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Alameda County Health Care Services
APR 01 2005
F:\Environmental Solutions

TRANSMITTAL MEMORANDUM

To: ALAMEDA COUNTY HEALTH CARE SERVICES - ENVIRONMENTAL HEALTH DEPT. - LOCAL OVERSIGHT PROGRAM 1131 HARBOR BAY PKWY, SUITE 250 ALAMEDA, CA 94502	DATE: APRIL 1, 2005
ATTENTION: MR. BARNEY CHAN	FILE: SES 2003-41
SUBJECT: FORMER RUSS ELLIOTT FACILITY 2526 WOOD STREET OAKLAND, CALIFORNIA FUEL LEAK CASE NO. RO00040	
WE ARE SENDING: <input checked="" type="checkbox"/> HEREWITH	<input type="checkbox"/> UNDER SEPARATE COVER
<input checked="" type="checkbox"/> VIA MAIL	<input type="checkbox"/> VIA
THE FOLLOWING: FIRST QUARTER 2005 GROUNDWATER MONITORING REPORT (DATED MARCH 31, 2005)	
<input type="checkbox"/> AS REQUESTED	<input type="checkbox"/> FOR YOUR APPROVAL
<input type="checkbox"/> FOR REVIEW	<input checked="" type="checkbox"/> FOR YOUR USE
<input type="checkbox"/> FOR SIGNATURE	<input type="checkbox"/> FOR YOUR FILES
COPIES TO: MS. JAN ELLIOTT - ELLIOTT FAMILY TRUST MR. PAUL VALVA - VALVA REALTY	BY: BRUCE RUCKER
REPORT ALSO UPLOADED TO CALIFORNIA WATER BOARD'S "GEOTRACKER" DATABASE	

**FIRST QUARTER 2005
GROUNDWATER
MONITORING REPORT**

**FORMER RUSS ELLIOTT, INC. FACILITY
2526 WOOD STREET
OAKLAND, CALIFORNIA**

Prepared for

**MS. JEANNETTE ELLIOTT
SAN LEANDRO, CALIFORNIA**

March 2005

March 31, 2005

Mr. Barney Chan
Hazardous Materials Specialist
Alameda County Health Care Services Agency
Department of Environmental Health
Local Oversight Program
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

RECEIVED
MARCH 31 2005
ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY

Subject: First Quarter 2005 Groundwater Monitoring Report
Former Russ Elliott, Inc. Facility – 2526 Wood Street, Oakland, California

Dear Mr. Chan:

This report documents the fifth consecutive groundwater monitoring event (Q1 2005) conducted in February 2005 by Stellar Environmental Solutions, Inc. (SES) at the referenced site. Three site groundwater monitoring wells were installed and first sampled in February 2004 to evaluate impacts from two former onsite underground fuel storage tanks. The scope of work was conducted in accordance with the Alameda County Health-approved SES technical workplan.


In our professional opinion, continued groundwater monitoring is warranted to evaluate plume stability over time.

Please contact us at (510) 644-3123 if you have any questions.

Sincerely,



Bruce Rucker, R.G. (#6814), R.E.A.
Project Manager and Senior Geologist



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

cc: Ms. Jeannette Elliott – Property Owner

**FIRST QUARTER 2005
GROUNDWATER
MONITORING REPORT**

**FORMER RUSS ELLIOTT, INC. FACILITY
2526 WOOD STREET
OAKLAND, CALIFORNIA**

Prepared for:

**MS. JEANNETTE ELLIOTT
1744 SKYVIEW DRIVE
SAN LEANDRO, CALIFORNIA 94577**

Prepared by:

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

March 31, 2005

Project No. 2003-41

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1.0 INTRODUCTION

PROJECT BACKGROUND

Stellar Environmental Solutions, Inc. (SES) was retained by Ms. Jeannette Elliott (property owner) to conduct ongoing groundwater monitoring and sampling activities at 2526 Wood Street in Oakland, California. The work is designed to evaluate impacts from previous onsite underground fuel storage tanks (UFSTs). Previous site corrective actions and investigations are summarized later in this report. The Alameda County Department of Environmental Health (Alameda County Health) is the lead regulatory agency for the investigation, and has assigned the site as Fuel Leak Case No. RO000040. The California GeoTracker Global ID for the facility is T0600102110.

