KIA SUMNER

1069 OAK HILL ROAD
LAFAYETTE, CA 94549-0131

RECEIVED
By Alameda County Environmental Health at 12:16 pm, Mar 02, 2015

February 19, 2015

Ms. Karel Detterman
Alameda County LOP
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

SUBJECT: SITE CONCEPTUAL MODEL & WORK PLAN FOR ADDITIONAL INVESTIGATION
3635 13th Avenue, Oakland, CA

Dear Ms. Detterman:

Enclosed, please find a copy of the February 17, 2015 subject Site Conceptual Model & Work Plan for Additional Investigation prepared by my consultant, Enviro Soil Tech Consultants.

I declare, under penalty of perjury, that the information and/or recommendations contained in this report are true and correct to the best of my knowledge.

Sincerely,

KIA SUMNER, ASSIGNEE

File No. 3-13-855-SC

SITE CONCEPUTAL MODEL AND WORK PLAN FOR ADDITIONAL INVESTIGAITON LOCATED AT 3635 13TH AVENUE OAKLAND, CALIFORNIA FEBRUARY 17, 2015

PREPARED FOR:
MR. KIA SUMNER, ASSIGNEE
1069 OAK HILL ROAD
LAFAYETTE, CALIFORNIA 94549-0131

BY:
ENVIRO SOIL TECH CONSULTANTS
131 TULLY ROAD
SAN JOSE, CALIFORNIA 95111

ENVIRO SOIL TECH CONSULTANTS

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Environmental & Geotechnical Consultants

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Tel: (408) 297-1500 Fax: (408) 694-3447

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February 17, 2015

File No. 3-13-855-SC

Mr. Kia Sumner
1069 Oak Hill Road
Lafayette, California 94549

SUBJECT: SITE CONCEPTUAL MODEL AND WORK PLAN FOR ADDITIONAL INVESTIGATION AT THE PROPERTY
Located at 3635 13th Avenue, in
Oakland, California

Dear Mr. Sumner,

As indicated in a letter dated October 14, 2014, Alameda County Health Care Services Agency (ACHCSA) has evaluated your property at 3635 13th Avenue in Oakland for compliance with the State Water Resources Control Board's Low Threat Closure Policy for underground storage tank sites and determined that the site does not meet the current guidelines. The ACHCSA's letter identifies several items ("data gaps") that are missing from the site history file and instructed you to submit a work plan to complete the additional investigation that is needed to address these items. Enviro Soil Tech Consultants (ESTC) has prepared the requested work plan on your behalf, and it is attached as the first part of this report. ACHCSA also requested that the work plan be tied to a conceptual model of the environmental conditions at the site and that the model be presented in a tabular format developed by that agency. The table is included as Appendix "A" to this report.

If you have any questions or require additional information, please feel free to contact our office at 408-297-1500 or via email at info@envirosoiltech.com.

Sincerely,

ENVIRO SOIL TECH CONSULTANTS

FRANK HAMEDI
GENERAL MANAGER

VICTOR B. CHEVREN, Ph.D.
R. G. #3475

PROFESSIONAL GEOLOGIST
VICTOR B. CHERVEN
No. 3475
STATE OF CALIFORNIA

SITE LOCATION AND DESCRIPTION

The site is located at the intersection of 13th Avenue and Excelsior Street in east-central of Oakland, near the MacArthur Freeway (Figure 1). The topography in the area is hilly, and land use is primarily residential. The site was the location of a gasoline service station owned by Mr. John Williamson, but the structures have been removed and the property is currently vacant. It is a rectangular lot of approximately 4000 square feet and is bordered on the south by an apartment building, and on the west by residences. An Oakland fire station is located on the other side of 13th Avenue.

BACKGROUND

TANK REMOVAL

When it was in operation, the gasoline station employed three underground storage tanks. Two of the tanks stored gasoline, and were 500 and 1,000 gallons in capacity. The third tank was a 250-gallon tank that stored waste oil. The gasoline tanks were located toward the north end of the site, and the waste oil tank was inside an office and mechanics shop building near the south end (Figure 2).

The tanks were removed in 1992 and were not replaced. Soil around the margins of each excavation showed evidence of petroleum stains, and holes were observed in the waste oil tank. The other tanks appeared to be in tact. Five soil samples were collected from beneath the tanks for analysis.

No hydrocarbons were detected in the samples from the north end of the gasoline tanks, but fairly low concentrations (1 part per million and 27 parts per million) of Total Petroleum Hydrocarbons (TPHg) were detected from the south ends of both tanks. Benzene, Toluene, Ethylbenzene, and Xylene were also detected, at concentrations that ranged from 5 to 34 parts per billion.

The sample from beneath the waste oil tank was analyzed for Total Oil and Grease, and a concentration of 8,200 parts per million was reported by the laboratory. The TPHg concentration was also elevated (290 ppm), as was the total lead concentration (225 ppm). A total BTEX concentration of 4,490 ppb was also detected.

Water entered both gasoline tank excavations and was sampled. TPHg and BTEX were detected at elevated concentrations in both samples.

SOIL REMOVAL

In late 1993, All Environmental, Inc. (AEI) removed the remaining site structures including the building, and the waste oil tank excavation was enlarged to remove the remaining contaminated soil. The excavation was deepened to 18 feet, and approximately 360 cubic yards of soil were excavated and disposed of. Uncontaminated native soil was bluish-gray, but exhibited a petroleum odor and greenish color due to gasoline staining. At the conclusion of the excavation work, a soil sample was collected from the floor and each wall of the excavation. The samples were analyzed for TPHg and BTEX. No hydrocarbons were detected in the samples from the north and west walls or the floor, but low to moderate concentrations remained on the south wall, and higher concentrations were present in the sample from the east wall (Table 1). AEI then performed further excavation that wall and collected an additional sample, which was below detection limits for all of the hydrocarbons (Table 2).

