

RECEIVED

By dehloptoxic at 8:36 am, Dec 27, 2006

THIRD QUARTER 2006 SITE MONITORING REPORT

**REDWOOD REGIONAL PARK
SERVICE YARD
OAKLAND, CALIFORNIA**

Prepared for:

**EAST BAY REGIONAL PARK DISTRICT
OAKLAND, CALIFORNIA**

November 2006

**THIRD QUARTER 2006
SITE MONITORING REPORT**

**REDWOOD REGIONAL PARK
SERVICE YARD
OAKLAND, CALIFORNIA**

Prepared for:

**EAST BAY REGIONAL PARK DISTRICT
P.O. BOX 5381
OAKLAND, CALIFORNIA 94605**

Prepared by:

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

November 22, 2006

Project No. 2006-17

November 22, 2006

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: Third Quarter 2006 Site Monitoring Report
Redwood Regional Park Service Yard Site – Oakland, California
Alameda County Environmental Health Fuel Leak Case No. RO0000246

Dear Mr. Wickham:

Attached is the referenced Stellar Environmental Solutions, Inc. 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 Environmental Health Care Services Agency, Department of Environmental Health; the Regional Water Quality Control Board; and the California Department of Fish and Game.

This report summarizes groundwater and surface monitoring and sampling activities conducted between July 1 and October 2, 2006 (Third Quarter 2006). Ongoing bioventing activities are reported in technical submittals separate from the ongoing groundwater and surface water monitoring quarterly reports; salient summary discussions will be included in the quarterly groundwater monitoring reports.

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

Sincerely,



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



cc: Carl Wilcox, California Department of Fish and Game
Neal Fujita, East Bay Regional Park District
State of California GeoTracker
Alameda County Environmental Health ftp System

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.....	2
Regulatory Oversight.....	2
2.0 PHYSICAL SETTING	6
Site Lithology.....	6
Hydrogeology	10
3.0 THIRD QUARTER 2006 ACTIVITIES	13
Groundwater and Surface Water Monitoring Activities.....	13
Bioventing-Related Activities.....	15
4.0 REGULATORY CONSIDERATIONS.....	16
Groundwater Contamination.....	16
Surface Water Contamination.....	16
5.0 MONITORING EVENT ANALYTICAL RESULTS.....	18
Current Event Groundwater and Surface Water Results	18
Quality Control Sample Analytical Results.....	19
6.0 SUMMARY, CONCLUSIONS AND PROPOSED ACTIONS	21
Summary and Conclusions	21
Proposed Actions	23

Section	Page
7.0 REFERENCES AND BIBLIOGRAPHY	24
8.0 LIMITATIONS.....	28

Appendices

Appendix A	Historical Groundwater Monitoring Well Water Level 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

TABLES AND FIGURES

Tables	Page
Table 1 Groundwater Monitoring Well Construction and Groundwater Elevation Data – September 29, 2006 Monitoring Event Redwood Regional Park Corporation Yard, Oakland, California	14
Table 2 Groundwater and Surface Water Sample Analytical Results – September 29, 2006 Redwood Regional Park Corporation Yard, Oakland, California	19

Figures	Page
Figure 1 Site Location Map.....	3
Figure 2 Site Plan and Historical Sampling Locations.....	4
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 – September 29, 2006.....	12
Figure 7 Groundwater Analytical Results and Gasoline Plume – September 2006.....	20

1.0 INTRODUCTION

PROJECT BACKGROUND

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

OBJECTIVES AND SCOPE OF WORK

This report discusses the following activities conducted/coordinated by Stellar Environmental Solutions, Inc. (SES) between July 1 and September 30, 2006 (Third Quarter 2006):

- 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; and

HISTORICAL CORRECTIVE ACTIONS AND INVESTIGATIONS

Previous SES reports have provided a full discussion of previous site remediation and investigations; site geology and hydrogeology; residual site contamination; conceptual model for contaminant fate and transport; and evaluation of hydrochemical trends and plume stability. Section 7.0 (References and Bibliography) of this report provides a listing of all technical reports for the site. The following is a summary of the general phases of site work:

- In 2000, a Feasibility Study report for the site was submitted to Alameda County Environmental Health. The study provided detailed analyses of the regulatory implications of site contamination and an assessment of viable corrective actions (SES, 2000d).

- Two instream bioassessment events were conducted in April 1999 and January 2000 to evaluate potential impacts to stream biota associated with the site contamination (no impacts were documented).
- Additional monitoring well installations and corrective action by ORC™ injection proposed by SES were approved by Alameda County Environmental Health in its January 8, 2001 letter to the EBRPD. Two phases of ORC™ injection were conducted—in September 2001 and July 2002.
- A total of 39 groundwater monitoring events have been conducted on a quarterly basis since project inception (November 1994), and a total of 11 groundwater monitoring wells are currently available for monitoring.
- A bioventing pilot test was conducted in September and October 2004 to evaluate the feasibility of this corrective action strategy, and the full-scale bioventing system was installed in November and December 2005. Bioventing activities conducted to date have been, and will continue to be, discussed in bioventing-specific technical reports, and updates will be provided in groundwater monitoring progress reports as they relate to this ongoing program.

SITE DESCRIPTION

Figure 1 shows the location of the project site. 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 545 feet amsl at Redwood Creek, which defines the approximate western edge of the project site with regard to this investigation. Figure 2 shows the site plan.

REGULATORY OVERSIGHT

The lead regulatory agency for the site investigation and remediation is Alameda County Environmental Health (Case No. RO0000246), with oversight provided by the Water Board (State of California 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 Alameda County Environmental Health-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;



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 Source Data: USGS 750 ft Scale: 1 : 25,000 Detail: 13-0 Datum: WGS84



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

Redwood Reg. Park Service Yard
Oakland, CA

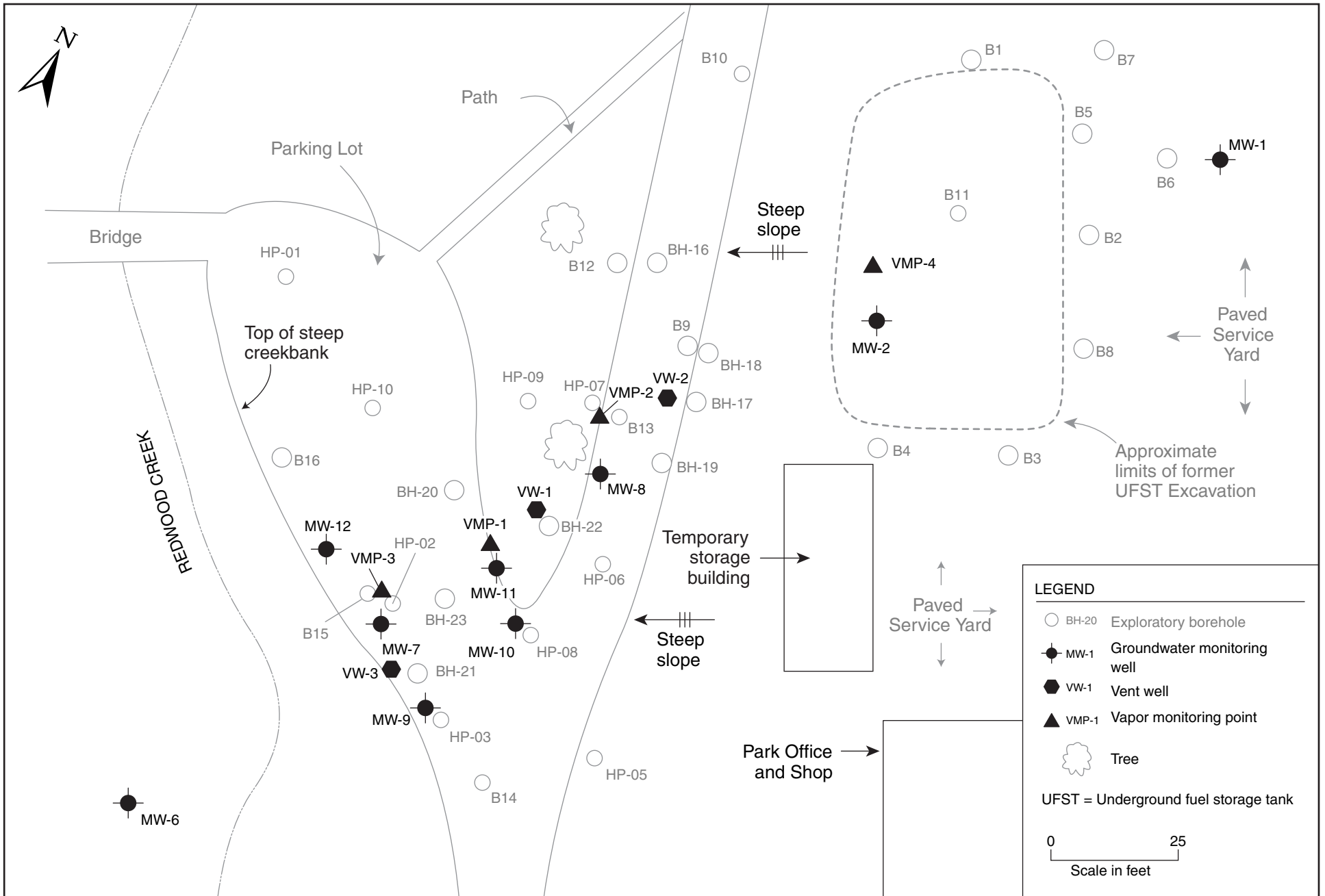
By: MJC

MARCH 2006

Figure 1



2006-17-01



LEGEND

- BH-20 Exploratory borehole
- MW-1 Groundwater monitoring well
- VW-1 Vent well
- ▲ VMP-1 Vapor monitoring point
- 🌳 Tree

UFST = Underground fuel storage tank

0 25
Scale in feet

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

Figure 2

by: MJC

JANUARY 2006

- Discontinuing field measurement and laboratory analyses for natural attenuation indicators, to be re-implemented following the bioventing corrective action; and
- 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 the State Water Resources Control Board's GeoTracker requirements for uploading electronic data and reports. In addition, electronic copies of technical documentation reports published since Q2 2005 have been uploaded to Alameda County Environmental Health's file transfer protocol (ftp) system. Per Alameda County Environmental Health's October 31, 2005 directive entitled "Miscellaneous Administrative Topics and Procedures," effective January 31, 2006, paper copies of reports will no longer be provided to Alameda County Environmental Health.

