SECOND QUARTER 2005 GROUNDWATER MONITORING REPORT

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

Prepared for

MS. JEANNETTE ELLIOTT
SAN LEANDRO, CALIFORNIA

June 2005

STELLAR
ENVIRONMENTAL SOLUTIONS, INC.
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GEOSCIENCE & ENGINEERING CONSULTING

RECEIVED
OCTOBER 5, 2005
ALAMEDA COUNTY ENVIRONMENTAL HEALTH

June 30, 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

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

Dear Mr. Chan:

This report documents the sixth consecutive groundwater monitoring event (Q2 2005) conducted in May 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

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

Prepared for:

MS. JEANNETTE ELLIOTT
1744 SKYVIEW DRIVE
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June 30, 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 former 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 occupied by a construction firm. 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 situated 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).

N

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

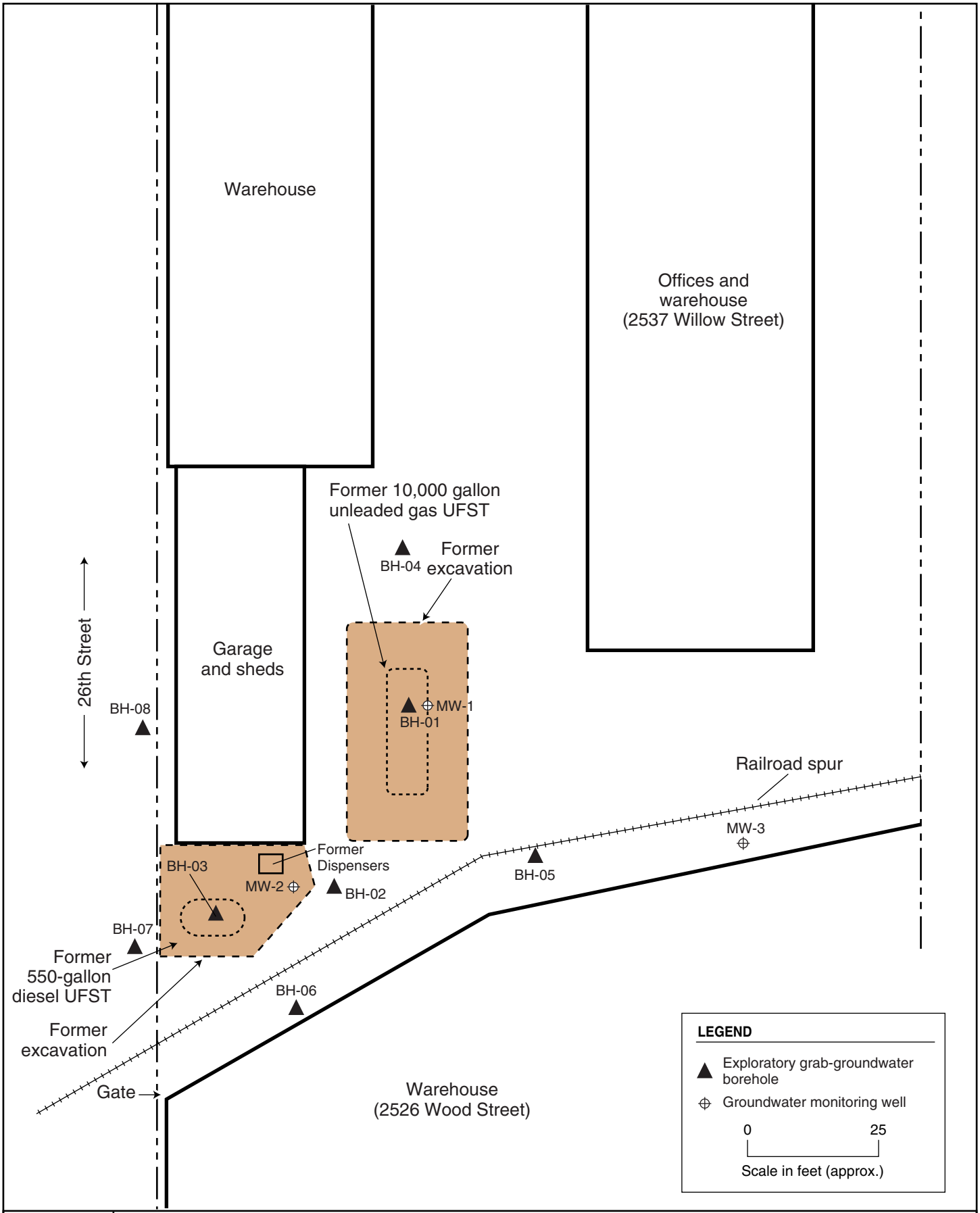
2526 Wood Street
Oakland, CA

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 AND CORRECTIVE ACTIONS

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, and shared 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 prepared by SES, that discussed both UFST removals, was submitted to both 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).

Groundwater Monitoring Well Sampling

Groundwater monitoring well monitoring/sampling events have been conducted on a quarterly basis since February 2004.

OBJECTIVES AND SCOPE OF WORK

This report discusses the following activities conducted/coordinated by SES between April 1 and June 30, 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. In April 2005, the surface completion was wholly rehabilitated and its elevation resurveyed.

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) files from all groundwater monitoring events 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 (aquitard).