SITE ASSESSMENT

ACHCSA requested assessment of the potential for groundwater contamination at the site, and work commenced in March 1994. AEI installed monitor wells MW-1 to MW-3 (Figure 2), but did not sample the wells until November. TPHg was detected in soil samples from MW-1 and MW-2 between 10 and 15 feet below surface grade, at concentrations that ranged from about 6 to 15 parts per million. All BTEX compounds were also detected, at concentrations up to 140 ppb (Benzene) and 240 ppb (xylene). TPHg was detected in the water samples at 210 and 11,000 ppb, respectively. No hydrocarbons were detected in the soil samples from MW-3, but TPHg was present in the water sample at 200 ppb.

During drilling, groundwater entered the wells slowly or not at all, so they were drilled to depths ranging from 25 to 36 feet. The top of the screened interval ranged from 12 to 16 feet. By the time they were sampled in November, the water level had risen to between 11 and 12.5 feet below grade, meaning that the water level was above the screened interval at that time. Using the 3-point method, AEI determined that the hydraulic gradient was to the southeast and was “fairly steep”.

In 1995, AEI collected a soil sample beneath each end of the former dispenser island (see AEI report titled *Phase II Limited Site Investigation*, dated December 11, 1995). The samples were collected by hand auger to a depth of 4-feet. No hydrocarbons were detected in either sample.

AEI extended the assessment in late 1997/early 1998, drilling nine soil borings on site, and again in 2003, drilling six more borings off site (Figure 2). The results showed high concentrations of gasoline, diesel, and BTEX in groundwater in all fourteen borings.

GROUNDWATER MONITORING

AEI began groundwater monitoring on a quarterly basis in 1994, but changed to a semi-annual basis in 1995. Historical depth and concentration data are given in Table 3. The depth to groundwater has fluctuated between 6 and 15 feet over time. Even though the static water level has been above the screens on numerous occasions, this does not appear to account for the variation in hydrocarbon concentrations in the wells, because considerable variation has taken place even while the screens were submerged. Initially, the groundwater flow direction was inferred to be to the southeast, but by 2008 AEI concluded that the flow varies from southeast to south. Recent monitoring has shown that flow varies from is sometimes to the southeast. A gradient of 0.05 ft/ft seems to be typical for the site.

RECEPTOR SURVEY AND REMEDIAL ACTION PLAN

AEI also conducted a sensitive receptor survey and a preferential pathway study in conjunction with the preparation of an assessment of remedial options for the site. That report was completed in 2004 (see AEI report titled *Remedial Investigation and Corrective Action Plan*, dated July 19, 2004). The nearest surface water bodies care Central Reservoir and Lake Merritt, which are located 0.5 and 1.2-miles from the site, respectively. Central Reservoir is downgradient of the site, but AEI concluded that it is not threatened by the petroleum release at the site because of its distance and the presence of Interstate 580, which would likely act as a migration barrier.

AEI also located five sites within 2,000-feet of the property where wells are present. Four of these are petroleum release sites with monitoring wells. The fifth is owned by East Bay Municipal Utilities District (EBMUD) and is a cathodic well that located approximately 1,000-feet southwest of the site. None of the wells are being used to supply drinking water.

FURTHER ASSESSMENT

ACHCSA required additional assessment of the soil and groundwater plume in 2006, and eight additional borings and three additional monitor wells were drilled in 2007. SB-16 through SB-23 were drilled to depths of 25 to 36 feet and sampled continuously. MW-4 was drilled adjacent to SB-18, MW-5 was drilled adjacent to SB-22, and MW-6 was drilled adjacent to SB-21 (Figure 2). Fifty-five soil samples and eleven water samples (plus three from the previously drilled wells) were analyzed and the results were presented in a report titled *Site Investigation Report and Pilot Test Work Plan*, dated February 20, 2008. AEI included groundwater isoconcentration maps for TPHg, TPHd, and Benzene in that report. In addition to these, significant concentrations of the gasoline oxygenates Methyl Tertiary Butyl Ether (MTBE) and Di-isopropyl Ether (DIPE), along with the solvent 1,2-Dichloroethane (DCA) were detected.

In contrast to AEI's original interpretation that the waste oil tank was likely the principal environmental concern, these maps indicated that the plume originated beneath the gasoline tanks and spread to the southeast beneath 13th Avenue due to the prevailing groundwater flow in that direction. In view of the results, AEI proposed several additional activities for the site, and these were conditionally approved by ACHSA later in 2008. AEI installed monitor well MW-7 in the southeastern portion of the site in 2008 and submitted its report in January 2015 (see AEI report titled *Monitoring Well Installation Report*, dated January 15, 2015).

Groundwater monitoring of all seven wells was suspended in early 2008 but resumed in late 2013. It has continued on a semi-annual basis since then (see ESTC's reports dated February 10, 2014, April 28, 2014 and November 25, 2014). The data confirm that gasoline constituents are present in groundwater in all of the wells except MW-3 and are likely to be present in groundwater south of the site. Close examination of historical concentration data

(Table 3) indicates that concentrations peaked in the well nearest the source (MW-6) in October 2007 and in wells farther downgradient in January 2008 (MW-2) and April 2008 (MW-4 and MW-5). MW-7 was not in place at the time, but this well has been declining since it was first monitored in 2013. These trends suggest that the dissolved plume has migrated southward over time, but concentrations have not increased in the most southerly well (MW-1). This further suggests that either this well is located near the east or west margin of the plume rather than near its center, or that the plume is naturally attenuating beneath the site before reaching that well.