2.0 PHYSICAL SETTING

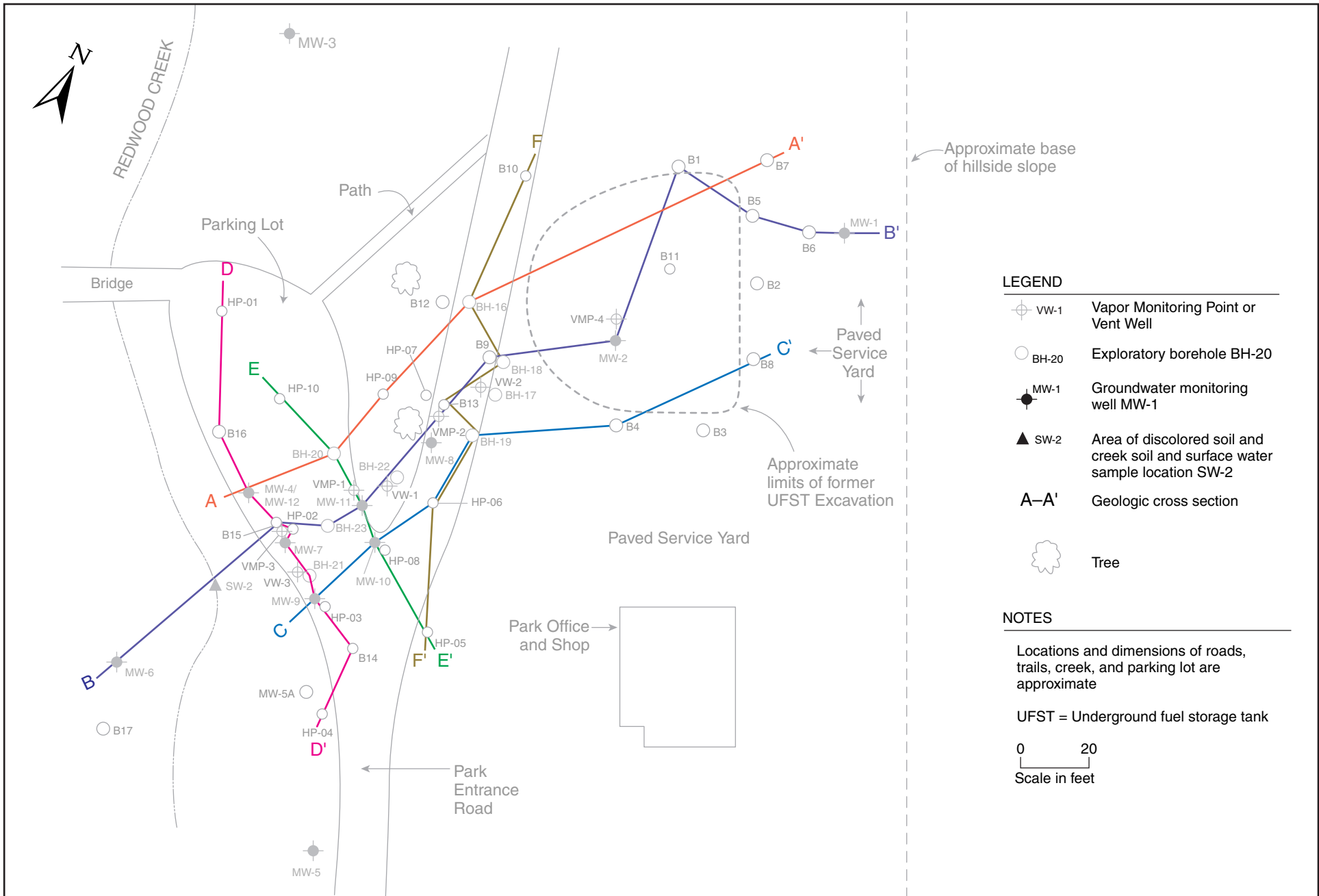
This section discusses the site hydrogeologic conditions based on geologic logging and water level measurements collected at the site since September 1993. Previous SES reports have included detailed discussions of site lithologic and hydrogeologic conditions. In May 2004, Alameda County Environmental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

SITE LITHOLOGY

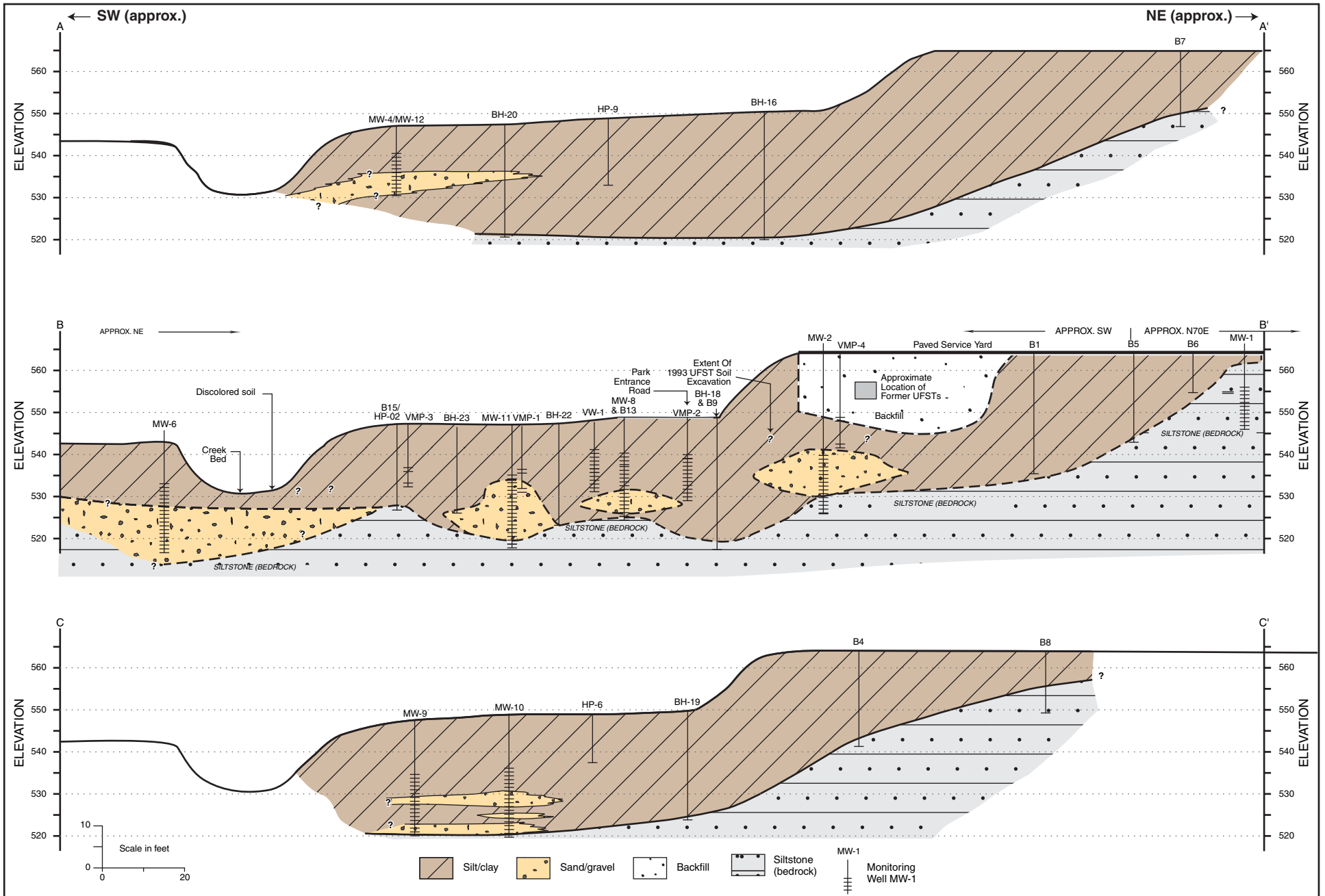
Figure 3 shows the location of geologic cross-sections. Figure 4 shows three sub-parallel geologic cross-sections (A-A’ through C-C’) along the long axis of the groundwater contaminant plume (i.e., along local groundwater flow direction). Figure 5 shows three sub-parallel geologic cross-sections (D-D’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

