SECOND QUARTER 2008
SITE MONITORING REPORT

REDWOOD REGIONAL PARK
SERVICE YARD
OAKLAND, CALIFORNIA

Prepared for:

EAST BAY REGIONAL PARK DISTRICT
OAKLAND, CALIFORNIA

July 2008

STELLAR
ENVIRONMENTAL SOLUTIONS, INC.
GEOSCIENCE & ENGINEERING CONSULTING

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Prepared for:

EAST BAY REGIONAL PARK DISTRICT
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July 15, 2008

Project No. 2008-02

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July 15, 2008

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: Second Quarter 2008 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 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 between April 1 and June 31, 2008 (Second Quarter 2008) with an additional discussion of purging and sampling of monitoring well MW-2 conducted on May 22, 2008. Remedial bioventing activities are reported in separate technical submittals; however, a summary of these activities is included in the quarterly groundwater monitoring report.

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 us directly at (510) 644-3123.

Sincerely,

Richard Makdisi, R.G., R.E.A.
Principal

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

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1.0 INTRODUCTION

PROJECT BACKGROUND

The subject property is the East Bay Regional Park District (EBRPD) Redwood Regional Park Service Yard located at 7867 Redwood Road in Oakland, Alameda County, California. The site has undergone site investigations and remediation since 1993 to address subsurface contamination caused by leakage from one or both of two former underground fuel storage tanks (UFSTs) that contained gasoline and diesel fuel. The Alameda County Department of Environmental Health (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 April 1 and June 31, 2008:

- Collecting water levels in site wells to determine shallow groundwater flow direction;
- Sampling site wells for contaminant analysis and natural attenuation indicators;
- Collecting surface water samples for contaminant analysis; and
- Additional purging and sampling of groundwater from monitoring well MW-2.

HISTORICAL CORRECTIVE ACTIONS AND INVESTIGATIONS

Previous SES reports have provided discussions of previous site remediation and investigations; site geology and hydrogeology; residual site contamination; conceptual model for contaminant fate and transport; and hydrochemical trends and plume stability. Section 7.0 (References and Bibliography) of this report provides a listing of all technical reports for the site.

The general phases of site work included:

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

- Two instream bioassessment events conducted in April 1999 and January 2000 to evaluate potential impacts to stream biota associated with the site contamination (no impacts were documented).
- Additional monitoring well installations and corrective action by ORC™ injection proposed by SES and approved by 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 46 groundwater monitoring events, conducted on a quarterly basis since project inception (November 1994); a total of 11 groundwater monitoring wells are currently available for monitoring.
- A bioventing pilot test conducted in September and October 2004 to evaluate the feasibility of this corrective action strategy, and installation of the full-scale bioventing system in November and December 2005. Two additional bioventing wells (VW-4 and VW-5) were installed on March 4, 2008. 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 530 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 (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;
- Discontinuing field measurement and laboratory analyses for natural attenuation indicators, to be re-implemented following the bioventing corrective action; and

N

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

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

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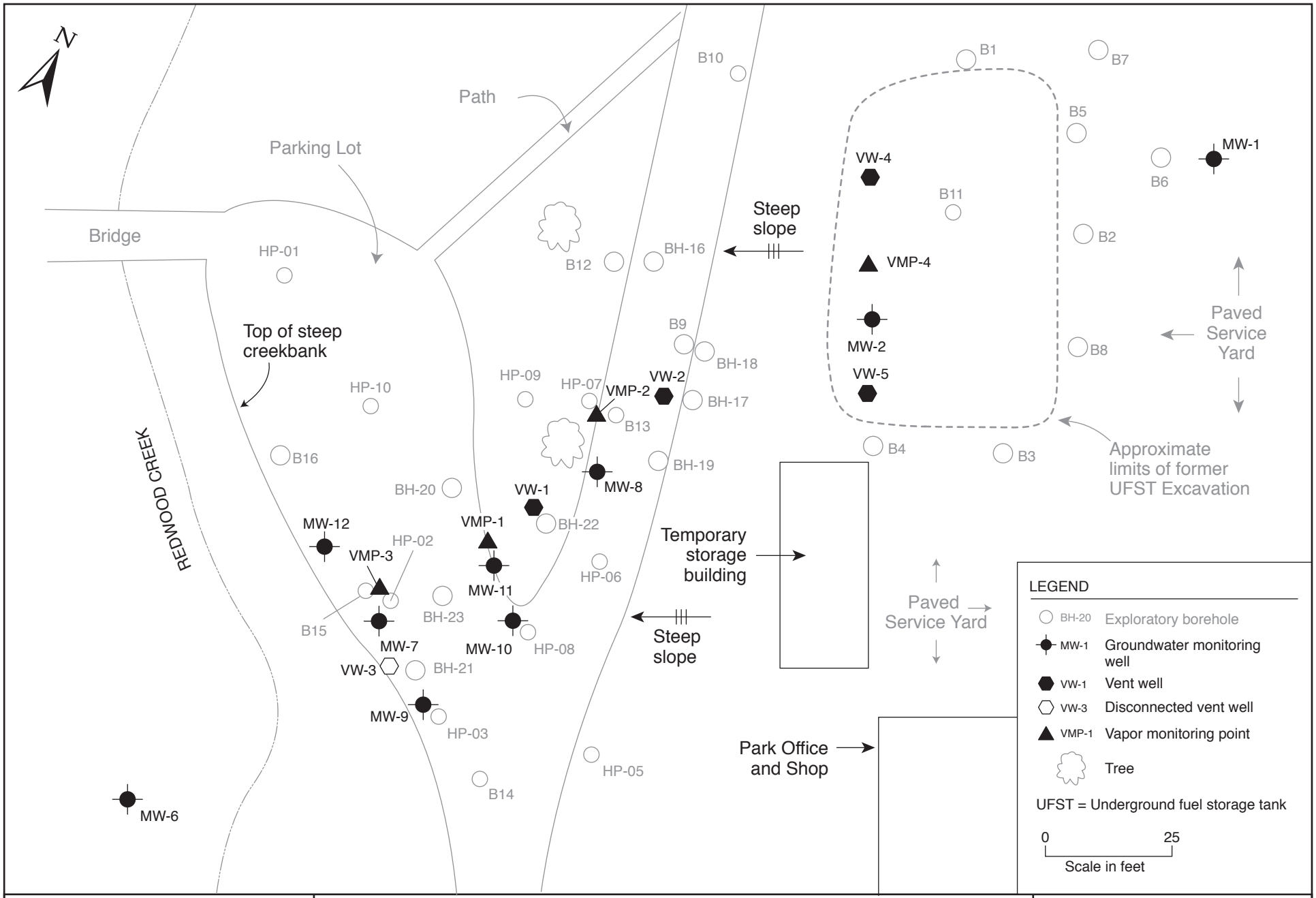
2006-17-01



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

Figure 2

by: MJC | MARCH 2008

2008-02-02

- 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 of California GeoTracker requirements for uploading of 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.

2.0 PHYSICAL SETTING

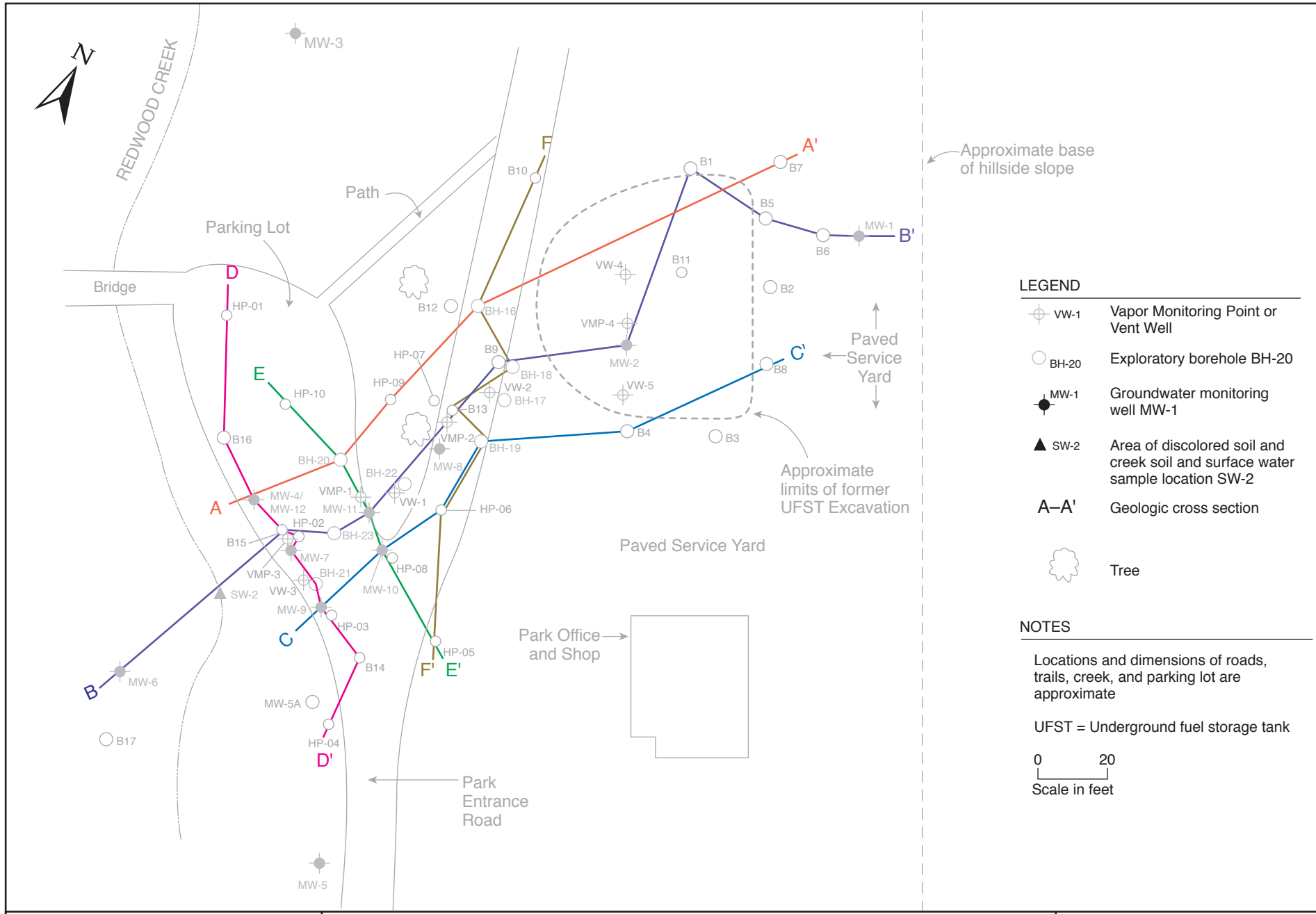
This section discusses the site hydrogeologic conditions based on geologic logging and water level measurements collected at the site since September 1993. Previous SES reports have included detailed discussions of site lithologic and hydrogeologic conditions. In May 2004, Alameda County Environmental 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 the 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 was presented in a previous report (SES, 2004c) for cross-section B-B'.

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

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



LEGEND

VW-1	Vapor Monitoring Point or Vent Well
BH-20	Exploratory borehole BH-20
MW-1	Groundwater monitoring well MW-1
SW-2	Area of discolored soil and creek soil and surface water sample location SW-2
A–A'	Geologic cross section
	Tree

NOTES

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

UFST = Underground fuel storage tank

0 20

Scale in feet

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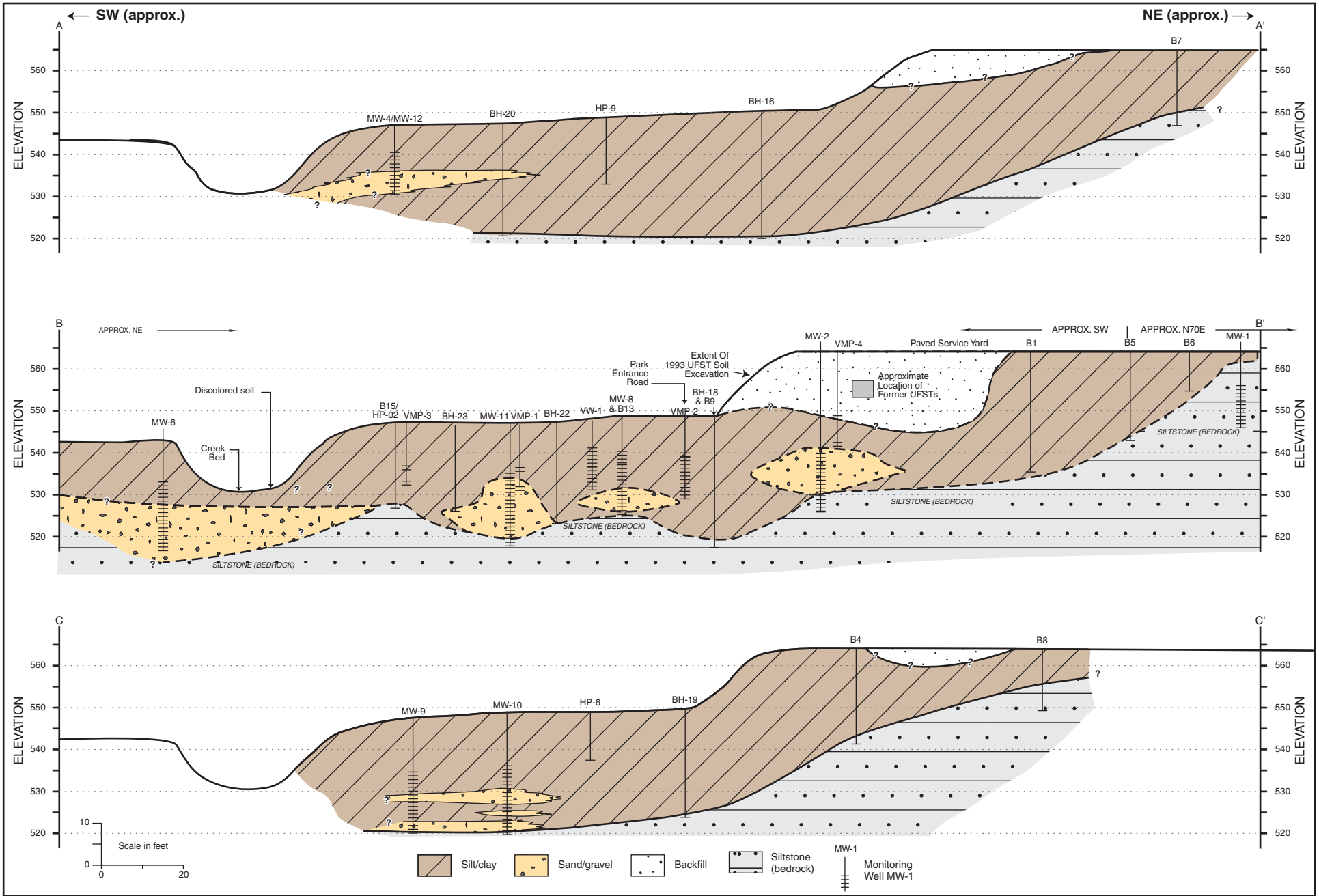
GEOLOGIC CROSS-SECTION LOCATIONS
Redwood Regional Park Service Yard, Oakland, CA

Figure 3

by: MJC | MARCH 2008

2008-02-05



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

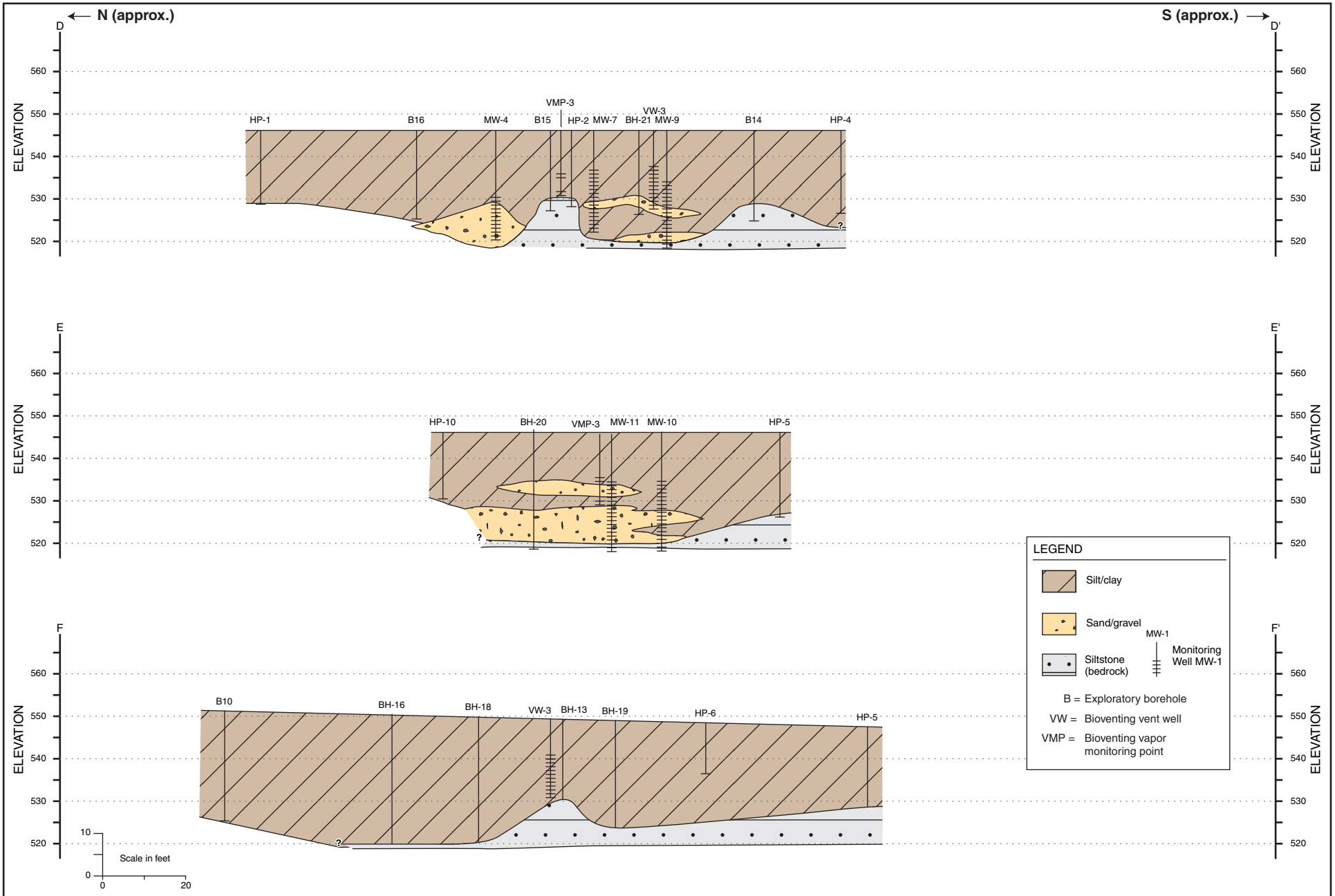
Redwood Regional Park Service Yard, Oakland, CA

Figure 4

by: MJC

DECEMBER 2007

2005-66-14



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

Figure 5

by: MJC | DECEMBER 2005

2005-66-13

topographic gradient). Bedrock topography on the northern side of the plume cannot be determined from the available data.