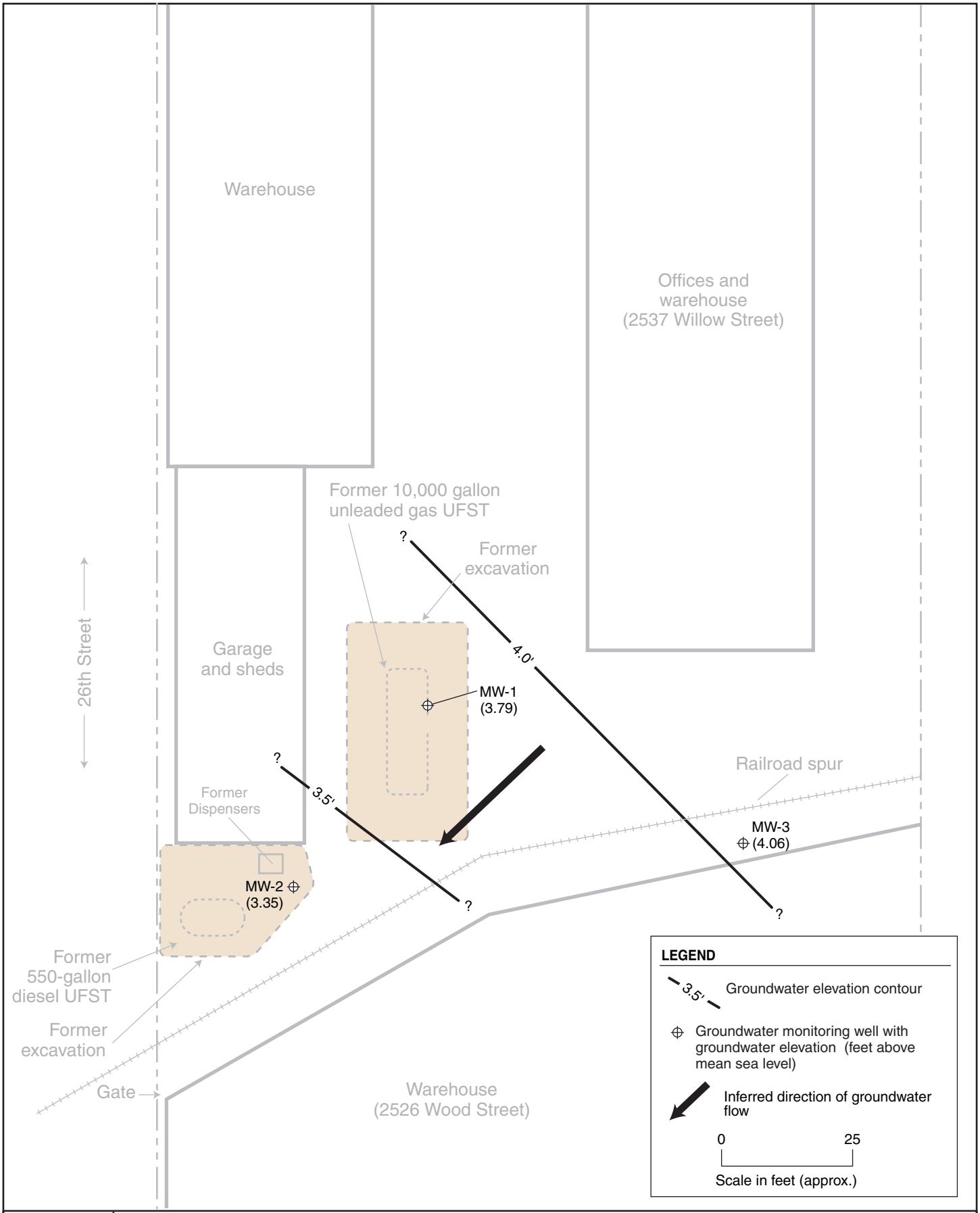
LITHOLOGY

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 2.2 to 3.3 feet below grade. Figure 3 is a groundwater elevation and contour map for the current event. Groundwater flow direction during the current event was to the southeast.



GROUNDWATER ELEVATION MAP — MAY 26, 2005

2526 Wood Street Oakland, CA	By: MJC	MAY 2005
	Figure 3	

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2003-41-40

3.0 Q2 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 May 26, 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
May 26, 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	6.95	2.39	3.79
MW-2	20	5 to 20	6.29	2.15	3.35
MW-3	20	5 to 20	6.94	3.34	4.06

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.

MW-1 elevation was resurveyed in April 2005 after the well box was damaged and replaced.

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 Regional Water Quality Control Board's (Water Board's) GeoTracker on-line database.

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 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 ("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 (UFSTs and obviously-contaminated backfill material) has been removed. 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., 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 Q2 2005 MONITORING EVENT ANALYTICAL RESULTS

