	*< 50*	*< 50*	**2.5**	*< 0.5*	*< 0.5*	*< 1.0*	**2.5**	**23**
36	Dec-05	*< 50*	*< 50*	**3.9**	*< 0.5*	*< 0.5*	*< 1.0*	**3.9**	**23**
37	Mar-06	**1300**	**300**	**77**	**4.4**	**91**	**250**	**422**	**18**
38	Jun-06	*< 50*	**60**	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	**—**	**17**
39	Sep-06	**270**	**52**	**31**	*< 0.5*	**15**	**6.69**	**53**	**17**
40	Dec-06	*< 50*	*< 50*	**2.1**	*< 0.5*	*< 0.5*	*< 0.5*	**2**	**16**
41	Mar-07	**59**	*< 50*	**4**	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	**14**
42	Jun-07	*<50*	*<50*	**3.5**	*<0.5*	*<0.5*	*<0.5*	**3.5**	**8**
43	Sep-07	**2,600**	**260**	**160**	**44**	**86**	**431**	**721**	**15**
44	Dec-07	**16,000**	**5,800**	**23**	**91**	**230**	**2,420**	**2764**	**16**
44a	Jan-08	**480**	**200**	**1.1**	**3.2**	**5.5**	**68**	**77.8**	**11**
45	Mar-08	**20,000**	**24,000**	**21**	**39**	**300**	**2,620**	**2980**	**13**
45a	Apr-08	**800**	**640**	**2.6**	**2.1**	**13**	**155**	**172.7**	**13**
46a	May-08	**7,100**	**3,900**	**14**	**8.8**	**140**	**710**	**872.8**	**11**
46	Jun-08	**5,700**	**1,000**	**9.4**	**5.2**	**80**	**550**	**644.6**	**11**
46a	Jul-08	**6,400**	**2,200**	**13**	**5.1**	**140**	**570**	**728.1**	**2.9**
46b	Jul-08	**390**	**55**	**1.3**	**0.77**	**4.6**	**44.4**	**51.07**	**9**
46c	Aug-08	**28,000**	**7,100**	**12**	**19**	**260**	**2,740**	**3031**	*<20*
46d	Aug-08	**8,700**	**2,700**	**5.7**	**7.4**	**130**	**900.0**	**1043.1**	**3.5**
47	Sep-08	**40,000**	**9,100**	**1.6**	*<0.5*	**110**	**910.0**	**1021.6**	**9.5**
48	Dec-08	**9,200**	**2,200**	**0.52**	*<0.5*	*<0.5*	**201.0**	**201.52**	**12**
49	Mar-09	**3,100**	**37,000**	**1.1**	**1.4**	**7.9**	**35.0**	**45.4**	**14**
50	May-09	**5,000**	**15,000**	**1.5**	*<0.5*	**9.8**	**39.0**	**50**	**13**
51	Jun-09	**2,400**	**8,000**	**5.4**	*<0.5*	**11**	**20.2**	**36.6**	**13**
52	Aug-09	**1,900**	**3,100**	**1.6**	**1.8**	**11**	**23.8**	**38.2**	**7.1**
53	Sep-09	**1,400**	**1,800**	*<0.5*	*<0.5*	*<0.5*	**4.2**	**4.24**	**12**
54	Dec-09	**590**	**1,800**	*<0.5*	*<0.5*	**1.2**	**1.2**	**2.4**	**3.6**
55	Mar-10	**1,900**	**3,200**	*<0.5*	*<0.5*	*<0.5*	**2.2**	**2.2**	**2.2**
56	Mar-10	**2,000**	**4,300**	*<0.5*	*<0.5*	*<0.5*	**3.5**	**3.45**	*<2.0*
57	Jun-10	**1,300**	**2,400**	*<0.5*	*<0.5*	*<0.5*	**1.7**	**FALSE**	*<2.0*
58	Sep-10	**910**	*<50*	*<0.5*	*<0.5*	*<0.5*	**1.5**	**1.45**	*<2.0*
59	Dec-10	**910**	**1,600**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	**2.6**
60	Mar-11	**860**	**1,100**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	**0**	**3.1**
61	Sep-11	**780**	**810**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	**0**	*<2.0*
62	Mar-12	**460**	**610**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*

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

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

Well MW-7									
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**
1	Jan-01	**13,000**	**3,100**	**95**	**4**	**500**	**289**	**888**	**95**
2	Apr-01	**13,000**	**3,900**	**140**	*< 0.5*	**530**	**278**	**948**	**52**
3	Aug-01	**12,000**	**5,000**	**55**	**25**	**440**	**198**	**718**	**19**
4	Dec-01	**9,100**	**4,600**	**89**	*< 2.5*	**460**	**228**	**777**	*< 10*
5	Mar-02	**8,700**	**3,900**	**220**	**6.2**	**450**	**191**	**867**	**200**