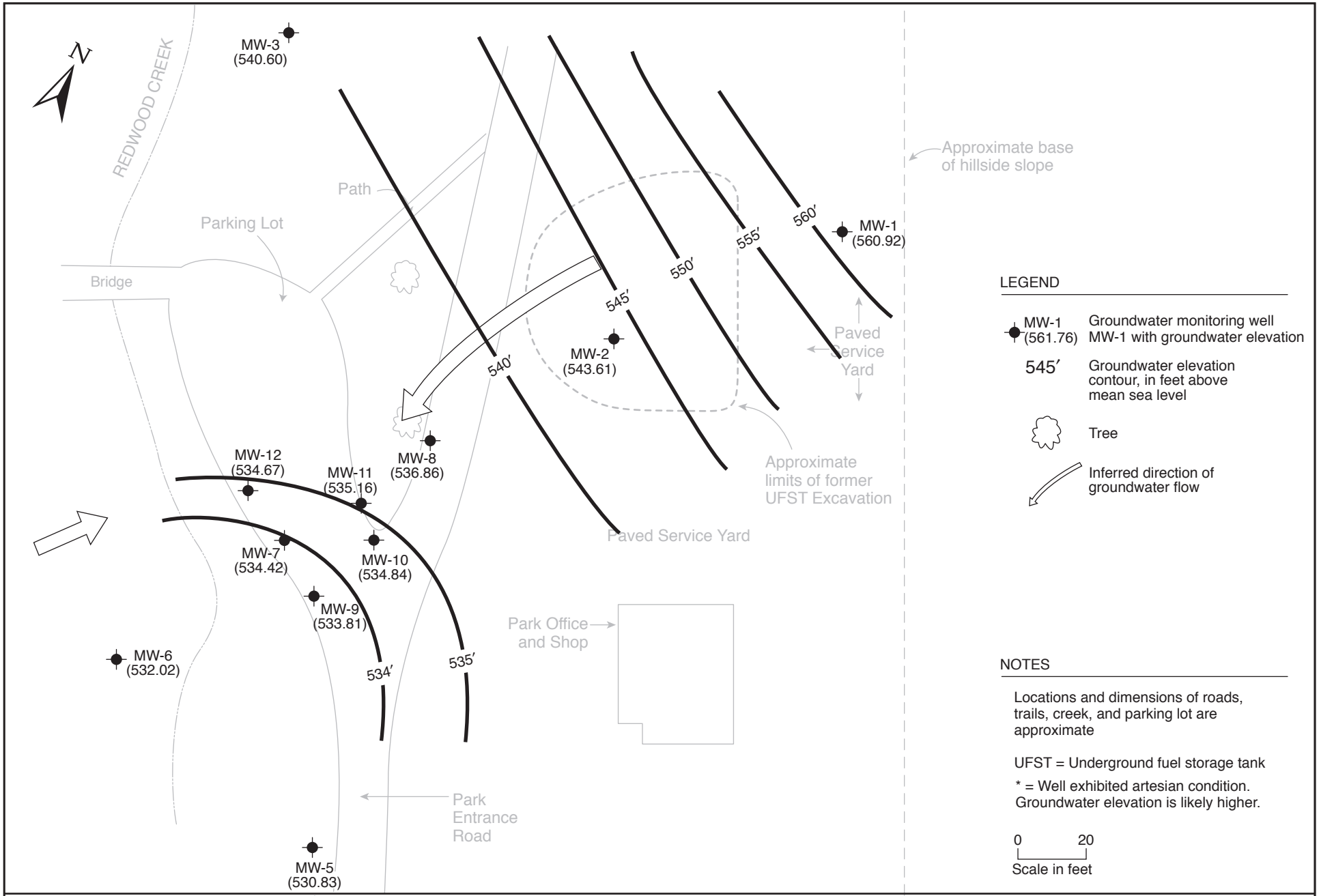
In the central and downgradient portions of the groundwater contaminant plume (under the entrance road and the parking area), the bedrock surface has local, fairly steep elevation highs and lows, expressing a hummocky surface. Bedrock elevations vary by up to 10 feet over distances of less than 20 feet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

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

HYDROGEOLOGY

Groundwater at the site occurs under unconfined and semi-confined conditions, generally within the clayey, silty, sand-gravel zone. The top of this zone varies between approximately 12 and 19 feet below ground surface (bgs), and 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.

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. 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 is likely more variable than expressed by groundwater monitoring well data, due to local variations in bedrock surface topography.



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GROUNDWATER ELEVATION MAP–June 13, 2008
Redwood Regional Park Service Yard, Oakland, CA

Figure 6

by: MJC | JUNE 2008

2008-02-10

In the upgradient portion of the site (between well MW-1 and MW-2, in landslide deposit and the former UFST excavation backfill), the groundwater gradient is approximately 0.21 feet per foot. Downgradient from (west of) the UFST source area (between MW-2 and Redwood Creek), the groundwater gradient is approximately 0.05 feet per foot. The 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 estimate 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 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 approximately 1 mile southeast of the site. During low-flow conditions, the groundwater table is below the creek bed in most locations (including the area of historical contaminated groundwater discharge); consequently, there is little to no observable creek flow at these times.

3.0 Q2 2008 ACTIVITIES

This section presents the creek surface water and groundwater sampling and analytical methods for the most recent groundwater monitoring event (Q2 2008), conducted on June 13, 2008 and an additional discussion of purging and sampling of monitoring well MW-2 that was conducted on May 22, 2008. 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 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.

Creek sampling and groundwater monitoring/sampling was conducted on June 13, 2008. The creek sampling was conducted 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—dissolved oxygen, oxidation-reduction potential, nitrate, ferrous iron, and sulfate—is of marginal value until such time as additional corrective actions that would increase oxygen concentrations are implemented. Thus, monitoring for natural attenuation parameters was discontinued following the Q3 2004 event.

Table 1
Groundwater Monitoring Well Construction and Groundwater Elevation Data –
June 13, 2008 Monitoring Event
Redwood Regional Park Corporation Yard, Oakland, California

Well	Well Depth	Screened Interval	TOC Elevation	Groundwater Elevation (6/13/08)
MW-1	18	7 to17	565.83	560.92
MW-2	36	20 to 35	566.42	543.61
MW-3	42	7 to 41	560.81	540.60
MW-5	26	10 to 25	547.41	530.83
MW-6	26	10 to 25	545.43	532.02
MW-7	24	9 to24	547.56	534.42
MW-8	23	8 to 23	549.13	536.86
MW-9	26	11 to 26	549.28	533.81
MW-10	26	11 to 26	547.22	534.84
MW-11	26	11 to 26	547.75	535.16
MW-12	25	10 to 25	544.67	534.67

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. Pre-purge groundwater samples were then collected for field and laboratory analysis of natural attenuation indicators. 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, and electrical conductivity) 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 55 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 June 12, 2008. Surface water samples were collected from two Redwood Creek locations: 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 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 high stage; water depths were approximately 0.5 to 1.0 feet with little to no flow. At the SW-2 location, where contaminated groundwater discharge to the creek historically has been observed, an orange algae was noted 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 was evident on the water surface.

BIOVENTING-RELATED ACTIVITIES

The bioventing system was installed and started up in December 2005/January 2006. Weekly system monitoring and air flow optimization events were conducted for 1 month in January and February 2006. Bioventing system operations and maintenance (O&M) events have been conducted monthly since March 2006. As noted previously, two new bioventing wells, VW-4 and VW-5, were installed on March 4, 2008 to augment the system and VW-3 which has historically seen no change in pressurization was disconnected. Bioventing activities are discussed in detail in separate technical documents.

MONITORING WELL MW-2 CONCENTRATION INCREASE AND PURGING REMEDY

Starting in Q3-2007 groundwater well MW-2, which had a 14 year history of concentrations well below 2,000 micrograms per liter (µg/L) total extractable hydrocarbons as diesel (TEHd) and total volatile hydrocarbons as gasoline (TVHg), showed a dramatic increase in concentrations for both TEHd and TVHg.

Well MW-2, located in the upgradient area of the plume in the location of the historical excavation, has historically contained relatively minor concentrations of diesel and gasoline, as expected given the excavation source removal in the area of the well, with previous maximum concentrations detected in February 1998 of 2,000 µg/L of TVHg and 200 µg/L of TEHd.

In Q3-2007, TVHg was detected at 2,600 µg/L TVHg and 260 µg/L of TEHd. In Q4-2007, TVHg was detected at 16,000 µg/L TVHg and 5,800 µg/L of TEHd. These concentrations were a new historic high.

Due to this increase in hydrocarbon concentrations at MW-2, SES purged approximately 80 gallons of contaminated groundwater from MW-2 on January 17, 2008. Groundwater samples taken from the well immediately after purging showed a dramatic drop in contamination to 480 µg/L of TVHg and 200 µg/L of TEHd.

The analytical results of MW-2 during the previous Q1-2008 monitoring event showed another contaminant spike with 20,000 µg/L of TVHg and 24,000 µg/L of TEHd. SES subsequently purged another 80 gallons from MW-2 on April 3, 2008. The analytical results showed a significant reduction to 800 µg/L of TVHg and 640 µg/L of TEHd.

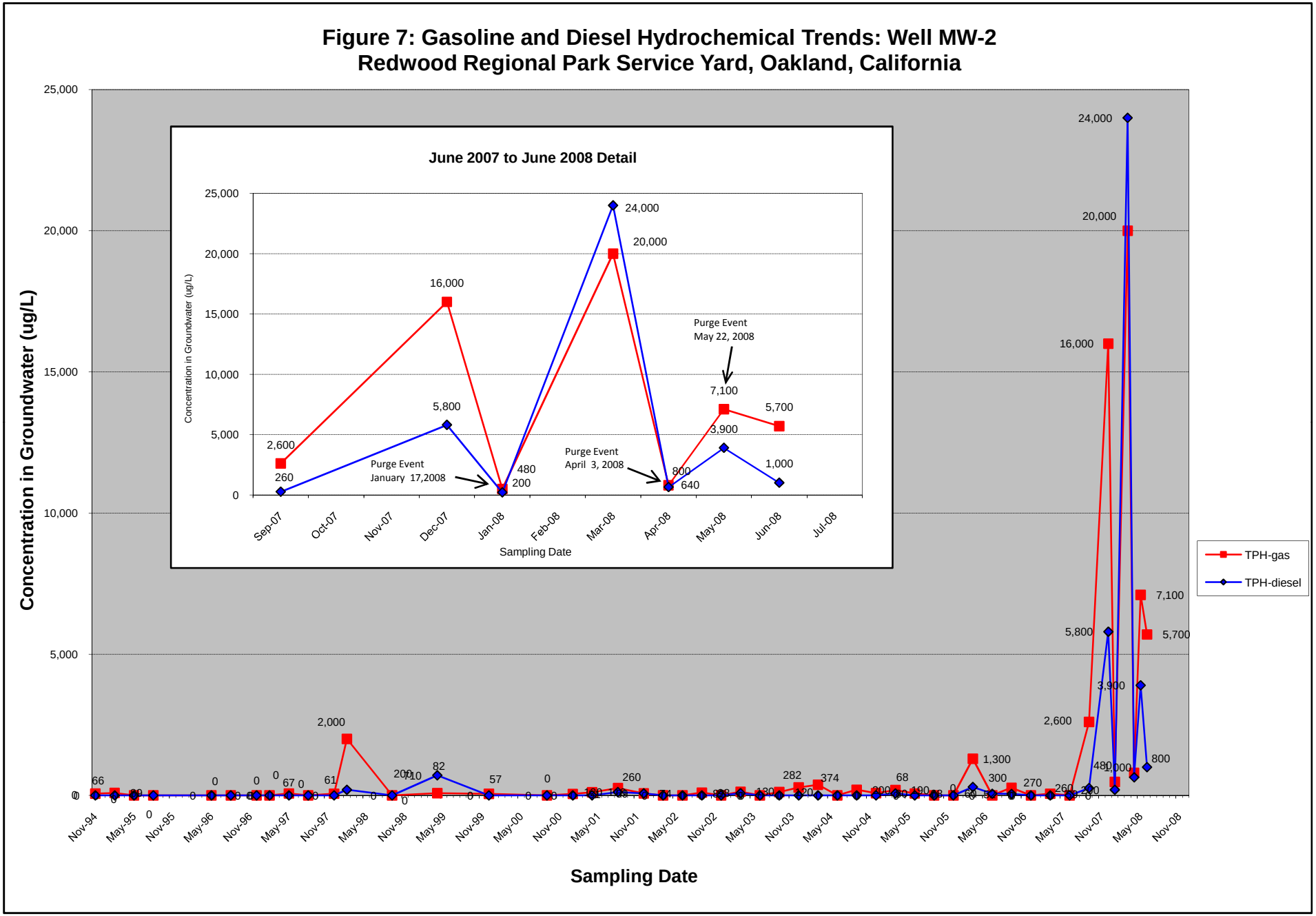
On May 22, 2008, SES purged 10 gallons from MW-2 prior to sampling. Another contaminant spike was observed with TVHg concentrations at 7,100 µg/L and TEHd at 3,900 µg/L. An additional 16 gallons were purged from MW-2 prior to sampling on June 13, 2008. TVHg was observed at 5,700 µg/L and TEHd at 1,000 µg/L.

The high concentrations of hydrocarbons observed and the significant reduction in those concentrations in response to limited pumping yields some clues about how systemic versus confined or isolated this contamination appears to be. The long history of sustained lower TEHd and TVHg concentrations at MW-2 argue against the recent increase being the result of the residual contamination in the source area suddenly yielding higher contamination, as that would be expected to have happened already given the groundwater velocity and proximity.

The only definitive environmental change over the last 10 years has been the recent (2006-07 and 2007-08) lower than normal rainfall. This lower groundwater elevation may have released some previously sorbed hydrocarbons; however, periods of lowered groundwater elevation in the last 10 years do not correlate with detected contaminant spikes. An alternative explanation could be that the spike in contamination may be due to an isolated spill event, or a confined pocket of residual contamination. Either way the rapid reduction in concentration resulting from limited purging indicates that this dissolved fraction of contamination is not extensive, or it would remain high with sustained pumping. The quick response suggests that the contamination may be entrained in the soil and requires sufficient contact time with groundwater to increase the soluble fraction.

Figure 7 shows the TEHd and TVHg concentration plot for MW-2 over time. See Appendix C for the certified laboratory analytical reports.

Figure 7: Gasoline and Diesel Hydrochemical Trends: Well MW-2
Redwood Regional Park Service Yard, Oakland, California



Stellar Environmental Solutions, Inc.

4.0 REGULATORY CONSIDERATIONS

The following is a summary of 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* (Water Board, 1986), all groundwaters are considered potential sources of drinking water unless otherwise approved by the Water Board, and are also assumed to ultimately discharge to a surface water body and potentially impact aquatic organisms. While it is likely that site groundwater would satisfy geology-related criteria for exclusion as a drinking water source (excessive total dissolved solids and/or insufficient sustained yield), Water Board approval for this exclusion has not been obtained for the site. As summarized in Table 2 (in Section 5.0), site groundwater contaminant levels are compared to two sets of criteria: 1) Water Board Tier 1 Environmental Screening Levels (ESLs) for residential sites where groundwater is a current or potential drinking water source; and 2) ESLs for residential sites where groundwater is not a current or potential drinking water source.

As stipulated in the ESL document (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, 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, 2008), benthic

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

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

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

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, and Figure 7 shows the 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 concentrations in all of the sampled monitoring wells (MW-2, MW-7, MW-8, MW-9, MW-10, MW-11, and MW-12) exceeded their respective groundwater ESLs for TEHd, and TVHg in all wells under both the *groundwater is and is not a drinking water resource* criteria (except for MW-12 which did not exceed the non-drinking water resource criteria for diesel). Concentrations of benzene exceeded the ESL for drinking water in all wells except MW-12, where the concentration was below the laboratory detection limit. Toluene was found above the drinking water criteria in MW-2. Ethylbenzene concentrations exceeded the ESL for where groundwater is and is not a drinking water resource in MW-2, MW-7, MW-8, MW-9, and MW-11. Total xylenes exceeded the groundwater ESLs under both criteria in wells MW-2, MW-8, and MW-9. MTBE was found above the drinking water criteria only in well MW-2, and was below the laboratory detection limit in all other wells.

Maximum TVHg, TEHd, ethylbenzene, and total xylene concentrations for this monitoring event were all detected in MW-9, a downgradient well. Maximum toluene and MTBE concentrations were observed in MW-2 (located in the former source area) as well as elevated concentrations of all other contaminants. This anomaly is discussed in more detail in Section 3.0. The maximum benzene concentration was detected in MW-11, also a downgradient well. 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. While the center of contaminant mass in groundwater has historically been located

Table 2
Groundwater and Surface Water Sample
Analytical Results – June 13, 2008
Redwood Regional Park Corporation Yard, Oakland, California

Location	Contaminant						
	TVHg	**TEHd**	**Benzene**	**Toluene**	**Ethyl-benzene**	**Total Xylenes**	**MTBE**
GROUNDWATER SAMPLES							
MW-2	**5,700**	**1,000**	**9.4**	**5.2**	**80**	**550**	**11**
MW-7	**4,800**	**3,500**	**55**	*<0.50*	**140**	7.03	*<2.0*
MW-8	**2,000**	**1,700**	**27**	2.5	**190**	**113.2**	*<2.0*
MW-9	**10,000**	**3,400**	**89**	<2.5	**510**	**231**	*<10*
MW-10	**230**	**320**	**12**	*<0.50*	9.9	3.5	<2.0
MW-11	**3,600**	**4,200**	**190**	*<0.50*	**140**	11	*<2.0*
MW-12	**220**	**50**	*<0.50*	<0.50	2.0	<0.50	*<2.0*
Groundwater ESLs [(a)]	100 / 210	100/ 210	1.0 / 46	4.0 / 130	30 / 43	20 / 100	5.0 / 1,800
REDWOOD CREEK SURFACE WATER SAMPLES							
SW-2	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
SW-3	*<50*	55	*<0.5*	*<0.5*	*<0.5*	*<0.5*	<2.0
Surface Water Screening Levels [(a, b)]	100	100	1.0	40	30	20	5.0

Notes:

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

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

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

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

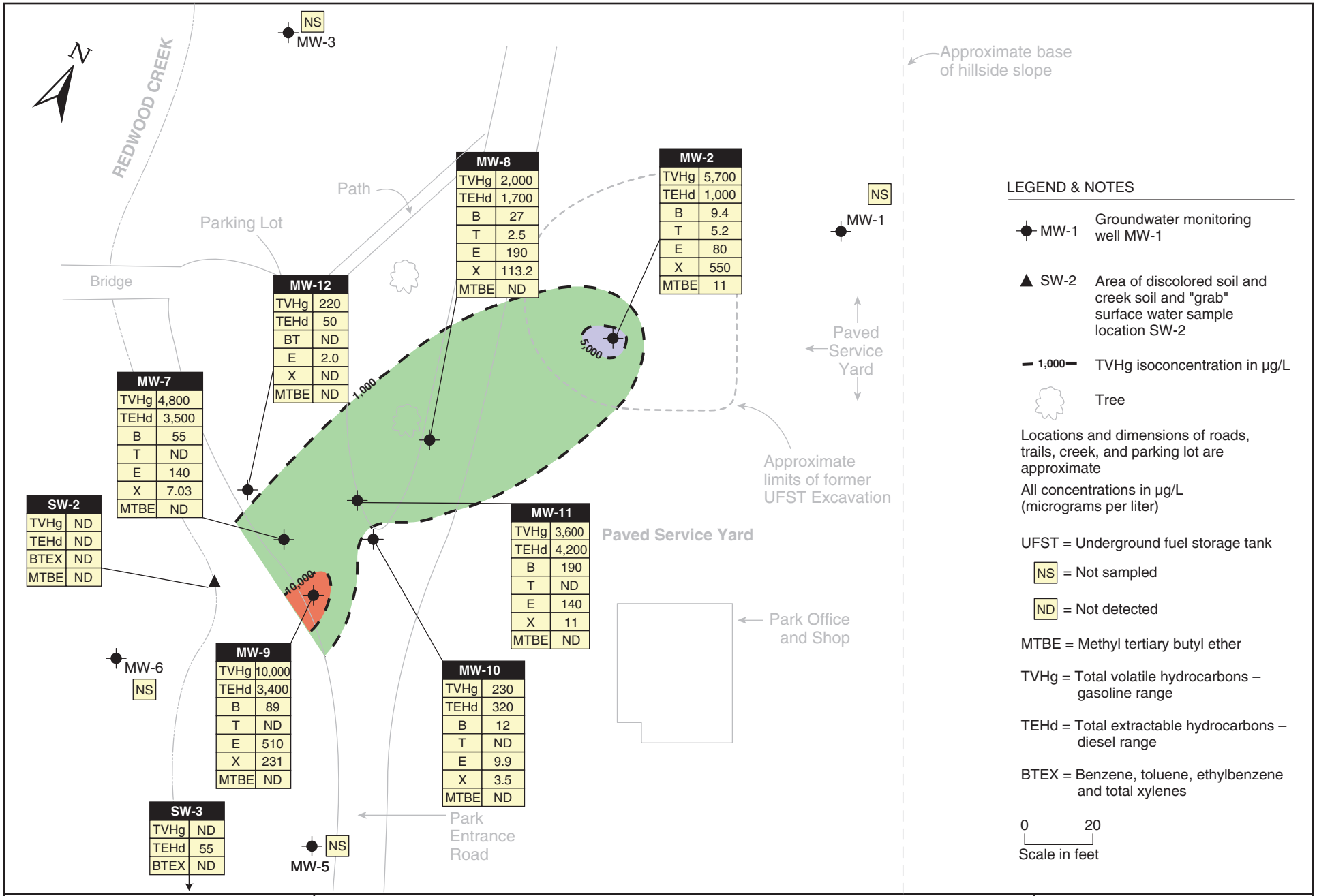
Samples in **bold-face type** exceed the ESL and/or surface water screening levels where groundwater is a potential drinking water resource.