This section discusses the findings of the current sampling event. Historical groundwater monitoring well analytical results are included as Appendix C.

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;
- MTBE, by EPA Method 8260;
- Fuel oxygenates (*tertiary*-amyl methyl ether [TAME], di-isopropyl ether [DIPE], and TBA), by EPA Method 8260; and
- Lead scavengers (1,2-dichloroethane [EDC] and 1,2-dibromomethane [EDB]), by EPA Method 8260.

All groundwater samples were analyzed by North State Labs, 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 current well sampling event. Figure 4 displays the groundwater analytical results on the site plan.

Only three contaminants were detected in the current event. MTBE was detected at concentrations between 100 µg/L (MW-2) and 112 µg/L (MW-1). The Water Board ESL criterion for MTBE is 5.0 µg/L. TAME was detected in only well MW-2 (4 µg/L); there is no ESL for this contaminant. TBA was detected in only well MW-2 (48 µg/L); the ESL is 12 µg/L. Contaminants analyzed for and not detected in the current event include gasoline, diesel, BTEX, lead scavengers, and other fuel oxygenates.

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

Table 2
May 26, 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*	*< 1.0*	**116**	*ND*
MW-2	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	**100**	TAME = 4 TBA = 48
MW-3	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	*< 0.5*	*ND*
Groundwater ESLs	100	100	1.0	40	30	13	5.0	TAME = NLP TBA = 12