6	Jun-02	**9,300**	**3,500**	**210**	**6.3**	**380**	**155**	**751**	**18**
7	Sep-02	**9,600**	**3,900**	**180**	*< 0.5*	**380**	**160**	**720**	*< 2.0*
8	Dec-02	**9,600**	**3,700**	**110**	*< 0.5*	**400**	**189**	**699**	*< 2.0*
9	Mar-03	**10,000**	**3,600**	**210**	**12**	**360**	**143**	**725**	**45**
10	Jun-03	**9,300**	**4,200**	**190**	*< 10*	**250**	**130**	**570**	**200**
11	Sep-03	**10,000**	**3,300**	**150**	**11**	**300**	**136**	**597**	*< 2.0*
12	Dec-03	**9,140**	**1,100**	**62**	**45**	**295**	**184**	**586**	**89**
13	Mar-04	**8,170**	**600**	**104**	**41**	**306**	**129**	**580**	**84**
14	Jun-04	**9,200**	**2,700**	**150**	*< 0.5*	**290**	**91**	**531**	*< 2.0*
15	Sep-04	**9,700**	**3,400**	**98**	*< 0.5*	**300**	**125**	**523**	*< 2.0*
16	Dec-04	**8200**	**4,000**	**95**	*< 0.5*	**290**	**124**	**509**	*< 2.0*
17	Mar-05	**10,000**	**4,300**	**150**	*<0.5*	**370**	**71**	**591**	*<2.0*
18	Jun-05	**10,000**	**3,300**	**210**	*<1.0*	**410**	**56**	**676**	*<4.0*
19	Sep-05	**7,600**	**2,700**	**110**	*<1.0*	**310**	**54**	**474**	*<4.0*
20	Dec-05	**2,900**	**3,300**	**31**	*<1.0*	**140**	**41**	**212**	*<4.0*
21	Mar-06	**6,800**	**3,000**	**110**	*< 1.0*	**280**	**42**	**432**	**110**
22	Jun-06	**6,900**	**3,600**	**63**	*< 2.5*	**290**	**43**	**396**	*< 10*
23	Sep-06	**7,900**	**3,600**	**64**	*< 0.5*	**260**	**58**	**382**	49
24	Dec-06	**7,300**	**2,400**	**50**	*< 0.5*	**220**	**42**	**312**	*< 2.0*
25	Mar-07	**6,200**	**2,900**	**34**	*< 0.5*	**190**	**15**	**239**	*< 2.0*
26	Jun-07	**6,800**	**3,000**	**30**	*<1.0*	**160**	**27**	**217**	*<4.0*
27	Sep-07	**6,400**	**3,000**	*<0.5*	*<0.5*	**170**	**43**	**213**	*<2.0*
28	Dec-07	**4,800**	**2,800**	*<0.5*	*<0.5*	**100**	**26.5**	**126.5**	*2.7*
30	Mar-08	**5,400**	**5,900**	**21**	*<0.5*	**150**	**15**	**186**	**51**
31	Jun-08	**4,800**	**3,500**	**55**	*<0.5*	**140**	**7.0**	**202**	*<2.0*
32	Sep-08	**6,400**	**2,800**	**22**	*<0.5*	**100**	**9.3**	**131**	*<2.0*
33	Dec-08	**3,500**	**3,600**	**5**	*<0.5*	**100**	**9.1**	**114**	*<2.0*
34	Mar-09	**5,100**	**6,700**	**19**	*<0.5*	**140**	**12.3**	**171**	**51**
35	Jun-09	**4,600**	**5,400**	**40**	*< 0.5*	**140**	**5.1**	**185**	**260**
36	Sep-09	**4,400**	**4,700**	*<0.5*	*<0.5*	**96**	**5.6**	**102**	**3.5**
37	Dec-09	**4,900**	**4,500**	*< 0.5*	*< 0.5*	**90**	**2.9**	**93**	**57.0**
38	Mar-10	**5,300**	**4,300**	**17**	*<0.5*	**110**	**2.6**	**130**	**16.0**
39	Mar-10	**2,600**	**6,100**	**11**	*<0.5*	**76**	**4.5**	**92**	*<2.0*
40	Jun-10	**5,800**	**5,000**	**20**	*<0.5*	**140**	**9.9**	**170**	*<2.0*
41	Sep-10	**6,300**	**4,100**	*<0.5*	*<0.5*	**93**	**6.0**	**99**	**69.0**
42	Dec-10	**5,400**	**3,500**	*<0.5*	*<0.5*	**99**	**9.2**	**108**	**87.0**
43	Mar-11	**5,500**	**3,400**	**11**	*<0.5*	**94**	**8.5**	**114**	*<2.0*
44	Sep-11	**5,800**	**3,300**	*<0.5*	*<0.5*	**97**	**3.1**	**100**	*<2.0*
45	Mar-12	**6,400**	**3,500**	*<0.5*	*<0.5*	**110**	**5.6**	**116**	*<2.0*

Well MW-8									
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**
1	Jan-01	**14,000**	**1,800**	**430**	**17**	**360**	**1230**	**2,037**	**96**
2	Apr-01	**11,000**	**3,200**	**320**	**13**	**560**	**1,163**	**2,056**	**42**
3	Aug-01	**9,600**	**3,200**	**130**	**14**	**470**	**463**	**1,077**	**14**
4	Dec-01	**3,500**	**950**	**69**	**2.4**	**310**	**431**	**812**	*< 4.0*