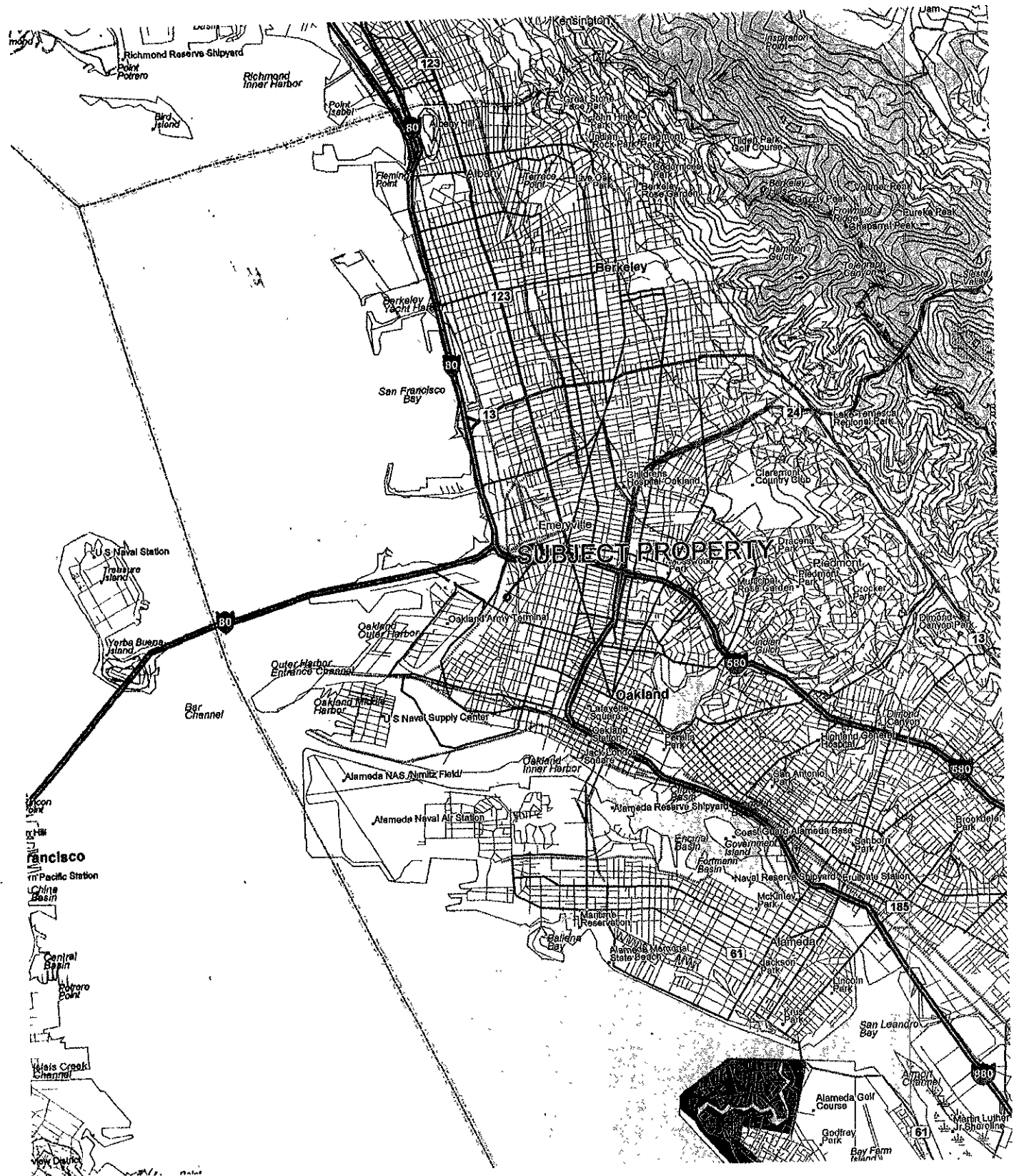
SITE AND VICINITY DESCRIPTION

The project site is a former roofing company (Russ Elliott, Inc.) located at 2526 Wood Street, Oakland, Alameda County, California (site). The business ceased operations at the site in early 2004, and the property is currently vacant. The property was recently sold; however, the previous property owner (Ms. Jeannette Elliott) will remain responsible for the UFST-related site investigation.

The property is approximately 380 feet long (between Wood Street and Willow Street) by approximately 120 feet wide. The long axis of the site (parallel to 26th Street) is oriented approximately northeast to southwest. Figure 1 is a site location map. Figure 2 shows the location of the former site UFSTs in relation to the site buildings and adjacent streets.

The former UFSTs and current area of investigation are in the largely unpaved service yard near the western border of the subject property (near 26th Street). Access to this area is through a chain-link gate on 26th Street. The area available for exterior drilling is limited by adjacent buildings and an active railroad spur that services an adjacent parcel. Nearby land use is wholly commercial and light industrial (i.e., there are no residential or other sensitive land uses in the immediate vicinity).

Downgradient (to the west) land use includes streets, then undeveloped land with freeway overpasses, then San Francisco Bay (a total of approximately 3,000 feet from the subject property).



SUBJECT PROPERTY



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

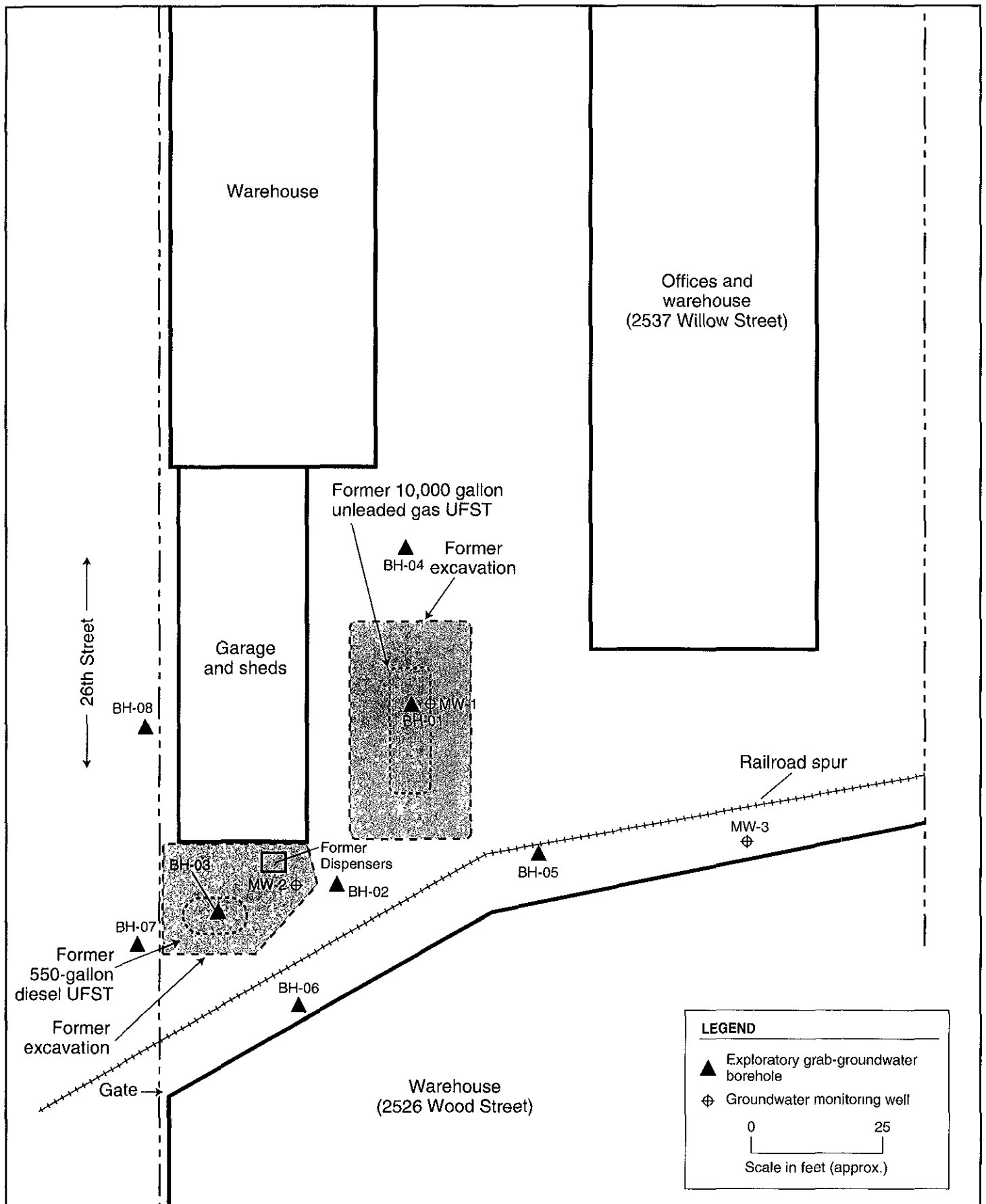
2526 Wood Street
Oakland, CA

By: MJC

JULY 2003

Figure 1

2003-36-01



SITE PLAN AND HISTORICAL SAMPLING LOCATIONS

2526 Wood Street
Oakland, CA

By: MJC

JUNE 2004

Figure 2

★ Stellar Environmental Solutions, Inc.
Geoscience & Engineering Consulting

2003-41-22



PREVIOUS INVESTIGATIONS

UFST Removals

Two UFSTs were located near the western border of the subject property (near 26th Street), approximately 40 feet from each other. Both UFSTs were utilized for fueling company vehicles, sharing a common dispenser island that was located between them. Both UFSTs were removed under permit and regulatory oversight.