Both of the two surface water samples collected, SW-2 and SW-3, were below the laboratory detection limits for TVHg, BTEX, and MTBE. SW-2 was also below the detection limit for TEHd. The surface water sample taken at the creek location SW-3 was above the detection limit for TEHd, but at a concentration of 55 µg/L, was well below the ESL of 100 µg/L.

QUALITY CONTROL SAMPLE ANALYTICAL RESULTS

Laboratory quality control 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).



STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

ANALYTICAL RESULTS AND GASOLINE PLUME—JUNE 2008

Redwood Regional Park Service Yard, Oakland, CA

Figure 8

by: MJC | JULY 2008

2006-17-19

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 findings.

SUMMARY AND CONCLUSIONS

- Groundwater sampling has been conducted approximately on a quarterly basis since November 1994 (46 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 contaminant concentrations exceed regulatory screening levels for groundwater; however, the concentrations do not exceed regulatory screening levels in surface water.
- The primary environmental risk is discharge of contaminated groundwater to the adjacent Redwood Creek. A stream bioassessment concluded that there were no direct impacts to the surface water benthic community; however, groundwater contamination is sporadically detected in surface water samples, and there is historical visual evidence of plume discharge at the creek/groundwater interface. Surface water samples have sporadically exceeded surface water ESL criteria for gasoline, diesel, and benzene, and generally only under low creek flow conditions. An in-stream bioassessment evaluation in 1999-2000 determined no impacts to the benthic macroinvertebrate community.
- The existing well layout adequately constrains the lateral extent of groundwater contamination, and the downward 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 environmental screening levels appears to be within an area approximately 130 feet long and 25 to 50 feet wide.

- Historical high concentrations of petroleum hydrocarbons have been detected in the source area monitoring well MW-2 for the last four consecutive quarters since Q3-2007. Approximately three purging events (apart from quarterly groundwater monitoring), have been conducted since the observance of the elevated contaminant concentrations. While the concentrations have been observed to decrease after purging events, they subsequently increase between purging events. It is suspected that contamination in this well may be due to an isolated spill event, or a confined pocket of residual contamination.
- Compared to the same monitoring event a year ago, the contaminant concentrations in the downgradient wells MW-7, MW-11, and MW-12 have decreased; as well as in MW-8 located just downgradient of the former source area. However, concentrations in monitoring well MW-2 (located in the former source area), MW-9 (a downgradient well) and MW-10 (located between the closest downgradient and farthest downgradient wells from the source area) have increased.
- 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.
- Soil bioventing was implemented as a remedy in December 2005 to remediate the vadose zone soil contamination that has continued to provide an input source to the groundwater. Bioventing appears to be slowly reducing the residual contaminant mass, as seen in the dissolved hydrocarbon concentrations. Two additional bioventing wells, VW-4 and VW-5, were installed in March 2008 to augment the system in the vicinity of MW-2 where a trend of increasing high concentrations have been detected since the third quarter of 2007.

PROPOSED ACTIONS

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

- Continue monthly sampling of monitoring well MW-2 until it can be determined whether the recent anonymously high contaminant detections can be attributed to a spill or recently released residual contamination.
- Continue the quarterly program of creek and groundwater sampling and reporting.
- Continue to inform regulators of site progress and seek their concurrence with proposed actions.
- Operate the bioventing system as a corrective action to move the site toward closure, and report those results in bioventing-specific technical reports.
- Continue to evaluate analytical results (and bioventing contaminant removal data) in the context of hydrochemical trends, impacts of groundwater contamination on Redwood Creek, and the effectiveness of the corrective action.

- Continue to make required Electronic Data Format uploads to the GeoTracker database, and upload an electronic copy of technical reports to Alameda County Environmental Health's 'ftp' system.

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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 provides neither a certification nor guarantee that the property is free of hazardous substance contamination. 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 the investigation and remediation completed.

APPENDIX A

Historical Groundwater Monitoring Well Water Level Data

HISTORICAL GROUNDWATER ELEVATIONS IN MONITORING WELLS

REDWOOD REGIONAL PARK SERVICE YARD

7867 REDWOOD ROAD, OAKLAND, CALIFORNIA

Well I.D.	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
TOC Elevation (a)	565.83	566.42	560.81	548.10	547.41	545.43	547.56	549.13	549.28	547.22	547.75	544.67
Date Monitored	Groundwater Elevations (feet above mean sea level)											
09/18/98	563.7	544.2	540.8	534.5	531.1	545.6						
04/06/99	565.2	546.9	542.3	535.6	532.3	532.9						
12/20/99	562.9	544.7	541.5	534.9	531.2	532.2						
09/28/00	562.8	542.7	538.3	532.2	530.9	532.0						
01/11/01	562.9	545.1	541.7	535.0	531.2	532.3	534.9	538.1				
04/13/01	562.1	545.7	541.7	535.1	531.5	532.4	535.3	539.8				
09/01/01	560.9	542.0	537.7	533.9	530.7	531.8	534.0	535.6				
12/17/01	562.2	545.2	542.2	534.8	531.4	532.4	534.8	538.4	534.6	535.7	535.2	
03/14/02	563.0	547.1	542.2	535.5	532.4	533.3	535.7	541.8	535.0	537.6	536.6	
06/18/02	562.1	544.7	541.1	534.6	531.2	532.2	534.8	537.9	534.7	535.6	535.3	
09/24/02	561.4	542.2	537.3	533.5	530.6	531.8	533.5	535.5	535.3	533.8	531.7	
12/18/02	562.4	545.0	542.0	534.8	531.5	532.5	534.6	537.1	536.5	535.2	532.8	
03/27/03	562.6	545.7	541.7	534.8	531.6	532.4	535.1	539.9	537.2	536.2	533.6	
06/19/03	562.3	544.9	541.5	534.8	531.3	532.3	534.9	538.2	536.9	535.7	533.2	
09/10/03	561.6	542.1	537.9	533.8	530.8	531.9	533.7	535.6	535.6	534.1	531.9	
12/10/03	562.4	542.7	537.6	533.7	530.9	531.9	533.7	535.2	535.5	533.8	531.7	
03/18/04	563.1	546.6	541.9	535.0	531.7	532.4	535.2	540.9	537.4	536.6	533.8	
06/17/04	562.1	544.3	540.7	534.3	531.0	532.1	534.6	537.4	536.5	535.1	532.7	
09/21/04	561.5	541.1	536.5	533.1	530.5	531.6	533.1	534.7	532.7	533.2	533.2	
12/14/04	562.2	545.3	541.7	534.7	531.4	532.2	534.6	540.4	536.7	535.5	532.9	
03/16/05	563.8	547.3	541.7	535.3	532.4	532.8	535.6	541.8	538.0	537.1	534.2	
06/15/05	562.9	545.9	541.6	535.0	531.7	532.5	535.0	540.0	535.0	536.1	535.6	
09/13/05	562.3	543.5	539.7	534.4	530.9	532.2	534.3	536.7	536.1	534.7	532.4	
12/15/05	562.2	544.3	541.4	(b)	531.0	532.2	534.5	537.3	534.1	534.7	534.9	535.1
03/30/06	565.8	548.6	542.7	(b)	533.9	534.4	536.2	542.3	536.4	537.3	537.6	535.7
06/20/06	563.6	545.4	541.6	(b)	531.5	532.5	534.9	538.6	534.6	536.2	535.5	535.0
09/29/06	561.9	542.8	539.0	(b)	530.7	532.1	535.1	536.1	533.7	534.6	534.7	534.7
12/14/06	562.9	544.2	541.5	(b)	531.1	532.3	534.7	536.7	534.0	534.8	535.2	535.0
03/21/07	562.5	545.2	541.7	(b)	531.4	532.4	534.9	539.3	534.6	535.6	535.6	535.1
06/20/07	561.5	543.5	540.8	(b)	531.0	532.4	534.6	537.1	531.1	535.2	535.3	534.9
9/14/2007	560.71	541.02	536.99	(b)	530.46	531.58	533.42	534.86	532.64	533.47	533.68	533.74
12/6/2007	560.62	541.22	536.85	(b)	530.68	531.48	533.21	535.08	532.62	533.3	533.61	533.64
3/14/2008	561.76	545.73	541.63	(b)	531.34	532.30	534.88	539.30	534.67	536.04	535.89	535.72
6/13/2008	560.92	543.61	540.6	(b)	530.83	532.02	534.42	536.86	533.81	534.84	535.16	534.67

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

WELLHEAD INSPECTION CHECKLIST

Date 6/13/08 Client Stellar

Site Address Redwood Resional Park, Oakland

Job Number 080613-WL1 Technician Will Laupe

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		Missing 2/3 bolts				
MW-9	X							
MW-10	X							
MW-11	X							
MW-12	X							

NOTES:

WELL GAUGING DATA

Project # 080613-WL1 Date 6/13/08 Client Stellar

Site Redwood Regional Park, Oakland

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or (TOC)	Notes	
MW-1	0800	4					9.91	19.13		60	
MW-2	0803	4					22.81	38.91		S	1
MW-3	0854	4					20.21	45.02		60	
MW-5	0809	4					16.58	26.99		60	
MW-6	0846	4					13.41	27.38		60	
MW-7	0822	2					13.14	25.29		S	3
MW-8	0836	2					12.27	22.23		S	6
MW-9	0814	2					15.47	30.25		S	5
MW-10	0818	2				12.38	~~10.00~~ @	28.37		S	2
MW-11	0841	2					12.59	28.70		S	7
MW-12	0827	2					10.00	23.94		S	4

W LL MONITORING DATA SHL T

Project #: 080613-WL1	Client: Stellar
Sampler: WL	Date: 6/13/08
Well I.D.: MW-2	Well Diameter: 2 3 (4) 6 8 ____
Total Well Depth (TD): 38.91	Depth to Water (DTW): 22.81
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; (X) Electric Submersible; Waterra; Peristaltic; Extraction Pump; Other_____

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

10.4 (Gals.) X	3	= 31.2 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	radius^2 * 0.163

Time	Temp (°F or (C))	pH	Cond. (mS or (uS))	Turbidity (NTUs)	Gals. Removed	Observations
0929	16.2	6.9	867.7	26	10.4	odor
			well dewatered @ 16 gallons			
1205	16.6	6.8	898.6	13	—	odor

Did well dewater? (Yes) No Gallons actually evacuated: 16.0

Sampling Date: 6/13/08 Sampling Time: 1205 Depth to Water: 24.71

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

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

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

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

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

W LL MONITORING DATA SHL T

Project #: 080613-WL1	Client: Stellar
Sampler: WL	Date: 6/13/08
Well I.D.: MW-7	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 23.29	Depth to Water (DTW): 13.14
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: _____

1.9 (Gals.) X 3 = 5.7 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

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

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1001	14.4	6.7	831.3	18	1.9	
1004	14.7	6.7	855.6	38	3.8	
1007	13.8	6.7	862.8	43	5.7	

Did well dewater? Yes (No) Gallons actually evacuated: 5.7

Sampling Date: 6/13/08 Sampling Time: 1015 Depth to Water:

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

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

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

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

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

WELL MONITORING DATA SHEET

Project #: 080613-WL1	Client: Stellar
Sampler: WL	Date: 6/13/08
Well I.D.: MW-8	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 22.23	Depth to Water (DTW): 12.27
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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

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

1.5 (Gals.) X	3	= 4.5 Gals.
1 Case Volume	Specified Volumes	Calculated Volume

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

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1103	16.3	7.0	814.7	107	1.5	Cloudy
1105	16.1	7.0	819.7	322	3.0	↓
1107	16.0	7.0	838.3	563	4.5	↓

Did well dewater? Yes (No) Gallons actually evacuated: 4.5

Sampling Date: 6/13/08 Sampling Time: 1115 Depth to Water:

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

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

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

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

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

W LL MONITORING DATA SHL T

Project #: 080613-WL1	Client: Stellar
Sampler: WL	Date: 6/13/08
Well I.D.: MW-9	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 30.25	Depth to Water (DTW): 15.47
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: _____

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

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

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1042	14.4	6.7	969.4	562	2.3	Cloudy/odor
1045	13.9	6.8	967.8	185	4.6	↓
1048	13.7	6.8	982.1	220	6.9	

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

Sampling Date: 6/13/08 Sampling Time: 1055 Depth to Water:

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

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

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

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

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

WELL MONITORING DATA SHEET

Project #: 080613-WL1	Client: Stellar
Sampler: WL	Date: 6/13/08
Well I.D.: MW-10	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 28.37	Depth to Water (DTW): 12.38
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
- X Disposable Bailer
- Extraction Port
- Dedicated Tubing
- Other: _____

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

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

Time	Temp (°F or (C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
0946	15.6	7.7	855.6	536	2.5	Brown/cloudy
0949	15.6	7.7	859.8	7/000	5.0	↓
0952	15.0	7.6	863.4	7/000	7.5	

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

Sampling Date: 6/13/08 Sampling Time: 0955 Depth to Water: ~

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

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

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

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

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

W ..L MONITORING DATA SHE..

Project #: 080613-WL1	Client: Stellar
Sampler: WL	Date: 6/13/08
Well I.D.: MW-11	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 28.70	Depth to Water (DTW): 12.59
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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

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

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

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

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1128	15.5	7.0	782.6	673	2.5	Cloudy
1132	15.0	6.9	817.8	71000	5.0	↓
1136	14.6	6.9	819.1	71000	7.5	

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

Sampling Date: 6/13/08 Sampling Time: 1140 Depth to Water: —

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

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

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

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

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

W LL MONITORING DATA SH T

Project #: 080613-WL1	Client: Stellar
Sampler: WL	Date: 6/13/08
Well I.D.: MW-12	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 23.94	Depth to Water (DTW): 10.00
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]:	

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

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

2.2 (Gals.) X	3	=	6.6 Gals.
1 Case Volume	Specified Volumes		Calculated Volume

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

Time	Temp (°F or (C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1021	14.5	6.8	769.5	71000	2.2	cloudy
1024	14.1	6.7	760.9	71000	4.4	↓
1027	13.9	6.7	764.3	71000	6.6	

Did well dewater? Yes (No) Gallons actually evacuated: 6.6

Sampling Date: 6/13/08 Sampling Time: 1035 Depth to Water: —

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

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

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

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

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

TEST EQUIPMENT CALIBRATION LOG

PROJECT NAME Redwood Regional Park				PROJECT NUMBER 080613-WL1			
EQUIPMENT NAME	EQUIPMENT NUMBER	DATE/TIME OF TEST	STANDARDS USED	EQUIPMENT READING	CALIBRATED TO: OR WITHIN 10%:	TEMP.	INITIALS
Myron L Ultrameter	6000489	6/13/08 0630	pH 10.0 7.0 Cond 3900	pH 10.02 7.0 4.0 Cond 3901	Yes	19.5	WL
Hach Turbidimeter	46500-00	6/13/08 0639	20 800 100	18 99 796	Yes	—	WL

APPENDIX C

Analytical Laboratory Report and Chain-of-Custody Record

Chain of Custody Record

Lab job no. 203979

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 ~~2008-10~~ 2008-02

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

	Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	Analysis Required: TVH-G (8015)	Analysis Required: BTEX/MTBE (8021)	Analysis Required: TEH-D (8015)	Remarks
1	MW-2		6/13	1205	W	3 HCL VOA / Amber NP					X	X	X	
2	MW-7			1015							X	X	X	
3	MW-8			1115							X	X	X	
4	MW-9			1058							X	X	X	
5	MW-10			0955							X	X	X	
6	MW-11			1140							X	X	X	
7	MW-12			1035							X	X	X	

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature	6/13	Signature	6/13/08	Signature		Signature	
Printed William Lane	Time 1300	Printed Lily Wu	Time 13:00	Printed	Time	Printed	Time
Company Stellar Environmental		Company C T		Company		Company	

Turnaround Time: 5 Day TAT

Comments: Please provide a GeoTracker EDF for groundwater samples only
Surface water samples collected by Stellar Environmental Solutions.
Groundwater samples collected by Blaine Tech Services.
GLOBAL ID : T0600186440

on ice, intact

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

2000-00-01

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 203979 Date Received 6/13/08 Number of coolers 1
Client Stellar Project Redwood Regional Park

Date Opened 6/13 By (print) KWellbrock (sign) KWellbrock
Date Logged in ↓ By (print) ↓ (sign) ↓

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

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many _____ Name _____ Date _____

2B. Were custody seals intact upon arrival? ..... YES NO (N/A)

3. Were custody papers dry and intact when received?..... (YES) NO

4. Were custody papers filled out properly (ink, signed, etc)?..... (YES) NO

5. Is the project identifiable from custody papers? (If so fill out top of form)..... YES NO

6. Indicate the packing in cooler: (if other, describe) _____

☐ Bubble Wrap ☐ Foam blocks ☒ Bags ☐ None

☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. If required, was sufficient ice used? Samples should be < or = 6°C .....YES NO N/A

Type of ice used: ☒ Wet ☐ Blue ☐ None Temp(°C)_____

☒ Samples Received on ice & cold without a temperature blank

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? .....YES (NO)
If YES, what time were they transferred to freezer? _____

9. Did all bottles arrive unbroken/unopened?..... (YES) NO

10. Are samples in the appropriate containers for indicated tests? ..... (YES) NO

11. Are sample labels present, in good condition and complete? ..... (YES) NO

12. Do the sample labels agree with custody papers? ..... (YES) NO

13. Was sufficient amount of sample sent for tests requested? ..... (YES) NO

14. Are the samples appropriately preserved? ..... (YES) NO N/A

15. Are bubbles > 6mm absent in VOA samples?..... (YES) NO N/A

16. Was the client contacted concerning this sample delivery?..... YES NO
If YES, Who was called? _____ By _____ Date: _____

COMMENTS

_____

_____

_____

_____

_____

_____

_____

_____

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

Laboratory Job Number 203979
ANALYTICAL REPORT

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

Sample ID	Lab ID
MW-2	203979-001
MW-7	203979-002
MW-8	203979-003
MW-9	203979-004
MW-10	203979-005
MW-11	203979-006
MW-12	203979-007

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

Signature: _____ Date: 06/20/2008
Project Manager

Signature: _____ Date: 06/20/2008
Senior Program Manager

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**203979**
Client:	**Stellar Environmental Solutions**
Project:	**2008-02**
Location:	**Redwood Regional Park**
Request Date:	**06/13/08**
Samples Received:	**06/13/08**

This hardcopy data package contains sample and QC results for seven water samples, requested for the above referenced project on 06/13/08. The samples were received cold and intact.