DATA GAPS

ACHCSA listed the following items as needing further data collection before considering the site for case closure under the LTCP:

1. Removal of any Free Product that might be present
2. An updated Site Conceptual Model
3. Removal of Secondary Contaminant Sources
4. Proof of a stable or decreasing Groundwater Contaminant Plume
5. Assessment of the potential for Indoor Air Intrusion
6. Assessment of the potential for Outdoor Air Inhalation or Direct Contract

These items are addressed in this section.

FREE PRODUCT

ACHCSA suggested that a TPHg concentration of 11,000 µg/L (parts per billion) and a Benzene concentration of 3,900 µg/L in MW-7 in April 2014 could suggest that concentrations might be high enough in some portion of the site that gasoline would disassociate from groundwater and begun to pool, forming free-phase gasoline floating on groundwater. If such were the case, this free-phase gasoline would be detectable during groundwater monitoring with a standard water-level meter, and would also give the water table a "mounded" appearance because of the floating pool. Further, this mound of floating product would continually release into groundwater, causing concentrations to rise or at least remain fairly constant in nearby monitoring wells. During groundwater sampling, ESTC's geo-technicians have not observed a layer of free product in the sample bailer or any sheen on the water drawn from any of the wells (including MW-7), and no mounding is evident in any of the groundwater elevation maps that have been prepared. Also, as described in the previous section, the analytical data indicate that concentrations have declined in all wells over time. These observations are inconsistent with the conditions that would be seen if free product were present at the site. ESTC concludes that concentrations are not high enough to product free-phase gasoline.

SITE CONCEPTUAL MODEL

AEI included a Site Conceptual Model in its 2008 report of the investigation. There has been some additional analysis since that report was prepared, and the State Water Board has developed its Low Threat closure policy, but relatively little new data have been collected. The main elements of the model developed by AEI and modified here by ESTC are summarized below and in Appendix "C".

- Significant petroleum mass remains in the soil southwest of the tank sites.

- The primary contaminants of concern (COCs) are gasoline and BTEX. Fuel additives (MTBE, TBA, 1,2-DCA and DIPE) have also been detected but at lower concentrations, making them secondary in their magnitude of impact.

- The vertical extent of soil impact is defined. A low-permeability clay layer below 25 feet prevented significant downward migration and contained the gasoline within a higher-permeability sand layer that is present above that depth. In some areas, this sand zone is present between 7 and 25 feet; in the more contaminated central part of the site between SB-21 (MW-6) on the north and SB-23 on the south, the sand zone is more restricted and is between 15 and 25 feet or is split into two zones by a clay bed that is a few feet thick. In the later case, soil concentrations are highest above this intermediate clay layer at about 10 feet below grade and decline to non-detected before reaching the lower clay bed.

- The northern extent of groundwater contamination is defined by MW-3, but the plume extends beyond the existing well network in other directions. Reasonable estimates have been illustrated in isoconcentration maps and suggest places for further testing with additional grab and/or monitoring well samples.

- Utility lines in the site vicinity are present above the water table and are therefore unlikely to be acting as preferential pathways for migration of contaminated groundwater. Rather, it is reasonable to conclude that the sand layer above 25-feet, where groundwater is present and high concentrations have been detected in soil and groundwater samples, is the most preferred pathway for contaminant migration at this site. An isopach map of this sand layer was presented in ESTC's monitoring report for the first quarter of 2014, and it

showed that the sand layer is thickest (between 15 and 20 feet) in the center of the site and thins laterally to 10-feet or less toward the margins. It is a well-known fact that flows within a linear, permeable layer naturally concentrated along its axial thick, which explains the lateral variations in concentration across the site. This linear sand body makes a sharp turn to the left near MW-7 and is thicker than 20-feet beneath 13th Avenue, which lies directly above it. The trend of this sand body best explains the analytical results, particularly the low concentrations at MW-1. Further drilling is needed along the trend of this sand body in order to define the downgradient limit of contaminated groundwater. Other monitoring points are also needed east and west of the property to provide a broader view of the prevailing groundwater flow direction.

SECONDARY SOURCE REMOVAL

Analytical data indicate that soil above and below the water table in the vicinity of the gasoline tanks remains impacted and is probably serving as a source of additional groundwater contamination. It constitutes a secondary source that requires remediation to present further groundwater contamination. AEI proposed a pilot test of ozone air sparging to reduce contaminant concentrations in the source area, and recommended installing and operating tree test wells for a period of 2 to months to evaluate the effectiveness of the method (see AEI report titled *Site Investigation Report and Pilot Test Work Plan*, dated February 20, 2008). The method appears reasonable, and ESTC recommends proceeding with that test.

STABLE GROUNDWATER PLUME

Based on the existing data, ESTC concurs that there is evidence that the groundwater plume has migrated southward over time. How far it has migrated, and whether it is presently

stable or continuing to migrate, cannot be determined with the available data. The groundwater flow direction has varied over an arc of as much as 90°, but the monitor wells are too close together to provide a definitive picture of the predominant flow direction. The installation of additional wells is described in the section titled SCOPE OF WORK AND PROCEDURES below.

POTENTIAL FOR INDOOR AIR INTRUSION

ACHCSA concluded that the data needed to assess the potential for gasoline vapor intrusion into indoor residential air are unavailable. Specifically, ACHCSA requested data on the depth and thickness of the unsaturated zone, analytical data for soil samples above 10-feet below ground surface, and the possibility of free product.

More than 20-borings have been drilled at the site, and most of them drilled through 5 to 10-feet of silty clay before reaching the permeable water-bearing sand zone. The exceptions are SB-20 (which is located on the axial thick of the sand bed, and sand is present from ground surface to 24-feet), and the borings that are located within 13th Avenue (SB-10, SB-11 and SB-13 through SB-15). Data in Table 3 indicate that in 19 of 22 monitoring events since 1994, the elevation of the static water level in MW-1 and MW-2 was below 10-feet (i.e. within the sand bed), meaning that here is at least 10-of unsaturated zone almost all of the time. ESTC regards this as sufficient data to answer ACHCSA's first concern—the depth and thickness of the bioattenuation zone above the saturated zone.