5	Mar-02	**14,000**	**3,800**	**650**	**17**	**1,200**	**1,510**	**3,377**	**240**
6	Jun-02	**2,900**	**1,100**	**70**	**2.0**	**170**	**148**	**390**	**19**
7	Sep-02	**1,000**	**420**	**22**	*< 0.5*	**64**	**50**	**136**	*< 2.0*
8	Dec-02	**3,300**	**290**	**67**	*< 0.5*	**190**	**203**	**460**	*< 2.0*
9	Mar-03	**13,000**	**3,500**	**610**	**12**	**1,100**	**958**	**2,680**	*< 10*
10	Jun-03	**7,900**	**2,200**	**370**	**7.4**	**620**	**562**	**1,559**	*< 4.0*
11	Sep-03	**3,600**	**400**	**120**	**3.3**	**300**	**221**	**644**	*< 2.0*
12	Dec-03	**485**	**100**	**19**	**1.5**	**26**	**36**	**83**	*< 5.0*
13	Mar-04	**16,000**	**900**	**592**	**24**	**1,060**	**1,870**	**3,546**	**90**
14	Jun-04	**5,900**	**990**	**260**	**9.9**	**460**	**390**	**1,120**	*< 10*
15	Sep-04	**2,000**	**360**	**100**	*< 2.5*	**180**	**102**	**382**	*< 10*
16	Dec-04	**15,000**	**4,000**	**840**	**21**	**1,200**	**1,520**	**3,581**	*< 10*
17	Mar-05	**24,000**	**7,100**	**840**	**51**	**1,800**	**2,410**	**5,101**	*<10*
18	Jun-05	**33,000**	**5,700**	**930**	**39**	**2,500**	**3,860**	**7,329**	*<20*
19	Sep-05	**5,600**	**1,200**	**270**	**6.6**	**400**	**390**	**1,067**	*<20*
20	Dec-05	**3,700**	**1,300**	**110**	*< 5.0*	**320**	**356**	**786**	*<20*
21	Mar-06	**22,000**	**4,300**	**550**	**30**	**1,800**	**2,380**	**4,760**	*<20*
22	Jun-06	**19,000**	**5,000**	**500**	**28**	**1,800**	**1,897**	**4,225**	*<20*
23	Sep-06	**9,000**	**820**	**170**	**7.7**	**730**	**539**	**1,447**	*<10*
24	Dec-06	**4,400**	**800**	**75**	**4.2**	**320**	**246**	**645**	*< 2.0*
25	Mar-07	**15,000**	**4,500**	**340**	**19**	**1,300**	**1,275**	**2,934**	*< 20*
26	Jun-07	**10,000**	**3,500**	**220**	**11**	**670**	**675**	**1,576**	*<4.0*
27	Sep-07	**9,400**	**3,400**	**200**	**6.9**	**1,000**	**773**	**1,980**	*<8.0*
28	Dec-07	**1,200**	**500**	**15**	**0.88**	**95**	**57.7**	**168.58**	*<2.0*
30	Mar-08	**11,000**	**13,000**	**150**	**13**	**1,100**	**950.0**	**2,213**	**76**
31	Jun-08	**2,000**	**1,700**	**27**	**2.5**	**190**	**113.2**	**333**	*<2.0*
32	Sep-08	**5,500**	**4,400**	**89**	**3.9**	**630**	**194.4**	**917**	*<2.0*
33	Dec-08	**520**	**400**	**1.5**	*<0.5*	**20**	**4.4**	**26**	**4.5**
34	Mar-09	**4,600**	**7,300**	**55**	*<5.0*	**410**	**639.0**	**1,104**	*<20*
35	Jun-09	**2,100**	**3,400**	**32**	*< 0.5*	**260**	**80.8**	**373**	**55**
36	Sep-09	**440**	**1,700**	**2.8**	*<0.5*	**33**	**2.7**	**39**	**3.7**
37	Dec-09	**560**	**540**	**1.5**	*< 0.5*	**39**	**7.1**	**48**	**4.2**
38	Mar-10	**220**	**270**	**0.8**	*<0.5*	**14**	**3.1**	**18**	**3.9**
39	Mar-10	**3,400**	**5,700**	**28.0**	*<0.5*	**340**	**255.7**	**624**	*<2.0*
40	Jun-10	**4,700**	**4,200**	**27.0**	**2.9**	**400**	**103.2**	**533**	**27**
41	Sep-10	**900**	**1,300**	**2.9**	*<0.5*	**22**	*<2.5*	**25**	*<10*
42	Dec-10	**180**	**260**	*<0.5*	*<0.5*	**5**	**1.0**	**6.4**	**7.2**
43	Mar-11	**6,000**	**5,900**	**39**	*<0.5*	**510**	**431.0**	**980.0**	*<2.0*
44	Sep-11	**1,700**	**1,200**	**7**	**0.9**	**120**	**12.2**	**139.7**	*<2.0*
45	Mar-12	**1,200**	**790**	**11**	**0.9**	*<0.5*	**99.0**	**110.9**	*<2.0*

Well MW-9									
Event	Date	TVHg	TEHd	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	MTBE
1	Aug-01	11,000	170	340	13	720	616	1,689	48
2	Dec-01	9,400	2,700	250	5.1	520	317	1,092	< 10
3	Mar-02	1,700	300	53	4.2	120	67	244	20