The 550-gallon diesel UFST was removed in 1995, and the 10,000-gallon gasoline UFST was removed in 2002. Confirmation soil and water sampling during UFST removals suggested an historical leak in the UFST and/or piping. No UFST closure documentation report was submitted for this UFST removal by the contractor that conducted the removal.

A UFST closure documentation report discussing both UFST removals was prepared and submitted to the Oakland Fire Department and Alameda County Health by SES (SES, 2003a).

2003 Preliminary Site Assessment

Concurrent with the UFST closure documentation report, SES submitted to Alameda County Health a technical workplan for a Preliminary Site Assessment (PSA) (consisting of exploratory borehole drilling and sampling) to evaluate the potential for residual contamination (SES, 2003b). Alameda County Health subsequently approved the technical workplan (Alameda County Health, 2003). The investigation, conducted in 2003, included advancing and sampling (of soil and groundwater) from eight exploratory boreholes. A PSA documentation report was submitted to Alameda County Health (SES, 2003c).

Groundwater contaminants detected above screening-level criteria include diesel, gasoline, benzene, methyl *tertiary*-butyl ether (MTBE), and *tertiary*-butyl alcohol (TBA). The only soil contaminant detected above screening-level criteria was MTBE; however, that contamination was confined to the immediate vicinity of the former gasoline UFST. No soil contamination was detected beneath the upper water-bearing zone.

Groundwater Monitoring Well Installation

On behalf of the property owner, SES submitted to Alameda County Health a technical workplan for a program of groundwater monitoring well installation, sampling, and reporting (SES, 2004a). Alameda County Health subsequently approved the well installation workplan (Alameda County Health, 2004). Three groundwater monitoring wells were installed, developed, surveyed, and sampled in February 2004 (SES, 2004b).

OBJECTIVES AND SCOPE OF WORK

This report discusses the following activities conducted/coordinated by Stellar Environmental Solutions, Inc. (SES) between January 1 and March 31, 2005:

- Collecting water levels in site wells to determine shallow groundwater flow direction; and
- Sampling site wells for contaminant analysis and indicators of natural attenuation.

The surface completion (well box and top of casing) of MW-1 was damaged in January 2005 during site grading. The surface completion has been temporarily repaired (a new locking cap was installed). The surface completion will be wholly rehabilitated and its elevation resurveyed following completion of grading activities.

REGULATORY OVERSIGHT

The lead regulatory agency for the site investigation and remediation is Alameda County Health. All workplans and reports are submitted to this agency. The most recent Alameda County Health directive regarding the site (letter dated January 6, 2004) approved the well installation and quarterly groundwater monitoring and sampling.

Electronic Data Format (EDF) groundwater analytical results from the groundwater monitoring events beginning in the first quarter of 2004 have been successfully uploaded to the State Water Resources Control Board's GeoTracker database, in accordance with that agency's requirements for EDF submittals.

2.0 PHYSICAL SETTING

Following is a brief summary of the site hydrogeologic conditions based on geologic logging and water level measurements collected at the site since October 2003.

A detailed discussion of site lithology and hydrogeology was provided in the well installation report (SES, 2004a). The following summarizes site conditions. A total of 11 exploratory boreholes at the subject property have been geologically logged by a California Registered Geologist using the visual method of the Unified Soils Classification System. The majority of site boreholes have been advanced to 20 feet below ground surface (bgs). That interval includes the upper water-bearing zone and the underlying low-permeability non-water-bearing zone (aquitarde).

LITHOLOGY

In general, native soil consists primarily of clay (often silty), with interbedded sandy and gravelly zones. The upper 2 to 3 feet is dry, gravelly, sandy fill material. In the majority of the boreholes, this is underlain by a sand (often silty and clayey) varying in thickness from 1 to 6 feet, in which water was encountered (see below). This is underlain by a clay unit, occasionally with interbedded sand stringers. In some of the boreholes, this clay unit extends to total depth. In other boreholes, this clay unit is underlain by a sand unit, which in turn is underlain by a low-permeability clay (often gravelly). The shallow site lithology is typical of alluvial fan and stream depositional environments in this area, with lower-permeability (clay and silt) overbank deposits, and higher-permeability (sand and gravel) channel deposits, with significant lateral and depth variation over short distances.

GROUNDWATER HYDROLOGY

Two shallow water-bearing zones were encountered in native soils in the majority of site boreholes. The top of the upper zone (possibly a perched water zone) was encountered at depths between approximately 4 and 8 feet bgs, in a sandy zone. Water was then encountered again at depths between approximately 13.5 and 17.5 feet bgs. In some of the boreholes, this deeper water was encountered at the top of the sand zone (when present); in other boreholes, it was within the lower clay unit. Water levels in wells MW-1 and MW-2 (installed in the former UFST backfill areas) also are likely influenced by direct infiltration during winter recharge events due to the surrounding unpaved surface.

Depth to groundwater (equilibrated in wells) in the current monitoring event ranged from approximately 2.4 to 3.3 feet below grade. Figure 3 is a groundwater elevation and contour map for the current event. Note that the top of casing elevation in MW-1 may not be correct, as the top of casing was damaged in January 2005. That well will be rehabilitated and its elevation resurveying following completion of grading activities. Groundwater flow direction in the current event was to the south-southeast.

3.0 FEBRUARY 2005 GROUNDWATER MONITORING AND SAMPLING ACTIVITIES

This section presents the groundwater monitoring and sampling methods for the most recent groundwater monitoring/sampling event. Analytical results are discussed in a subsequent section. Activities included:

- Measuring static water levels with an electric water level indicator;
- Purging wells to obtain representative formation water (and collecting aquifer stability parameters between each purging); and
- Collecting post-purge groundwater samples for laboratory analysis.

On February 17, 2005, groundwater monitoring well water level measurements, purging, and sampling activities were conducted by North State Environmental (South San Francisco, CA), under the supervision of SES personnel. Table 1 shows the well construction and groundwater elevation data. Appendix A contains the groundwater monitoring field records for the sampling event.

Table 1
Groundwater Monitoring Well Construction and Groundwater Elevation Data
February 17, 2005 Monitoring Event
2526 Wood Street, Oakland, California

Well	Well Depth ^(a)	Screened Interval	TOC Elevation ^(b)	Groundwater Depth ^(c)	Groundwater Elevation ^(b)
MW-1	20	5 to 20	6.87	2.39	4.48
MW-2	20	5 to 20	6.29	2.15	4.14
MW-3	20	5 to 20	6.94	3.34	3.34

Notes:

- ^(a) Well depths are expressed in feet bgs, and are approximate.
- ^(b) All elevations are expressed as feet above mean sea level.
- ^(c) Groundwater depths are expressed in feet bgs relative to the top of well casing.