With regard to the second item, samples from the interval 0 to 10-feet were collected by AEI from the two hand-auger borings adjacent to the dispenser island and from eleven soil

borings. This mean TPHg concentration in these thirteen samples was 151 mg/Kg. Two of these samples skewed the data upward (SB-21-10' @1,300 mg/Kg and SB-3-10' @ 590 mg/Kg). The sample from SB-21 is in the northern part of the site near the 500-gallon gasoline tank and is a concern. The sample from SB-10 is from the street and therefore poses no risk to indoor air. When these two are disregarded, the mean concentration of the remaining samples is 6.6 mg/Kg.

The third item was addressed previously. There is no evidence of free product at the site that could cause emission of concentrated gasoline vapor.

Evaluation of the health risk caused by inhalation of soil vapor can be done using standard risk assessment procedures employed by California Department of Toxic Substances Control (DTSC). These procedures require the collection and analysis of vapor samples from near-surface soil. A conservative approach is to collect samples from the locations where soil samples indicate the highest residual hydrocarbon concentrations and/or the depth and thickness of the bioattenuation zone is minimal. Both of these conditions exist in the vicinity of SB-20. Relatively high groundwater concentrations also exist near SB-23 (MW-7), although at deeper depths. To evaluate the risk, ESTC proposes to drill three soil borings in the vicinity of SB-20 and two near SB-23 and collect five vapor samples for analysis. The samples will be collected in accord with DTSC guidelines and will be analyzed for TPHg, BTEX and Naphthalene. The results will be provided to Skinner Associates and input to the DTSC model programs for analysis.

SCOPE OF WORK AND PROCEDURES

SOIL BORING AND SAMPLING

In order to determine the downgradient extent of groundwater impact and install additional groundwater monitoring points, three to five additional soil borings will be drilled south and southwest of the site. The borings will be drilled using direct-push equipment and samples will be collected continuously in clear plastic sleeves. We anticipate drilling to depth of approximately 30-feet to insure that the sand layer that is the preferential pathway is fully sampled. Boring logs will be prepared in the field, and a soil sample will be collected from each boring at the soil-water interface for laboratory analysis. The samples will be analyzed for TPHg, BTEX, fuel oxygenated and Naphthalene. The proposed boring locations are shown in Figure 3.

WELL INSTALLATION AND SAMPLING

The borings will be converted to monitoring wells by installing 2-inch diameter PVC well casing. Upon completion of drilling, the direct-push rods will be removed and replaced with 8-inch diameter hollow-stem augers, and the borings will be reamed out to a depth of 25 feet. Screened casing will be placed from 25 to 10-feet to insure that the screened interval will be sufficient to capture fluctuations in the water table, and blank casing will be placed from 10-feet to surface. A sand pack using #2/12 sand will be placed from 25 to 8-feet and will be sealed by hydrated bentonite chips from 8 to 6-feet and cement grout from 6-feet to ground surface.

At least 48 hours after the grout has set and the wells have stabilized, ESTC will return to the site to develop the wells and remove any accumulated sediment. A minimum of 40 gallons of water will be pumped from each well and stored in 55-gallon drums or a polyethylene tank on-site. The well locations and casing elevations will be surveyed into the existing well grid by a licensed surveyor, and ESTC will return to the site to measure water depths and collect samples during the next scheduled monitoring event. The standard groundwater sampling procedures that ESTC has used in 2013 and 2014 will be employed and do not need to be described here.

SOIL VAPOR SAMPLING

Soil vapor sampling will be completed by installing temporary soil vapor sampling probes at the locations shown in Figure 2. A pilot boring will be advanced to approximately 5-feet below grade, and the soil vapor sampling point will be constructed in accordance with the DTSC's Final Vapor Intrusion Guidance dated October 2011.

Approximately 2-inches of sand will be poured into the boring, and the stainless steel vapor point and screen affixed to Teflon tubing will be placed on the sand. Sand will be added to the borehole to create a 6-inch sand pack around the vapor point. The remainder of the borehole will be sealed with hydrated bentonite chips. The tubing will be capped with a Swagelok valve.

A flow regulator will be fitted to the valve and a T-fitting will be attached to the regulator. A Summa canister will be connected to one end of the T, and a vacuum gauge will be attached to the other end.

A vacuum tightness test will performed by opening and closing the purging canister valve and applying and monitoring a vacuum on the vacuum gauge. When a vacuum remains constant for at least 10 minutes, purging will begin. The Swagelok valve will be opened and approximately 3 pore volumes will be purged. The pressure drop on the canister shall be calculated for verification.

Isopropyl Alcohol will be utilized as a leak detection compound during sampling by applying several drops to cotton gauze placed near the borehole. The valve on the Summa canister will then be opened to allow vapor to enter, and a shroud will be placed over the apparatus to prevent dilution by ambient air.

Sampling will continue until the vacuum gauge indicates approximately five-inches of mercury remain. The sampling rate will be up to 200-milliliters per minute. A photoionization detector will be connected to a fitting on the shroud to monitor that atmosphere inside to evaluate the integrity of the apparatus.

A Tedlar bag sample of the shroud atmosphere will be collected through the detector for comparison to the readings obtained during sampling. The Summa canister will be analyzed for TPHg, BTEX, MTBE and Naphthalene using EPA Method 8260, and the Tedlar sample will be analyzed for Isopropyl Alcohol using TO-15.

LIMITATIONS:

This report and the associated work have been provided in accordance with the general principles and practices currently employed in the environmental consulting profession. The contents of this report reflect the conditions of the site at this particular time. The findings of this report are based on:

1) The observations of field personnel.
2) The results of laboratory analyses performed by a state-certified laboratory.