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

A previous SES report (SES, 2004c) presented a bedrock surface isopleth map (elevation contours for the top of the bedrock surface) in the contaminant plume area. That isopleth map and Figures 4 and 5 indicate 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. This



2005-66-11

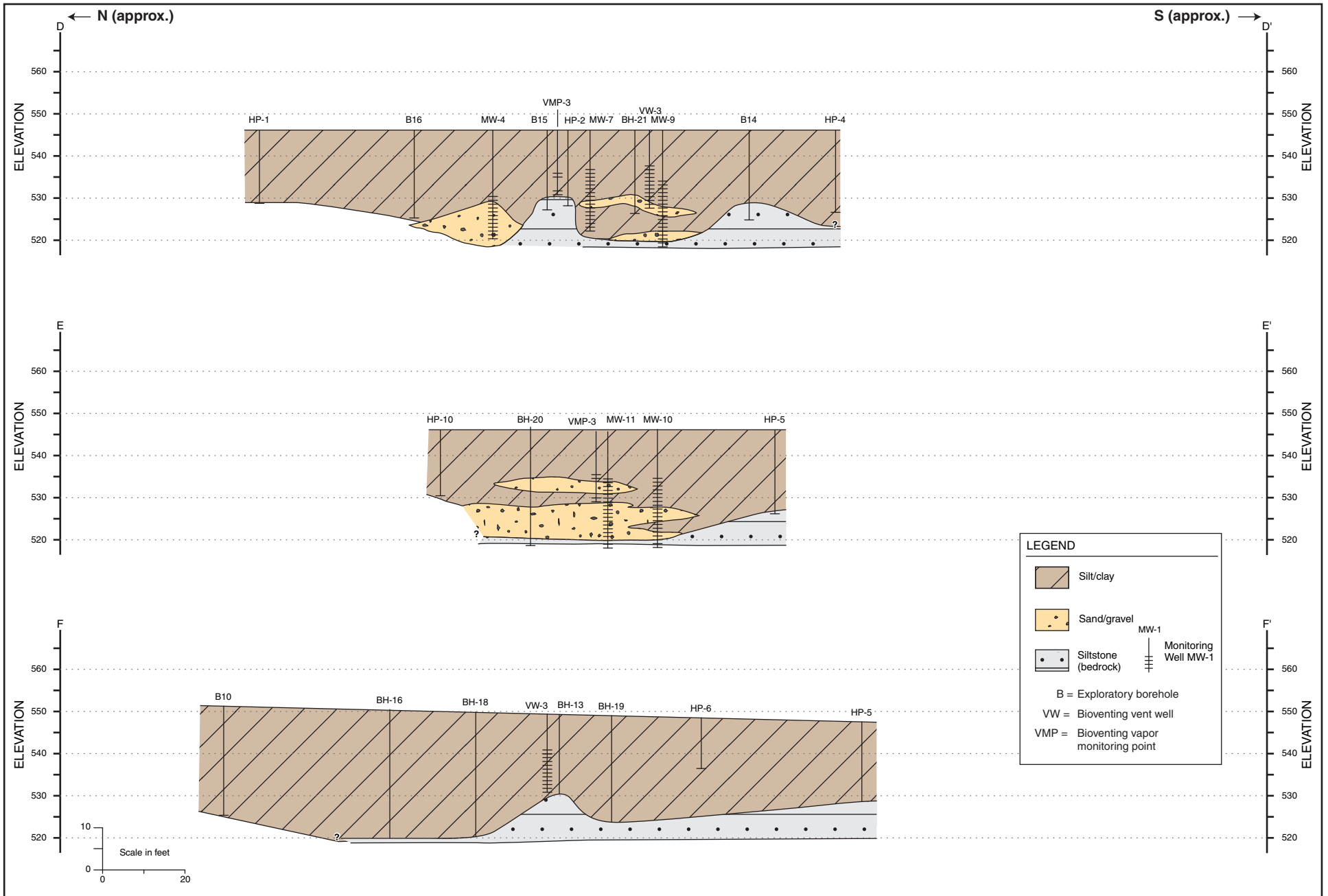


GEOLOGIC CROSS SECTIONS — A-A' through C-C'
Redwood Regional Park Service Yard, Oakland, CA

Figure 4

by: MJC

DECEMBER 2005



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

Figure 5

by: MJC

DECEMBER 2005

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

HYDROGEOLOGY

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

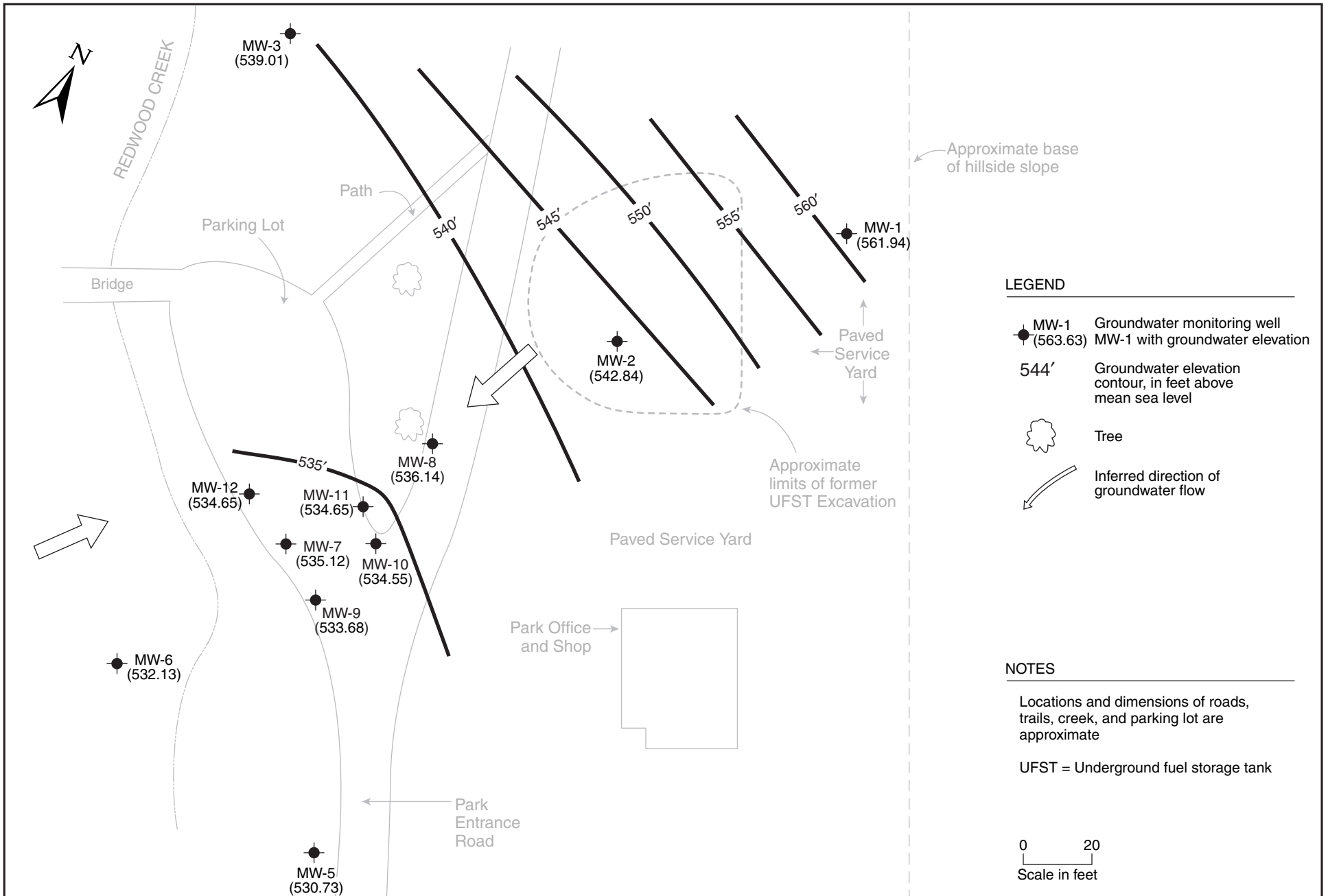
Groundwater elevations in Q3 2006 lowered an average of 2 feet compared to last quarter, which reflects the dry summer season. The lowering of groundwater below the bioventing screened interval zone allowed for a microbial respiration test to be conducted.

Figure 6 is a groundwater elevation map constructed from the current event monitoring well equilibrated water levels. Table 1 (in Section 3.0) summarizes current event groundwater elevation data. Appendix A contains historical groundwater elevation data.