TOC = Top of casing. All wells are 2-inch-diameter.

For the current event, TOC and groundwater elevations for MW-1 may not be correct due to a damaged wellhead.

As the first task of the monitoring event, static water levels were measured using an electric water level indicator. Each well was then purged (with a downhole pump) of three wetted casing volumes. Aquifer stability parameters were measured between each purged casing volume to ensure that representative formation water entered the well before sampling. Neither separate-phase petroleum product nor sheen was observed during well purging/sampling.

The "Geo Well" data for this event (water levels) were uploaded in EDF format to the State Water Resources Control Board's GeoTracker on-line database.

Historical groundwater monitoring well analytical results are included as Appendix C.

4.0 REGULATORY CONSIDERATIONS

REGULATORY STATUS

The lead regulatory agency for petroleum contamination cases in the City of Oakland is Alameda County Health, which is a Local Oversight Program (LOP) for the Regional Water Quality Control Board (Water Board). As such, Alameda County Health directly oversees soil and groundwater investigations/remediation on UFST sites (with or without Water Board guidance) until determining that case closure is appropriate, at which time Alameda County Health recommends case closure to the Water Board. Alameda County Health has designated the subject property case as Fuel Leak Case No. RO00040. The site is listed in the Water Board's GeoTracker database of reported releases from petroleum USTs (Water Board Case No. 01-2294 and Global ID No. T0600102110).

RESIDUAL CONTAMINATION REGULATORY CONSIDERATIONS

The most applicable published numerical criteria governing residual soil and groundwater contamination at this site are the Water Board's Environmental Screening Levels (ESLs) (Water Board, 2005). ESLs are screening-level criteria used to evaluate whether additional investigation and/or remediation are warranted. Criteria to be considered in using the ESLs include:

- contamination is limited to surface soil (less than 10 feet deep) or to subsurface soil;
- soil is fine-grained or coarse-grained;
- land use is residential or commercial/industrial; and
- groundwater is or is not a known or potential drinking water source.

For the detected site contaminants, the ESL values are the same for surface soil and subsurface soil.

The appropriate ESLs for this site are for coarse-grained soil (a conservative assumption, as grain-size analysis has not been conducted) and commercial/industrial land use (because the owner has no plans to redevelop the property with residential land use). Qualifying for the (usually higher) ESL values for sites where groundwater is not a current or potential drinking water source requires obtaining a site-specific variance from the Water Board. The Water Board completed an East Bay Beneficial Use Study (Water Board, 1999) that covers the Richmond-to-Hayward East Bay Basin Area and, based on multiple technical criteria, divides the Basin into three zones:

- Zone A (significant drinking water resource);
- Zone B (groundwater unlikely to be used as drinking water source); and
- Zone C (shallow groundwater proposed for redesignation as Municipal Supply Beneficial Use). This classification indicates that groundwater could not reasonably be expected to serve a public water supply; however, it does not specifically address private water supply wells that might be used for drinking water. In accordance with State Water Resources Control Board Resolution 92-49, pollution sites within this zone must not pose a potential impact to human health or ecologic receptors, and the groundwater contamination plume must be stable or reducing.

The subject site falls within Zone C. The most conservative assumption for the site is that there is a potential for private drinking water wells to be impacted. However, the site location (with no residential downgradient land use) suggests that the less conservative ESLs of “a potential or current drinking water source is not threatened” may be appropriate when the site is considered for case closure. Until case closure is considered, this report (and future reports) will discuss residual soil and groundwater contamination in the context of the more conservative ESL criteria.

SITE CLOSURE CRITERIA

Alameda County Health and the Water Board generally require that the following criteria be met before issuing regulatory closure of petroleum release cases:

1. The contaminant source has been removed (i.e., the UFSTs and obviously-contaminated backfill material). This criterion has been met, and the available soil analytical results indicate that the residual MTBE soil contamination in the immediate vicinity of the former UFSTs will not be an appreciable long-term source of groundwater contamination.
2. The groundwater contaminant plume is stable or reducing (i.e., groundwater contamination is not increasing in concentration or lateral extent). This criterion has not yet been met, and will be evaluated based on the ongoing quarterly groundwater sampling program.
3. If residual contamination (soil or groundwater) exists, there is no reasonable risk to sensitive receptors (i.e., contaminant discharge to surface water or water supply wells) or to site occupants. This criterion is generally met by conducting a sensitive receptor survey and/or a Risk-Based Corrective Action (RBCA) assessment that models the fate and transport of residual contamination in the context of potential impacts to sensitive receptors. This task is generally conducted after the previous two criteria have been met. Based on the apparent absence of benzene (the probable “risk driver” compound for this site) at elevated concentrations and the likely absence of sensitive receptors, if private wells are eliminated as potential receptors, the site would likely pass the RBCA assessment.

5.0 CURRENT EVENT ANALYTICAL RESULTS

This section the discusses findings of the current sampling event. All groundwater samples in the current sampling event were analyzed for:

- Total volatile hydrocarbons – gasoline range (TVHg), by modified EPA Method 8015;
- Total extractable hydrocarbons – diesel range (TEHd), by modified EPA Method 8015;
- Benzene, toluene, ethylbenzene, and xylenes (BTEX), by EPA Method 8020; and
- MTBE, fuel oxygenates (*tertiary*-amyl methyl ether [TAME]; di-isopropyl ether [DIPE]; and TBA), and lead scavengers 1,2-dichloroethane (EDC) and 1,2-dibromomethane (EDB) by EPA Method 8260.

All groundwater samples were analyzed by North State Environmental, which maintains current ELAP certifications for all of the analytical methods utilized in this investigation. Appendix B contains the certified analytical laboratory report and chain-of-custody record for this event.

Table 2 summarizes the groundwater sample analytical results from the February 2005 well sampling event. Figure 4 displays the groundwater analytical results on the site plan.

The only contaminant detected in the current event was MTBE, at concentrations between 4.8 $\mu\text{g/L}$ (MW-2) and 12.6 $\mu\text{g/L}$ (MW-1). The Water Board ESL criterion for MTBE is 5.0 $\mu\text{g/L}$. Contaminants analyzed for and not detected in the current event include gasoline, diesel, BTEX, fuel oxygenates, and lead scavengers.

The analytical laboratory report was uploaded in EDF format to the State Water Resources Control Board's GeoTracker on-line database.

The large reductions in groundwater contaminant concentrations relative to the previous (November 2004) event are likely due to dilution from the heavy rains prior to the current event.

Table 2
February 17, 2005 Groundwater Analytical Results
2526 Wood Street, Oakland ^(a)

Sample I.D.	TEHd	TVHg	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE ^(b)	Fuel Oxygenates and Lead Scavengers ^(b)
MW-1	< 50	< 50	< 0.5	< 0.5	< 0.5	< 1.00	12.6	ND
MW-2	< 50	< 50	< 0.5	< 0.5	< 0.5	< 1.00	4.8	ND
MW-3	< 50	< 50	< 0.5	< 0.5	< 0.5	< 1.00	< 0.5	ND
Groundwater ESLs	100	100	1.0	40	30	13	5.0	

Notes:

^(a) All concentrations are in $\mu\text{g/L}$.

