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Environmental Health

August 2, 2010

Mr. Paresh C. Khatri
Hazardous Materials Specialist
Alameda County Health Care Services Agency
Local Oversight Program
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Subject: Workplan for Site Groundwater Investigation: 2650 Magnolia Street, Oakland, CA (Alameda County Fuel Leak Case No. RO00002961 and CA Geotracker Global ID No. TO619700438)

Dear Mr. Khatri:

INTRODUCTION

Stellar Environmental Solutions, Inc. (Stellar Environmental) has been retained by Mr. James Linford to complete this workplan for the property referenced above. This Groundwater Investigation and Characterization workplan is designed to address concerns outlined in the Alameda County Environmental Health Department (ACEH) closure review that is summarized on the State Water Resources California GeoTracker website, dated June 10, 2010. The goal of the work is to evaluate possible offsite impact to groundwater from residual contamination associated with one of two underground storage tanks (USTs) formerly located beneath the Magnolia Street sidewalk in front of the property that were removed—along with associated contaminated soil—in 2007.

BACKGROUND HISTORY AND SUMMARY ASSESSMENT

The site is located on the east side of Magnolia Street in Oakland between 26th and 28th Streets. Removal of two, 1,150 gallon USTs from beneath the Magnolia Street sidewalk was conducted in June and July 2007. The northernmost UST contained a corrosion hole at one end, and there was field evidence of contamination in the excavation sidewalls, at the base of the excavation,

and in the excavated soil. The southern tank was structurally sound, and the surrounding soil, although discolored, did not exhibit significant contamination.

Initial soil sampling in the tank excavations consisted of collecting samples from opposite the tank ends and sidewalls at depths of 5 to 6 feet below ground surface (bgs). These samples were collected from just above what was thought to be the soil/groundwater interface, based on the observation that water had collected in the excavations. Subsequent over-excavation of the north tank pit to 13 feet bgs revealed that this was merely water that had collected in the surrounding backfill, and the actual groundwater depth was 11 to 13 feet bgs.

Two soil samples collected from the north tank excavation floor at the final excavated depth of about 13 feet bgs did not contain detectable concentrations of total volatile hydrocarbons as gasoline (TVHg). A sidewall soil sample collected from 6 feet bgs at the north end of the excavation (NT-N-6) contained 1,500 milligrams per kilogram (mg/kg) TVHg. Access to over-excavate the north wall of the north tank was restricted by underground utilities on that side. The south tank excavation soil samples contained no detectable concentrations of gasoline hydrocarbons. No significant concentrations of gasoline hydrocarbons were found either in the dispenser area or product line soil samples.

During the course of the UST removals and associate corrective action, 140 cubic yards of contaminated soil was excavated for soil profiling and offsite disposal and 450 gallons of excavation purge water was removed. The initial and post purging water samples discussed below suggest that groundwater outside of the backfill area was relatively unaffected by dissolved phase hydrocarbon impacts.

Initial grab groundwater sample analytical results from the north tank excavation detected concentrations of TVHg and benzene at 830 micrograms per liter (µg/L) and 4.5 µg/L respectively. A second groundwater sample was collected from the north tank excavation after one volume of collected groundwater had been pumped out and then allowed to re-accumulate. This sample contained concentrations of TVHg and benzene at 68 µg/L and 1.8 µg/L respectively. LUFT metals were detected above their respective ELSs in the initial excavation grab sample but were reduced below ESLs in all but the nickel results in the second sample. No other gasoline constituents or fuel oxygenates were detected in the groundwater sample. Both excavations were subsequently backfilled with controlled density fill, and the sidewalk concrete was replaced.

In our professional opinion, the appropriate ESLs for the subject site are *commercial/industrial land use* and *groundwater is a potential drinking water resource.* This is based on both the

property zoning status (commercial/industrial) and the designation of this area of Oakland as "Zone A – Potential Drinking Water Resource (Water Board, 1999).

Groundwater beneath the site is assumed to occur from 10 to 14 feet below ground surface (bgs) and flow approximately in a west-northwest direction based upon groundwater monitoring data from the nearest (within 600 feet) active site at 2836 Union Street (TO600105641) and on the local topographic gradient.

The proposed subsurface investigation is designed to address the ACEH concerns that contamination may have migrated downgradient from the former north tank location via groundwater before the USTs were removed. Work conducted by Stellar Environmental will be overseen by a California Professional Geologist.