It is possible that variations in the soil and groundwater could exist beyond the points explored in this investigation. Also, changes in groundwater conditions of a property can occur with the passage of time due to variations in rainfall, temperature, regional water usage and other natural processes or the works of man on this property or adjacent properties.

This report is issued with the understanding that it is the responsibility of the owner or his/her representative to ensure that the information and recommendations contained herein are called to the attention of the Local Environmental Agency.

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February 17, 2015

A P P E N D I X "A"

TABLES

ENVIRO SOIL TECH CONSULTANTS

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TABLE 1
SUMMARY OF SOIL AND WATER ANALYTICAL RESULTS FROM FORMER REMOVED UST BY AEI

A. Chemical Analyses Results of Soil Samples

Date	Sample ID	Depth in feet	Location	Type of UST	TPHg (ppm)	TPHd (ppm)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	TOG (ppm)	1,1-DCE (ppb)	1,2-TCA (ppb
12/15/92	T1-N	7	NW Sidewall	1000-gal Gasoline	ND <1	NA	ND <5.0	ND <5.0	ND <5.0	ND <5.0	NA	NA	NA
	T1-S	6	SE Sidewall	1000-gal Gasoline	27	NA	5.5	5.7	8.8	34	NA	NA	NA
	T2-N	7	NE Sidewall	500-gal Gasoline	ND <1	NA	ND <5.0	ND <5.0	ND <5.0	ND <5.0	NA	NA	NA
	T2-S	7	SW Sidewall	500-gal Gasoline	1.0	NA	ND <5.0	5.0	8.0	15	NA	NA	NA
	W/OB	5.5	Bottom	Waste Oil	290	ND <1	140	730	820	2800	8200	150	28
	T1-STKP	--	Stockpile	1000-gal Gasoline	5.1	NA	ND <5.0	ND <5.0	5.6	30	NA	NA	NA
	T2-STKP	--	Stockpile	500-gal Gasoline	28	NA	5.2	7.7	8.9	39	NA	NA	NA
	W/O-STKP	--	Stockpile	Waste Oil	24	ND <1	8.4	46	25	37	3400	67	30

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TABLE 1 CONT'D
SUMMARY OF SOIL AND WATER ANALYTICAL RESULTS
FROM FORMER REMOVED UST BY AEI

B. 5-Metals Analyses Results of Soil Samples

Date	Sample ID	Depth in feet	Location	Type of UST	Cd (ppm)	Cr (ppm)	Pb (ppm)	Ni (ppm)	Zn (ppm
12/15/92	W/OB	5.5	Bottom	Waste Oil	ND <0.5	32	255	47	72
	W/O-STKP	--	Stockpile	Waste Oil	ND <0.5	26	225	41	139

C. Chemical Analyses Results of Water Samples

Date	Sample ID	Depth in feet	Location	Type of UST	TPHg (ppm)	B (ppb)	T (ppb)	E (ppb)	X (ppb)
12/15/92	T1-W	8	Bottom	1000-gal Gasoline	32	47	130	160	210
	T2-W	8	Stockpile	500-gal Gasoline	88	77	180	290	980

TPHg - Total Petroleum Hydrocarbons as gasoline
BTEX - Benzene, Toluene, Ethylbenzene, Total Xylenes
Cd, Cr, Pb, Ni, Zn – Cadmium, Chromium, Lead, Nickel, Zinc
ppm - Parts per Million
ND - Not Detected (Below Laboratory Detection Limit)

TPHd - Total Petroleum Hydrocarbons as diesel
TOG - Total Oil & Grease

ppb - Parts per Billion
NA - Not Analyzed

TABLE 2
SUMMARY OF SOIL SAMPLES
ANALYTICAL RESULTS BY AEI

A. Chemical Analyses Results of Initial Soil Samples

Date	Sample ID	TPHg (mg/Kg)	Hydraulic Fluid (mg/Kg)	B (µg/Kg)	T (µg/Kg)	E (µg/Kg)	X (µg/Kg)	Lead (mg/Kg)	TOG (mg/Kg)
9/13/93	EB-19	ND<1.0	NA	ND<5.0	ND<5.0	ND<5.0	ND<5.0	6.9	ND<10
9/14/93	SWE	400	NA	1000	1500	1600	5100	6.2	2100
	SWN	ND<1.0	NA	ND<5.0	ND<5.0	ND<5.0	ND<5.0	9.1	ND<10
	SWS	9.4	NA	24	36	38	120	4.7	ND<10
	SWW	ND<1.0	NA	ND<5.0	ND<5.0	ND<5.0	ND<5.0	8.4	ND<10
	HLN	NA	ND<10	NA	NA	NA	NA	NA	NA
	HLS	NA	270	NA	NA	NA	NA	NA	NA
	STKP (1-4)*	6.0	NA	15	23	24	77	8.7	740
	STKP (5-8)*	19	NA	48	71	76	240	6.7	380
	STKP (9-12)*	27	NA	68	100	110	340	15	1300
	STKP (13-16)*	17	NA	43	64	68	220	12	1400

TABLE 2 CONT'D
SUMMARY OF SOIL SAMPLES
ANALYTICAL RESULTS BY AEI

B. Chemical Analyses Results of Southeast Wall Over-excavation Soil Samples

Date	Sample ID	TPHg (mg/Kg)	Hydraulic Fluid (mg/Kg)	B (µg/Kg)	T (µg/Kg)	E (µg/Kg)	X (µg/Kg)	TOG (mg/Kg)
9/21/13	EW-12	ND<1.0	ND<1.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	26
	STKP (1-4)*	39	NA	10	15	19	63	620
	STKP (5-8)*	25	NA	6.5	9.6	12	40	450