^(b) Full list of fuel oxygenates and lead scavengers is included in Appendix B.

MTBE = Methyl *tertiary*-butyl ether.

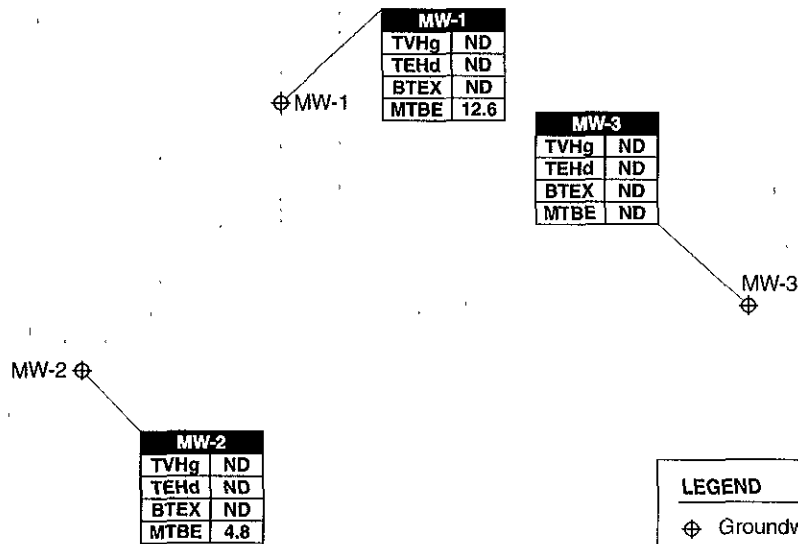
TEHd = Total extractable hydrocarbons – diesel range.

TVHg = Total volatile hydrocarbons – gasoline range.

ESLs = California Water Board, San Francisco Bay Region, Environmental Screening Levels (Water Board, 2005).

ND = Not detected above method reporting limits.

2526 WOOD STREET
 OAKLAND, CA 94612
 TEL: (415) 771-1100
 FAX: (415) 771-1101
 WWW: WWW.STELLAR-ENV.COM



LEGEND

⊕ Groundwater monitoring well
 All concentrations in g/L
 ND - Not Detected
 Figure shows only detected fuel oxygenates and lead scavengers

0 ————— 25
 Scale in feet (approx.)

2003-41-37



FEBRUARY 2005 GROUNDWATER ANALYTICAL RESULTS

2526 Wood Street
 Oakland, CA

By: MJC

MARCH 2005

Figure 4

★ Stellar Environmental Solutions, Inc.
 Geoscience & Engineering Consulting

6.0 SUMMARY, CONCLUSIONS, OPINION, AND RECOMMENDATIONS

SUMMARY AND CONCLUSIONS

The available data support the following findings and conclusions:

- Two UFSTs containing gasoline and diesel were removed from the site in 2002 and 1995, respectively. Excavation confirmation soil samples indicated that MTBE was the sole contaminant of concern in soil, although pit water samples contained elevated levels of diesel, gasoline, and MTBE. A UFST closure documentation report discussing both UFST removals was submitted to the appropriate regulatory agencies in 2003.
- A Preliminary Site Assessment (exploratory borehole drilling and sampling program) was conducted in October 2003; activities included advancing and sampling eight exploratory boreholes to a maximum depth of 25 feet below grade. Hydrocarbon contamination was most pronounced in samples from the areas of the two former UFSTs and to the south-southwest.
- Three shallow site groundwater monitoring wells were installed, developed, and surveyed in February 2004.
- Site lithology ranges from low-permeability silts and clays to higher-permeability (and water-bearing) sands and gravels. There are two shallow water bearing zones: the top of the upper zone (potentially a seasonally-perched zone) is encountered at depths between 4 and 8 feet; the top of the third zone is encountered at depths between approximately 13.5 and 17.5 feet bgs. The lower water-bearing zone is underlain by a low-permeability, non-water-bearing zone.
- Local groundwater flow direction varies from south (generally in the rainy season) to west (generally in the dry season). Historical data show the expected seasonal trend of lower groundwater elevations in the dry season, increasing with the onset of rains. The site data suggest that backfill material in one or both of the former UFST excavations may be influencing apparent flow direction.
- The only soil contaminant historically detected above ESL criteria in residual soils (including UFST removal, borehole, and well installation phases) is MTBE, at locations within 15 feet of the former UFST excavations. The maximum detected MTBE concentration in soil is

between the most restrictive (residential, groundwater used) and the least restrictive (commercial/industrial, groundwater not used) Water Board ESL criteria.

- The concentrations of hydrocarbon constituents in groundwater were significantly reduced in the Q1-2005 monitoring event compared to historical monitoring results, with no TVH-gasoline, benzene, total xylene, or fuel oxygenates/lead-scavengers detected. The only groundwater contaminant detected in the current event was MTBE, at 4.8 and 12.6 $\mu\text{g/L}$ MTBE. The Water Board ESL is 5.0 $\mu\text{g/L}$. Large reductions in contaminant concentrations relative to the previous event likely reflect dilution from heavy rains prior to the monitoring event.
- The current monitoring wells appear adequate to define local groundwater flow direction and to evaluate site-sourced hydrochemistry, although continued groundwater monitoring is warranted to ensure that groundwater contamination above regulatory agency levels of concern is not migrating offsite.
- The property owner is pursuing reimbursement from the State of California Underground Storage Tank Cleanup Fund (Fund) for regulatory agency-directed corrective action and investigation costs. The initial Claim Application was submitted to the Fund in February 2004.
- All required electronic uploads for previous work have been made to the California GeoTracker on-line database system, including a Portable Data Format (pdf) copy of this report. Beginning on July 1, 2005, hard copies of all technical reports will no longer be submitted to Alameda County Health, in accordance with GeoTracker requirements.

PROPOSED ACTIONS

- The property owner proposes to continue the quarterly groundwater monitoring well monitoring and sampling program, in accordance with the technical workplan approved by Alameda County Health. This will include electronic uploads (water level, groundwater contamination data, and technical reports) for future monitoring events to the California GeoTracker system.
- The focus of continued groundwater monitoring will be to evaluate the magnitude and extent of groundwater contamination, particularly with regard to plume stability. If future monitoring indicates that offsite migration of contamination is occurring, additional assessment activities—i.e., sensitive receptor survey; vicinity well survey; RBCA study; and/or additional exploratory boreholes/groundwater monitoring wells—will be considered.
- The surface completion of recently-damaged well MW-1 will be repaired, and the well elevation will be resurveyed in accordance with GeoTracker requirements.