4	Jun-02	11,000	2,500	200	16	600	509	1,325	85
5	Sep-02	3,600	2,800	440	11	260	39	750	< 4.0
6	Dec-02	7,000	3,500	380	9.5	730	147	1,266	< 10
7	Mar-03	4,400	1,400	320	6.9	400	93	820	< 2.0
8	Jun-03	7,600	1,600	490	10	620	167	1,287	< 4.0
9	Sep-03	8,300	2,900	420	14	870	200	1,504	< 10
10	Dec-03	7,080	700	287	31	901	255	1,474	< 10
11	Mar-04	3,550	600	122	15	313	84	534	35
12	Jun-04	6,800	1,700	350	< 2.5	620	99	1,069	< 10
13	Sep-04	7,100	1,900	160	8.1	600	406	1,174	< 10
14	Dec-04	4,700	2,800	160	< 2.5	470	< 0.5	630	< 10
15	Mar-05	4,200	1,600	97	<2.5	310	42	449	< 10
16	Jun-05	9,900	2,000	170	<2.5	590	359	1,119	< 10
17	Sep-05	3,600	1,200	250	<0.5	330	36	616	< 2.0
18	Dec-05	8,700	1,500	150	4	650	551	1,355	< 4.0
19	Mar-06	3,600	880	37	<1.0	210	165	412	< 4.0
20	Jun-06	3,200	1,300	39	<1.0	220	144	403	4.2
21	Sep-06	12,000	3,300	130	8	850	604	1,592	<1.0
22	Dec-06	12,000	2,800	140	9.4	880	634	1,663	< 10
23	Mar-07	9,600	2,900	120	8.7	780	453	1,362	< 10
24	Jun-07	7,100	2,200	75	5.2	480	298	858	<4.0
25	Sep-07	4,500	2,100	60	3.8	420	227	710	<4.0
26	Dec-07	6,200	2,000	51	<0.5	340	128.8	519.8	<2.0
27	Mar-08	6,400	3,500	67	5.2	480	177.6	724.6	38
28	Jun-08	10,000	3,400	89	<2.5	510	231.0	830.0	<10
29	Sep-08	4,800	2,700	53	<0.5	250	66.4	369.4	<2.0
30	Dec-08	4,300	2,300	45	<0.5	330	39.1	414.1	<2.0
31	Mar-09	4,000	2,200	<2.0	<0.5	160	34.9	194.9	<2.0
32	Jun-09	4,100	3,600	62	< 0.5	280	41.7	383.7	160
33	Sep-09	2,200	2,900	15	<0.5	110	11.8	136.8	<2.0
34	Dec-09	2,500	4,000	27	<0.5	170	8.7	205.7	<2.0
35	Mar-10	3,300	2,600	15	<0.5	140	12.0	167.0	8.6
36	Mar-10	2,500	3,400	16	<0.5	70	15.4	101.4	2.1
37	Jun-10	1,700	1,300	13	<0.5	48	4.9	65.9	11
38	Sep-10	13,000	2,900	43	<0.5	300	47.9	390.9	43
39	Dec-10	3,900	2,400	32	<0.5	240	20.5	292.5	82
40	Mar-11	700	680	1.6	<0.5	10	3.5	15.1	14
41	Sep-11	2,600	1,900	12	<0.5	160	10.2	182.2	<2.0
42	Mar-12	1,100	940	9	<0.5	25	1.6	35.6	<2.0

Well MW-10									
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**
1	Aug-01	**550**	**2,100**	**17**	*< 0.5*	**31**	**44**	**92**	**40**
2	Dec-01	*< 50*	**81**	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	**25**
3	Mar-02	*< 50*	*< 50*	**0.61**	*< 0.5*	*< 0.5*	*< 0.5*	**0.61**	**6.0**
4	Jun-02	*< 50*	*< 50*	**0.59**	*< 0.5*	**0.58**	*< 0.5*	**1.2**	**9.0**
5	Sep-02	**160**	**120**	**10**	*< 0.5*	**6.7**	**3.6**	**20**	**26**
6	Dec-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	**16**
7	Mar-03	**110**	*< 50*	**11**	*< 0.5*	**12**	**1.3**	**24**	**15**
8	Jun-03	**110**	*< 50*	**9.6**	*< 0.5*	**6.8**	*< 0.5*	**16**	**9.0**
9	Sep-03	*< 50*	*< 50*	**1.1**	*< 0.5*	**1.5**	*< 0.5*	**2.6**	**7.0**
10	Dec-03	**162**	*<100*	**6.9**	*<0.3*	**8.0**	*<0.6*	**15**	**9.9**
11	Mar-04	**94**	*<100*	**2.8**	*<0.3*	**5.7**	**7.0**	**16**	*<5.0*
12	Jun-04	**150**	**56**	**11**	*< 0.5*	**12**	*< 0.5*	**23**	**15**
13	Sep-04	*< 50*	*< 50*	**1.6**	*< 0.5*	**1.9**	*< 1.0*	**3.5**	**5.8**
14	Dec-04	**64**	*< 50*	**3.7**	*< 0.5*	**3.7**	**0.7**	**8.1**	**10**
15	Mar-05	**95**	**98**	**8.3**	*<0.5*	**7.7**	**0.77**	**17**	**13**
16	Jun-05	**150**	**57**	**14**	*<0.5*	**10**	**1.0**	**25**	*<2.0*
17	Sep-05	**87**	*< 50*	**5.0**	*<0.5*	**3.6**	*<1.0*	**8.6**	*<2.0*
18	Dec-05	*< 50*	*< 50*	**1.2**	*<0.5*	*<0.5*	*<1.0*	**1.2**	**7.8**
19	Mar-06	**58**	**71**	**3.2**	*<0.5*	**2.2**	*<1.0*	**5.4**	**8.8**