In the upgradient portion of the site (between well MW-1 and MW-2, in landslide debris and the former UFST excavation backfill), the groundwater gradient is approximately 0.25 foot per foot. Downgradient from (west of) the UFST source area (between MW-2 and Redwood Creek), the groundwater gradient is approximately 0.08 foot per foot. The average groundwater elevation was 1.3 feet lower than the previous (June 2006) event, with the greatest lowering of 2.59 feet measured in MW-3. The smallest changes in groundwater elevations was seen in wells nearest to Redwood Creek, with the groundwater elevation in MW-7 measured at 0.22 feet higher than in June 2006. The direction of shallow groundwater flow during the current event was to the west-southwest (toward Redwood Creek), which is consistent with historical site groundwater flow direction.

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

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



GROUNDWATER ELEVATION MAP—SEPTEMBER 29, 2006
Redwood Regional Park Service Yard, Oakland, CA

Figure 6

by: MJC

NOVEMBER 2006

3.0 THIRD QUARTER 2006 ACTIVITIES

This section presents the creek surface water and groundwater sampling and analytical methods for the most recent groundwater monitoring event (Q3 2006), conducted in September 2006. A summary of bioventing-related activities is also provided.

GROUNDWATER AND SURFACE WATER MONITORING ACTIVITIES

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

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

Groundwater monitoring/sampling was conducted on September 29, 2006. Creek sampling was conducted on October 2, 2006 by the SES project manager. The locations of all site monitoring wells and creek water sampling locations are shown on Figure 2 (in Section 1.0). Well construction information and water level data are summarized in Table 1. Appendix B contains the groundwater monitoring field records for the current event.

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

Table 1
Groundwater Monitoring Well Construction and Groundwater Elevation Data –
September 29, 2006 Monitoring Event
Redwood Regional Park Corporation Yard, Oakland, California

Well	Well Depth	Screened Interval	TOC Elevation	Groundwater Elevation (6/20/06)
MW-1	18	7 to 17	565.83	561.94
MW-2	36	20 to 35	566.42	542.84
MW-3	42	7 to 41	560.81	539.01
MW-5	26	10 to 25	547.41	530.73
MW-6	26	10 to 25	545.43	532.13
MW-7	24	9 to 24	547.56	535.12
MW-8	23	8 to 23	549.13	536.14
MW-9	26	11 to 26	549.28	533.68
MW-10	26	11 to 26	547.22	534.55
MW-11	26	11 to 26	547.75	534.65
MW-12	25	10 to 25	544.67	534.65

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 feet above U.S. Geological Survey mean sea level.

Groundwater Level Monitoring and Sampling

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

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

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

The sampling-derived purge water and decontamination rinseate (approximately 50 gallons) from the current event was containerized in the onsite plastic tank. Purge water from future events will continue to be accumulated in the onsite tank until it is full, at which time the water will be transported offsite for proper disposal.

Creek Surface Water Sampling

Surface water sampling was conducted by SES on October 2, 2006. 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 SW-3 (approximately 500 feet downstream of the SW-2 location). In accordance with a previous SES recommendation approved by the Alameda County Environmental Health, upstream sample location SW-1 is no longer part of the surface water sampling program.

At the time of sampling, the creek was at a low stage—water depths ranged from approximately 0.5 to 1 foot, with a very slow flow. At the SW-2 location, where contaminated groundwater discharge to the creek historically has been observed, an orange algae was seen growing on the saturated portion of the creek bank. This algae likely is utilizing the petroleum as a carbon source, and therefore is a good indicator of the presence of petroleum contamination. However, neither petroleum sheen nor odor were evident on/at the water surface.

BIOVENTING-RELATED ACTIVITIES

The bioventing system was installed and started up in December 2005/January 2006. One month's worth of weekly system monitoring and air flow optimization events were conducted in January and February 2006. Monthly bioventing system operations and maintenance (O&M) events have been conducted since February 2006. Bioventing activities are discussed in detail in separate technical documents.

4.0 REGULATORY CONSIDERATIONS

This chapter summarizes the regulatory considerations regarding surface water and groundwater contamination. There are no Alameda County Environmental Health 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 (Regional Water Quality Control Board, 1986), 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 2 (in Section 5.0), site groundwater contaminant levels are compared to two sets of criteria: 1) Water Board Tier 1 Environmental Screening Levels (ESLs) for sites where groundwater is a current or potential drinking water source; and 2) ESLs for sites where groundwater is not a current or potential drinking water source.

As stipulated in the ESL document (Water Board, 2005), 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, Alameda County Environmental Health has indicated that impacts to nearby Redwood Creek are of primary importance, and that site target cleanup standards should be evaluated primarily in the context of surface water quality criteria.

SURFACE WATER CONTAMINATION

As summarized in Table 2 (in Section 5.0), site surface water contaminant levels are compared to the most stringent screening level criteria published by the State of California, U.S. Environmental Protection Agency, and U.S. Department of Energy. These screening criteria address chronic and acute exposures to aquatic life. As discussed in the ESL document (Water

Board, 2005), benthic communities at the groundwater/surface water interface (e.g., at site groundwater discharge location SW-2) are assumed to be exposed to the full concentration of groundwater contamination prior to dilution/mixing with the surface water). This was also a fundamental assumption in the instream benthic macroinvertebrate bioassessment events, which documented no measurable impacts.

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

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

5.0 MONITORING EVENT ANALYTICAL RESULTS

This section presents the field and laboratory analytical results of the most recent monitoring event. Table 2 summarizes the contaminant analytical results of the current monitoring event. Figure 7 shows the current event contaminant analytical results and the inferred limits of the gasoline groundwater plume. Appendix C contains the certified analytical laboratory report and chain-of-custody record for the current event. Appendix D contains a summary of historical groundwater and surface analytical results.

CURRENT EVENT GROUNDWATER AND SURFACE WATER RESULTS

Current quarter site groundwater contaminant concentrations in wells MW-7, MW-8, and MW-9 exceed their respective groundwater ESLs for TVHg, TEHd, benzene, and total xylenes (under the *drinking water resource is threatened* criterion) and (under the *drinking water resource is not threatened* criterion). MW-8 and MW-9 also exceeded the ESLs for ethylbenzene under both criterion, while MW-7 exceeded the ESL for ethylbenzene under the *drinking water resource is threatened* criterion. MW-11 exceeded the ESLs (under the *drinking water resource is threatened* criterion) and (under the *drinking water resource is not threatened* criterion) for TVHg, TEHd, and benzene. MW-11 also exceeded the ESL for ethylbenzene under the *drinking water resource is threatened* criterion. The ESLs for TVHg and TEHd were exceeded in MW-12; the ESLs for TVHg and benzene in MW-2 were exceeded under the *drinking water resource is threatened* criterion. The ESL for MTBE was exceeded in wells MW-2, MW-7, MW-10, and MW-12 under the *drinking water resource is threatened* criterion.

Maximum groundwater contaminant concentrations also exceed all surface water screening levels, with the exception of toluene and MTBE.

The maximum groundwater contaminant concentrations were detected in well MW-9 (located approximately two-thirds the distance between the former source area and the creek). Elevated contaminant concentrations were also detected in downgradient wells MW-7, MW-9, and MW-11. The northern edge of the plume in the downgradient area of the plume is defined by well MW-12. The southern edge of the plume in the downgradient area is not strictly defined; however, based on historical groundwater data, it appears to be located between well MW-9 and well MW-5. The current event contaminant plume geometry is consistent with recent historical contaminant distribution, showing the center of contaminant mass in groundwater located downgradient of the former source area.

Table 2
Groundwater and Surface Water Sample
Analytical Results, September 29—October 2, 2006
Redwood Regional Park Corporation Yard, Oakland, California

Location	Contaminant						
	TVHg	TEHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
GROUNDWATER SAMPLES							
MW-2	270	52	31	<0.5	15	6.69	17
MW-7	7,900	3,600	64	<0.5	260	57.5	49
MW-8	9,000	820	170	7.7	730	539	<10
MW-9	12,000	3,300	130	8.0	850	604	<10
MW-10	88	51	<0.5	<0.5	<0.5	<0.5	9.6
MW-11	3,600	2,100	80	<0.5	230	8.8	<2.0
MW-12	910	480	<0.5	<0.5	9.9	1.5	21
Groundwater ESLs ^(a)	100 / 500	100 / 640	1.0 / 46	40 / 130	30 / 290	13 / 13	5.0 / 1,800
REDWOOD CREEK SURFACE WATER SAMPLES							
SW-2	62	94	<0.5	<0.5	0.81	<0.5	<2.0
SW-3	<50	120	<0.5	<0.5	<0.5	<0.5	7.8
Surface Water Screening Levels ^(a, b)	500	100	46	130	290	13	8,000

Notes:

^(a) Water Board Environmental Screening Levels (drinking water resource threatened/not threatened) (Water Board, 2005).

^(b) Lowest of chronic and acute surface water criteria published by the State of California, U.S. Environmental Protection Agency, or U.S. Department of Energy.