- The property owner will continue to pursue reimbursement of eligible incurred corrective action costs from the California UST Cleanup Fund.

7.0 REFERENCES AND BIBLIOGRAPHY

- Alameda County Health Care Services – Department of Environmental Health (Alameda County Health), 2004. Letter approving Stellar Environmental Solutions' January 8, 2004 technical workplan for groundwater characterization at 2526 Wood Street, Oakland, California. January 26.
- Alameda County Health, 2003. Letter approving Stellar Environmental Solutions' August 20, 2003 PSA workplan for 2526 Wood Street, Oakland, California. September 29.
- Regional Water Quality Control Board (Water Board), 2005. Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater. February.
- Regional Water Quality Control Board (Water Board), 1999. East Bay Plain Groundwater Basin Beneficial Use Evaluation Report. June.
- Stellar Environmental Solutions, Inc. (SES), 2005. Fourth Quarter 2004 Groundwater Monitoring & Year 2004 Annual Summary Report – Russ Elliott, Inc. Facility, 2526 Wood Street, Oakland, California. January 10.
- SES, 2004a. Workplan for Groundwater Characterization – Russ Elliott, Inc. Facility, 2526 Wood Street, Oakland, California. January 8.
- SES, 2004b. Groundwater Monitoring Well Installation and Baseline Groundwater Monitoring Report – Russ Elliott, Inc. Facility, 2526 Wood Street, Oakland, California. March 15.
- SES, 2004c. Second Quarter 2004 Groundwater Monitoring Report – Russ Elliott, Inc. Facility, 2526 Wood Street, Oakland, California. July 1.
- SES, 2004d. Third Quarter 2004 Groundwater Monitoring Report – Russ Elliott, Inc. Facility, 2526 Wood Street, Oakland, California. September 30.
- SES, 2003a. Underground Fuel Storage Tanks Closure Documentation and Assessment Report, Russ Elliott, Inc. – 2526 Wood Street, Oakland, California. August 15.

SES, 2003b. Workplan for Preliminary Site Assessment – Russ Elliott, Inc. Facility, 2526 Wood Street, Oakland, California. August 20.

SES, 2003c. Preliminary Site Assessment Report – Russ Elliott, Inc. Facility, 2526 Wood Street, Oakland, California. November 19.

8.0 LIMITATIONS

This report has been prepared for the exclusive use of Ms. Jeannette Elliott, her 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 a review of previous investigators' findings at the site, as well as site investigations conducted by SES since 2003. This report has been prepared in accordance with generally accepted methodologies and standards of practice. The SES personnel who performed this limited remedial investigation 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 date of this report. 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 activities completed.

NORTH STATE LABS

WELL PURGING/SAMPLING DATA

Project Number: _____ Date: 2.17.05
 Project / Site Location: 2526 WOOD STREET
OAKLAND, CA

Sampler/Technician: _____

Casing Diameter (inches)	0.75	2	4	6
Casing Volume (gallons)	0.02	0.2	0.7	1.52

Well No. MW-1

A. Total Well Depth	12.15
B. Depth To Water	2.39
C. Water Height (A-B)	9.76
D. Well Casing Diameter	2
E. Casing Volume	0.7
F. Single Case Volume (CxEx)	1.95
G. Case Volume(s)(CxEx)	5.85
H. 80% Recharge Level	4.34

Purge Event	
Start Time:	1030
Finish Time:	1040
Post Purge Measurement	
Depth to Water	2.41
Time Measured:	1055
Recharge/Sample Time	
Depth to Water:	2.41
Time Measured:	1120

Well Fluid Parameters:				
Gals.	0	2	4	5.85
pH	10.63	9.72	9.70	9.55
T(°C)	15.6	14.9	15.0	14.9
Cond.	780	888	901	890
DO mg/L				2.85
DO %				33.6
Turbidity	+200	187.7	+200	56.5
ORP				

Summary Data:	
Total Gallons Purged:	5.85
Purge device:	DC 60
Sampling Device:	DISP. BAILER
Sample Collection Time:	1125
Sample Appearance/Odor:	CLOUDY / HC ODOR

Well No. MW-2

A. Total Well Depth	15.16
B. Depth To Water	2.15
C. Water Height (A-B)	13.01
D. Well Casing Diameter	2
E. Casing Volume	0.2
F. Single Case Volume (CxEx)	2.6
G. Case Volume(s)(CxEx)	7.8
H. 80% Recharge Level	4.75

Purge Event	
Start Time:	1005
Finish Time:	1020
Post Purge Measurement	
Depth to Water	2.16
Time Measured:	1050
Recharge/Sample Time	
Depth to Water:	2.17
Time Measured:	1110

Well Fluid Parameters:				
Gals.	0	3	5	7.8
pH	6.75	7.10	7.18	7.20
T(°C)	14.8	14.3	14.6	14.3
Cond.	388	339	335	327
DO mg/L				5.65
DO %				58.1
Turbidity	91.7	+200	59.6	8.38
ORP				

Summary Data:	
Total Gallons Purged:	7.8
Purge device:	DC 60
Sampling Device:	DISP. BAILER
Sample Collection Time:	1115
Sample Appearance/Odor:	CLEAR / NA

NORTH STATE LABS

WELL PURGING/SAMPLING DATA

Project Number: _____ Date: 2-17-05
 Project / Site Location: 2526 WOOD STREET
OAKLAND, CA

Sampler/Technician: _____

Casing Diameter (inches)	0.75	2	4	6
Casing Volume (gallons)	0.02	0.2	0.7	1.52

Well No. MW-3

A. Total Well Depth	18.19
B. Depth To Water	3.34
C. Water Height (A-B)	14.85
D. Well Casing Diameter	2
E. Casing Volume	0.2
F. Single Case Volume (CxEx)	2.97
G. Case Volume(s)(CxEx)	8.91
H. 80% Recharge Level	6.31

Well No. _____

A. Total Well Depth	
B. Depth To Water	
C. Water Height (A-B)	
D. Well Casing Diameter	
E. Casing Volume	
F. Single Case Volume (CxEx)	
G. Case Volume(s)(CxEx)	
H. 80% Recharge Level	

Purge Event

Start Time: 0935
 Finish Time: 0950

Post Purge Measurement

Depth to Water 3.27
 Time Measured: 1045

Recharge/Sample Time

Depth to Water: 3.24
 Time Measured: 1100

Purge Event

Start Time: _____
 Finish Time: _____

Post Purge Measurement

Depth to Water _____
 Time Measured: _____

Recharge/Sample Time

Depth to Water: _____
 Time Measured: _____

Well Fluid Parameters:

Gals.	0	3	6	8.91
pH	6.85	6.94	7.01	6.93
T(°C)	15.7	17.0	17.9	18.0
Cond.	1773	1955	1953	1987
DO mg/L				6.84
DO %				51.4
Turbidity	+200	+200	+200	141.9
ORP				

Well Fluid Parameters:

Gals.				
pH				
T(°C)				
Cond.				
DO mg/L				
DO %				
Turbidity				
ORP				

Summary Data:

Total Gallons Purged: 8.91
 Purge device: DC 60
 Sampling Device: DISP. BAILER
 Sample Collection Time: 1105
 Sample Appearance/Odor: CLEAR / N/A

Summary Data:

Total Gallons Purged: _____
 Purge device: _____
 Sampling Device: _____
 Sample Collection Time: _____
 Sample Appearance/Odor: _____

January 11, 2005

To: Mark Dysert – North State Environmental
Email: markdysert@aol.com
From: Joe Dinan / Bruce Rucker
Subject: Groundwater Monitoring Well and Groundwater Sampling Event
Russ Elliott, 2526 Wood Street, Oakland, California

Mark:

Here is the information for the referenced project.