20	Jun-06	**73**	**140**	**4.9**	*<0.5*	**2.5**	*<1.0*	**7.4**	**5.3**
21	Sep-06	**88**	**51**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	**9.6**
22	Dec-06	*<50*	*<50*	**0.61**	*<0.5*	**0.55**	*<0.5*	**1.2**	**3.7**
23	Mar-07	**57**	*<50*	**3.6**	*<0.5*	**2.2**	*<0.5*	**5.8**	**3.1**
24	Jun-07	**60**	**65**	**2.4**	*<0.5*	**1.6**	*<0.5*	**4.0**	**4.0**
25	Sep-07	**84**	*<50*	**3.6**	*<0.5*	**2.3**	**0.52**	**6.4**	**3.6**
26	Dec-07	**130**	**67**	**0.77**	*<0.5*	**340**	**0.83**	**341.6**	*<2.0*
27	Mar-08	**78**	**170**	**1.7**	*<0.5*	**3.1**	**0.97**	**5.8**	**2.4**
28	Jun-08	**230**	**320**	**12**	*<0.5*	**9.9**	**3.50**	**25.4**	*<2.0*
29	Sep-08	**80**	*<50*	**1.6**	*<0.5*	**0.52**	*<0.5*	**2.1**	**3.0**
30	Dec-08	*<50*	**66**	**0.89**	*<0.5*	*<0.5*	*<0.5*	**0.9**	**2.1**
31	Mar-09	**76**	**230**	*<2.0*	*<0.5*	**1.4**	*<0.5*	**1.4**	*<2.0*
32	Jun-09	**72**	**120**	**2.0**	*< 0.5*	**4.4**	**1.3**	**7.7**	*<2.0*
33	Sep-09	**74**	**220**	**1.6**	*<0.5*	*<0.5*	*<0.5*	**1.6**	*<2.0*
34	Dec-09	**72**	**150**	**0.6**	*<0.5*	**1.6**	**1.2**	**3.4**	*<2.0*
36	Mar-10	**63**	**280**	**1.3**	*<0.5*	**48**	**<0.5**	**49.3**	*<2.0*
37	Jun-10	**110**	**340**	**1.4**	*<0.5*	**2.6**	**0.74**	**4.7**	**2.4**
38	Sep-10	**140**	**360**	**2.1**	*<0.5*	**1.4**	<0.5	**3.5**	**4.3**
39	Dec-10	**80**	**440**	*<0.5*	*<0.5*	**0.69**	<0.5	**0.7**	**4.1**
40	Mar-11	**170**	**1,200**	**1.0**	*<0.5*	**3.7**	**1.8**	**6.5**	**6.3**
41	Sep-11	**150**	**220**	**0.8**	*<0.5*	**1.9**	**1**	**3.7**	*<2.0*
42	Mar-12	**80**	**92**	**0.81**	*<0.5*	**1.5**	*<0.5*	**2.3**	**3.4**

Well MW-11									
Event	Date	TVHg	TEHd	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	MTBE
1	Aug-01	17,000	7,800	390	17	820	344	1,571	< 10
2	Dec-01	5,800	2,800	280	7.8	500	213	1,001	< 10
3	Mar-02	100	94	< 0.5	< 0.5	0.64	< 0.5	0.64	2.4
4	Jun-02	8,200	2,600	570	13	560	170	1,313	< 4
5	Sep-02	12,000	4,400	330	13	880	654	1,877	< 10
6	Dec-02	18,000	4,500	420	< 2.5	1,100	912	2,432	< 10
7	Mar-03	7,800	2,600	170	4.7	530	337	1,042	53
8	Jun-03	14,000	3,800	250	< 2.5	870	693	1,813	< 10
9	Sep-03	10,000	3,000	250	9.9	700	527	1,487	< 4
10	Dec-03	15,000	1,100	314	60	1,070	802	2,246	173
11	Mar-04	4,900	400	72	17	342	233	664	61
12	Jun-04	10,000	2,300	210	2.8	690	514	1,417	< 10
13	Sep-04	7,200	2,300	340	< 2.5	840	75	1,255	< 10
14	Dec-04	11,000	3,900	180	5.1	780	695	1,660	< 10
15	Mar-05	4,600	1,900	69	<2.5	300	206	575	< 10
16	Jun-05	1,400	590	85	<0.5	110	8.2	203	< 2.0
17	Sep-05	12,000	3,100	220	< 1.0	840	762	1,822	< 4.0
18	Dec-05	2,500	2,100	120	< 2.5	260	16	396	< 10
19	Mar-06	2,200	1,300	27	<2.5	130	5.2	162	< 10
20	Jun-06	3,700	1,900	170	<1.0	230	14	414	< 4.0
21	Sep-06	3,600	2,100	80	<0.5	230	8.8	319	< 2.0
22	Dec-06	6,000	3,500	83	<1.0	260	16.4	359	< 4.0
23	Mar-07	4,500	1,900	110	< 0.5	170	7.9	288	< 2.0
24	Jun-07	4,300	2,200	120	<0.5	140	6.6	267	<4.0
25	Sep-07	5,500	2,700	86	<0.5	180	16.1	282	<2.0
26	Dec-07	7,100	4,000	68	<0.5	140	14	222	35
27	Mar-08	5,300	4,000	130	<0.5	120	13	263	8.8
28	Jun-08	3,600	4,200	190	<0.5	140	11	341	<2.0
29	Sep-08	7,300	4,600	130	<0.5	110	4.5	245	<2.0
30	Dec-08	2,800	1,600	93	<0.5	82	0.69	176	<2.0
31	Mar-09	4,100	4,600	18	<0.5	82	8	108	8.0
32	Jun-09	2,100	2,700	38	< 0.5	80	3.3	121	3.3
33	Sep-09	830	2,400	11	<0.5	19	<0.5	30	<2.0
34	Dec-09	2,200	3,100	19	<0.5	46	0.78	66	14.0