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

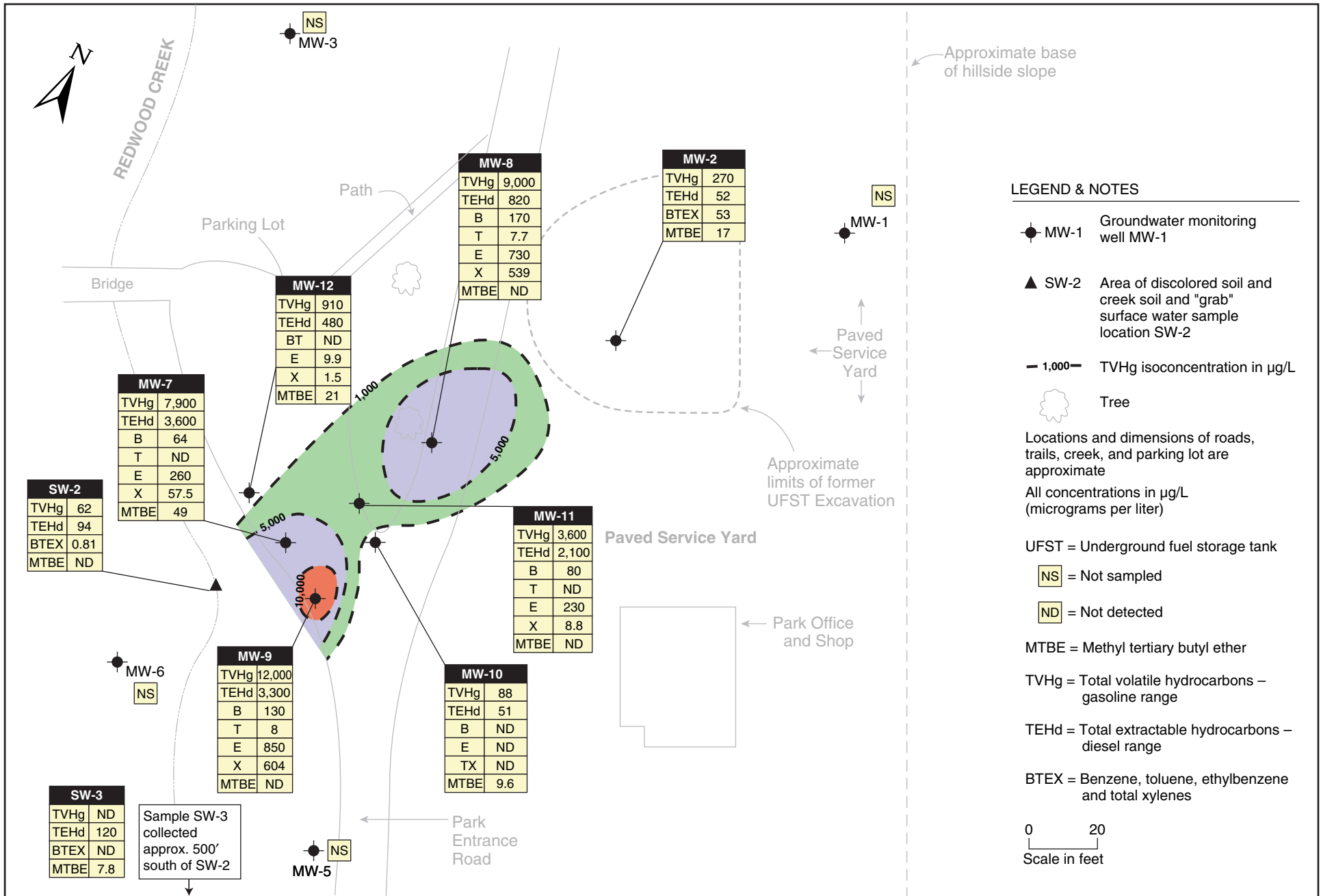
All concentrations expressed in µg/L (equivalent to parts per billion).

Samples in **bold-face type** exceed the ESL and/or surface water screening levels.

Diesel was detected in both surface water samples collected (SW-2 and SW-3), with SW-3 concentrations above and SW-2 concentrations slightly below the 100-µg/L surface water screening level criterion.

QUALITY CONTROL SAMPLE ANALYTICAL RESULTS

Laboratory 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).



2006-17-08

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 (39 events in the initial site wells). A total of 11 site wells are available for monitoring; 7 of the available wells are currently monitored for contamination.
- Site contaminants of concern include gasoline, diesel, BTEX, and MTBE. Current groundwater concentrations exceed regulatory screening levels for groundwater and surface water.
- The primary environmental risk is discharge of contaminated groundwater to the adjacent Redwood Creek. A stream bioassessment concluded that there were no direct impacts to the surface water benthic community; however, groundwater contamination is sporadically detected in surface water samples, and there is historical visual evidence of plume discharge at the creek/groundwater interface. Surface water samples have sporadically exceeded surface water ESL criteria for gasoline, diesel, and benzene, and generally only under low creek flow conditions. An in-stream bioassessment evaluation conducted in 1999 to 2000 determined that there were no impacts to the benthic macroinvertebrate community.
- The existing well layout adequately constrains the lateral extent of groundwater contamination, and the vertical limit is very likely the top of the near-surface (25 to 28 feet) siltstone bedrock. The saturated interval extends approximately 12 to 15 feet from top of bedrock through the capillary fringe. Groundwater elevations fluctuate seasonally, creating a capillary fringe that varies seasonally in thickness.
- The groundwater contaminant plume has become disconnected from its original source, but continues to be fed from the residual hydrocarbon concentrations in the soil. The groundwater plume has migrated well beyond the former source area (represented by well MW-2) toward Redwood Creek. The plume of groundwater contamination above screening levels appears to be approximately 100 feet long and approximately 40 feet wide. The zone of greatest contamination (greater than 10,000- μ g/L TVHg) is currently an approximately 20-foot-wide by 30-foot-long area centered around well MW-8.

- The contaminant plume is neither stable nor reducing, as groundwater contaminant concentrations fluctuate seasonally, and the center of mass of the contaminant plume (represented by maximum concentrations) has alternated between mid-plume and downgradient wells in recent history. Recent groundwater contaminant concentrations are below sitewide historical maxima, and there is no indication that maximum site groundwater concentrations are increasing, which suggests that “worst case” contaminant concentrations may have been reached.
- A two-phase ORC™ injection corrective action program was implemented at the site. In September 2001, approximately 3,000 pounds of ORC™ was injected into 44 boreholes over a 4,400-square foot area of the maximum groundwater contamination. In June 2002, approximately 1,000 pounds of ORC™ was injected in 30 boreholes over a smaller area that showed residual high contaminant concentrations following the initial injection phase. The ORC™ was injected over the full saturated interval (including the capillary fringe). The findings indicate that the corrective action was partially effective in reducing the lateral extent of the groundwater contaminant plume; however, initial contaminant reductions were followed by rebounding to pre-injection concentrations. The data suggest that site conditions support aerobic biodegradation when not limited by oxygen concentrations, notably on the plume margins and upgradient former source area, but not along the centerline of the contaminant plume.
- A September 2003 exploratory borehole program confirmed that sorbed-phase contamination in the seasonally-unsaturated zone is a primary source of long-term contaminant contribution to the groundwater plume. Reduction/removal of this contamination will be necessary to eliminate continued discharge of contaminated groundwater to Redwood Creek and ultimately obtain site closure.
- Soil bioventing appears to be the best remedy for contaminant mass removal in the unsaturated zone, under the restrictive conditions at the site, and appears to be the most appropriate corrective action strategy giving consideration to technical, cost, safety, and aesthetic issues. A 2- to 3-year program of bioventing may reduce unsaturated zone contamination such that it will no longer be a long-term source of contamination to groundwater. A full-scale bioventing system was installed in November/December 2005, and began operating in December 2005.
- The Q3 period also went over into the beginning of October 2006 because the surface water was not sampled until October 2, 2006. Groundwater elevations in Q3 2006 were slightly higher than seasonal normal due to higher than average rainfall in 2006. This has had the ancillary negative effect of keeping much of the bioventing screened zone saturated.

PROPOSED ACTIONS

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

- Continue the quarterly program of creek and groundwater sampling and reporting.
- Continue to inform regulators of site progress and seek their concurrence with proposed actions.
- Operate the bioventing system as a corrective action to try and reduce the residual contaminated soil in the area of the former source area excavation, and report those results in bioventing-specific technical reports.
- Continue to evaluate analytical results (and bioventing contaminant removal data) in the context of hydrochemical trends, impacts of groundwater contamination on Redwood Creek, and effectiveness of the corrective action.
- Conduct a microbial respiration test to evaluate the effectiveness of the bioventing system.
- Continue to make required Electronic Data Format uploads to the State of California GeoTracker database, and upload an electronic copy of technical reports to Alameda County Environmental Health's ftp system.