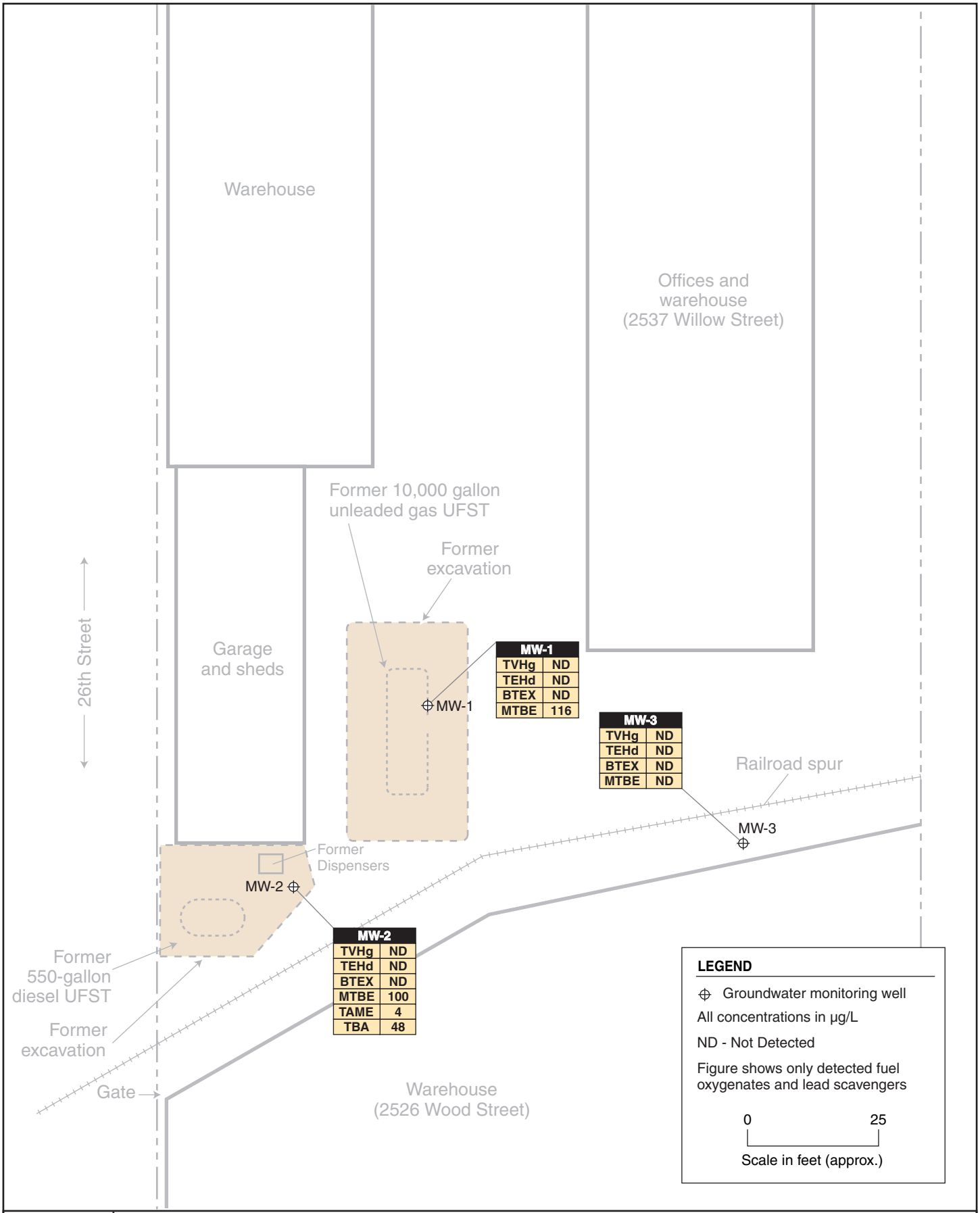
Notes:

[(a)] All concentrations are in µg/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 = Regional Water Quality Control Board, San Francisco Bay Region, Environmental Screening Levels (Water Board, 2005) for commercial/industrial sites where groundwater is a potential drinking water source.

ND = not detected above method reporting limits
NLP = no level published for this analyte



MAY 2005 GROUNDWATER ANALYTICAL RESULTS

2526 Wood Street Oakland, CA	By: MJC	MAY 2005	Stellar Environmental Solutions, Inc. Geoscience & Engineering Consulting
	Figure 4		

2003-41-39

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, and have been sampled on a quarterly basis since that time.
- 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), which is encountered at depths between 4 and 8 feet; and the top of the third zone, which 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.