35	Mar-10	2,300	2,500	13	<0.5	59	0.79	73	3.4
36	Mar-10	1,500	3,400	12	<0.5	48	<0.5	60	<2.0
37	Jun-10	2,000	3,500	14	<0.5	42	0.92	57	7.9
38	Sep-10	3,000	2,200	18	<0.5	41	0.55	60	8.0
39	Dec-10	1,800	2,900	13	<0.5	49	1.9	64	15.0
40	Mar-11	180	1,600	<0.5	<0.5	1.2	<0.5	1.2	6.9
41	Sep-11	2,200	2,500	12	<0.5	44	2.2	58.2	<2.0
42	Mar-12	1,300	1,200	8.7	<0.5	29	<0.5	37.7	<2.0

Well MW-12									
Event	Date	TVHg	TEHd	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	MTBE
1	Dec-05	1,300	700	< 0.5	< 0.5	33	5.6	39	< 2.0
2	Mar-06	1,100	540	<0.5	<0.5	8.5	1.5	10	49
3	Jun-06	680	400	<0.5	<0.5	5.8	1.4	7.2	< 2.0
4	Sep-06	910	480	<0.5	<0.5	9.9	1.5	11.4	21
5	Dec-06	770	230	< 0.5	< 0.5	7.4	2.0	9.4	< 2.0
6	Mar-07	390	110	< 0.5	< 0.5	1.7	1.7	3.4	< 2.0
7	Jun-07	590	280	<0.5	<0.5	4.5	0.9	5.4	<2.0
8	Sep-07	390	180	<0.5	<0.5	2.4	2.4	4.8	<2.0
9	Dec-07	210	140	<0.5	<0.5	2.1	1.3	3.4	<2.0
10	Mar-08	720	500	<0.5	4.4	9.0	2.8	16.2	<2.0
11	Jun-08	220	50	<0.5	<0.5	2.0	<0.5	2.0	<2.0
12	Sep-08	370	95	<0.5	<0.5	2.8	0.98	3.8	<2.0
13	Dec-08	93	170	<0.5	<0.5	0.76	<0.5	0.8	<2.0
14	Mar-09	180	130	<0.5	<0.5	1.70	<0.5	1.7	<2.0
15	Jun-09	300	280	< 0.5	< 0.5	4.60	< 0.5	4.6	<2.0
16	Sep-09	330	270	<0.5	<0.5	2.30	<0.5	2.3	<2.0
17	Dec-09	76	170	<0.5	<0.5	<0.5	<0.5	0.0	<2.0
18	Mar-10	240	380	<0.5	<0.5	2.7	<0.5	2.7	<2.0
19	Jun-10	540	370	<0.5	<0.5	3.5	0.92	4.4	7.9
20	Sep-10	380	220	<0.5	<0.5	1.7	<0.5	1.7	8
21	Dec-10	320	350	<0.5	<0.5	1.5	<0.5	1.5	3.9
22	Mar-11	290	450	<0.5	0.74	1.3	<0.5	2.0	11
23	Sep-11	530	340	<0.5	<0.5	2.2	<0.5	2.2	<2.0
24	Mar-12	410	240	<0.5	<0.5	1.9	<0.5	1.9	<2.0

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

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

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

Sampling Location SW-2 (Area of Historical Contaminated Groundwater Discharge)									
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**
1	Feb-94	**130**	*< 50*	**1.9**	*< 0.5*	**4.4**	**3.2**	**9.5**	*NA*
2	May-95	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*
3	Aug-95	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*
4	May-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*
5	Aug-96	**200**	*< 50*	**7.5**	*< 0.5*	**5.4**	*< 0.5*	**13**	*NA*
6	Dec-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*
7	Feb-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*
8	Aug-97	**350**	**130**	**13**	**0.89**	**19**	**11**	**44**	*NA*
9	Dec-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*
10	Feb-98	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*
11	Sep-98	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*
12	Apr-99	**81**	*<50*	**2.0**	*< 0.5*	**2.5**	**1.3**	**5.8**	**2.3**
13	Dec-99	**1,300**	**250**	**10**	**1.0**	**47**	**27**	**85**	**2.2**
14	Sep-00	**160**	**100**	**2.1**	*< 0.5*	**5.2**	**1.9**	**9.2**	**3.4**
15	Jan-01	*< 50*	*< 50*	*< 0.5*	*< 0.5*	**0.53**	*< 0.5*	**0.5**	*< 2.0*
16	Apr-01	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*
17	Sep-01	**440**	**200**	**2.1**	*< 0.5*	**17**	**1.3**	**20**	**10**
18	Dec-01	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*
19	Mar-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*
20	Jun-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*
21	Sep-02	**220**	**590**	**10**	*< 0.5*	**13**	*< 0.5*	**23**	*< 2.0*
22	Dec-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*