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

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203979	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Sampled:	06/13/08
Units:	ug/L	Received:	06/13/08

Field ID:	MW-2	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	139419
Lab ID:	203979-001	Analyzed:	06/19/08

Analyte	Result	RL	Analysis
Gasoline C7-C12	5,700 Y	50	EPA 8015B
MTBE	11	2.0	EPA 8021B
Benzene	9.4	0.50	EPA 8021B
Toluene	5.2 C	0.50	EPA 8021B
Ethylbenzene	80	0.50	EPA 8021B
m,p-Xylenes	430	0.50	EPA 8021B
o-Xylene	120	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	140	69-140	EPA 8015B
Bromofluorobenzene (FID)	96	73-144	EPA 8015B
Trifluorotoluene (PID)	100	60-146	EPA 8021B
Bromofluorobenzene (PID)	96	65-143	EPA 8021B

Field ID:	MW-7	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	139419
Lab ID:	203979-002	Analyzed:	06/19/08

Analyte	Result	RL	Analysis
Gasoline C7-C12	4,800	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	55	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	140	0.50	EPA 8021B
m,p-Xylenes	6.4	0.50	EPA 8021B
o-Xylene	0.63 C	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	88	69-140	EPA 8015B
Bromofluorobenzene (FID)	99	73-144	EPA 8015B
Trifluorotoluene (PID)	86	60-146	EPA 8021B
Bromofluorobenzene (PID)	101	65-143	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203979	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Sampled:	06/13/08
Units:	ug/L	Received:	06/13/08

Field ID:	MW-8	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	139335
Lab ID:	203979-003	Analyzed:	06/17/08

Analyte	Result	RL	Analysis
Gasoline C7-C12	2,000	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	27	0.50	EPA 8021B
Toluene	2.5 C	0.50	EPA 8021B
Ethylbenzene	190	0.50	EPA 8021B
m,p-Xylenes	110	0.50	EPA 8021B
o-Xylene	3.2	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	105	69-140	EPA 8015B
Bromofluorobenzene (FID)	94	73-144	EPA 8015B
Trifluorotoluene (PID)	95	60-146	EPA 8021B
Bromofluorobenzene (PID)	92	65-143	EPA 8021B

Field ID:	MW-9	Diln Fac:	5.000
Type:	SAMPLE	Batch#:	139419
Lab ID:	203979-004	Analyzed:	06/19/08

Analyte	Result	RL	Analysis
Gasoline C7-C12	10,000	250	EPA 8015B
MTBE	ND	10	EPA 8021B
Benzene	89	2.5	EPA 8021B
Toluene	ND	2.5	EPA 8021B
Ethylbenzene	510	2.5	EPA 8021B
m,p-Xylenes	220	2.5	EPA 8021B
o-Xylene	11	2.5	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	111	69-140	EPA 8015B
Bromofluorobenzene (FID)	108	73-144	EPA 8015B
Trifluorotoluene (PID)	115	60-146	EPA 8021B
Bromofluorobenzene (PID)	98	65-143	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203979	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Sampled:	06/13/08
Units:	ug/L	Received:	06/13/08

Field ID:	MW-10	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	139419
Lab ID:	203979-005	Analyzed:	06/19/08

Analyte	Result	RL	Analysis
Gasoline C7-C12	230	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	12	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	9.9	0.50	EPA 8021B
m,p-Xylenes	3.5	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	104	69-140	EPA 8015B
Bromofluorobenzene (FID)	96	73-144	EPA 8015B
Trifluorotoluene (PID)	102	60-146	EPA 8021B
Bromofluorobenzene (PID)	102	65-143	EPA 8021B

Field ID:	MW-11	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	139335
Lab ID:	203979-006	Analyzed:	06/17/08

Analyte	Result	RL	Analysis
Gasoline C7-C12	3,600	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	190	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	140	0.50	EPA 8021B
m,p-Xylenes	11	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	120	69-140	EPA 8015B
Bromofluorobenzene (FID)	116	73-144	EPA 8015B
Trifluorotoluene (PID)	99	60-146	EPA 8021B
Bromofluorobenzene (PID)	101	65-143	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203979	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Sampled:	06/13/08
Units:	ug/L	Received:	06/13/08

Field ID:	MW-12	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	139335
Lab ID:	203979-007	Analyzed:	06/18/08

Analyte	Result	RL	Analysis
Gasoline C7-C12	220	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	2.0	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	109	69-140	EPA 8015B
Bromofluorobenzene (FID)	98	73-144	EPA 8015B
Trifluorotoluene (PID)	89	60-146	EPA 8021B
Bromofluorobenzene (PID)	93	65-143	EPA 8021B

Type:	BLANK	Batch#:	139335
Lab ID:	QC446781	Analyzed:	06/17/08
Diln Fac:	1.000		

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

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	89	69-140	EPA 8015B
Bromofluorobenzene (FID)	85	73-144	EPA 8015B
Trifluorotoluene (PID)	79	60-146	EPA 8021B
Bromofluorobenzene (PID)	77	65-143	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203979	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Sampled:	06/13/08
Units:	ug/L	Received:	06/13/08

Type:	BLANK	Batch#:	139419
Lab ID:	QC447133	Analyzed:	06/18/08
Diln Fac:	1.000		

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

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	96	69-140	EPA 8015B
Bromofluorobenzene (FID)	100	73-144	EPA 8015B
Trifluorotoluene (PID)	99	60-146	EPA 8021B
Bromofluorobenzene (PID)	104	65-143	EPA 8021B

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

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203979	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC446782	Batch#:	139335
Matrix:	Water	Analyzed:	06/17/08
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	988.4	99	80-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	107	69-140
Bromofluorobenzene (FID)	93	73-144

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203979	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	139335
MSS Lab ID:	204000-003	Sampled:	06/16/08
Matrix:	Water	Received:	06/16/08
Units:	ug/L	Analyzed:	06/17/08
Diln Fac:	1.000		

Type: MS Lab ID: QC446783

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	33.70	2,000	1,608	79	67-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	108	69-140
Bromofluorobenzene (FID)	101	73-144

Type: MSD Lab ID: QC446784

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,741	85	67-120	8	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	100	69-140
Bromofluorobenzene (FID)	94	73-144

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203979	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC446796	Batch#:	139335
Matrix:	Water	Analyzed:	06/17/08
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	10.32	103	70-129
Benzene	10.00	10.35	104	80-120
Toluene	10.00	9.953	100	80-120
Ethylbenzene	10.00	10.22	102	80-120
m,p-Xylenes	10.00	10.38	104	80-120
o-Xylene	10.00	10.13	101	80-120

Surrogate	%REC	Limits
Trifluorotoluene (PID)	93	60-146
Bromofluorobenzene (PID)	93	65-143

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203979	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC447134	Batch#:	139419
Matrix:	Water	Analyzed:	06/18/08
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	1,885	94	80-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	113	69-140
Bromofluorobenzene (FID)	102	73-144

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203979	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	139419
Units:	ug/L	Analyzed:	06/18/08
Diln Fac:	1.000		

Type: BS Lab ID: QC447135

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	19.04	95	70-129
Benzene	20.00	21.26	106	80-120
Toluene	20.00	19.42	97	80-120
Ethylbenzene	20.00	21.87	109	80-120
m,p-Xylenes	20.00	20.58	103	80-120
o-Xylene	20.00	20.81	104	80-120

Surrogate	%REC	Limits
Trifluorotoluene (PID)	101	60-146
Bromofluorobenzene (PID)	101	65-143

Type: BSD Lab ID: QC447136

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	22.04	110	70-129	15	21
Benzene	20.00	21.46	107	80-120	1	20
Toluene	20.00	19.70	98	80-120	1	20
Ethylbenzene	20.00	21.88	109	80-120	0	20
m,p-Xylenes	20.00	20.48	102	80-120	0	20
o-Xylene	20.00	20.91	105	80-120	0	20

Surrogate	%REC	Limits
Trifluorotoluene (PID)	101	60-146
Bromofluorobenzene (PID)	105	65-143

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203979	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	139419
MSS Lab ID:	204067-001	Sampled:	06/17/08
Matrix:	Water	Received:	06/18/08
Units:	ug/L	Analyzed:	06/19/08
Diln Fac:	1.000		

Type: MS Lab ID: QC447137

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,416	2,000	4,134	86	67-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	133	69-140
Bromofluorobenzene (FID)	141	73-144

Type: MSD Lab ID: QC447138

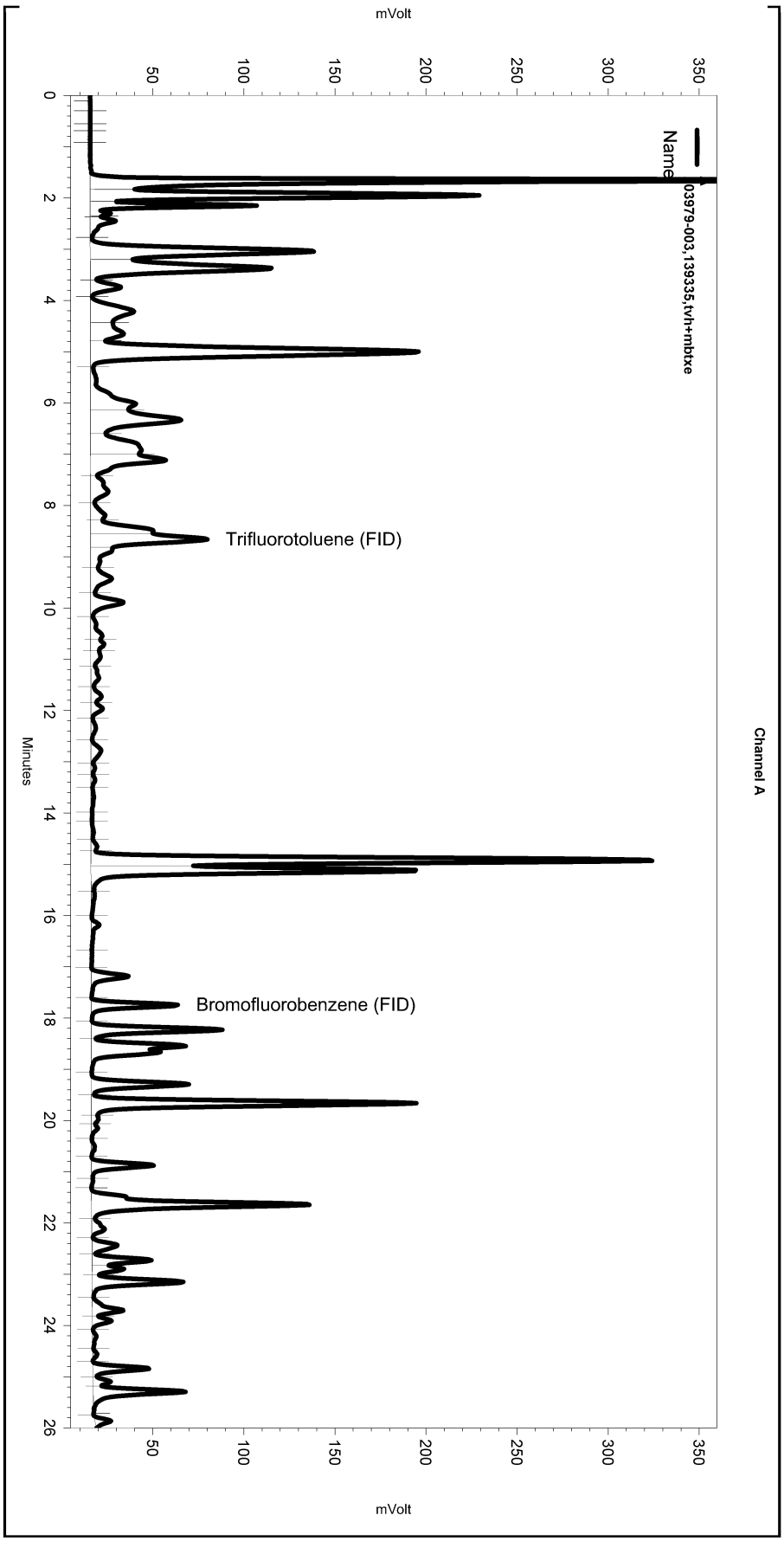
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	4,173	88	67-120	1	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	127	69-140
Bromofluorobenzene (FID)	143	73-144

RPD= Relative Percent Difference

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC19\Sequence\169.seq**
Sample Name: **203979-003,139335,tvh+mbtxe**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC19\Data\169_021**
Instrument: GC19 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC19\Method\tvhbtxe143.met

Software Version 3.1.7
Run Date: 6/17/2008 10:04:24 PM
Analysis Date: 6/18/2008 9:17:33 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: A 1.3



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Integration Events

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

Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC19\Data\169_021

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	8.554	0	0
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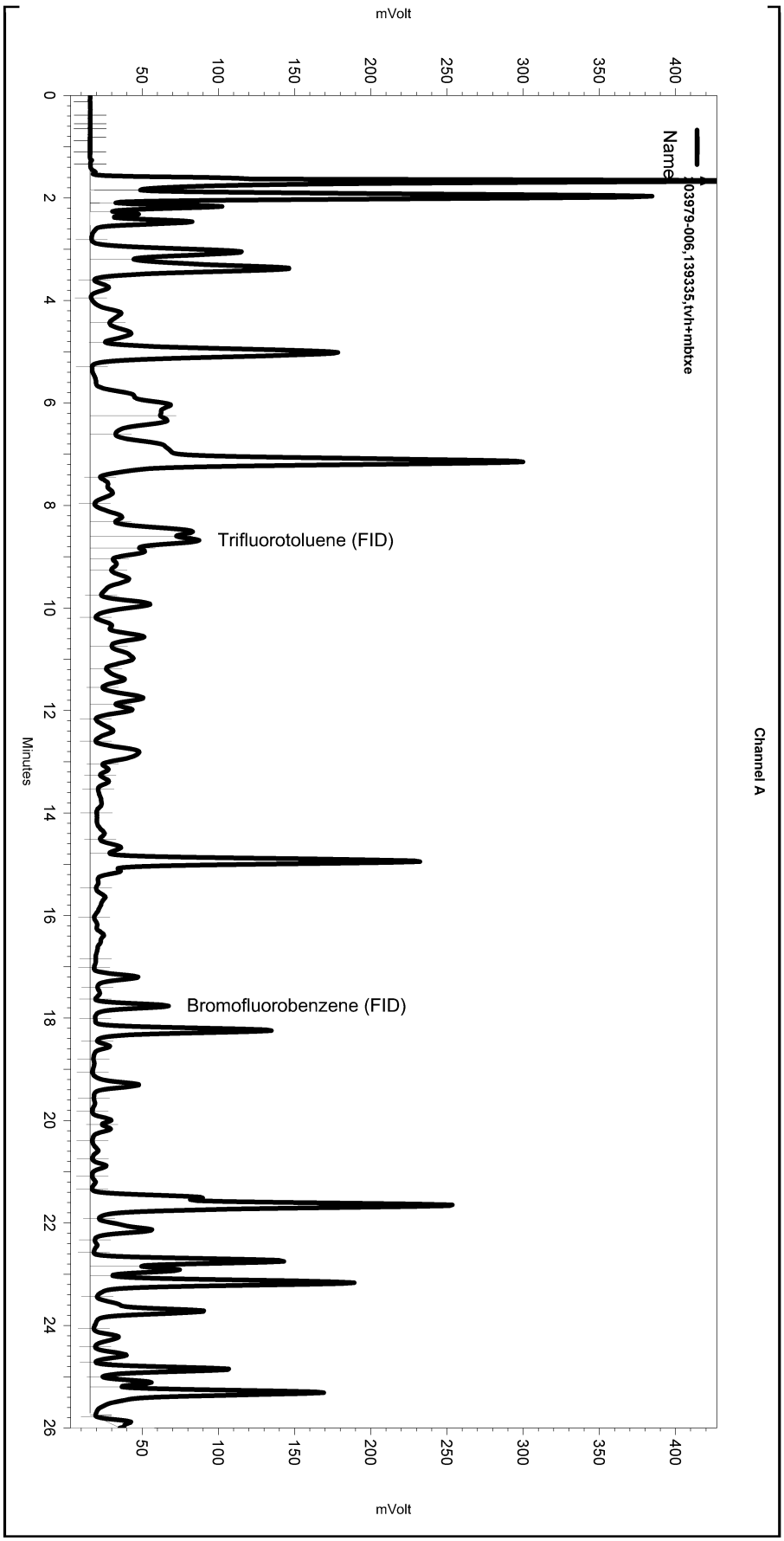
Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC19\Sequence\169.seq**
Sample Name: **203979-006,139335,tvh+mbtxe**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC19\Data\169_024**
Instrument: GC19 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC19\Method\tvhbtxe143.met

Software Version 3.1.7
Run Date: 6/17/2008 11:57:07 PM
Analysis Date: 6/18/2008 9:21:01 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: A 1.3



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Integration Events

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

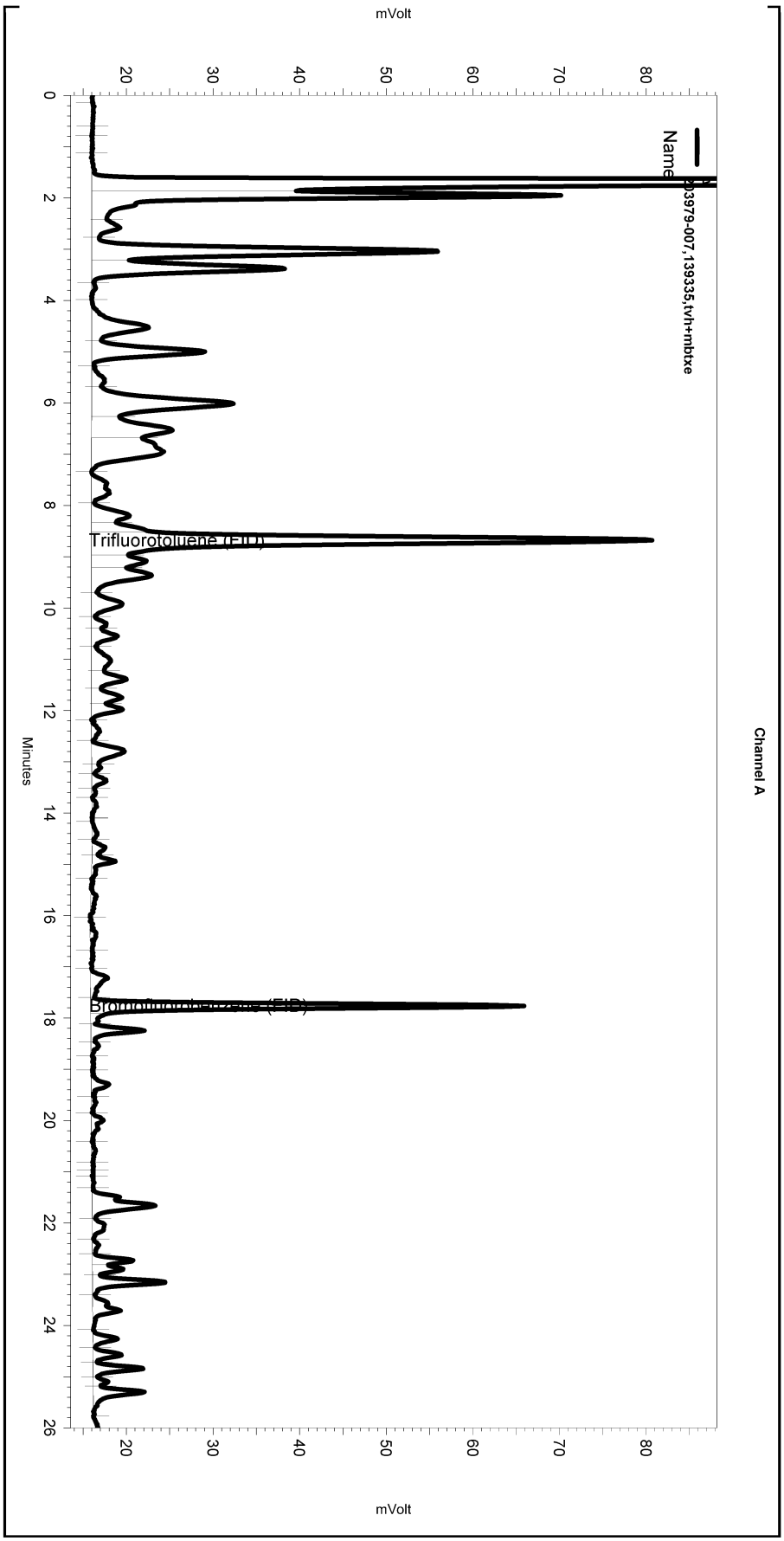
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC19\Data\169_024