7.0 REFERENCES AND BIBLIOGRAPHY

- Parsons Engineering Science (Parsons), 1998. Quarterly Progress Report 11, Redwood Regional Park Service Yard, Oakland, California. January 28.
- Parsons Engineering Science (Parsons), 1997a. Quarterly Progress Report 7, Redwood Regional Park Service Yard, Oakland, California. January 31.
- Parsons Engineering Science (Parsons), 1997b. Quarterly Progress Report 8 and Annual Summary Assessment, Redwood Regional Park Service Yard, Oakland, California. April 4.
- Parsons Engineering Science (Parsons), 1997c. Quarterly Progress Report 9, Redwood Regional Park Service Yard, Oakland, California. June 30.
- Parsons Engineering Science (Parsons), 1997d. Quarterly Progress Report 10, Redwood Regional Park Service Yard, Oakland, California. September 22.
- Parsons Engineering Science (Parsons), 1996a. Quarterly Progress Report 5, Redwood Regional Park Service Yard, Oakland, California. June 6.
- Parsons Engineering Science (Parsons), 1996b. Quarterly Progress Report 6, Redwood Regional Park Service Yard, Oakland, California. September 24.
- Parsons Engineering Science (Parsons), 1995a. Quarterly Progress Report 2, Redwood Regional Park Service Yard, Oakland, California. March 8.
- Parsons Engineering Science (Parsons), 1995b. Quarterly Progress Report 3, Redwood Regional Park Service Yard, Oakland, California. June 23.
- Parsons Engineering Science (Parsons), 1995c. Quarterly Progress Report 4 and Annual Summary Assessment (November 1994 - August 1995), Redwood Regional Park Service Yard, Oakland, California. November 13.
- Parsons Engineering Science (Parsons), 1994a. Creek and Soil Sampling at Redwood Regional Park, Oakland, California. March 2.

- Parsons Engineering Science (Parsons), 1994b. Creek Surface Water at Redwood Regional Park, Oakland, California. May 13.
- Parsons Engineering Science (Parsons), 1994c. Workplan for Groundwater Characterization Program at East Bay Regional Park Service Yard, Oakland, California. August 17.
- Parsons Engineering Science (Parsons), 1994d. Quarterly Progress Report 1, Redwood Regional Park Service Yard, Oakland, California. December 28.
- Parsons Engineering Science (Parsons), 1993a. Closure of Underground Fuel Storage Tanks and Initial Site Characterization at Redwood Regional Park Service Yard, Oakland, California. December 16.
- Parsons Engineering Science (Parsons), 1993b. Workplan for Site Characterization at East Bay Regional Park District, Redwood Regional Park Corporation Yard, Oakland, Alameda County, California. September 3.
- Regional Water Quality Control Board, San Francisco Bay Region (Water Board), 2005. Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater.
- Regional Water Quality Control Board, San Francisco Bay Region (Water Board), 1995. San Francisco Bay Region Water Quality Control Plan.
- State Water Resources Control Board, 1989. Leaking Underground Fuel Tank Field Manual: Guidelines for Site Assessment, Cleanup, and Underground Storage Tank Closure. State of California Leaking Underground Fuel Tank Task Force. October.
- Stellar Environmental Solutions, Inc. (SES), 2006a. First Quarter 2006 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. April 21.
- Stellar Environmental Solutions, Inc. (SES), 2006b. Second Quarter 2006 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. July 5.
- Stellar Environmental Solutions, Inc. (SES), 2006c. Fourth Quarter 2005 Groundwater Monitoring and Annual Summary Report, Redwood Regional Park Service Yard, Oakland, California. January 20.
- Stellar Environmental Solutions, Inc. (SES), 2005a. First Quarter 2005 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. March 31.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- Stellar Environmental Solutions, Inc. (SES), 2001a. Monitoring Well Installation and Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. February 8.
- Stellar Environmental Solutions, Inc. (SES), 2001b. Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. May 4.
- Stellar Environmental Solutions, Inc. (SES), 2001c. Well Installation, Site Monitoring, and Corrective Action Report, Redwood Regional Park Service Yard, Oakland, California. October 26.
- Stellar Environmental Solutions, Inc. (SES), 2000a. Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. April 21.
- Stellar Environmental Solutions, Inc. (SES), 2000b. Workplan for Groundwater Monitoring Well Installations, Redwood Regional Park Service Yard, Oakland, California. October 19.
- Stellar Environmental Solutions, Inc. (SES), 2000c. Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. October 19.
- Stellar Environmental Solutions, Inc. (SES), 2000d. Site Feasibility Study Report, Redwood Regional Park Service Yard, Oakland, California. October 20.
- Stellar Environmental Solutions, Inc. (SES), 1999a. Workplan for Subsurface Investigation, Redwood Regional Park Service Yard, Oakland, California. April 8.
- Stellar Environmental Solutions, Inc. (SES), 1999b. Residual Contamination Investigation and Remedial Action Assessment Report, Redwood Regional Park Service Yard, Oakland, California. June 9.
- Stellar Environmental Solutions, Inc. (SES), 1998a. Workplan for Continued Site Investigation and Closure Assessment, Redwood Regional Park Service Yard, Oakland, California. October 9.
- Stellar Environmental Solutions, Inc. (SES), 1998b. Site Investigation and Closure Assessment Report, Redwood Regional Park Service Yard, Oakland, California. December 4.

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

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

APPENDIX A

Historical Groundwater Monitoring Well Water Level Data

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

Well I.D.	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
TOC Elevation (a)	565.83	566.42	560.81	548.10	547.41	545.43	547.56	549.13	549.28	547.22	547.75	544.67
Date Monitored	Groundwater Elevations (feet above mean sea level)											
09/18/98	563.7	544.2	540.8	534.5	531.1	545.6						
04/06/99	565.2	546.9	542.3	535.6	532.3	532.9						
12/20/99	562.9	544.7	541.5	534.9	531.2	532.2						
09/28/00	562.8	542.7	538.3	532.2	530.9	532.0						
01/11/01	562.9	545.1	541.7	535.0	531.2	532.3	534.9	538.1				
04/13/01	562.1	545.7	541.7	535.1	531.5	532.4	535.3	539.8				
09/01/01	560.9	542.0	537.7	533.9	530.7	531.8	534.0	535.6				
12/17/01	562.2	545.2	542.2	534.8	531.4	532.4	534.8	538.4	534.6	535.7	535.2	
03/14/02	563.0	547.1	542.2	535.5	532.4	533.3	535.7	541.8	535.0	537.6	536.6	
06/18/02	562.1	544.7	541.1	534.6	531.2	532.2	534.8	537.9	534.7	535.6	535.3	
09/24/02	561.4	542.2	537.3	533.5	530.6	531.8	533.5	535.5	535.3	533.8	531.7	
12/18/02	562.4	545.0	542.0	534.8	531.5	532.5	534.6	537.1	536.5	535.2	532.8	
03/27/03	562.6	545.7	541.7	534.8	531.6	532.4	535.1	539.9	537.2	536.2	533.6	
06/19/03	562.3	544.9	541.5	534.8	531.3	532.3	534.9	538.2	536.9	535.7	533.2	
09/10/03	561.6	542.1	537.9	533.8	530.8	531.9	533.7	535.6	535.6	534.1	531.9	
12/10/03	562.4	542.7	537.6	533.7	530.9	531.9	533.7	535.2	535.5	533.8	531.7	
03/18/04	563.1	546.6	541.9	535.0	531.7	532.4	535.2	540.9	537.4	536.6	533.8	
06/17/04	562.1	544.3	540.7	534.3	531.0	532.1	534.6	537.4	536.5	535.1	532.7	
09/21/04	561.5	541.1	536.5	533.1	530.5	531.6	533.1	534.7	532.7	533.2	533.2	
12/14/04	562.2	545.3	541.7	534.7	531.4	532.2	534.6	540.4	536.7	535.5	532.9	
03/16/05	563.8	547.3	541.7	535.3	532.4	532.8	535.6	541.8	538.0	537.1	534.2	
06/15/05	562.9	545.9	541.6	535.0	531.7	532.5	535.0	540.0	535.0	536.1	535.6	
09/13/05	562.3	543.5	539.7	534.4	530.9	532.2	534.3	536.7	536.1	534.7	532.4	
12/15/05	562.2	544.3	541.4	(b)	531.0	532.2	534.5	537.3	534.1	534.7	534.9	535.1
03/30/06	565.8	548.6	542.7	(b)	533.9	534.4	536.2	542.3	536.4	537.3	537.6	535.7
06/20/06	563.6	545.4	541.6	(b)	531.5	532.5	534.9	538.6	534.6	536.2	535.5	535.0
09/29/06	561.9	542.8	539.0	(b)	530.7	532.1	535.1	536.1	533.7	534.6	534.7	534.7

TOC = Top of well Casing

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

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

APPENDIX B

Groundwater Monitoring Field Documentation

SPH or Purge Water Drum Log

Client: STELLAR
 Site Address: Redwood Regional Park, Oakland

STATUS OF DRUM(S) UPON ARRIVAL

Date	12/14/04	12/15/05	3/30/06	6/20/06	9/29/06
Number of drum(s) empty:					
Number of drum(s) 1/4 full:		1 (Baker tank) → 1		1 poly tank	
Number of drum(s) 1/2 full:					1 Green poly tank 2/3 full
Number of drum(s) 3/4 full:					
Number of drum(s) full:					
Total drum(s) on site:	0	1	1 tank	1	1 Tank
Are the drum(s) properly labeled?	NA	Y	Y	Y	Y
Drum ID & Contents:			Purge water →		Purge water
If any drum(s) are partially or totally filled, what is the first use date:				-	-

- If you add any SPH to an empty or partially filled drum, drum must have at least 20 gals. of Purgewater or DI Water.
- If drum contains SPH, the drum MUST be steel AND labeled with the appropriate label.
- All BTS drums MUST be labeled appropriately.