Attachment A contains Figure 1 depicting the former north UST with the 2007 soil sampling locations with confirmation analytical results, and Figure 2 showing proposed boring locations.

TECHNICAL OBJECTIVES AND RECOMENDED SCOPE OF WORK

The objective of the proposed work is to address two of the generally-required regulatory criteria for site closure: 1) addressing impacts of remaining contaminant source (in this case residual contaminated soil that may act as a continued impact to groundwater); and 2) characterizing residual soil and/or groundwater contamination.

The proposed scope of work therefore is specifically designed to: 1) provide additional data on the extent and magnitude of groundwater contamination; and 2) evaluate whether residual groundwater contamination warrants permanent groundwater monitoring points.

Task 1 – Pre-Field Work Planning and Permits

SES will conduct the following the pre-field work planning and permitting elements for the proposed borehole program, including:

- Obtain workplan concurrence from ACEH, or proceed with the proposed investigation if ACEH does not respond within the 60-day lead agency review period stipulated by California Code of Regulations, Title 23, Division 3, Chapter 16, Underground Tank Regulations.
- Obtain a borehole drilling permit from Alameda County Public Works Agency;
- Obtain an excavation permit from the City of Oakland Public Works Agency;

- Make a site visit to mark drilling locations, and then notify Underground Service Alert for underground utility clearance; and

- Complete a site Health and Safety Plan.

Task 2 – Borehole Drilling and Sampling

The drilling and sampling will be completed using a licensed (C-57) drilling subcontractor under Stellar Environmental's direction. The boreholes will be advanced with a Geoprobe™ (direct-push) rig that advances approximately 2-inch diameter sampling rods. The boreholes will be continuously cored and soil samples will be geologically logged. Borehole locations may be moved as determined by the field investigation evidence.

We propose to advance 3 exploratory boreholes labeled as B1 through B3 in the parking strips on either side of Magnolia Street in the locations shown in Figure 2, Attachment A. Detailed technical specifications for the proposed drilling and sampling are also included in Attachment A. We expect to collect a total of three groundwater samples. The rationale for the proposed borehole and sampling locations are as follows:

- One borehole (B1) will be located in the Magnolia Street parking strip within 3 feet of the former location of the north UST where maximum soil contaminants were previously detected, to evaluate for the presence of groundwater contamination. Soil samples will be collected continuously for geologic logging purposes. The boring will be advanced approximately five feet deeper that first encountered groundwater to aid in the collection of a grab-groundwater sample.

- Two additional downgradient boreholes (B2 and B3) will be located on the west side of Magnolia Street in the parking strip approximately 40 to 60 feet in the estimated downgradient direction from the source area to evaluate potential migration and/or attenuation of the hydrocarbon contamination away from the residual source. Both borings will be advanced approximately five feet deeper that first encountered groundwater to aid in the collection of a grab-groundwater sample.

Following sampling, each borehole will be tremie-grouted to surface with a cement slurry under the supervision of the Alameda County Public Works Agency, and the street surface restored to City of Oakland Public Works Department specifications. Samples will be sealed in appropriate containers, placed in an ice chest with ice at approximately 4 degrees C., and transported to the analytical laboratory under chain-of-custody record the same day they are collected.

Waste soil from the drilling and wash water from drilling rod decontamination procedures will be containerized in labeled 5-gallon plastic buckets and/or 55-gallon drums that will be temporarily stored onsite. As a cost-savings measure, we recommend, and this proposal assumes, that sampling and disposal of this soil be postponed until it is known that no further drilling work is required.

Task 3 – Laboratory Analyses

All three groundwater samples will be analyzed by a California-certified analytical laboratory. The analytical results will be performed at a standard turnaround (10 working days). The samples will be analyzed for the following site chemicals of concern:

- Total volatile hydrocarbons –gasoline range (TVH-g) by EPA method 8015M;
- Aromatic hydrocarbons benzene, toluene, ethylbenzene and total xylenes (BTEX) and MTBE by EPA Method 8020 and;
- LUFT metals, by EPA Method 6010C

Stellar Environmental justifies not analyzing for fuel oxygenates based on initial 2007 soil sample results indicating the lack of these compounds, and on both the initial and post groundwater grab samples analyzed by EPA Method 8260 all found to be below detection limits.