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Lowest Point Horizontal Baseli	0.77	25.722	0

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC19\Sequence\169.seq**
Sample Name: **203979-007,139335,tvh+mbtxe**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC19\Data\169_025**
Instrument: GC19 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC19\Method\tvhbtxe143.met

Software Version 3.1.7
Run Date: 6/18/2008 12:34:39 AM
Analysis Date: 6/18/2008 9:23:10 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: A 1.3



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Integration Events

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

Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC19\Data\169_025

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	8.514	0	0
Yes	Move BL Stop	15.183	15.283	0
Yes	Move BL Start	15.483	15.283	0
Yes	Split Peak	17.913	0	0

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC19\Sequence\169.seq**
Sample Name: **ccv/lcs,qc446782,139335,tvh,s9476,2.5/5000**
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Instrument: GC19 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC19\Method\tvhbtxe143.met

Software Version 3.1.7
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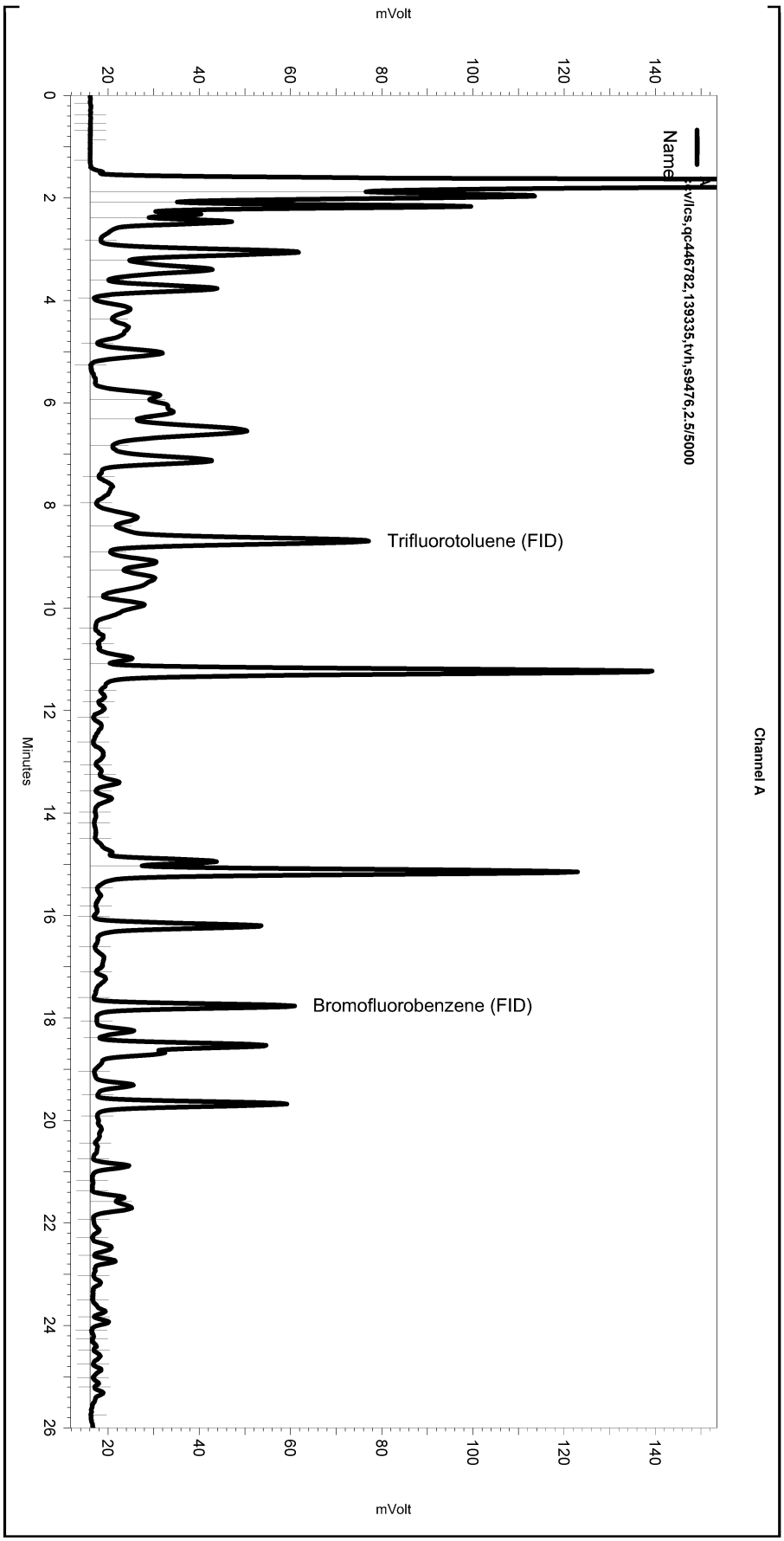
Analysis Date: 6/18/2008 7:49:28 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: {Data Description}



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Integration Events

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

Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC19\Data\169_003

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Lowest Point Horizontal Baseli	0.2	26	0

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	203979	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2008-02	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	06/13/08
Units:	ug/L	Received:	06/13/08
Diln Fac:	1.000	Prepared:	06/14/08
Batch#:	139272		

Field ID: MW-2 Lab ID: 203979-001
Type: SAMPLE Analyzed: 06/16/08

Analyte	Result	RL
Diesel C10-C24	1,000 Y	50

Surrogate	%REC	Limits
Hexacosane	91	63-130

Field ID: MW-7 Lab ID: 203979-002
Type: SAMPLE Analyzed: 06/16/08

Analyte	Result	RL
Diesel C10-C24	3,500	50

Surrogate	%REC	Limits
Hexacosane	92	63-130

Field ID: MW-8 Lab ID: 203979-003
Type: SAMPLE Analyzed: 06/16/08

Analyte	Result	RL
Diesel C10-C24	1,700	50

Surrogate	%REC	Limits
Hexacosane	98	63-130

Field ID: MW-9 Lab ID: 203979-004
Type: SAMPLE Analyzed: 06/16/08

Analyte	Result	RL
Diesel C10-C24	3,400	50

Surrogate	%REC	Limits
Hexacosane	95	63-130

Field ID: MW-10 Lab ID: 203979-005
Type: SAMPLE Analyzed: 06/16/08

Analyte	Result	RL
Diesel C10-C24	320 Y	50

Surrogate	%REC	Limits
Hexacosane	95	63-130

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

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	203979	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2008-02	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	06/13/08
Units:	ug/L	Received:	06/13/08
Diln Fac:	1.000	Prepared:	06/14/08
Batch#:	139272		

Field ID:	MW-11	Lab ID:	203979-006
Type:	SAMPLE	Analyzed:	06/17/08

Analyte	Result	RL
Diesel C10-C24	4,200	50

Surrogate	%REC	Limits
Hexacosane	85	63-130

Field ID:	MW-12	Lab ID:	203979-007
Type:	SAMPLE	Analyzed:	06/17/08

Analyte	Result	RL
Diesel C10-C24	50 Y	50

Surrogate	%REC	Limits
Hexacosane	95	63-130

Type:	BLANK	Analyzed:	06/16/08
Lab ID:	QC446552		

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	99	63-130

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

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	203979	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2008-02	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	139272
Units:	ug/L	Prepared:	06/14/08
Diln Fac:	1.000	Analyzed:	06/16/08

Type: BS Cleanup Method: EPA 3630C
Lab ID: QC446553

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	1,804	72	61-120

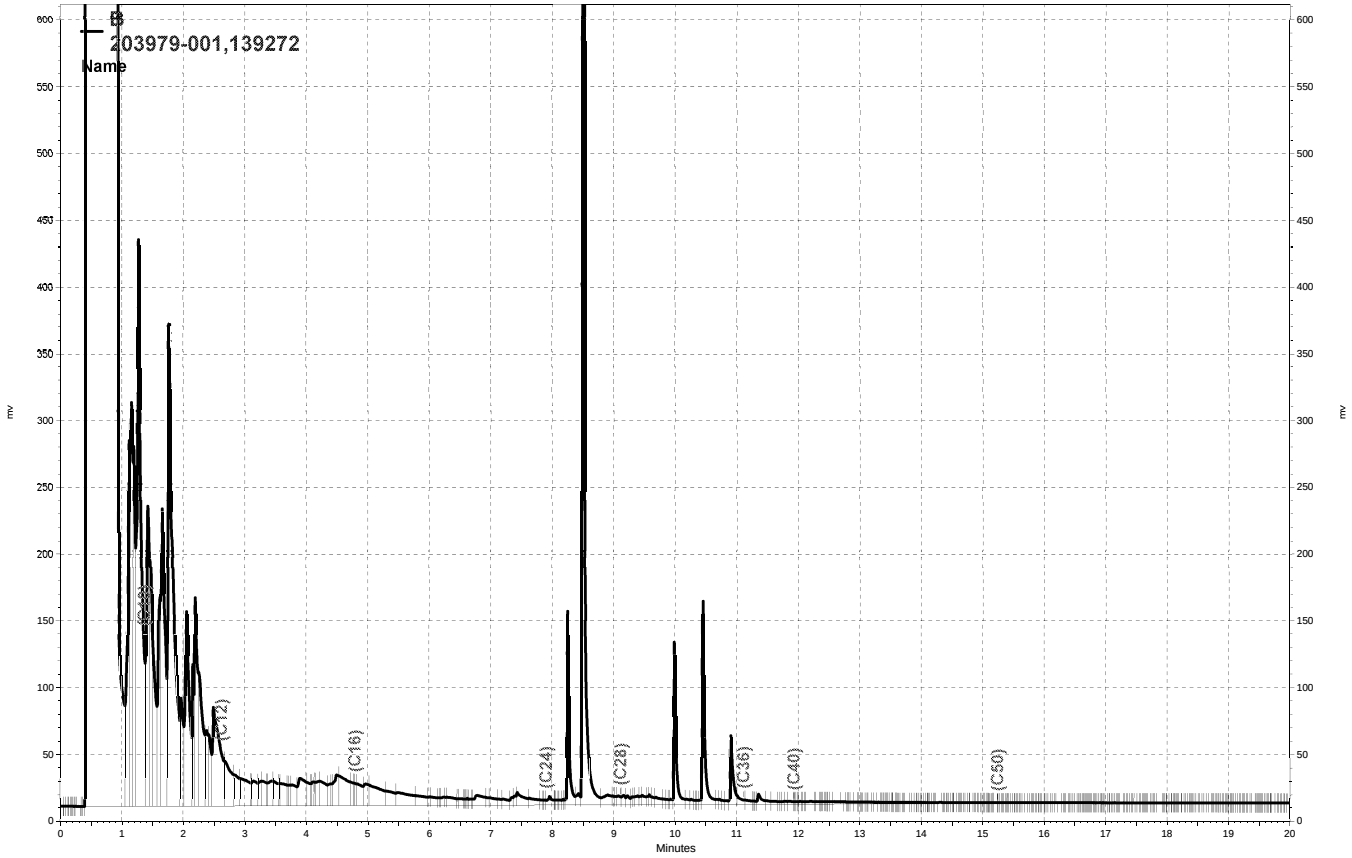
Surrogate	%REC	Limits
Hexacosane	103	63-130

Type: BSD Cleanup Method: EPA 3630C
Lab ID: QC446554

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	1,834	73	61-120	2	29

Surrogate	%REC	Limits
Hexacosane	98	63-130

RPD= Relative Percent Difference



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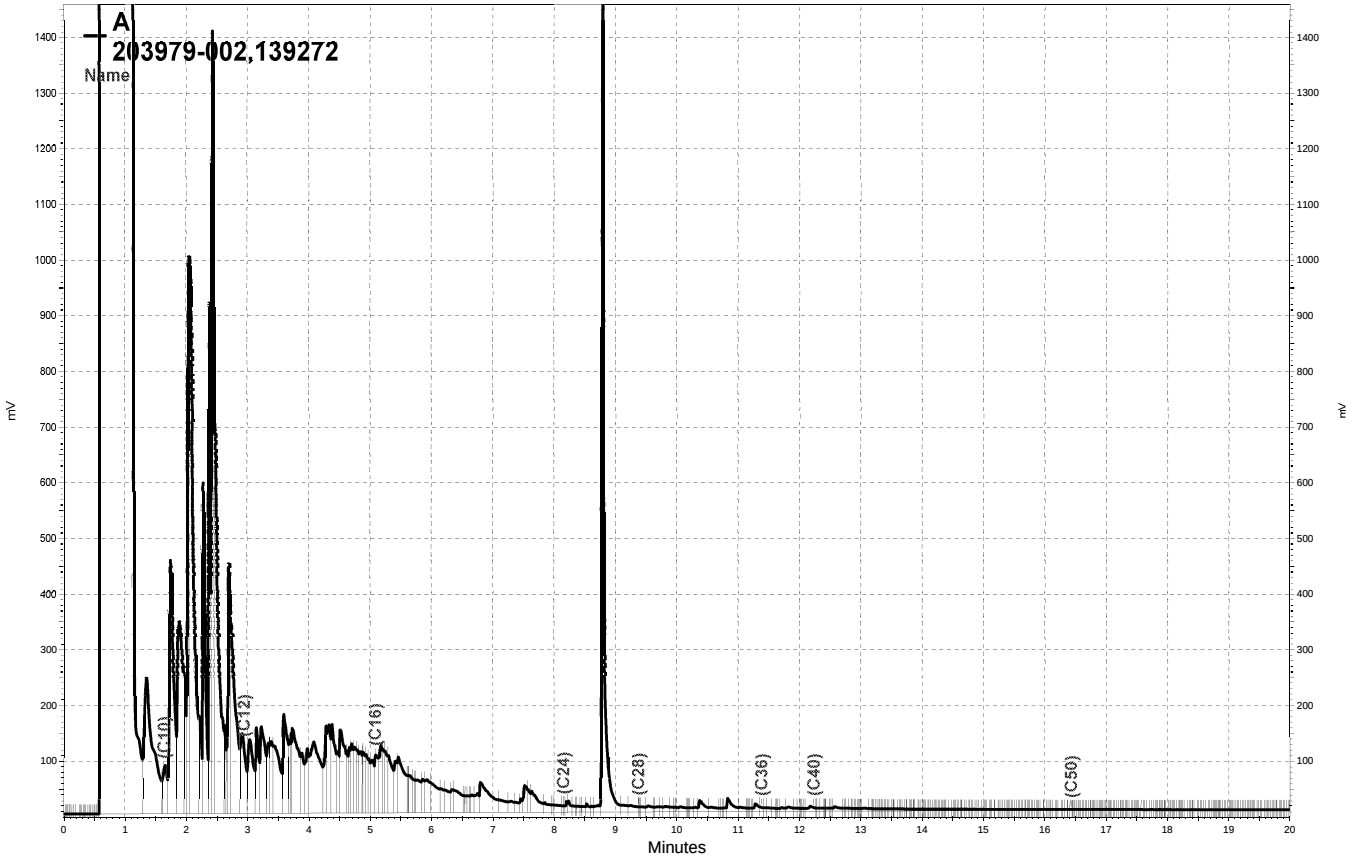

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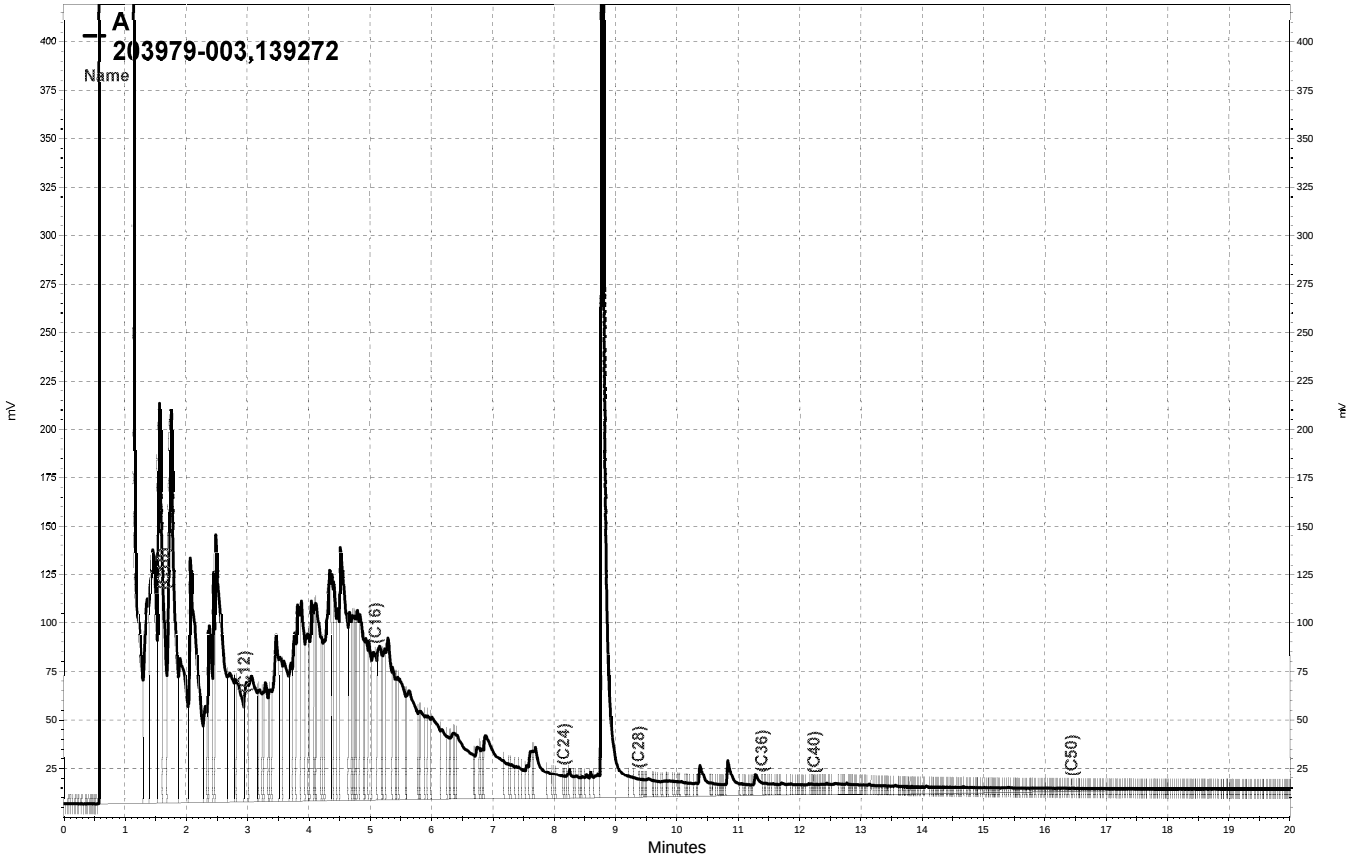