STATUS OF DRUM(S) UPON DEPARTURE

Date	12/14/04	12/15/05	3/30/06	6/20/06	9/29/06
Number of drums empty:					
Number of drum(s) 1/4 full:		1 (Baker tank) →			
Number of drum(s) 1/2 full:				1	2 1/2 Tank
Number of drum(s) 3/4 full:					
Number of drum(s) full:					
Total drum(s) on site:	0	1	1 tank →		1 Tank
Are the drum(s) properly labeled?	NA		Y	Y	Y
Drum ID & Contents:			Purge water →		→

LOCATION OF DRUM(S)

Describe location of drum(s): Baker tank near well used for offload.

FINAL STATUS

Number of new drum(s) left on site this event	0	0	0	0	0
Date of inspection:	12/14/04	12/15/05	3/30/06	6/20/06	9/29/06
Drum(s) labelled properly:	NA	Y	Y	Y	Y
Logged by BTS Field Tech:	PC	MM	PC	DM	PC
Office reviewed by:	M	M	N	S	S

WELLHEAD INSPECTION CHECKLIST

Date 9/29/06 Client Stellar

Site Address Redwood Regional, Oakland

Job Number 060929PC1 Technician P. Cornish

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

NOTES: MW-8 1/3 tabs stripped

WELL GAUGING DATA

Project # 060929-PC1

Date 9/29/06

Client STELLAR

Site Redwood Regional, 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	845	4					3.89	-	TOC	G.O.
MW-2	805	4					23.58	38.92		
MW-3	809	4					21.80	46.10		G.O.
MW-4	-	well destroyed					-	-		G.O.
MW-5	815	4					16.68	27.00		G.O.
MW-6	819	4					13.30	27.45		G.O.
MW-7	822	2					12.44	25.30		
MW-8	834	2					12.99	22.30		
MW-9	825	2					15.60	30.29		
MW-10	831	2					12.67	28.36		
MW-11	829	2					13.10	27.78		
MW-12	879	2					10.02	23.90		

WELL MONITORING DATA SHEET

Project #: 060929-PC1	Client: Stellar
Sampler: PC	Date: 9/29/06
Well I.D.: MW-10	Well Diameter: 3 4 6 8
Total Well Depth (TD): 28.34	Depth to Water (DTW): 12.67
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: VC Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 15.81	

Purge Method: Bailer Waterra Sampling Method: Bailer
 Disposable Bailer Peristaltic Disposable Bailer
 Positive Air Displacement Extraction Pump Extraction Port
 Electric Submersible Other _____ Dedicated Tubing

Other: _____

2.5 (Gals.) X 3 = 7.5 Gals. Case Volume Specified Volumes Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius² * 0.163</td> </tr> </tbody> </table>	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	
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
915	20.4	8.40	606	71000	2.5	drawn
920	20.1	8.14	582	71000	5	
926	20.0	7.82	588	412	7.5	~

Did well dewater? Yes No Gallons actually evacuated: _____

Sampling Date: **9/29/06** Sampling Time: **934** Depth to Water: _____

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

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

EB I.D. (if applicable): @ time Duplicate I.D. (if applicable): _____

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

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

APPENDIX C

Analytical Laboratory Report and Chain-of-Custody Record

Curtis & Tompkins Laboratories Analytical Report

Lab #:	189803	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16		
Matrix:	Water	Batch#:	118179
Units:	ug/L	Sampled:	10/02/06
Diln Fac:	1.000	Received:	10/02/06

Type: BLANK Analyzed: 10/05/06
 Lab ID: QC359224

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

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	83	69-137	EPA 8015B
Bromofluorobenzene (FID)	105	80-133	EPA 8015B
Trifluorotoluene (PID)	99	64-132	EPA 8021B
Bromofluorobenzene (PID)	104	80-120	EPA 8021B

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

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	189803	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC359225	Batch#:	118179
Matrix:	Water	Analyzed:	10/05/06
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	19.75	99	72-124
Benzene	20.00	18.07	90	80-120
Toluene	20.00	19.85	99	80-120
Ethylbenzene	20.00	20.79	104	80-120
m,p-Xylenes	20.00	21.59	108	80-120
o-Xylene	20.00	21.60	108	80-120

Surrogate	%REC	Limits
Trifluorotoluene (PID)	94	64-132
Bromofluorobenzene (PID)	101	80-120

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	189803	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC359226	Batch#:	118179
Matrix:	Water	Analyzed:	10/05/06
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	1,767	88	80-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	107	69-137
Bromofluorobenzene (FID)	109	80-133

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	189803	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16	Analysis:	EPA 8015B
Field ID:	SW-2	Batch#:	118179
MSS Lab ID:	189803-001	Sampled:	10/02/06
Matrix:	Water	Received:	10/02/06
Units:	ug/L	Analyzed:	10/05/06
Diln Fac:	1.000		

Type: MS Lab ID: QC359227

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	61.64	2,000	1,957	95	80-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	100	69-137
Bromofluorobenzene (FID)	113	80-133

Type: MSD Lab ID: QC359228

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,947	94	80-120	1	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	101	69-137
Bromofluorobenzene (FID)	69 *	80-133

*= Value outside of QC limits; see narrative

RPD= Relative Percent Difference

189755

Chain of Custody Record

Lab job no. _____
 Date _____
 Page 1 of 1

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

Method of Shipment Hand Delivery

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

Shipment No. _____

Airbill No. _____

Cooler No. _____

Project Manager ~~Bruce Rucker~~ R. MAKDISI

Telephone No. (510) 644-3123

Fax No. (510) 644-3859

Project Name Redwood Regional Park

Project Number 2006-16

Samplers: (Signature) [Signature]

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Filtered	No. of Containers	Analysis Required				Remarks
						Cooler	Chemical							
MW-2	1158	9/29/06		W	40ml VOA #14 Amber	ice	3HCl/INH	4	2	2	1			
MW-7	1000							4	2	1	1			
MW-8	1120							4	2	1	1			
MW-9	1056							4	2	1	1			
MW-10	934							4	2	1	1			
MW-11	1150							4	2	1	1			
MW-12	1028							4	2	1	1			

1
2
3
4
5
6
7

Filtered
 No. of Containers
 IVH-6 (6015)
 BTEX + MTBE
 LEH-D (6021)

Relinquished by: Signature <u>[Signature]</u> Printed <u>P. Cornish</u> Company <u>BTS</u>	Date <u>9/29/06</u> Time <u>12:35</u>	Received by: Signature <u>[Signature]</u> Printed <u>ANNE KATHAN</u> Company <u>CT</u>	Date <u>9/29</u> Time <u>12:35</u>	Relinquished by: Signature _____ Printed _____ Company _____	Date _____ Time _____	Received by: Signature _____ Printed _____ Company _____	Date _____ Time _____
Turnaround Time: <u>5 Day TAT</u>				Relinquished by: Signature _____ Printed _____ Company _____			
Comments: <u>Please provide a GeoTracker EDD as well as hard copy of report.</u> <u>Surface water samples collected by Stellar Environmental Solutions.</u> <u>Groundwater samples collected by Blaine Tech Services.</u>				Received by: Signature _____ Printed _____ Company _____			

2000-00-01

Curtis & Tompkins Laboratories Analytical Report

Lab #: 189755	Location: Redwood Regional Park
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: 2006-16	
Matrix: Water	Sampled: 09/29/06
Units: ug/L	Received: 09/29/06

Field ID: MW-12	Diln Fac: 1.000
Type: SAMPLE	Analyzed: 10/05/06
Lab ID: 189755-007	

Analyte	Result	RL	Batch#	Analysis
Gasoline C7-C12	910 H Y	50	118134 EPA	8015B
MTBE	21 C	2.0	118133 EPA	8021B
Benzene	ND	0.50	118133 EPA	8021B
Toluene	ND	0.50	118133 EPA	8021B
Ethylbenzene	9.9	0.50	118133 EPA	8021B
m,p-Xylenes	1.5	0.50	118133 EPA	8021B
o-Xylene	ND	0.50	118133 EPA	8021B

Surrogate	%REC	Limits	Batch#	Analysis
Trifluorotoluene (FID)	116	69-137	118134 EPA	8015B
Bromofluorobenzene (FID)	97	80-133	118134 EPA	8015B
Trifluorotoluene (PID)	116	64-132	118133 EPA	8021B
Bromofluorobenzene (PID)	101	80-120	118133 EPA	8021B

Type: BLANK	Batch#: 118133
Lab ID: QC359020	Analyzed: 10/04/06
Diln Fac: 1.000	Analysis: EPA 8021B

Analyte	Result	RL
MTBE	ND	2.0
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	0.50
o-Xylene	ND	0.50

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)	NA		
Bromofluorobenzene (FID)	NA		
Trifluorotoluene (PID)		94	64-132
Bromofluorobenzene (PID)		95	80-120

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

Curtis & Tompkins Laboratories Analytical Report

Lab #: 189755	Location: Redwood Regional Park
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: 2006-16	
Matrix: Water	Sampled: 09/29/06
Units: ug/L	Received: 09/29/06