23	Mar-03	*< 50*	*< 50*	*< 0.5*	*< 0.5*	**0.56**	*< 0.5*	**0.56**	**2.8**
24	Jun-03	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*
25	Sep-03	**190**	**92**	**2.1**	*< 0.5*	**4.2**	*< 0.5*	**6.3**	*< 2.0*
26	Dec-03	**86**	*< 100*	*< 0.3*	*< 0.3*	*< 0.3*	*< 0.6*	*<0.6*	*< 5.0*
27	Mar-04	*<50*	*<100*	*<0.3*	*<0.3*	**1.1**	*<0.6*	**1.1**	*< 5.0*
28	Jun-04	*<50*	*<50*	*<0.5*	*<0.5*	**0.83**	*<0.5*	**0.83**	*< 2.0*
29	Sep-04	**260**	**370**	**4.4**	*<0.5*	**6.3**	*< 1.0*	**11**	*< 2.0*
30	Dec-04	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*1.0*	*< 2.0*
31	Mar-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
32	Jun-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
33	Sep-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
34	Dec-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
35	Mar-06	*<50*	**62**	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
36	Jun-06	*<50*	**110**	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
37	Sep-06	**62**	**94**	*<0.5*	*<0.5*	**0.81**	*<0.5*	**0.8**	*< 2.0*
38	Dec-06	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
39	Mar-07	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
40	Jun-07	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<1.0*	*<2.0*
41	Sep-07	*<50*	**77**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	<1.0	*<2.0*
42	Dec-07	**130**	**430**	*<0.5*	*<0.5*	**1.5**	*<0.5*	**1.5**	*<2.0*
43	Mar-08	*<50*	**130**	*<0.5*	*<0.5*	*<0.5*	**0.61**	**0.61**	*<2.0*
44	Jun-08	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
45	Sep-08	**530**	**690**	*<0.5*	*<0.5*	**4.3**	*<0.5*	**4.3**	*<2.0*
46	Dec-08	*<50*	**83**	*<5.0*	*<5.0*	*<5.0*	*<5.0*	**<0.5**	*<2.0*
47	Mar-09	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<1.0*	*<2.0*
48	Jun-09	*<50*	*<50*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<0.5*	*<2.0*
49	Sep-09	**110**	**220**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
50	Dec-09	*<50*	*<50*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<0.5*	*<2.0*
51	Mar-10	*<50*	*<50*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<0.5*	*<2.0*
52	Jun-10	*<50*	**240**	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<0.5*	*<2.0*
53	Sep-10	*<50*	**66**	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<0.5*	*<2.0*
54	Dec-10	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<5.0*	*<0.5*	*NA*
55	Mar-11	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<5.0*	*<0.5*	*NA*
56	Sep-11	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<5.0*	*<0.5*	*NA*
57	Mar-12	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<5.0*	*<0.5*	*<2.0*

Sampling Location SW-3 (Downstream of Contaminated Groundwater Discharge Location SW-2)									
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**
1	May-95	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*
2	Aug-95	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*
3	May-96	*< 50*	**74**	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*
4	Aug-96	**69**	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*
5	Dec-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*
6	Feb-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*
7	Aug-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*
8	Dec-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*
9	Feb-98	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*