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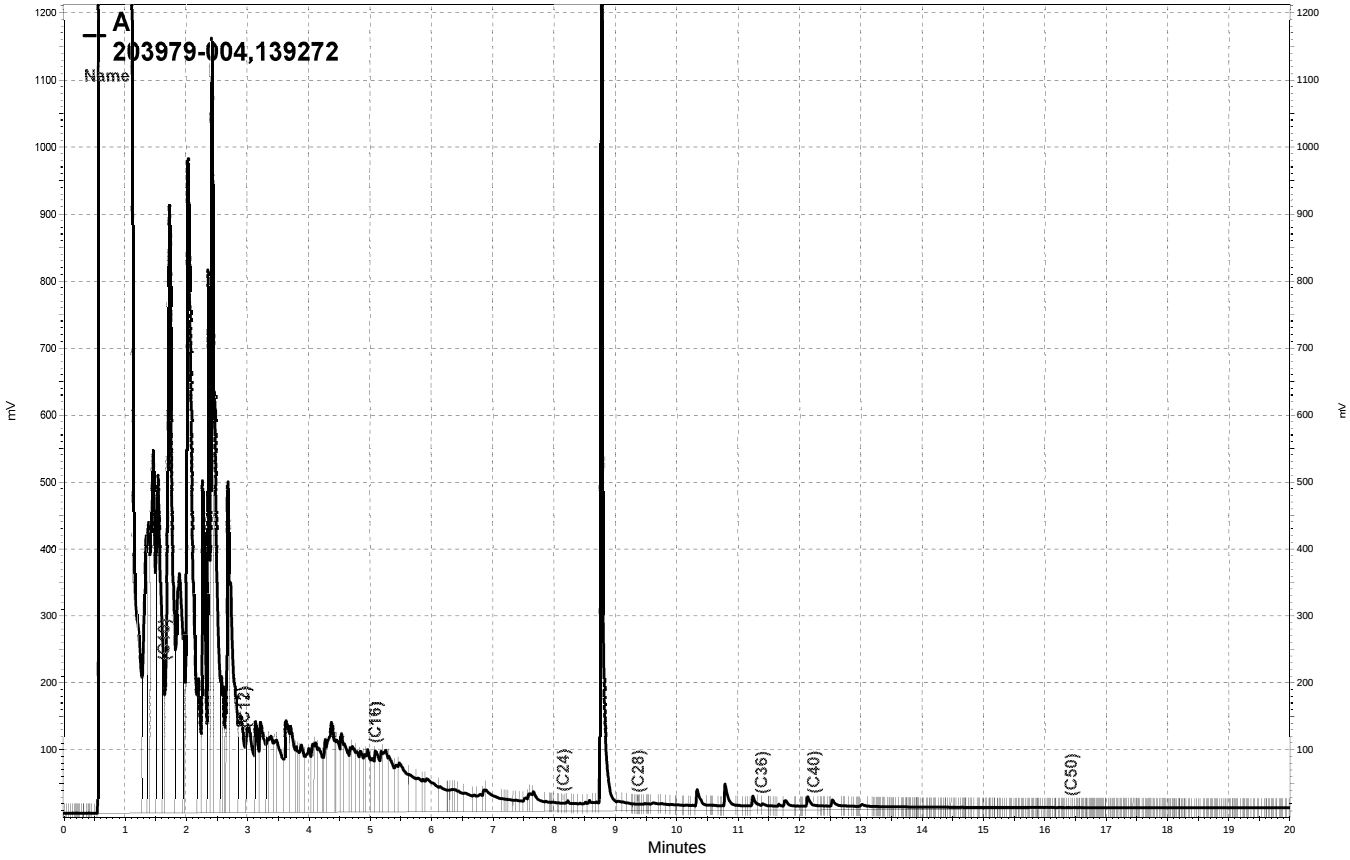

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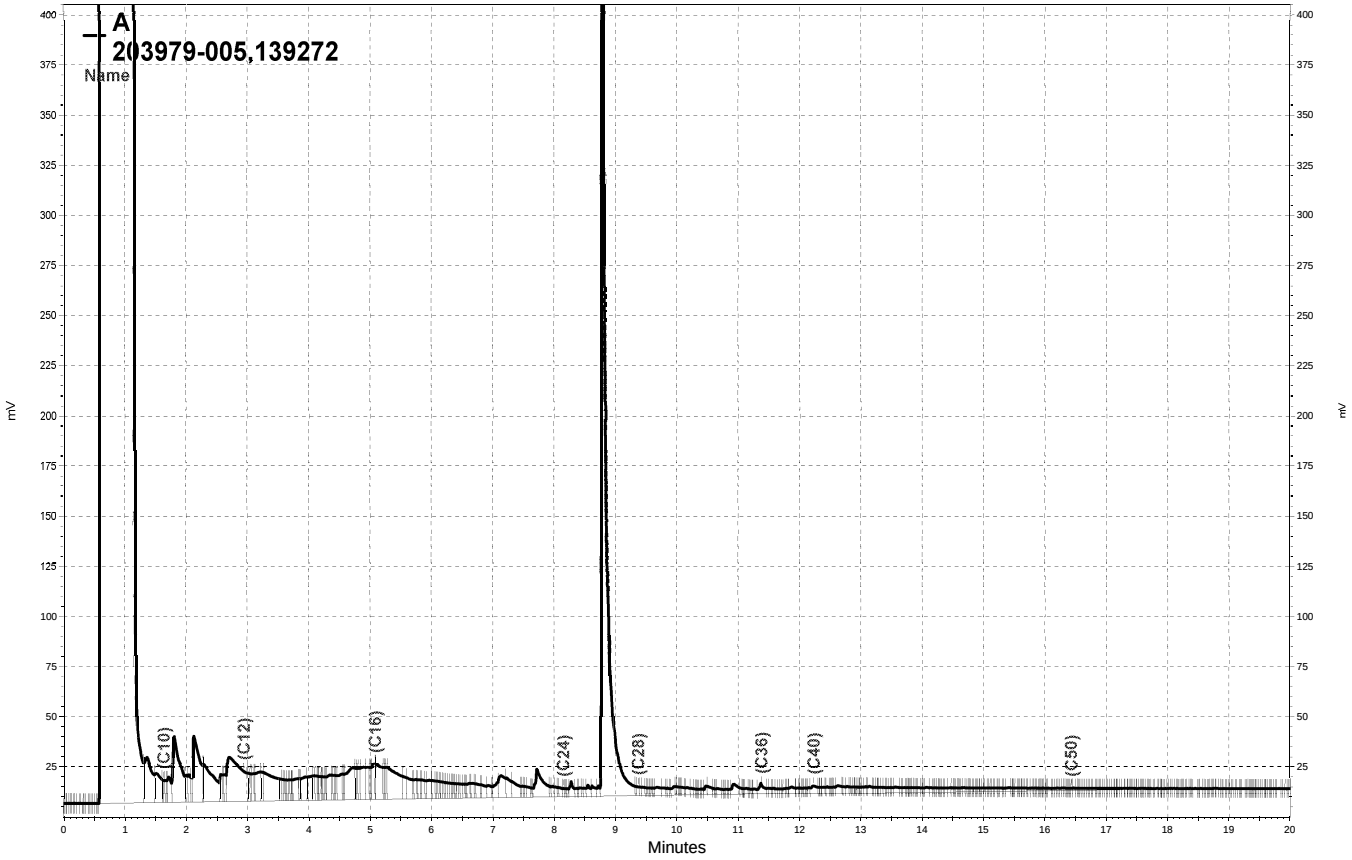

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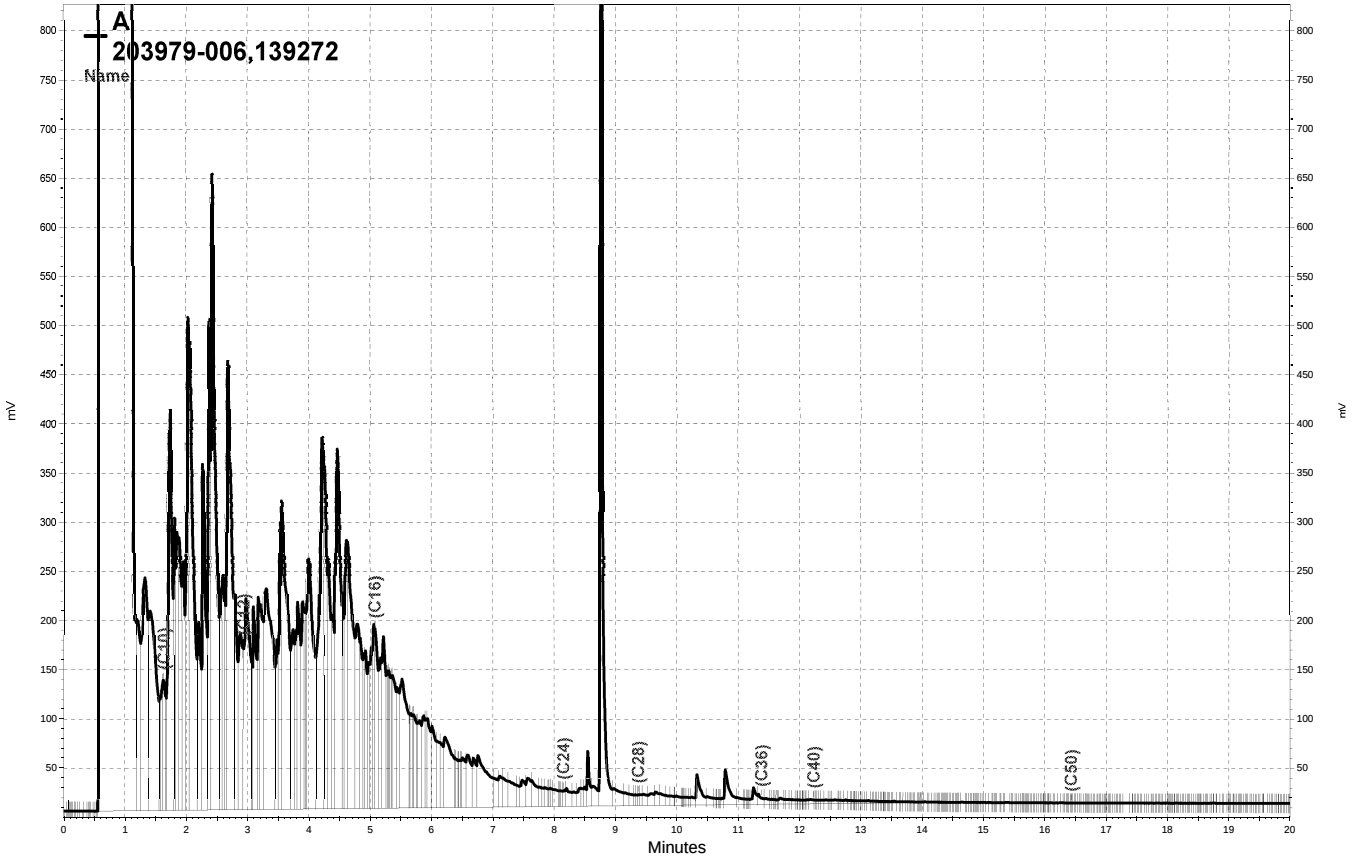

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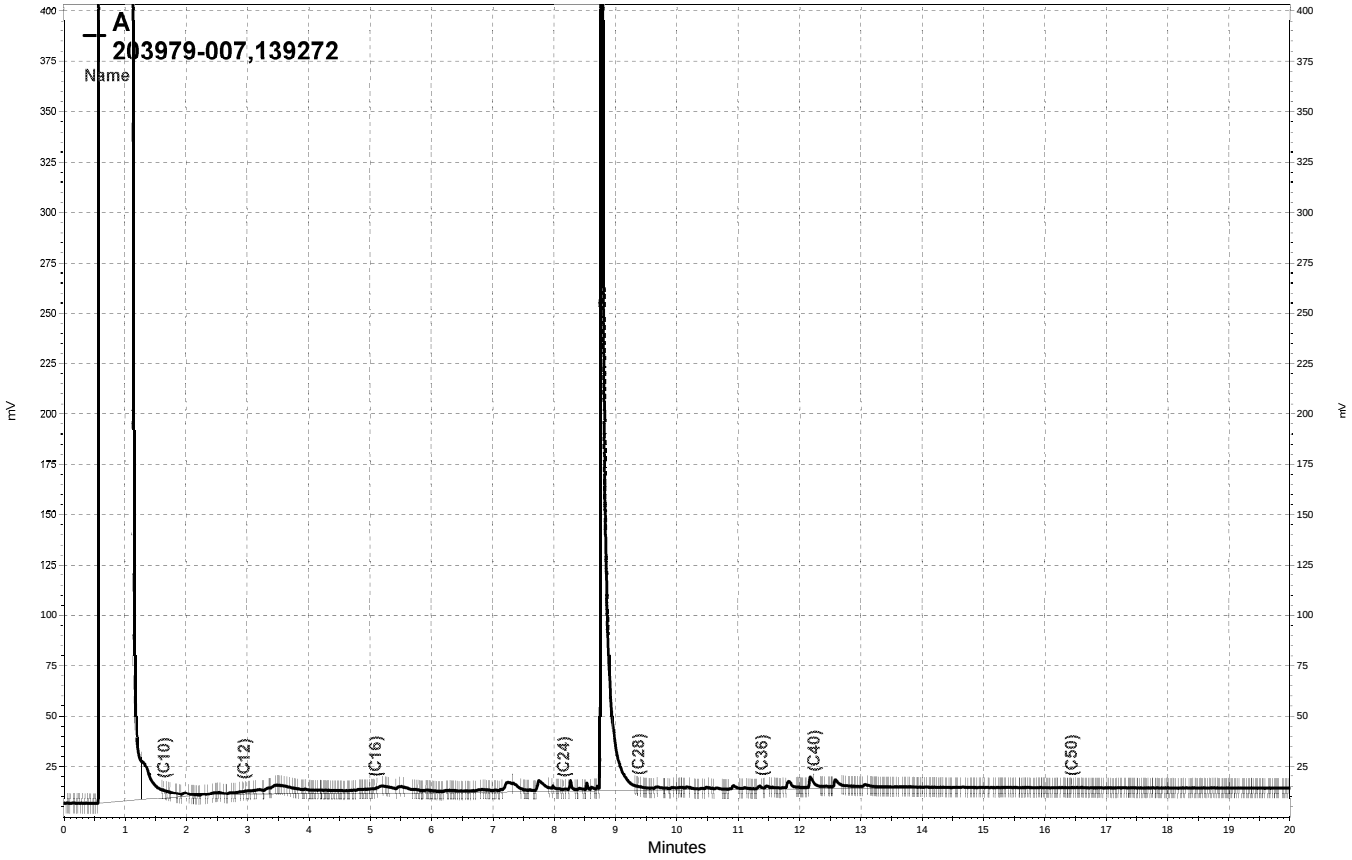

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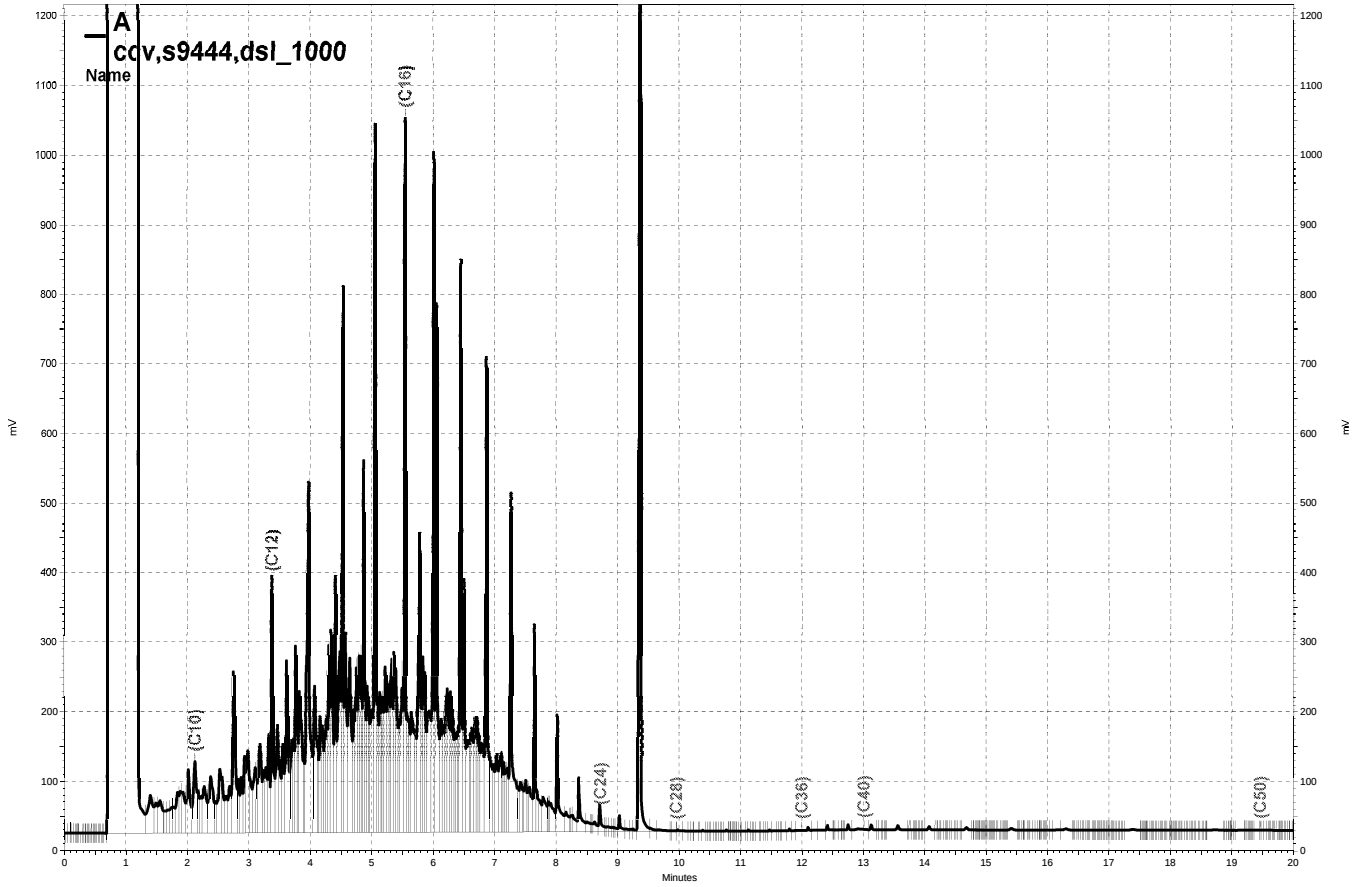

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203920

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 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	TVHg/BTEX/MTBE	TPH-d	Remarks
1	SW-2	–	6/12/08	1030	W	3 VOA 1 L Amber	Y	(a)	N	4	X	X	
2	SW-3	–	↓	1045	W	↓	↓	↓	N	4	X	X	

Analysis Required

Relinquished by:	Date	Received by:	Date
Signature [signature]	6/12/08	Signature [signature]	
Printed Kal Glass	Time 1155	Printed SAM EVANS	Time
Company Stellar Environmental		Company CET	

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

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

Turnaround Time: _____

Comments: (a) VOAs have HCl

2000-00-01

★ Stellar Environmental Solutions

2198 Sixth Street #201, Berkeley, CA 94710

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 203920 Date Received 6-12-08 Number of coolers 1
Client SES Project Redwood Regional Park

Date Opened 6-12-08 By (print) F Nichols (sign) [signature]
Date Logged in _____ By (print) _____ (sign) _____

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

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

☒ Bubble Wrap ☐ Foam blocks ☐ Bags ☐ None

☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. If required, was sufficient ice used? Samples should be < or = 6°C ..... (YES) NO N/A

Type of ice used: ☒ Wet ☐ Blue ☐ None Temp(°C) _____

☒ Samples Received on ice & cold without a temperature blank

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? ..... YES (NO)
   If YES, what time were they transferred to freezer? _____
9. Did all bottles arrive unbroken/unopened? ..... (YES) NO
10. Are samples in the appropriate containers for indicated tests? ..... (YES) NO
11. Are sample labels present, in good condition and complete? ..... (YES) NO
12. Do the sample labels agree with custody papers? ..... (YES) NO
13. Was sufficient amount of sample sent for tests requested? ..... (YES) NO
14. Are the samples appropriately preserved? ..... (YES) NO N/A
15. Are bubbles > 6mm absent in VOA samples? ..... (YES) NO N/A
16. Was the client contacted concerning this sample delivery? ..... YES NO
   If YES, Who was called? _____ By _____ Date: _____

COMMENTS

_____

_____

_____

_____

_____

_____

_____

_____

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

Laboratory Job Number 203920
ANALYTICAL REPORT

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

Sample ID	Lab ID
SW-2	203920-001
SW-3	203920-002
TRIP BLANK	203920-003

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

Signature: _____ Date: 06/18/2008
Project Manager

Signature: _____ Date: 06/20/2008
Senior Program Manager

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**203920**
Client:	**Stellar Environmental Solutions**
Project:	**2008-02**
Location:	**Redwood Regional Park**
Request Date:	**06/12/08**
Samples Received:	**06/12/08**

This hardcopy data package contains sample and QC results for two water samples, requested for the above referenced project on 06/12/08. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B and EPA 8021B):
High surrogate recoveries were observed for trifluorotoluene (FID) in the MS/MSD for batch 139224, due to interference from coeluting hydrocarbon peaks; the corresponding bromofluorobenzene (FID) surrogate recoveries were within limits, and the parent sample was not a project sample. No other analytical problems were encountered.