Task 4 – Technical Report Preparation

We will prepare a comprehensive technical documentation report that will discuss the implementation of the borehole drilling program. Report elements will include:

- Summary of historical UST removals and associated data;
- Technical objectives of the borehole program;
- Discussion of borehole drilling and sampling protocols and methods;
- Tabular summary of analytical results;
- Figure(s) showing borehole locations;
- Evaluation of site hydrogeologic conditions;
- Description of a site conceptual model;

- Discussion of analytical results in the context of contaminant distribution and migration;
- Site closure petition (if appropriate) or remedial options (if not); and
- Technical appendices (e.g. lab reports, borehole logs, permits, photodocumentation, etc.)

Task 5 – Electronic Data Reporting

As required and discussed in the ACEH correspondence, the site is subject to the California Water Board's GeoTracker requirements, for electronic uploads of investigation data and reports. The following GeoTracker electronic uploads will be made:

- Request that the site be assigned to SES (for electronic uploads)
- "GeoMap" – site plan showing all sampling locations
- "Geo Report" – electronic format of previous reports and proposed borehole drilling
- Electronic Data Deliverable (EDD) – analytical laboratory report proposed borehole groundwater samples.

The site is also subject to the separate ACEH electronic upload system ("ftp") that requires upload of the proposed borehole sampling report to their system. We will make that upload and provide notification to Alameda County Environmental Health when they have been uploaded.

ESTIMATED SCHEDULE

Drilling implementation of this workplan can occur within 3 weeks of ACEH approval. Analytical laboratory results will be completed on a normal turnaround (10 working days) and the documentation report will be submitted within approximately 2 weeks following SES' receipt of analytical results.

This estimated schedule is predicated on receiving ACEH's concurrence with this workplan. If ACEH concurrence is not received within the required 60 days of workplan receipt, we recommend the owner's proceed with the recommended drilling at the soonest possible time thereafter, and we will notify ACEH of the drilling date as soon as it is determined.

We trust that this submittal meets ACEH's request to complete the additional evaluation of potential impacts from the former UFSTs to move the site toward regulatory closure. Please contact the undersigned directly if you have any questions.

Sincerely,

Steve Bottman, R.E.A.
Project Manager

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

Attachments: Figure 1 showing UST layout, previous sampling locations and analytical results
Figure 2 showing proposed boring locations
Drilling & sampling methods and protocols

cc: Mr. James Linford

REFERENCES

Alameda County Environmental Health, 2010. Site Characterization Work Plan for Fuel Leak Case No. RO0002961 and GeoTracker Global ID TO619700438, Linford Magnolia Property, 2650 Magnolia Street, Oakland, California. June 10.

Regional Water Quality Control Board (Water Board), 1999. East Bay Plains Beneficial Use Study, San Francisco Bay. June 15.