- Neither gasoline, BTEX, nor lead scavengers were detected. The only contaminants detected above ESL criteria were MTBE (in MW-1 and MW-2) and TBA (in MW-2).
- The current monitoring wells appear adequate to define local groundwater flow direction and 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 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 levels, groundwater analytical data, and technical reports) for future monitoring events to the California GeoTracker system.
- The focus of future groundwater monitoring will continue be the evaluation of 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. If the data indicate that the plume is contained onsite, and has been reduced by attenuation to low concentrations and stable conditions, SES will evaluate the data in the light of meeting regulatory closure criteria.
- 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.

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Stellar Environmental Solutions, Inc. (SES), 2005a. Fourth Quarter 2004 Groundwater Monitoring & Year 2004 Annual Summary Report – Russ Elliott, Inc. Facility, 2526 Wood Street, Oakland, California. January 10.

SES, 2005b. First Quarter 2005 Groundwater Monitoring Report – Former Russ Elliott, Inc. Facility, 2526 Wood Street, Oakland, California. March 31.

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.

APPENDIX A

Well Monitoring and Sampling Field Records

NORTH STATE LABS

FLUID-LEVEL MONITORING DATA

Project No: _____ Date: 5-26-05

Project/Site Location: 2526 WOOD ST., OAKLAND CA

Technician: SC Method: ELECTRONIC

Well	Depth to Water (feet)	Depth to Product (feet)	Product Thickness (feet)	Total Well Depth (feet)	Comments
MW-1	3.79			12.15	H_2O IN WELL BOX 1100
MW-2	3.35			15.16	1055
MW-3	4.06			18.19	1050

Measurements referenced to top of well casing. NORTH

NORTH STATE LABS

WELL PURGING/SAMPLING DATA

Project Number: _____ Date: 5-26-05

Project / Site Location: 2526 WOOD STREET
OAKLAND CA

Sampler/Technician:

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

Well No. MW-1

A. Total Well Depth	12.15
B. Depth To Water	3.79
C. Water Height (A-B)	8.36
D. Well Casing Diameter	2
E. Casing Volume	0.2
F. Single Case Volume (CxE)	1.67
G. Case Volume(s)(CxEx)	5.01
H. 80% Recharge Level	5.46

Purge Event	
Start Time:	1255
Finish Time:	1310
Post Purge Measurement	
Depth to Water	3.83
Time Measured:	1315
Recharge/Sample Time	
Depth to Water:	3.83
Time Measured:	1316

Well Fluid Parameters:				
Gals.	0	1.75	3.5	5.01
pH	9.66	9.69	9.34	9.31
T(°C)	20.1	20.0	20.0	19.8
Cond.	1016	1018	1053	1023
DO mg/L				13.44
DO %				177.1
Turbidity	175.4	61.6	41.9	28.4
ORP				
Summary Data:				
Total Gallons Purged:	5.01			
Purge device:	DC 60			
Sampling Device:	DISP. BAILER			
Sample Collection Time:	1320			
Sample Appearance/Odor:	CLOUDY / N/A			

Well No. MW-2

A. Total Well Depth	15.16
B. Depth To Water	3.35
C. Water Height (A-B)	11.81
D. Well Casing Diameter	2
E. Casing Volume	0.7
F. Single Case Volume (CxE)	2.36
G. Case Volume(s)(CxEx)	7.08
H. 80% Recharge Level	5.71

Purge Event	
Start Time:	1205
Finish Time:	1230
Post Purge Measurement	
Depth to Water	3.41
Time Measured:	1235
Recharge/Sample Time	
Depth to Water:	3.41
Time Measured:	1237

Well Fluid Parameters:				
Gals.	0	2.5	5.0	7.08
pH	6.78	6.93	7.01	6.96
T(°C)	23.6	20.3	20.1	20.2
Cond.	620	611	639	667
DO mg/L				7.41
DO %				110.9
Turbidity	+200	+200	+200	81.5
ORP				
Summary Data:				
Total Gallons Purged:	7.08			
Purge device:	DC 60			
Sampling Device:	DISP. BAILER			
Sample Collection Time:	1240			
Sample Appearance/Odor:	CLOUDY / N/A			