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203920	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Sampled:	06/12/08
Units:	ug/L	Received:	06/12/08
Diln Fac:	1.000		

Field ID: SW-2 Lab ID: 203920-001
Type: SAMPLE

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	ND	50	139224	06/14/08	EPA 8015B
MTBE	ND	2.0	139183	06/12/08	EPA 8021B
Benzene	ND	0.50	139183	06/12/08	EPA 8021B
Toluene	ND	0.50	139183	06/12/08	EPA 8021B
Ethylbenzene	ND	0.50	139183	06/12/08	EPA 8021B
m,p-Xylenes	ND	0.50	139183	06/12/08	EPA 8021B
o-Xylene	ND	0.50	139183	06/12/08	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Trifluorotoluene (FID)	115	69-140	139224	06/14/08	EPA 8015B
Bromofluorobenzene (FID)	119	73-144	139224	06/14/08	EPA 8015B
Trifluorotoluene (PID)	95	60-146	139183	06/12/08	EPA 8021B
Bromofluorobenzene (PID)	94	65-143	139183	06/12/08	EPA 8021B

Field ID: SW-3 Batch#: 139183
Type: SAMPLE Analyzed: 06/12/08
Lab ID: 203920-002

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)	100	69-140	EPA 8015B
Bromofluorobenzene (FID)	104	73-144	EPA 8015B
Trifluorotoluene (PID)	98	60-146	EPA 8021B
Bromofluorobenzene (PID)	102	65-143	EPA 8021B

NA= Not Analyzed
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203920	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Sampled:	06/12/08
Units:	ug/L	Received:	06/12/08
Diln Fac:	1.000		

Type: BLANK
Lab ID: QC446170
Batch#: 139183
Analyzed: 06/12/08

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

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	84	69-140	EPA 8015B
Bromofluorobenzene (FID)	82	73-144	EPA 8015B
Trifluorotoluene (PID)	81	60-146	EPA 8021B
Bromofluorobenzene (PID)	81	65-143	EPA 8021B

Type: BLANK
Lab ID: QC446349
Batch#: 139224
Analyzed: 06/13/08
Analysis: EPA 8015B

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		104	69-140
Bromofluorobenzene (FID)		100	73-144
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

NA= Not Analyzed
ND= Not Detected
RL= Reporting Limit

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203920	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC446171	Batch#:	139183
Matrix:	Water	Analyzed:	06/12/08
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	957.5	96	80-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	121	69-140
Bromofluorobenzene (FID)	104	73-144

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203920	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	139183
Units:	ug/L	Analyzed:	06/12/08
Diln Fac:	1.000		

Type: BS Lab ID: QC446172

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	9.643	96	70-129
Benzene	10.00	9.625	96	80-120
Toluene	10.00	9.115	91	80-120
Ethylbenzene	10.00	9.688	97	80-120
m,p-Xylenes	10.00	9.434	94	80-120
o-Xylene	10.00	9.396	94	80-120

Surrogate	%REC	Limits
Trifluorotoluene (PID)	97	60-146
Bromofluorobenzene (PID)	99	65-143

Type: BSD Lab ID: QC446173

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	18.35	92	70-129	5	21
Benzene	20.00	20.50	102	80-120	6	20
Toluene	20.00	19.22	96	80-120	5	20
Ethylbenzene	20.00	21.44	107	80-120	10	20
m,p-Xylenes	20.00	20.16	101	80-120	7	20
o-Xylene	20.00	20.75	104	80-120	10	20

Surrogate	%REC	Limits
Trifluorotoluene (PID)	99	60-146
Bromofluorobenzene (PID)	103	65-143

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203920	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8015B
Field ID:	SW-3	Diln Fac:	1.000
MSS Lab ID:	203920-002	Batch#:	139183
Matrix:	Water	Sampled:	06/12/08
Units:	ug/L	Received:	06/12/08

Type: MS Analyzed: 06/12/08
Lab ID: QC446259

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	21.35	2,000	2,022	100	67-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	110	69-140
Bromofluorobenzene (FID)	96	73-144

Type: MSD Analyzed: 06/13/08
Lab ID: QC446260

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,021	100	67-120	0	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	113	69-140
Bromofluorobenzene (FID)	104	73-144

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203920	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC446350	Batch#:	139224
Matrix:	Water	Analyzed:	06/13/08
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	851.1	85	80-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	135	69-140
Bromofluorobenzene (FID)	119	73-144

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203920	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	139224
MSS Lab ID:	203951-008	Sampled:	06/12/08
Matrix:	Water	Received:	06/12/08
Units:	ug/L	Analyzed:	06/13/08
Diln Fac:	1.000		

Type: MS Lab ID: QC446352

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	21.36	2,000	1,757	87	67-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	163 *	69-140
Bromofluorobenzene (FID)	138	73-144

Type: MSD Lab ID: QC446464

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,677	83	67-120	5	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	163 *	69-140
Bromofluorobenzene (FID)	141	73-144

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	203920	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2008-02	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	06/12/08
Units:	ug/L	Received:	06/12/08
Diln Fac:	1.000	Prepared:	06/12/08
Batch#:	139211		

Field ID: SW-2 Lab ID: 203920-001
Type: SAMPLE Analyzed: 06/16/08

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	113	63-130

Field ID: SW-3 Lab ID: 203920-002
Type: SAMPLE Analyzed: 06/16/08

Analyte	Result	RL
Diesel C10-C24	55 Y	50

Surrogate	%REC	Limits
Hexacosane	113	63-130

Type: BLANK Analyzed: 06/13/08
Lab ID: QC446292

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	74	63-130

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

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	203920	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2008-02	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC446293	Batch#:	139211
Matrix:	Water	Prepared:	06/12/08
Units:	ug/L	Analyzed:	06/13/08

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	1,895	76	61-120

Surrogate	%REC	Limits
Hexacosane	100	63-130

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	203920	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2008-02	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	139211
MSS Lab ID:	203847-002	Sampled:	06/09/08
Matrix:	Water	Received:	06/10/08
Units:	ug/L	Prepared:	06/12/08
Diln Fac:	1.000	Analyzed:	06/13/08

Type: MS
Lab ID: QC446294
Cleanup Method: EPA 3630C

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	8.580	2,500	2,349	94	58-126

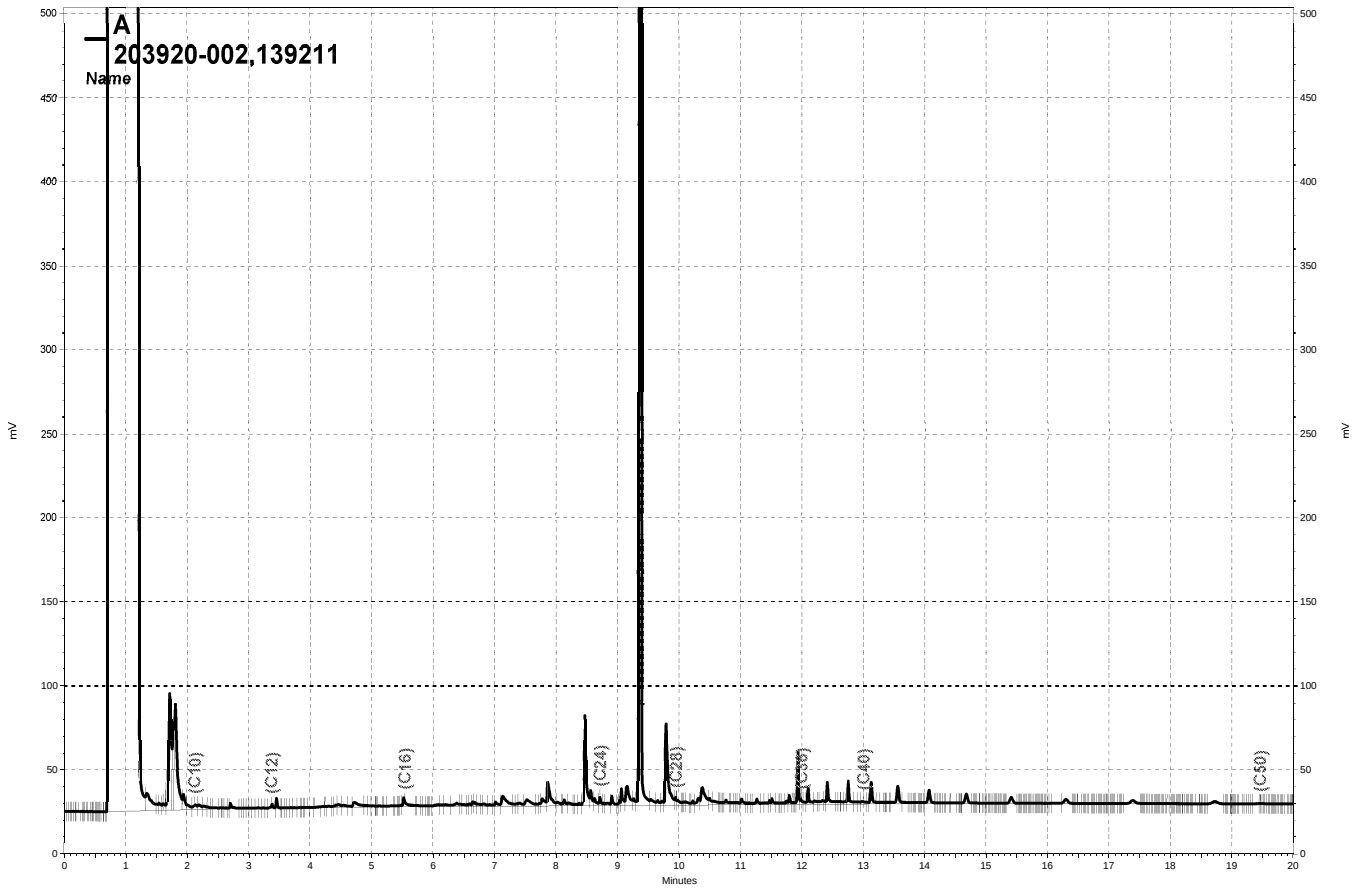
Surrogate	%REC	Limits
Hexacosane	114	63-130

Type: MSD
Lab ID: QC446295
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,388	95	58-126	2	31

Surrogate	%REC	Limits
Hexacosane	104	63-130

RPD= Relative Percent Difference



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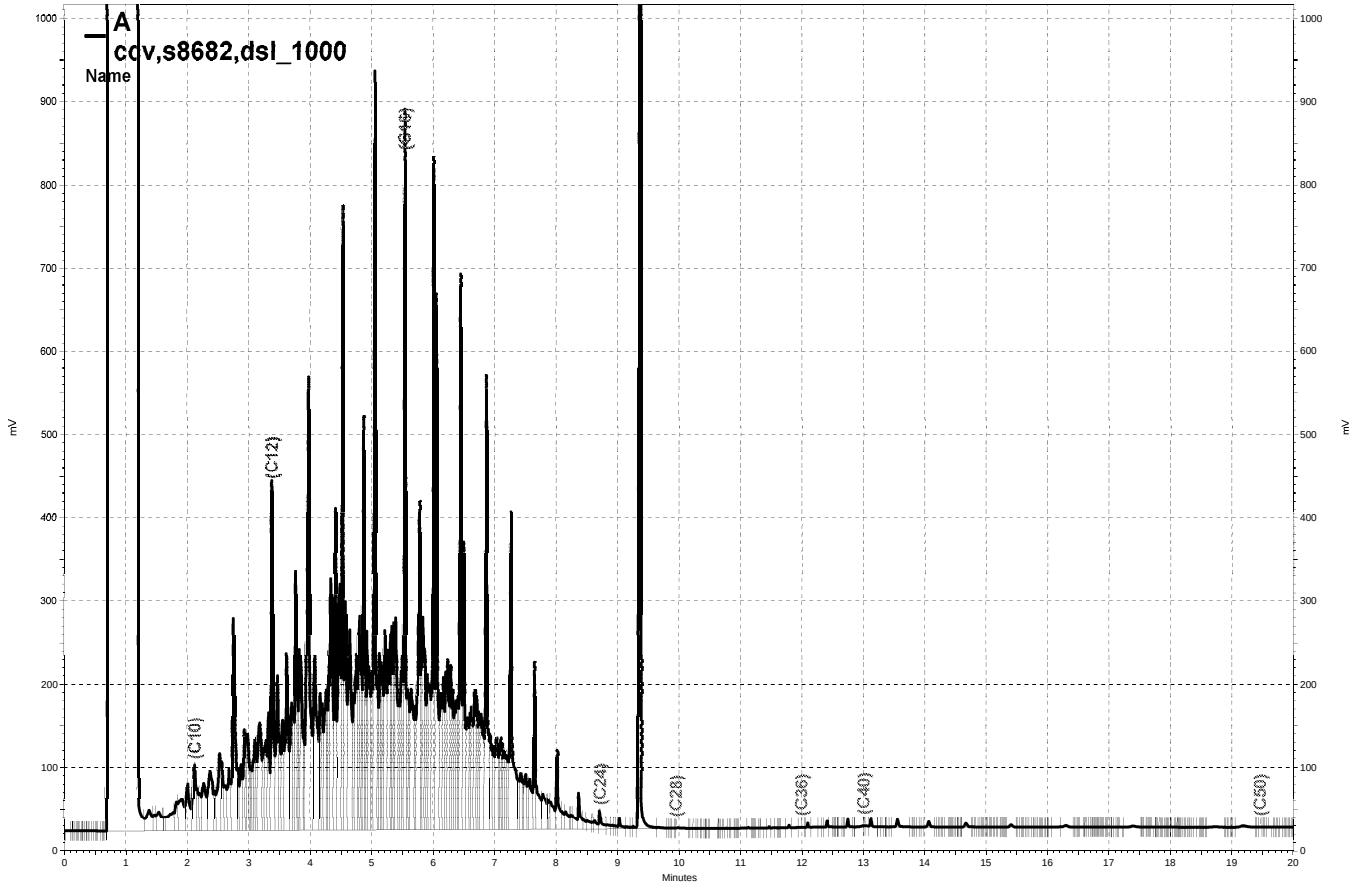

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Chain of Custody Record

Lab job no. 203497

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

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

Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	TVHs	MBTEX	TEHd	Remarks
MW-2		5/22/08	1030	W	40ml VOA	✓	HCL	N	3	X			
MW-2		5/22/08	1030	W	Amber Liter	✓	Ø	N	1		X		

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature	5/22/08	Signature	5/22/08	Signature		Signature	
Printed Steve Brittman	Time 1340	Printed	Time 13:40	Printed	Time	Printed	Time
Company Stellar Environmental		Company C&T		Company		Company	

Turnaround Time: 5 Day TAT
Comments: Samples on ice
cold, intact

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

2000-00-01

★ Stellar Environmental Solutions

2198 Sixth Street #201, Berkeley, CA 94710

TEMP 8.7°C
KMW 5/22/08 1346

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 203497 Date Received 5/22/08 Number of coolers 1
Client SES Project Redwood Regional Park

Date Opened 5/22 By (print) K Wellbrock (sign) K Wellbrock
Date Logged in V By (print) M. VILLANUEVA (sign)

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

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many _____ Name_____ Date_____

2B. Were custody seals intact upon arrival? ..... YES NO N/A

3. Were custody papers dry and intact when received?..... YES NO

4. Were custody papers filled out properly (ink, signed, etc)?..... YES NO

5. Is the project identifiable from custody papers? (If so fill out top of form)..... YES NO

6. Indicate the packing in cooler: (if other, describe)_____

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None

☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. If required, was sufficient ice used? Samples should be < or = 6°C ..... YES NO N/A

Type of ice used: ☒ Wet ☐ Blue ☐ None Temp(°C) 8.7

☐ Samples Received on ice & cold without a temperature blank

☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? ..... YES (NO)
If YES, what time were they transferred to freezer?_____

9. Did all bottles arrive unbroken/unopened?..... YES NO

10. Are samples in the appropriate containers for indicated tests? ..... YES NO

11. Are sample labels present, in good condition and complete? ..... YES NO

12. Do the sample labels agree with custody papers? ..... YES NO

13. Was sufficient amount of sample sent for tests requested? ..... YES NO

14. Are the samples appropriately preserved? ..... YES NO N/A

15. Are bubbles > 6mm absent in VOA samples?..... YES NO N/A

16. Was the client contacted concerning this sample delivery?..... YES NO
If YES, Who was called?_____ By_____ Date:_____

COMMENTS

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

Laboratory Job Number 203497
ANALYTICAL REPORT

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

Sample ID	Lab ID
MW-2	203497-001

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

Signature: _____ Date: 05/30/2008
Project Manager

Signature: _____ Date: 06/03/2008
Senior Program Manager

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**203497**
Client:	**Stellar Environmental Solutions**
Project:	**2006-16**
Location:	**Redwood Regional Park**
Request Date:	**05/22/08**
Samples Received:	**05/22/08**

This hardcopy data package contains sample and QC results for one water sample, requested for the above referenced project on 05/22/08. The sample was received on ice and intact, directly from the field.

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

Low recoveries were observed for gasoline C7-C12 in the MS/MSD of MW-2 (lab # 203497-001), due to matrix interference; these low recoveries were confirmed by re-analysis, the LCS was within limits, and the associated RPD was within limits. No other analytical problems were encountered.

TPH-Extractables by GC (EPA 8015B):

No analytical problems were encountered.