10	Sep-98	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
11	Apr-99	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
12	Dec-99	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
13	Sep-00	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
14	Jan-01	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
15	Apr-01	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
16	Sep-01	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*< 0.5*	*NS*
17	Dec-01	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
18	Mar-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
19	Jun-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	**2.4**
20	Sep-02	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
21	Dec-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
22	Mar-03	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
23	Jun-03	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
24	Sep-03	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
25	Dec-03	**60**	*< 100*	*< 0.3*	*< 0.3*	*< 0.3*	*< 0.6*	*<0.6*	*< 5.0*
26	Mar-04	*<50*	*<100*	*<0.3*	*<0.3*	*<0.6*	*<0.6*	*<0.6*	*< 5.0*
27	Jun-04	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
28	Sep-04	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
29	Dec-04	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
30	Mar-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
31	Jun-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
32	Sep-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
33	Dec-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
34	Mar-06	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
35	Jun-06	*<50*	**120**	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
36	Sep-06	*<50*	**120**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*0.5*	**7.8**
37	Dec-06	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
38	Mar-07	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	**3.3**
39	Jun-07	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*0.5*	*<2.0*
40	Sep-07	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
41	Dec-07	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
42	Mar-08	*<50*	**200**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
43	Jun-08	*<50*	**55**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
44	Sep-08	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
45	Dec-08	*<50*	**360**	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<2.0*
46	Mar-09	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*0.5*	*<2.0*
47	Jun-09	*<50*	*<50*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<2.0*
48	Sep-09	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
49	Dec-09	*<50*	*<50*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<0.5*	*<2.0*
50	Mar-10	*<50*	*<50*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<0.5*	*<2.0*
51	Jun-10	*<50*	*<50*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<0.5*	*<2.0*
52	Sep-10	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
53	Dec-10	*<50*	*<50*	*<0.5*	**0.57**	*<0.5*	**0.81**	**1.4**	*NA*
54	Mar-11	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*NA*
55	Sep-11	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*NA*
57	Mar-12	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*

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