NORTH STATE LABS

WELL PURGING/SAMPLING DATA

Project Number: _____ Date: 5-26-05

Project / Site Location: 2526 WOOD STREET
OAKLAND, CA

Sampler/Technician: SC

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

Well No. MW-3

A. Total Well Depth	18.19
B. Depth To Water	4.06
C. Water Height (A-B)	14.13
D. Well Casing Diameter	2
E. Casing Volume	0.2
F. Single Case Volume (CxE)	2.8
G. Case Volume(s)(CxEx)	8.4
H. 80% Recharge Level	6.86

Purge Event
Start Time: 1110
Finish Time: 1140
Post Purge Measurement
Depth to Water 13.87
Time Measured: 1143
Recharge/Sample Time
Depth to Water: 3.98
Time Measured: 1325

Well Fluid Parameters:				
Gals.	0	3	6	8.4
pH	6.76	6.86	6.92	6.91
T (°C)	21.0	19.2	18.8	18.9
Cond.	2.18	~~[illegible]~~	2.72	2.78
DO mg/L		2.59		2.59
DO %				34.6
Turbidity	11.91	116.4	53.2	+200
ORP				
Summary Data:				
Total Gallons Purged: 8.4				
Purge device: DC 60				
Sampling Device: DISP. BAILER				
Sample Collection Time: ~~1335~~ 1335				
Sample Appearance/Odor: CLEAR / N/A				

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 (CxE)	
G. Case Volume(s)(CxEx)	
H. 80% Recharge Level	

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.					
pH					
T (°C)					
Cond.					
DO mg/L					
DO %					
Turbidity					
ORP					
Summary Data:					
Total Gallons Purged:					
Purge device:					
Sampling Device:					
Sample Collection Time:					
Sample Appearance/Odor:					

APPENDIX B

Analytical Laboratory Report and Chain-of-Custody Record

Chain of Custody Record

05-0790

Lab job no. _____
Date 5-26-05
Page 1 of 1

Laboratory NORTHSTATE ENVIRONMENTAL LAB
Address 815 DUBUQUE AVE
S.S.F., CA 94080
(650) 266-4563
Project Owner RUSS ELLIOT
Site Address 2526 WOOD ST.
OAKLAND, CA
Project Name RUSS ELLIOT
Project Number 2003-41

Method of Shipment HAND DELIVERY
Shipment No. _____
Airbill No. _____
Cooler No. _____
Project Manager JOE DINAN
Telephone No. (510) 644-3123
Fax No. (510) 644-3859
Samplers: (Signature) Scott Cassady

	Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	Analysis Required: TVH Gasoline (8015m)	TEH-Diesel (8015m)	BTEX (EPA 8021)	Fuel Oxygenates	Lead Scavengers	MTBE (EPA 8260)	Remarks
1	MW-3	—	5-26-05	1335	GW H_2O	4 VOA's + 1 ABR QL	YES	HCL IN VOA's	NO		X	X	X	X	X	X	
2	MW-2	—		1240		" "					X	X	X	X	X	X	
3	MW-1	—		1320		" + 3 ABR QL					X	X	X	X	X	X	

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature Scott Cassady	5-26-05	Signature	5-26-05	Signature		Signature	
Printed SCOTT CASSADY	Time	Printed ERIC KUM	Time	Printed	Time	Printed	Time
Company N.S.E.	1535	Company NSE	1535	Company		Company	

Turnaround Time: STD TAT
Comments: ALL SAMPLES TO BE RUN FOR TVHg, BTEX, MTBE, AND TEHd

Relinquished by:	Date	Received by:	Date
Signature		Signature	
Printed	Time	Printed	Time
Company		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/Job No: 05-0790 Date: 5-26-05