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203497	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16		
Field ID:	MW-2	Diln Fac:	1.000
Matrix:	Water	Sampled:	05/22/08
Units:	ug/L	Received:	05/22/08

Type: SAMPLE
Lab ID: 203497-001
Analyzed: 05/28/08

Analyte	Result	RL	Batch#	Analysis
Gasoline C7-C12	7,100	50	138557	EPA 8015B
MTBE	11	2.0	138630	EPA 8021B
Benzene	14	0.50	138630	EPA 8021B
Toluene	8.8	0.50	138630	EPA 8021B
Ethylbenzene	140	0.50	138630	EPA 8021B
m,p-Xylenes	470	0.50	138630	EPA 8021B
o-Xylene	240	0.50	138630	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analysis
Trifluorotoluene (FID)	121	69-140	138557	EPA 8015B
Bromofluorobenzene (FID)	108	73-144	138557	EPA 8015B
Trifluorotoluene (PID)	100	60-146	138630	EPA 8021B
Bromofluorobenzene (PID)	107	65-143	138630	EPA 8021B

Type: BLANK
Lab ID: QC443542
Batch#: 138557
Analyzed: 05/27/08
Analysis: EPA 8015B

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		94	69-140
Bromofluorobenzene (FID)		95	73-144
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

Type: BLANK
Lab ID: QC443846
Batch#: 138630
Analyzed: 05/28/08
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)		93	60-146
Bromofluorobenzene (PID)		95	65-143

NA= Not Analyzed
ND= Not Detected
RL= Reporting Limit

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203497	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:	QC443543	Batch#:	138557
Matrix:	Water	Analyzed:	05/27/08
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	963.5	96	80-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	107	69-140
Bromofluorobenzene (FID)	88	73-144

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203497	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16	Analysis:	EPA 8015B
Field ID:	MW-2	Batch#:	138557
MSS Lab ID:	203497-001	Sampled:	05/22/08
Matrix:	Water	Received:	05/22/08
Units:	ug/L	Analyzed:	05/28/08
Diln Fac:	1.000		

Type: MS Lab ID: QC443673

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	7,069	2,000	8,076	50 *	67-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	107	69-140
Bromofluorobenzene (FID)	110	73-144

Type: MSD Lab ID: QC443674

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	8,205	57 *	67-120	2	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	111	69-140
Bromofluorobenzene (FID)	116	73-144

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	203497	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	138630
Units:	ug/L	Analyzed:	05/28/08
Diln Fac:	1.000		

Type: BS Lab ID: QC443848

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	10.66	107	70-129
Benzene	10.00	9.670	97	80-120
Toluene	10.00	10.48	105	80-120
Ethylbenzene	10.00	10.81	108	80-120
m,p-Xylenes	10.00	10.51	105	80-120
o-Xylene	10.00	10.73	107	80-120

Surrogate	%REC	Limits
Trifluorotoluene (PID)	96	60-146
Bromofluorobenzene (PID)	101	65-143

Type: BSD Lab ID: QC443849

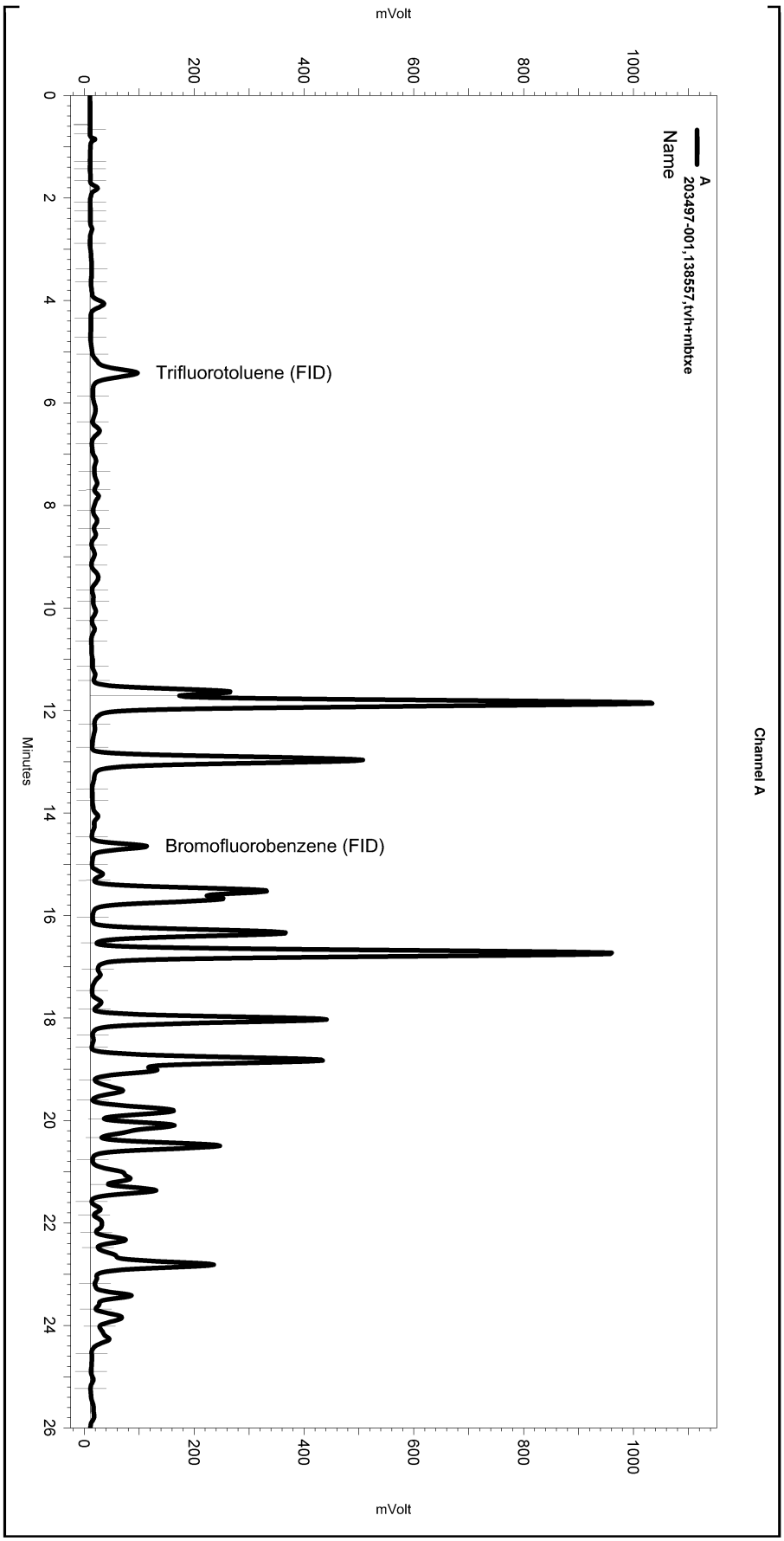
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	10.06	101	70-129	6	21
Benzene	10.00	9.413	94	80-120	3	20
Toluene	10.00	10.19	102	80-120	3	20
Ethylbenzene	10.00	10.47	105	80-120	3	20
m,p-Xylenes	10.00	9.867	99	80-120	6	20
o-Xylene	10.00	10.14	101	80-120	6	20

Surrogate	%REC	Limits
Trifluorotoluene (PID)	91	60-146
Bromofluorobenzene (PID)	94	65-143

RPD= Relative Percent Difference

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC07\Sequence\148.seq**
Sample Name: **203497-001,138557,tvh+mbtxe**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC07\Data\148_026**
Instrument: GC07 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC07\Method\tvhbtxe128.met

Software Version 3.1.7
Run Date: 5/28/2008 1:47:35 AM
Analysis Date: 5/28/2008 11:28:13 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.3



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Integration Events

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

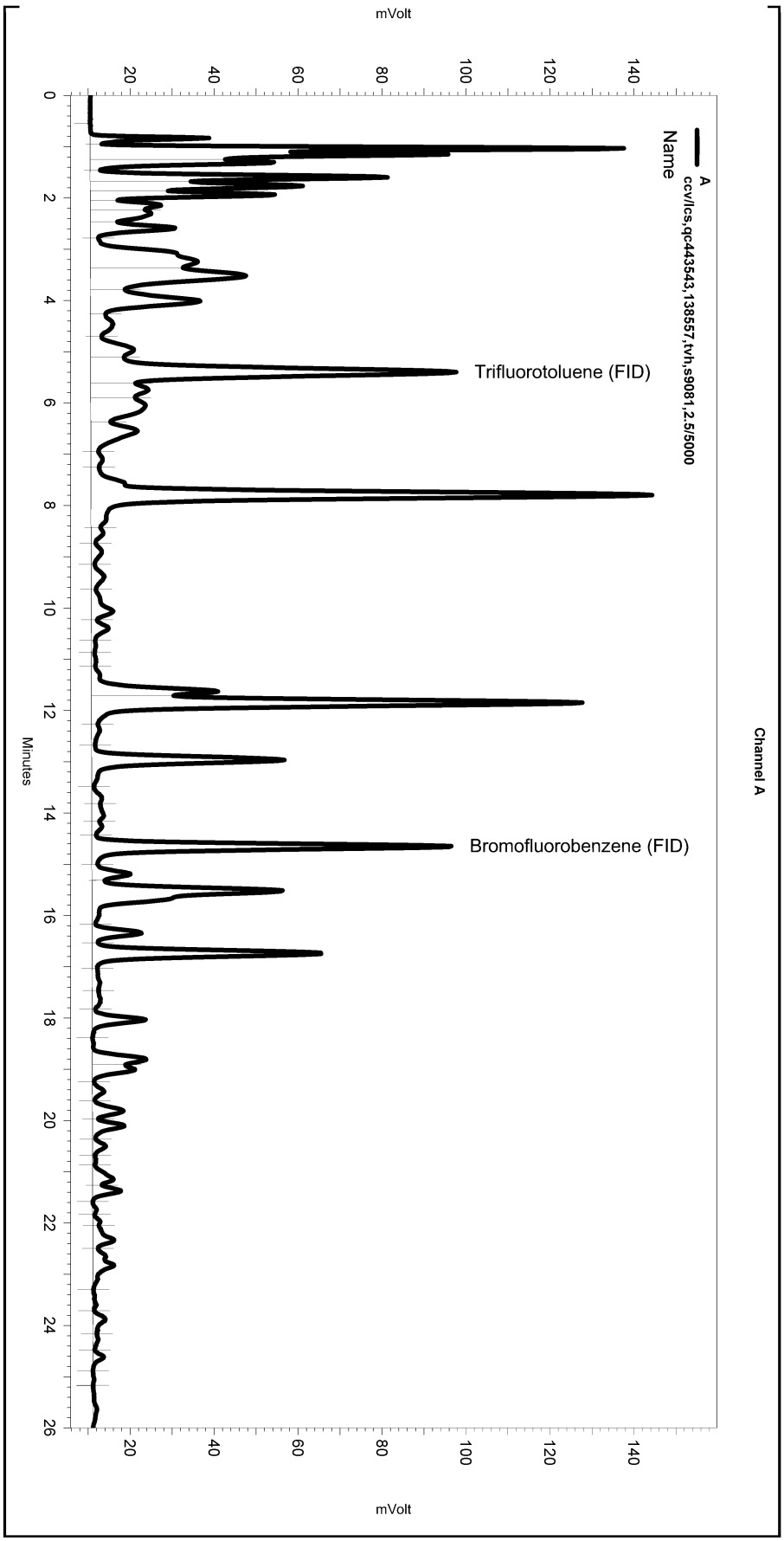
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\148_026

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	5.049	0	0

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC07\Sequence\148.seq**
Sample Name: **ccv/lcs,qc443543,138557,tvh,s9081,2.5/5000**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC07\Data\148_004**
Instrument: GC07 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC07\Method\tvhbtxe128.met

Software Version 3.1.7
Run Date: 5/27/2008 11:27:56 AM
Analysis Date: 5/28/2008 7:28:40 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: {Data Description}



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No items selected for this section

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No items selected for this section

Integration Events

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

Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\148_004

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value

None

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	203497	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2006-16	Analysis:	EPA 8015B
Field ID:	MW-2	Batch#:	138507
Matrix:	Water	Sampled:	05/22/08
Units:	ug/L	Received:	05/22/08
Diln Fac:	1.000	Prepared:	05/23/08

Type: SAMPLE Analyzed: 05/30/08
Lab ID: 203497-001

Analyte	Result	RL
Diesel C10-C24	3,900 Y	50

Surrogate	%REC	Limits
Hexacosane	113	63-130

Type: BLANK Analyzed: 05/29/08
Lab ID: QC443366

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	95	63-130

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

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	203497	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2006-16	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	138507
Units:	ug/L	Prepared:	05/23/08
Diln Fac:	1.000	Analyzed:	05/28/08

Type: BS
Lab ID: QC443367
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,249	90	61-120

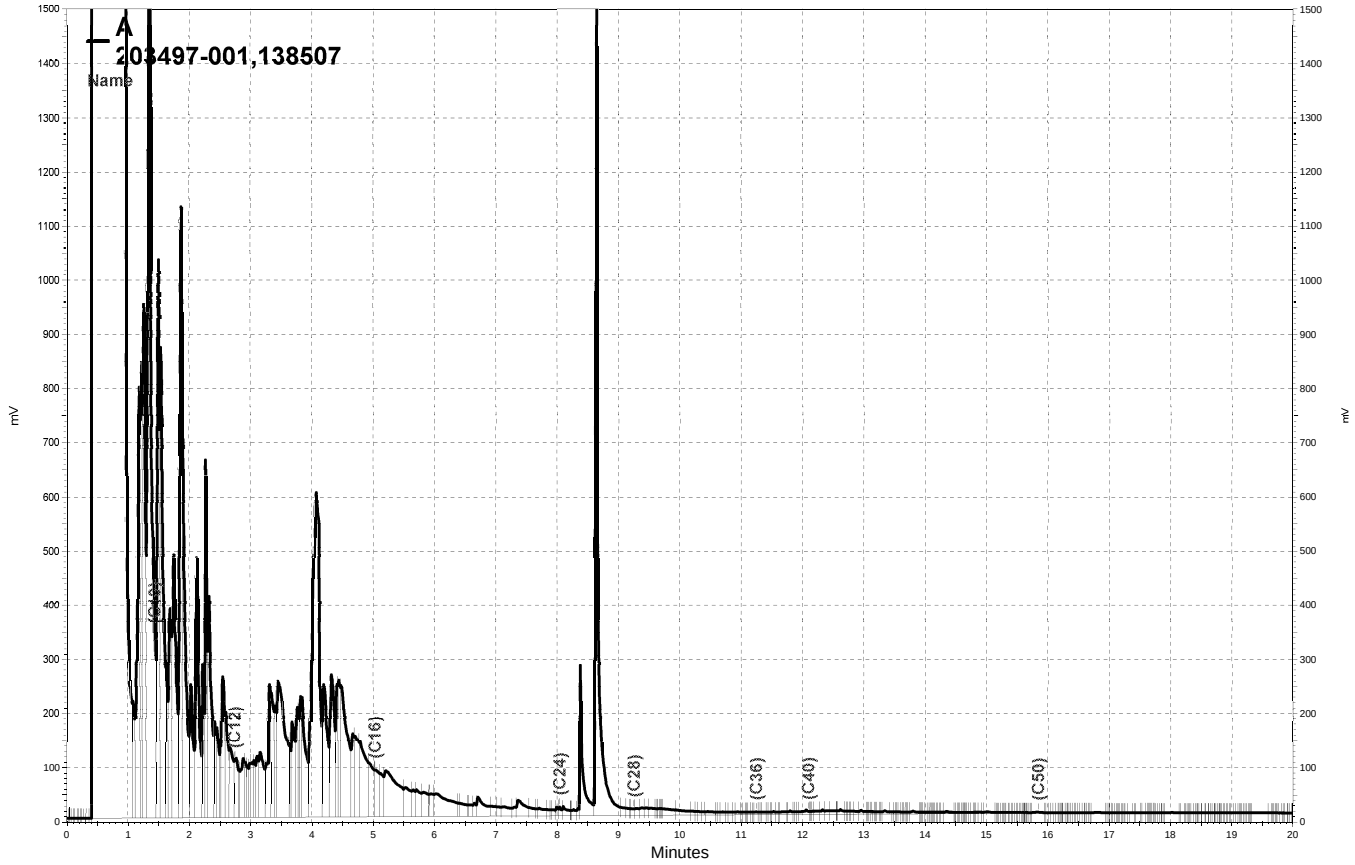
Surrogate	%REC	Limits
Hexacosane	103	63-130

Type: BSD
Lab ID: QC443368
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,165	87	61-120	4	29

Surrogate	%REC	Limits
Hexacosane	87	63-130

RPD= Relative Percent Difference



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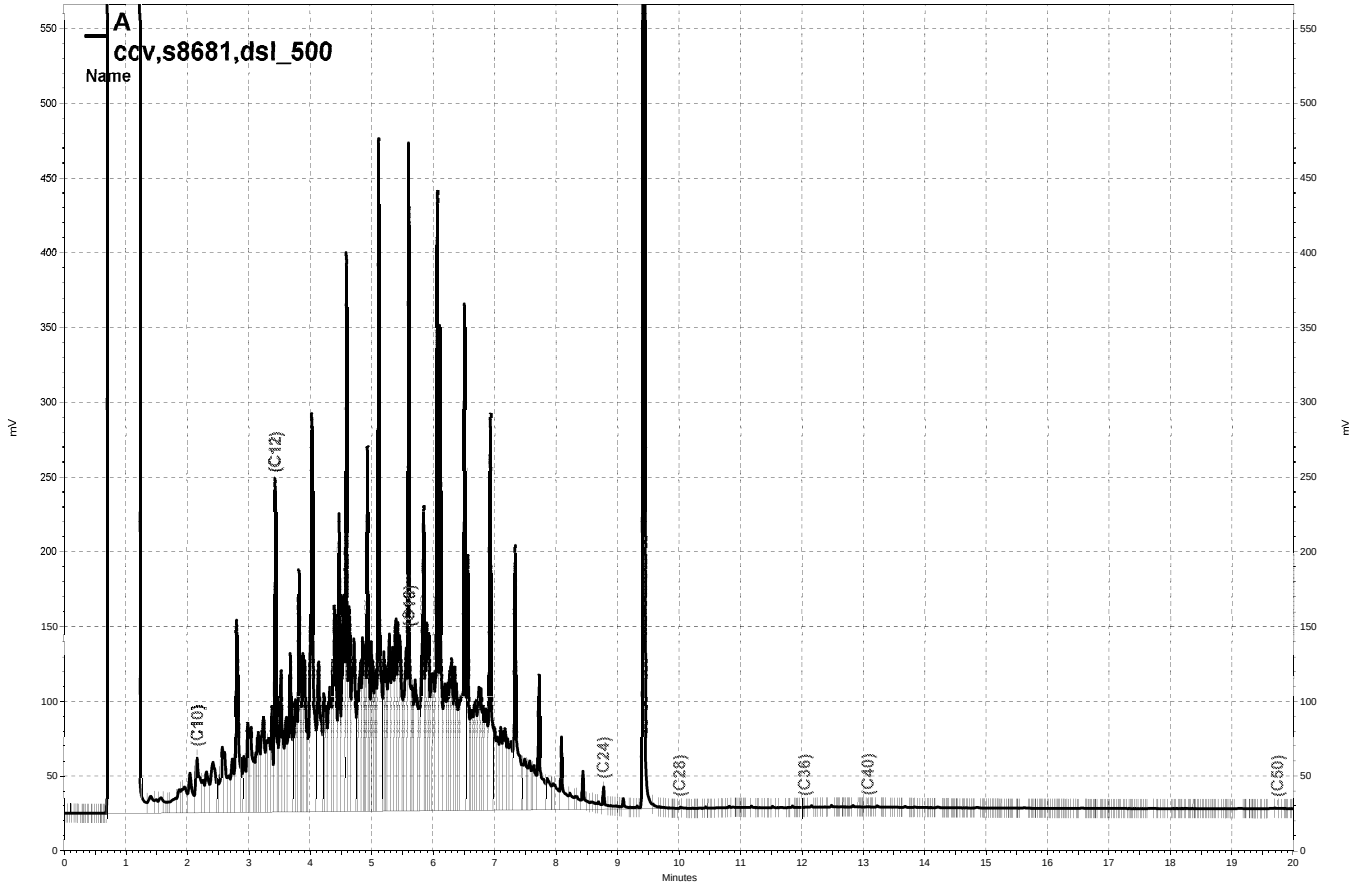

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APPENDIX D

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**

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

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

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

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*

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*

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*

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

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*

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*

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*

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