Groundwater Monitoring Sampling Event Date/Time:
Thursday February 17, 2005

Scope of Work:

Water Level Measurements: Collect water levels at 3 wells.

Post-Purge Sampling: Please purge wells by pumping three casing volumes. Measure and record temperature, pH, conductivity and turbidity between each casing volume purged. After final purging, collect post-purge water samples for offsite analyses. Collect and field-measure another post-purge sample for dissolved oxygen (DO).

Sampling Containers and Chain of Custody: Samples are to be analyzed for TVHg (EPA 8015) + BTEX (EPA Method 8020)+ MTBE and fuel oxygenates including 1,2-dichloroethane and 1,2-dibromomethane (lead scavengers) (EPA Method 8260) and TEHd (EPA 8015). We recommend 4 VOAs with HCl and 2 1-L amber glass, per well.

Well Sampling Order. MW-3 then MW-2 then MW-1.

Purge Water Management. Put all purge water and equipment decontamination rinsate (if any) in 55-gallon open top drums you are to provide (please fill all partially full drums already onsite). Please store drums in same area as drums from previous events.

Sampling Containers. NSE is responsible for bringing all containers, cooler and ice necessary.

Well Locks and Keys. Please remember to bring your set of well lock keys and gate keys as we will not be meeting you onsite for this event.

05-0244

Chain of Custody Record

Lab job no. _____
 Date 2-17-05
 Page 1 of 1

Laboratory North State Environmental Lab Method of Shipment Hand Delivery
 Address 90 South Spruce Avenue, Ste. V Shipment No. _____
S. San Francisco, CA 94080 Airbill No. _____
650-266-4563 Cooler No. _____
 Project Owner Russ Elliott Project Manager Joe Dinan
 Site Address 2526 Wood Street Telephone No. (510) 644-3123
Oakland, California Fax No. (510) 644-3859
 Project Name Russ Elliott Samplers: (Signature) Scott Cassidy
 Project Number 2003-41

Filtered	No. of Containers	Analysis Required							Remarks
		TVH GASOLINE (80/15m)	TEH-DIESEL (80/15m)	BTEX (EPA 801)	FUEL OXYGENATES	LEAD SCRAMMERS	MTBE (EPA 8160)		
		X	X	X	X	X	X	X	
		X	X	X	X	X	X	X	
		X	X	X	X	X	X	X	

1
2
3

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation								
						Cooler	Chemical							
MW-3	✓	2-17-05	1105	GW H ₂ O	3 VOC'S + 1 ABX GL	YES	HCL IN VIALS	NO						
MW-2	✓		1115		" "									
MW-1	✓		1125		" + 3 ABX GL									

Relinquished by: Scott Cassidy Date 2-17-05
 Signature _____
 Printed SCOTT CASSADY
 Company North State Environmental

Received by: _____ Date _____
 Signature _____
 Printed _____
 Company _____

Relinquished by: _____ Date _____
 Signature _____
 Printed _____
 Company _____

Received by: _____ Date _____
 Signature _____
 Printed _____
 Company _____

Turnaround Time: STD TAT
 Comments: All samples to be run for TVHg, BTEX, MTBE & TEHd

Relinquished by: _____ Date _____
 Signature _____
 Printed _____
 Company _____

Received by: _____ Date _____
 Signature _____
 Printed _____
 Company _____

2000-00-01



North State Labs

CA ELAP # 1753

815 Dubuque Avenue • South San Francisco, CA 94080 • (650) 266-4563 • FAX (650) 266-4560

SAMPLE RECEIPT CHECKLIST

Client Name: Stellar Env Ref/Subm No: 05-0249 Date: 2/17/05

Checked By: EC

Matrix: Soil: Water: X Other:

If Received via Shipment (If dropped off in person this section does not apply):

Carrier Name:

Shipping Container/Cooler In Good Condition? Yes: No:

Custody Seals Intact on Shipping Container? Yes: No:

Custody Seals intact on sample containers? Yes: No: Not Present: X

Chain of Custody present? Yes: X No:

Chain of Custody Signatures & Date/Time correct? Yes: X No:

Chain of custody agrees with sample labels? Yes: X No:

Samples in proper containers? Yes: X No:

Sample containers Intact? Yes: X No:

Sufficient sample volume for indicated tests? Yes: X No:

All Samples received within holding times? Yes: X No:

Temperature Blank present? Record Temp if present. Yes: No: X Temp:

For water samples- VOAS have zero headspace? Yes: X No: NA:

For water samples- pH acceptable on receipt? Yes: X No: NA:

pH adjusted - Preservative used: HNO₃: HCl: H₂SO₄: NaOH: ZnOAc:
Lot:

Corrective Action Record:

Client Contacted: Date Contacted: Person Contacted:

Contacted by: Regarding:

Comments:

Corrective Action:



North State Labs

CA ELAP# 1753

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Case Narrative

Client: Stellar Environmental Solutions

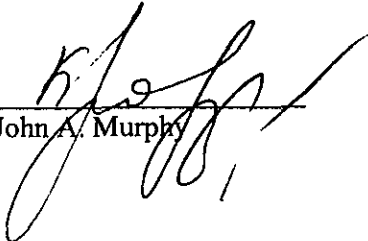
Project: 2003-41 / 2526 WOOD ST., OAKLAND

Lab No: 05-0244

Date Received: 02/17/05

Date reported: 02/24/05

Three water samples were analyzed for gasoline and diesel by method 8015B, BTEX by method 8021B and fuel additives by GC/MS method 8260B. The MS/MSD for BTEX analyzed in the same set (spiked another client sample) did not meet QC criteria; the LCS/LCSD results were reported instead. Except for the BTEX, all results for QC/QA samples were within acceptance limits. No errors occurred during analysis.