Checked By: EK

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?	Y	N	
Custody Seals Intact on Shipping Container?	Y	N	N/A
No. of coolers:	Temperature of Cooler:		In Range?: Y N
Custody Seals intact on sample containers?	(Y)	N	N/A
Chain of Custody present?	(Y)	N	
Chain of Custody Signatures & Date/Time correct?	(Y)	N	
Chain of custody agrees with sample labels?	(Y)	N	
Samples in proper containers?	(Y)	N	
Sample containers Intact?	(Y)	N	
Sufficient sample volume for indicated tests?	(Y)	N	
All Samples received within holding times?	(Y)	N	
Temperature Blank present? Record Temp if present.	Y	(N)	Temp:
For water samples- VOAS have zero headspace?	(Y)	N	N/A
Samples received in bottles with proper preservative?	(Y)	N	N/A

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

Supplier: Lot:

For water samples for the analysis of total recoverable metals not digested - pH <2? See attached sheet

Corrective Action Record:

Client Contacted: Date Contacted: Person Contacted:

Contacted by: Regarding:

Comments:

Corrective Action:

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Case Narrative

Client: Stellar Env. Solutions
Project: 2003-41/2526 WOOD ST OAKLAND
Lab No: 05-0790
Date Received: 05/26/2005 Date reported: 06/02/2005

Three water samples were received under chain of custody control for the analysis of gasoline and diesel range organics by method 8015B, BTEX by method 8021B and fuel oxygenates by method 8260B. All QA/QC results met acceptance criteria and no errors occurred during the analyses.

Erin Cunniffe
Laboratory Director

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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

Lab Number: 05-0790
Client: Stellar Env. Solutions
Project: 2003-41/2526 WOOD ST OAKLAND

Date Reported: 06/02/2005

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

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 05-0790-01 Client ID: MW-3				05/26/2005	W
Benzene	SW8020F	ND<0.5	UG/L		05/31/2005
Ethylbenzene	SW8020F	ND<0.5	UG/L		05/31/2005
Gasoline Range Organics	SW8020F	ND<50	UG/L		05/31/2005
SUR-a,a,a-Trifluorotoluene	SW8020F	98	PERCENT		05/31/2005
Toluene	SW8020F	ND<0.5	UG/L		05/31/2005
Xylenes	SW8020F	ND<1.0	UG/L		05/31/2005
Diesel Fuel #2	CATFH	ND<0.05	MG/L		05/31/2005
Sample: 05-0790-02 Client ID: MW-2				05/26/2005	W
Benzene	SW8020F	ND<0.5	UG/L		05/31/2005
Ethylbenzene	SW8020F	ND<0.5	UG/L		05/31/2005
Gasoline Range Organics	SW8020F	ND<50	UG/L		05/31/2005
SUR-a,a,a-Trifluorotoluene	SW8020F	98	PERCENT		05/31/2005
Toluene	SW8020F	ND<0.5	UG/L		05/31/2005
Xylenes	SW8020F	ND<1.0	UG/L		05/31/2005
Diesel Fuel #2	CATFH	ND<0.05	MG/L		05/31/2005
Sample: 05-0790-03 Client ID: MW-1				05/26/2005	W
Benzene	SW8020F	ND<0.5	UG/L		05/31/2005
Ethylbenzene	SW8020F	ND<0.5	UG/L		05/31/2005
Gasoline Range Organics	SW8020F	ND<50	UG/L		05/31/2005
SUR-a,a,a-Trifluorotoluene	SW8020F	100	PERCENT		05/31/2005
Toluene	SW8020F	ND<0.5	UG/L		05/31/2005

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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

Lab Number: 05-0790
Client: Stellar Env. Solutions
Project: 2003-41/2526 WOOD ST OAKLAND

Date Reported: 06/02/2005

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

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 05-0790-03 Client ID: MW-1				05/26/2005	W
Xylenes	SW8020F	ND<1.0	UG/L		05/31/2005
Diesel Fuel #2	CATFH	ND<0.05	MG/L		05/31/2005

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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: 05-0790
Client: Stellar Env. Solutions
Project: 2003-41/2526 WOOD ST OAKLAND