TPHg - Total Petroleum Hydrocarbons as gasoline
BTEX - Benzene, Toluene, Ethylbenzene, Total Xylenes
TOG - Total Oil & Grease
mg/Kg - Milligrams per Kilogram
µg/Kg - Micrograms per Kilogram
ND - Not Detected (Below Laboratory Detection Limit)
NA - Not Analyzed

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TABLE 3
GROUNDWATER MONITORING DATA (feet)
AND ANALYTICAL RESULTS (µg/L)

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	TPHd	B	T	E	X	MTBE	PCE	TBA	TCE	Other VOCs
11/22/94 *	MW-1 (194.75)	25	12-25	10.92◊	183.83	Slightly turbid No odor	210	ND <50	ND <0.5	ND <0.5	ND <0.5	2.3	NA	NA	NA	NA	Not Analyzed
2/22/95*				10.58◊	184.17	No sheen or odor	140	ND <50	ND <0.5	ND <0.5	0.6	1.5	NA	NA	NA	NA	Not Analyzed
5/24/95*				10.94◊	183.81	No sheen or odor	ND <50	ND <50	ND <0.5	ND <0.5	ND <0.5	ND <0.5	NA	NA	NA	NA	Not Analyzed
8/18/95*				14.52♦	180.23	No sheen or odor	2800	ND <50	25	6.2	22	30	NA	NA	NA	NA	Not Analyzed
2/07/96*				4.43◊	190.32	Slightly turbid No odor	ND <50	ND <50	ND <0.5	ND <0.5	ND <0.5	ND <0.5	NA	NA	NA	NA	Not Analyzed
8/14/96[A] 9/06/96★				13.60♦	181.15	No sheen or odor	ND <50	ND <50	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND <5[B]	NA	NA	NA	Not Analyzed
6/19/97★				13.07♦	181.68	Not Available	630	400	25	9.7	100	14	15[B]	NA	NA	NA	Not Analyzed
1/24/02★				9.53◊	185.22	Beige sheen No odor	60	ND <50	3.3	2.8	2.0	6.0	ND <5[B]	NA	NA	NA	Not Analyzed
7/15/03★				12.85♦	181.90	Brown sheen No odor	87	ND <50	15	4.9	3.3	9.2	ND <5[B]	NA	NA	NA	Not Analyzed
10/10/03 ★				14.58♦	180.17	Brown/Slight hydrocarbon odor	81	110	ND <0.5	0.62	0.57	0.5	ND <5[B]	NA	NA	NA	Not Analyzed
4/06/04★				10.92◊	183.83	Brown/No odor	ND <50	ND <50	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND<5[B] ND<0.5[C]	NA	ND <5	NA	None Detected
7/09/04★				14.34♦	180.41	Brown/No odor	130	80	ND <0.5	ND <0.5	2.8	0.78	ND <35[B]	NA	NA	NA	Not Analyzed
10/08/04 ★				15.30♦	179.45	Brown/No odor	260	120	3.0	2.9	8.3	10	24[B]	NA	NA	NA	Not Analyzed
4/05/07★				12.19♦	182.56	Brown to light Petroleum odor	ND <50	ND <50	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND<5[B] ND<0.5[C]	NA	ND <5	NA	None Detected
7/02/07★				13.28♦	181.47	Brown to light Petroleum odor	150	79	ND <0.5	1.0	ND <0.5	ND <0.5	ND<25[B] 23[C]	NA	ND <5	NA	None Detected
10/03/07 ★				17.05♦	177.70	Milky brown No odor	ND <50	ND <50	ND <0.5	ND <0.5	ND <0.5	ND <0.5	5.8[B] 7.4[C]	NA	ND <5	NA	None Detected
1/09/08★	(197.28) Resurvey			6.74◊	190.54	Light brown No odor	ND <50	ND <50	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND<5[B] ND<0.5[C]	NA	ND <2	NA	None Detected

TABLE 3 CONT'D
GROUNDWATER MONITORING DATA (feet)
AND ANALYTICAL RESULTS (µg/L)

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	TPHd	B	T	E	X	MTBE	PCE	TBA	TCE	Other VOCs
4/04/08★	MW-1 (197.28)	25	12-25	13.16♦	184.12	Light brown No odor	130	NA	ND <0.5	1.2	22	0.93	ND<10[B] 9.1[C]	NA	ND <2	NA	None Detected
12/16/13				19.04♦	178.24	No sheen Petroleum odor	110	NA	ND <0.5	ND <0.5	0.7	ND <0.5	46	ND <0.5	ND <10	ND <0.5	Isopropylbenzene 4.4 Propylbenzene 3.5 sec-Butylbenzene 1.0
4/17/14				10.11◊	187.17	No sheen or odor	ND <50	NA	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND <10	ND <0.5	None Detected<0.5
11/04/11				19.27♦	178.01	No sheen or odor	97	NA	21	ND <0.5	3.2	2.3	1.1	ND <0.5	ND <10	ND <0.5	Propylbenzene 0.5 1,2,4-Trimethylbenzene 1.3
11/22/94 *	MW-2 (196.44)	36	16-36	12.54◊	183.90	Slight turbid Strong gas odor	11,000	ND <50	35	21	7	50	NA	NA	NA	NA	Not Analyzed
2/23/95*				12.35◊	184.09	Sheen Fuel odor	4,000	ND <50	ND <0.5	ND <0.5	3	6	NA	NA	NA	NA	Not Analyzed
5/24/95*				12.11◊	184.33	Sheen Strong odor	8,600	ND <50	95	37	37	70	NA	NA	NA	NA	Not Analyzed
8/18/95*				16.25♦	180.19	No sheen/Strong hydrocarbon odor	7,200	ND <50	43	21	21	71	NA	NA	NA	NA	Not Analyzed
2/07/96*				9.34◊	187.10	Sheen/Strong hydrocarbon odor	11,000	ND <50	17	9	9	25	NA	NA	NA	NA	Not Analyzed
9/06/96★				15.22◊	181.22	Sheen/Strong hydrocarbon odor	15,000	1,900	4,300	920	460	1,600	ND <200[B]	NA	NA	NA	Not Analyzed
6/19/97★				13.33◊	183.11	Not Available	26,000	2,900	5,300	1,500	910	3,200	ND <200[B]	NA	NA	NA	Not Analyzed
1/24/02★				9.72◊	186.72	Sheen/Strong hydrocarbon odor	34,000	5,300	3,100	1,100	1,100	2,900	ND <200[B]	NA	NA	NA	Not Analyzed
7/15/03★				12.42◊	184.02	Gray/Strong hydrocarbon odor	18,000	6,600	2,300	310	690	1,600	ND <1000[B]	NA	NA	NA	Not Analyzed
10/10/03 ★				13.79◊	182.65	Gray/Strong hydrocarbon odor	19,000	1,800	2,700	460	850	1,800	ND <500[B]	NA	NA	NA	Not Analyzed
4/06/04★				10.55◊	185.89	Gray/Moderate hydrocarbon odor	6,900	1,300	1,100	100	380	780	ND<200[B] 87[C]	NA	110	NA	None Detected
7/09/04★				13.78◊	182.66	Dark gray/Strong hydrocarbon odor	17,000	4,400	2,800	240	710	1,300	ND<450[B] 120[C]	NA	98	NA	Not Analyzed