John A. Murphy



C E R T I F I C A T E O F A N A L Y S I S

Lab Number: 05-0244
Client: Stellar Env. Solutions
Project: 2003-41/2526 WOOD ST OAKLAND

Date Reported: 02/24/2005

Gasoline and BTEX by Methods 8015B/8021B
Diesel Range Hydrocarbons by Method 8015B

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 05-0244-01 Client ID: MW-3 02/17/2005 W					
Benzene	SW8020F	ND<0.5	UG/L		02/18/2005
Ethylbenzene	SW8020F	ND<0.5	UG/L		02/18/2005
Gasoline Range Organics	SW8020F	ND<50	UG/L		02/18/2005
Toluene	SW8020F	ND<0.5	UG/L		02/18/2005
Xylenes	SW8020F	ND<1.0	UG/L		02/18/2005
Diesel Fuel #2	CATFH	ND<0.05	MG/L		02/19/2005
Sample: 05-0244-02 Client ID: MW-2 02/17/2005 W					
Benzene	SW8020F	ND<0.5	UG/L		02/18/2005
Ethylbenzene	SW8020F	ND<0.5	UG/L		02/18/2005
Gasoline Range Organics	SW8020F	ND<50	UG/L		02/18/2005
Toluene	SW8020F	ND<0.5	UG/L		02/18/2005
Xylenes	SW8020F	ND<1.0	UG/L		02/18/2005
Diesel Fuel #2	CATFH	ND<0.05	MG/L		02/19/2005
Sample: 05-0244-03 Client ID: MW-1 02/17/2005 W					
Benzene	SW8020F	ND<0.5	UG/L		02/18/2005
Ethylbenzene	SW8020F	ND<0.5	UG/L		02/18/2005
Gasoline Range Organics	SW8020F	ND<50	UG/L		02/18/2005
Toluene	SW8020F	ND<0.5	UG/L		02/18/2005
Xylenes	SW8020F	ND<1.0	UG/L		02/18/2005
Diesel Fuel #2	CATFH	ND<0.05	MG/L		02/19/2005



North State Labs

CA ELAP# 1753

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C E R T I F I C A T E O F A N A L Y S I S

Quality Control/Quality Assurance

Lab Number: 05-0244
Client: Stellar Env. Solutions
Project: 2003-41/2526 WOOD ST OAKLAND

Date Reported: 02/24/2005
Gasoline and BTEX by Methods 8015B/8021B
Diesel Range Hydrocarbons by Method 8015B

Table with 7 columns: Analyte, Method, Reporting Unit Limit, Blank, Avg MS/MSD Recovery, RPD. Rows include Gasoline Range Organics, Benzene, Toluene, Ethylbenzene, Xylenes, and Diesel Fuel #2.

ELAP Certificate NO:1753

Reviewed and Approved

Signature of John A. Murphy, Laboratory Director



C E R T I F I C A T E O F A N A L Y S I S

Job Number: 05-0244
Client : Stellar Env. Solutions
Project : 2003-41/2526 WOOD ST OAKLAND

Date Sampled : 02/17/2005
Date Analyzed: 02/22/2005
Date Reported: 02/24/2005

Fuel Oxygenates by Method 8260B

Laboratory Number	05-0244-01	05-0244-02	05-0244-03
Client ID	MW-3	MW-2	MW-1
Matrix	W	W	W
Analyte	UG/L	UG/L	UG/L
Methyl-tert-butyl ether	ND<0.5	4.8	12.6
Ethyl tert-butyl ether	ND<1	ND<1	ND<1
tert-Amyl methyl ether	ND<1	ND<1	ND<1
Di-isopropyl ether (DIPE)	ND<0.5	ND<0.5	ND<0.5
tert-Butyl alcohol	ND<10	ND<10	ND<10
1,2-Dichloroethane	ND<1	ND<1	ND<1
1,2-Dibromoethane	ND<0.5	ND<0.5	ND<0.5
Ethanol	ND<50	ND<50	ND<50
SUR-Dibromofluoromethane	97	99	98
SUR-Toluene-d8	101	99	98
SUR-4-Bromofluorobenzene	94	98	95
SUR-1,2-Dichloroethane-d4	99	97	97



C E R T I F I C A T E O F A N A L Y S I S

Job Number: 05-0244
Client : Stellar Env. Solutions
Project : 2003-41/2526 WOOD ST OAKLAND

Date Sampled : 02/17/2005
Date Analyzed: 02/22/2005
Date Reported: 02/24/2005

Fuel Oxygenates by Method 8260B
Quality Control/Quality Assurance Summary

Table with columns: Laboratory Number, Client ID, Matrix, Analyte, Results, %Recoveries, RPD, Recovery Limit, RPD Limit. Lists various analytes like Ethanol, Methyl-tert-butyl ether, etc., with their respective results and recovery percentages.

Reviewed and Approved

John A. Murphy
Laboratory Director

Appendix C
Historical Groundwater Monitoring Well Groundwater Analytical Results (µg/L)
2526 Wood Street, Oakland

Sample ID.	TEHd	TVHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	Fuel Oxygenates ^(a)
February 2004 Event								
MW-1	<50	172	1.2	<0.5	<0.5	<1.00	578	TAME = 3 TBA = 19
MW-2	<50	72	<0.5	<0.5	<0.5	<1.00	16.4	ND
MW-3	<50	58	<0.5	0.6	<0.5	<1.00	<0.5	ND
May 2004 Event								
MW-1	<50	< 50	<0.5	<0.5	<0.5	<1.00	399	TAME = 2
MW-2	<50	83	<0.5	<0.5	<0.5	<1.00	1,230	TAME = 52 DIPE = 0.6 TBA = 243
MW-3	<50	< 50	<0.5	<0.5	<0.5	<1.00	<0.5	ND
August 2004 Event								
MW-1	<50	< 50	<0.5	<0.5	<0.5	<1.00	1,210	TAME = 3 TBA = 78
MW-2	<50	< 50	<0.5	<0.5	<0.5	<1.00	769	TAME = 6 TBA = 81
MW-3	<50	< 50	<0.5	<0.5	<0.5	<1.00	<0.5	ND
November 2004 Event								
MW-1	<50	< 50	<0.5	<0.5	<0.5	<1.00	83	ND
MW-2	<50	271	102	<0.5	<0.5	1.3	1,820	TAME = 139 TBA = 486
MW-3	<50	< 50	<0.5	<0.5	<0.5	<1.00	<0.5	ND
February 2005 Event								
MW-1	<50	< 50	<0.5	<0.5	<0.5	<1.00	12.6	ND
MW-2	<50	< 50	<0.5	<0.5	<0.5	<1.00	4.8	ND
MW-3	<50	< 50	<0.5	<0.5	<0.5	<1.00	<0.5	ND

Notes:

^(a) Table reports only detected fuel oxygenates and lead scavengers.

TEHd = total extractable hydrocarbons – diesel range; TVHg = total volatile hydrocarbons – gasoline range; TAME = tertiary-amyl methyl ether; MTBE = methyl tertiary-butyl ether; TBA = tertiary-butyl alcohol; DIPE = di-isopropyl ether.

ND = Not detected above method reporting limits. NLP = No level published.