Type: BLANK	Batch#: 118134
Lab ID: QC359024	Analyzed: 10/04/06
Diln Fac: 1.000	Analysis: EPA 8015B

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		85	69-137
Bromofluorobenzene (FID)		91	80-133
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

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

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	189755	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC359021	Batch#:	118133
Matrix:	Water	Analyzed:	10/04/06
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	17.36	87	72-124
Benzene	20.00	20.50	103	80-120
Toluene	20.00	21.05	105	80-120
Ethylbenzene	20.00	22.94	115	80-120
m,p-Xylenes	20.00	20.86	104	80-120
o-Xylene	20.00	21.63	108	80-120

Surrogate	%REC	Limits
Trifluorotoluene (PID)	98	64-132
Bromofluorobenzene (PID)	101	80-120

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #: 189755	Location: Redwood Regional Park
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: 2006-16	
Field ID: MW-10	Batch#: 118133
MSS Lab ID: 189755-005	Sampled: 09/29/06
Matrix: Water	Received: 09/29/06
Units: ug/L	Analyzed: 10/05/06
Diln Fac: 1.000	

Type: MS Lab ID: QC359022

Analyte	MSS Result	Spiked	Result	%REC	Limits	Analysis
MTBE	9.624	20.00	25.64	80	76-133	EPA 8021B
Benzene	<0.1548	20.00	22.68	113	78-120	EPA 8021B
Toluene	<0.1074	20.00	20.57	103	79-120	EPA 8021B
Ethylbenzene	<0.08719	20.00	24.12	121 *	80-120	EPA 8021B
m,p-Xylenes	<0.1501	20.00	20.14	101	79-120	EPA 8021B
o-Xylene	<0.1861	20.00	21.13	106	80-120	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	88	69-137	EPA 8015B
Bromofluorobenzene (FID)	96	80-133	EPA 8015B
Trifluorotoluene (PID)	99	64-132	EPA 8021B
Bromofluorobenzene (PID)	102	80-120	EPA 8021B

Type: MSD Lab ID: QC359023

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analysis
MTBE	20.00	27.61	90	76-133	7	34	EPA 8021B
Benzene	20.00	22.66	113	78-120	0	30	EPA 8021B
Toluene	20.00	21.13	106	79-120	3	30	EPA 8021B
Ethylbenzene	20.00	24.71	124 *	80-120	2	30	EPA 8021B
m,p-Xylenes	20.00	20.58	103	79-120	2	30	EPA 8021B
o-Xylene	20.00	21.71	109	80-120	3	30	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	105	69-137	EPA 8015B
Bromofluorobenzene (FID)	102	80-133	EPA 8015B
Trifluorotoluene (PID)	102	64-132	EPA 8021B
Bromofluorobenzene (PID)	107	80-120	EPA 8021B

*= Value outside of QC limits; see narrative

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	189755	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC359025	Batch#:	118134
Matrix:	Water	Analyzed:	10/04/06
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	2,106	105	80-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	109	69-137
Bromofluorobenzene (FID)	99	80-133

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	189755	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	118134
MSS Lab ID:	189838-001	Sampled:	10/03/06
Matrix:	Water	Received:	10/03/06
Units:	ug/L	Analyzed:	10/04/06
Diln Fac:	1.000		

Type: MS Lab ID: QC359063

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	34.76	2,000	1,962	96	80-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	69-137
Bromofluorobenzene (FID)	96	80-133

Type: MSD Lab ID: QC359064

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,920	94	80-120	2	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	105	69-137
Bromofluorobenzene (FID)	97	80-133

RPD= Relative Percent Difference

Total Extractable Hydrocarbons

Lab #: 189755	Location: Redwood Regional Park
Client: Stellar Environmental Solutions	Prep: EPA 3520C
Project#: 2006-16	Analysis: EPA 8015B
Matrix: Water	Sampled: 09/29/06
Units: ug/L	Received: 09/29/06
Diln Fac: 1.000	Prepared: 10/03/06
Batch#: 118063	

Field ID: MW-11	Lab ID: 189755-006
Type: SAMPLE	Analyzed: 10/08/06

Analyte	Result	RL
Diesel C10-C24	2,100 L Y	50

Surrogate	%REC	Limits
Hexacosane	81	65-130

Field ID: MW-12	Lab ID: 189755-007
Type: SAMPLE	Analyzed: 10/08/06

Analyte	Result	RL
Diesel C10-C24	480 L Y	50

Surrogate	%REC	Limits
Hexacosane	83	65-130

Type: BLANK	Analyzed: 10/04/06
Lab ID: QC358718	Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	108	65-130

L= Lighter hydrocarbons contributed to the quantitation
 Y= Sample exhibits chromatographic pattern which does not resemble standard
 ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Total Extractable Hydrocarbons			
Lab #:	189755	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2006-16	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	118063
Units:	ug/L	Prepared:	10/03/06
Diln Fac:	1.000	Analyzed:	10/04/06

Type: BS Cleanup Method: EPA 3630C
 Lab ID: QC358719

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,778	111	61-133

Surrogate	%REC	Limits
Hexacosane	128	65-130

Type: BSD Cleanup Method: EPA 3630C
 Lab ID: QC358720

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,658	106	61-133	4	31

Surrogate	%REC	Limits
Hexacosane	123	65-130

RPD= Relative Percent Difference

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

Well MW-2 (continued)									
Event	Date	TVHg	TEHd	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	MTBE
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

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

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

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

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	Jun-06	88	51	<0.5	<0.5	<0.5	<0.5	—	9.6

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

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

**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	—	NA
3	Aug-95	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	—	NA
4	May-96	< 50	< 50	< 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	—	NA
7	Feb-97	< 50	< 50	< 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	—	NA
10	Feb-98	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	—	NA
11	Sep-98	< 50	< 50	< 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	—	< 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	—	< 2.0
19	Mar-02	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	—	< 2.0
20	Jun-02	< 50	< 50	< 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	—	< 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	—	< 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	—	< 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	—	< 2.0
31	Mar-05	< 50	< 50	< 0.5	< 0.5	< 0.5	< 1.0	—	< 2.0
32	Jun-05	< 50	< 50	< 0.5	< 0.5	< 0.5	< 1.0	—	< 2.0
33	Sep-05	< 50	< 50	< 0.5	< 0.5	< 0.5	< 1.0	—	< 2.0
34	Dec-05	< 50	< 50	< 0.5	< 0.5	< 0.5	< 1.0	—	< 2.0
35	Mar-06	< 50	62	< 0.5	< 0.5	< 0.5	< 1.0	—	< 2.0
36	Jun-06	< 50	110	< 0.5	< 0.5	< 0.5	< 1.0	—	< 2.0
37	Sep-06	62	94	< 0.5	< 0.5	0.81	< 0.5	0.8	< 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	—	NA
2	Aug-95	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	—	NA
3	May-96	< 50	74	< 0.5	< 0.5	< 0.5	< 0.5	—	NA
4	Aug-96	69	< 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
12	Dec-99	< 50	<50	< 0.5	< 0.5	< 0.5	< 0.5	—	< 2.0
13	Sep-00	NS	NS	NS	NS	NS	NS	—	NS
14	Jan-01	< 50	<50	< 0.5	< 0.5	< 0.5	< 0.5	—	< 2.0
15	Apr-01	< 50	<50	< 0.5	< 0.5	< 0.5	< 0.5	—	< 2.0
16	Sep-01	NS	NS	NS	NS	NS	NS	—	NS
17	Dec-01	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	—	< 2.0
18	Mar-02	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	—	< 2.0
19	Jun-02	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	—	2.4
20	Sep-02	NS	NS	NS	NS	NS	NS	—	NS
21	Dec-02	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	—	< 2.0
22	Mar-03	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	—	< 2.0
23	Jun-03	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	—	< 2.0
24	Sep-03	NS	NS	NS	NS	NS	NS	—	NS
25	Dec-03	60	< 100	< 0.3	< 0.3	< 0.3	< 0.6	—	< 5.0
26	Mar-04	<50	<100	<0.3	<0.3	<0.6	<0.6	—	< 5.0
27	Jun-04	NS	NS	NS	NS	NS	NS	—	NS
28	Sep-04	NS	NS	NS	NS	NS	NS	—	NS
29	Dec-04	<50	<50	<0.5	<0.5	<0.5	< 1.0	—	< 2.0
30	Mar-05	<50	<50	<0.5	<0.5	<0.5	< 1.0	—	< 2.0
31	Jun-05	<50	<50	<0.5	<0.5	<0.5	< 1.0	—	< 2.0
32	Sep-05	<50	<50	<0.5	<0.5	<0.5	< 1.0	—	< 2.0
33	Dec-05	<50	<50	<0.5	<0.5	<0.5	< 1.0	—	< 2.0
34	Mar-06	<50	<50	<0.5	<0.5	<0.5	< 1.0	—	< 2.0
35	Jun-06	<50	120	<0.5	<0.5	<0.5	< 1.0	—	< 2.0
36	Sep-06	<50	120	<0.5	<0.5	<0.5	<0.5	—	7.8