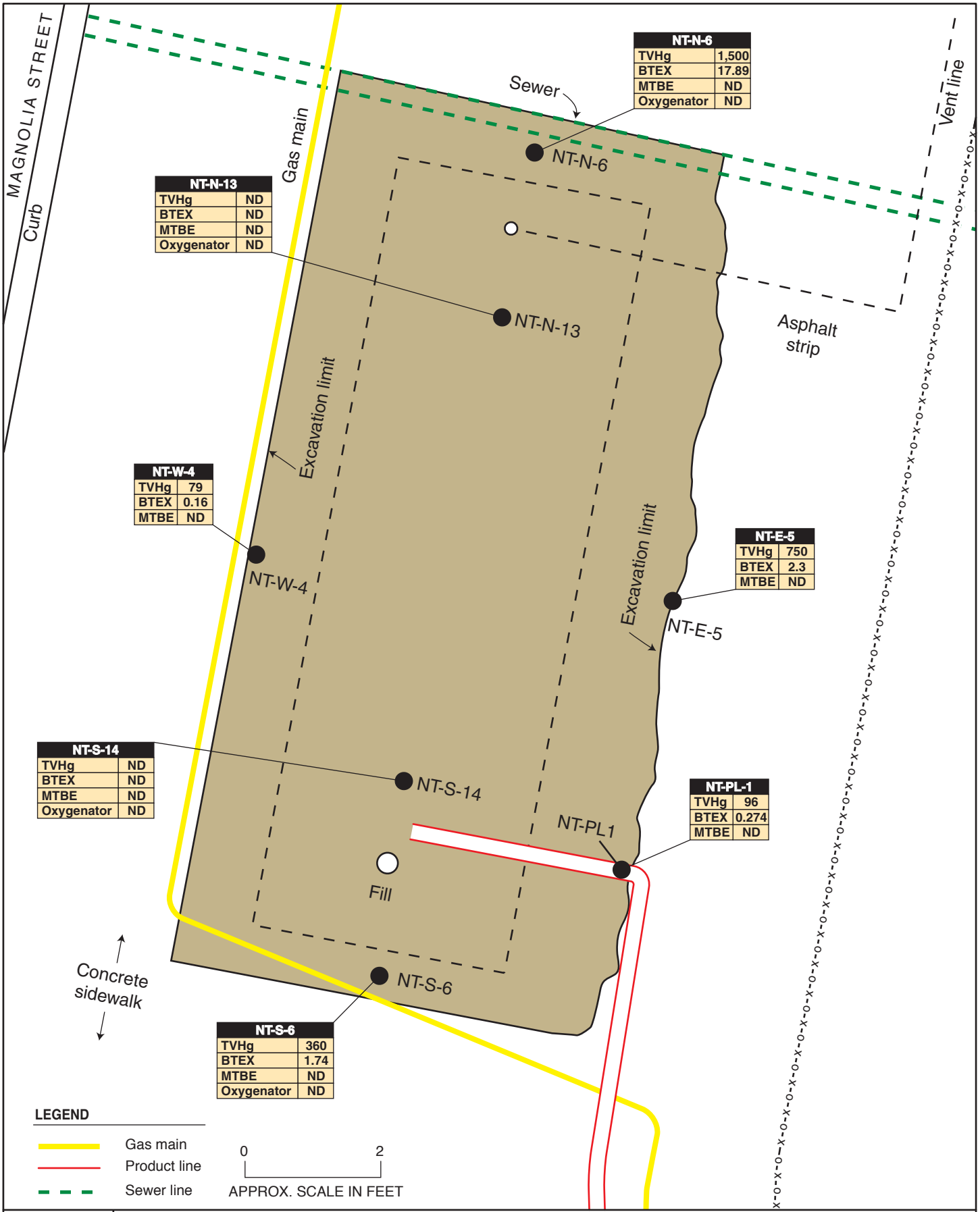
Regional Water Quality Control Board (Water Board), 2007. San Francisco Bay Basin (Region 2) Water Quality Contra Board (Basin Plan). January 18.

Regional Water Quality Control Board (Water Board), 2008. Environmental Screening Levels for commercial/industrial sites where groundwater is and is not a drinking water resource. Revised May 2008.

Stellar Environmental Solutions, Inc., 2010. First Semiannual 2010 Groundwater Monitoring Report (TO600105641) – 2836 Union Street, Oakland, California. May 7.

ATTACHMENT A

Figures and Historical Analytical Results



NORTH TANK EXCAVATION DETAIL WITH SOIL SAMPLE ANALYTICAL RESULTS

2650 Magnolia St. Oakland, CA	By: MJC	JULY 2010
	Figure 1	

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PROPOSED SOIL BORING LOCATIONS

2650 Magnolia St. Oakland, CA	By: MJC	AUGUST 2010
	Figure 2	

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2010-24-02

Drilling & Sampling Methods and Protocols

DRILLING & SAMPLING METHODS AND PROTOCOLS

The boreholes will be advanced with a Geoprobe™ (direct-push) or equivalent rig that advances approximately 2-inch-diameter sampling rods into undisturbed soil. Soil samples are collected in either acetate or metal sleeves inside the sampling rods. The sleeves selected for off-site laboratory analysis are then capped (with non-reactive plastic caps) and labeled. Depth-specific "grab" groundwater samples will be collected by advancing into undisturbed soil a stainless steel sampling rod with a sacrificial tip and integral well screen. Upon reaching the water table, the sampling string will be raised by approximately 1 foot, dropping the sacrificial tip and exposing the screen interval. The sample will then be collected through new Tygon™ tubing connected to a vacuum pump. The water will then be transferred directly to the appropriate sampling containers. Alternatively, grab-groundwater samples will be collected by inserting temporary PVC casing into the open borehole, and then withdrawing groundwater with a clean bailer or plastic tubing connected to a peristaltic pump.

Samples will be securely sealed in appropriate containers, placed in an ice chest with ice at approximately 4 degrees C., and transported to the analytical laboratory under chain-of-custody record.

Waste soil (unused samples) will be temporarily containerized on-site in labeled, 5-gallon plastic pails with sealing tops. This soil will be appropriately profiled and disposed of when it has been determined that no further waste soil will be generated, or will be combined with any future generated waste soil from subsequent investigation phases.