TABLE 3 CONT'D
GROUNDWATER MONITORING DATA (feet)
AND ANALYTICAL RESULTS (µg/L)

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	TPHd	B	T	E	X	MTBE	PCE	TBA	TCE	Other VOCs
10/08/04 ★	MW-2 (196.44)	36	16-36	14.78◊	181.66	Dark gray/Strong hydrocarbon odor	6,900	890	1,500	240	340	670	ND<150[B] 84[C]	NA	230	NA	Not Analyzed
4/02/07★				11.32◊	185.12	Gray/Strong petroleum odor	21,000	4,300	2,000	300	1,000	1,700	ND<450[B] 81[C]	NA	100	NA	None Detected
7/02/07★				13.18◊	183.26	Light gray/Strong petroleum odor	5,100	750	260	21	320	370	ND<180[B] 88[C]	NA	150	NA	None Detected
10/03/07 ★				16.71♦	179.73	Dark/Strong petroleum odor	8,600	1,500	1,700	140	520	790	ND<300[B] 77[C]	NA	ND <50	NA	None Detected
1/09/08★	(198.93) Resurvey			8.48◊	190.45	Dark/Strong petroleum odor	38,000	48,000	3,000	380	1,200	1,900	ND<400[B] 63[C]	NA	64	NA	None Detected
4/04/08★				12.60◊	186.33	No sheen/Strong hydrocarbon odor	5,100	NA	1,1000	72	120	330	ND<130[B] 76[C]	NA	100	NA	None Detected
12/16/13				18.72♦	180.21	No sheen Petroleum odor	3600	NA	160	20	120	129	20	ND <1.3	ND <25	ND <1.3	Carbon Disulfide 1.3 Isopropylbenzene 10 Propylbenzene 25 1,3,5-Trimethylbenznee 13 tert-Butylbenzene 1.3 sec-Butylbenzene 5.4 para-Isopropyl Toluene 3.4 n-Butylbenzene 22 Naphthalene 23 1,2,4-Trimethylbenzene 53
4/17/14				10.30◊	188.63	No sheen Gasoline odor	4800	NA	500	16	270	97	26	ND <2.5	ND <50	ND <2.5	Isopropylbenzene 17 Propylbenzene 44 1,3,5-Trimethylbenzene 4.8 1,2,4-Trimethylbenzene 100 sec-Butylbenzene 5.4 para-Isopropyl Toluene 3.7 Naphthalene 32

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TABLE 3 CONT'D
GROUNDWATER MONITORING DATA (feet)
AND ANALYTICAL RESULTS (µg/L)

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	TPHd	B	T	E	X	MTBE	PCE	TBA	TCE	Other VOCs
11/04/14	MW-2 (198.93)	36	16-36	18.65♦	180.28	No sheen Petroleum odor	2100	NA	150	27	120	84	25	ND <1.0	ND <20	ND <1.0	Isopropylbenzene 7.5 Propylbenzene 18 1,3,5-Trimethylbenzene 6.2 tert-Butylbenzene 1.0 1,2,4-Trimethylbenzene 33 sec-Butylbenzene 3.5 para-Isopropyl Toluene 1.5 n-Butylbenzene 2.8 Naphthalene 28
11/22/94 *	MW-3 (198.93)	36.5	15.5-36	11.53◊	187.40	Slightly turbid No odor	200	ND <50	ND <0.5	ND <0.5	ND <0.5	2	NA	NA	NA	NA	Not Analyzed
2/23/95*				11.89◊	187.04	No sheen or odor	1,500	ND <50	6.6	6.4	4.2	13	NA	NA	NA	NA	Not Analyzed
5/24/95*				12.71◊	186.22	No sheen or odor	710	ND <50	2.5	3.2	3.1	16	NA	NA	NA	NA	Not Analyzed
8/18/95*				16.14♦	182.79	No sheen or odor	310	ND <50	3.1	2.1	2.2	11	NA	NA	NA	NA	Not Analyzed
2/07/96*				6.22◊	192.71	Sheen/No odor	400	ND <50	1.4	2.5	2.2	7	NA	NA	NA	NA	Not Analyzed
9/06/96★				13.51◊	185.42	No sheen or odor	ND <50	ND <50	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND <5	NA	NA	NA	Not Analyzed
6/19/97★				12.46◊	186.47	Not Available	ND <50	ND <50	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND <5	NA	NA	NA	Not Analyzed
1/24/02★				10.08◊	188.85	Not Available	58	ND <50	4	2.7	2.3	6.7	ND <5	NA	NA	NA	Not Analyzed
7/15/03★				12.45◊	186.48	Gray Slight odor	ND <50	ND <50	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND <5	NA	NA	NA	Not Analyzed
10/10/03 ★				14.00◊	184.93	Gray/Slight hydrocarbon odor	350	75	14	16	23	60	ND <5	NA	NA	NA	Not Analyzed
4/06/04★				10.78◊	188.15	Light brown No odor	ND <50	ND <50	ND <0.5	1.7	ND <0.5	1.7	ND<5[B] ND<0.5[C]	NA	ND <5	NA	None Detected
7/09/04★				14.14◊	184.79	Dark gray No odor	260	ND <50	12	13	14	36	ND <5[B]	NA	NA	NA	Not Analyzed
10/08/04 ★				14.99◊	183.94	Brown No odor	450	76	21	22	30	86	ND <5[B]	NA	NA	NA	Not Analyzed