Date Reported: 06/02/2005
Gasoline and BTEX by Methods 8015B/8021B
Diesel Range Hydrocarbons by Method 8015B

Analyte	Method	Reporting Limit	Unit	Blank	MS/MSD Recovery	RPD
Gasoline Range Organics	SW8020F	50	UG/L	ND	108/102	6
Benzene	SW8020F	0.5	UG/L	ND	99/95	4
Toluene	SW8020F	0.5	UG/L	ND	95/90	5
Ethylbenzene	SW8020F	0.5	UG/L	ND	84/78	7
Xylenes	SW8020F	1.0	UG/L	ND	98/93	5
SUR-a,a,a-Trifluorotoluene	SW8020F		PERCENT	99	96/97	1
Diesel Fuel #2	CATFH	0.05	MG/L	ND	89/99	11

ELAP Certificate NO:1753
Reviewed and Approved

Erin Cunniffe, Laboratory Director

North State Labs
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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

Job Number: 05-0790
Client : Stellar Env. Solutions
Project : 2003-41/2526 WOOD ST OAKLAND

Date Sampled : 05/26/2005
Date Analyzed: 06/01/2005
Date Reported: 06/02/2005

Fuel Oxygenates by Method 8260B

Laboratory Number	05-0790-01	05-0790-02	05-0790-03
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	100	116
Ethyl tert-butyl ether	ND<1	ND<1	ND<1
tert-Amyl methyl ether	ND<1	4	ND<1
Di-isopropyl ether (DIPE)	ND<0.5	ND<0.5	ND<0.5
tert-Butyl alcohol	ND<10	48	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	101	108	100
SUR-Toluene-d8	89	91	90
SUR-4-Bromofluorobenzene	101	101	99
SUR-1,2-Dichloroethane-d4	112	111	111

Comments:

North State Labs
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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

Job Number: 05-0790
Client : Stellar Env. Solutions
Project : 2003-41/2526 WOOD ST OAKLAND

Date Sampled : 05/26/2005
Date Analyzed: 06/01/2005
Date Reported: 06/02/2005

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

Laboratory Number	05-0790	MS/MSD	RPD	Recovery	RPD
Client ID	Blank	Recovery		Limit	Limit
Matrix	W	W			
Analyte	Results UG/L	%Recoveries			
Ethanol	ND<50				
Methyl-tert-butyl ether	ND<0.5				
Di-isopropyl ether (DIPE)	ND<0.5				
tert-butyl Alcohol	ND<10				
Ethyl tert-butyl ether	ND<1				
tert-Amyl methyl ether	ND<1				
1,1-Dichloroethene	ND<0.5	71/72	1	70-130	30
1,2-Dichloroethane	ND<1				
Benzene	ND<0.5	83/82	1	70-130	30
1,2-Dibromoethane	ND<0.5				
Trichloroethene	ND<0.5	96/96	0	70-130	30
Toluene	ND<0.5	87/86	1	70-130	30
Chlorobenzene	ND<1	95/95	0	70-130	30
SUR-Dibromofluoromethane	103	101/101	0	85-115	30
SUR-Toluene-d8	90	92/93	1	85-115	30
SUR-4-Bromofluorobenzene	102	102/102	0	85-115	30
SUR-1,2-Dichloroethane-d4	112	108/110	2	85-115	30

Reviewed and Approved

Erin Cunniffe
Laboratory Director

APPENDIX C

Historical Groundwater Monitoring Well Analytical Results

Table C-1
Historical Groundwater Monitoring Well Groundwater Analytical Results
2526 Wood Street, Oakland

Sample I.D.	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*

Table C-1 *continued*

Sample I.D.	TEHd	TVHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	Fuel Oxygenates [(a)]
May 2005 Event								
MW-1	*<50*	*< 50*	*<0.5*	*<0.5*	*<0.5*	*<1.00*	**116**	*ND*
MW-2	*<50*	*< 50*	*<0.5*	*<0.5*	*<0.5*	*<1.00*	**100**	TAME = 4 TBA = 48
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

All results in µg/L.