TABLE 3 CONT'D
GROUNDWATER MONITORING DATA (feet)
AND ANALYTICAL RESULTS (µg/L)

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	TPHd	B	T	E	X	MTBE	PCE	TBA	TCE	Other VOCs
4/02/07★	MW-3 (198.93)	36.5	15.5-36	11.87◊	187.06	No sheen or odor	ND <50	ND <50	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND<5[B] ND<0.5[C]	NA	ND <5	NA	None Detected
7/02/07★				14.45◊	184.48	No sheen or odor	ND <50	ND <50	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND<5[B] ND<0.5[C]	NA	ND <5	NA	None Detected
10/03/07 ★				17.10♦	181.83	Brown No odor	ND <50	ND <50	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND<5[B] ND<0.5[C]	NA	ND <5	NA	None Detected
1/09/08★	(201.46) Resurvey			9.42◊	192.04	Brown No odor	ND <50	ND <50	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND<5[B] ND<0.5[C]	NA	ND <2	NA	None Detected
4/04/08★				15.16◊	186	No sheen or odor	ND <50	NA	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND<5[B] ND<0.5[C]	NA	ND <2	NA	None Detected
12/16/13				19.20♦	182.26	No sheen or odor	ND <50	NA	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND <0.5	1.6	ND <10	0.9	cis-1,2-DCA 1.0
4/17/14				12.56◊	188.90	No sheen or odor	ND <50	NA	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND <0.5	0.8	ND <10	ND <0.5	None Detected<0.5
11/04/14				19.17♦	182.27	No sheen or odor	ND <50	NA	ND <0.5	ND <0.5	ND <0.5	0.5	ND <0.5	2.0	ND <10	0.9	cis-1,2-Dichloroethene 0.6 1,2,4-Trimethylbenzene 0.7
10/03/07 ★	MW-4 (200.23)	22	17-22	17.21♦	183.02	No sheen/Slight petroleum odor	11,000	2,000	1,100	87	ND <17	1,300	ND<1500[B] 230[C]	NA	ND <25	NA	1,2-Dichloroethane 6.4
1/09/08★				9.20◊	191.03	No sheen/Slight petroleum odor	17,000	2,600	1,300	120	580	790	ND<900[B] 220[C]	NA	79	NA	None Detected
4/04/08★				13.63◊	186.60	No sheen Petroleum odor	43,000	NA	1,600	200	500	1,300	ND<1500[B] 190[C]	NA	ND <20	NA	None Detected
12/16/13				20.44♦	179.79	No sheen Petroleum odor	4200	NA	370	26	130	100	43	ND <3.1	ND <63	ND <3.1	Isopropylbenzene 7.2 Propylbenzene 8.0 1,3,5-Trimethylbenzene 14 1,2,4-Trimethylbenzene 8.4 Naphthalene 100

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TABLE 3 CONT'D
GROUNDWATER MONITORING DATA (feet)
AND ANALYTICAL RESULTS (µg/L)

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	TPHd	B	T	E	X	MTBE	PCE	TBA	TCE	Other VOCs
4/17/14	MW-4 (200.23)	22	17-22	10.97◊	189.26	No sheen Gasoline odor	7300	NA	550	55	540	305	45	ND <2.5	ND <100	ND <2.5	Isopropylbenzene 28 Propylbenzene 41 1,3,5-Trimethylbenzene 45 1,2,4-Trimethylbenzene 49 Naphthalene 310
11/04/14				20.78♦	179.45	No sheen Petroleum odor	4800	NA	220	21	190	66	33	ND <2.0	97	ND <2.0	Isopropylbenzene 17 Propylbenzene 24 1,3,5-Trimethylbenzene 6.2 tert-Butylbenzene 1.0 1,2,4-Trimethylbenzene 33 sec-Butylbenzene 3.5 para-Isopropyl Toluene 1.5 n-Butylbenzene 2.8 Naphthalene 28
10/03/07 ★	MW-5 (198.52)	22	17-22	17.44♦	181.08	No sheen/Strong petroleum odor	8,800	680	2,800	74	100	190	ND<250[B] 150[C]	NA	1,300	NA	1,2-Dichloroethane 66 Di-Isopropyl Ether.9
1/09/08★				10.01◊	188.51	No sheen/Strong hydrocarbon odor	7,400	580	2,000	5.6	93	29	ND<350[B] 140[C]	NA	1,000	NA	1,2-Dichloroethane 54 Di-Isopropyl Ether 5.6
4/04/08★				11.78◊	186.74	No sheen/Hydro-carbon odor	43,000	NA	12,000	2,800	670	2,500	ND<500[B] 97[C]	NA	1,200	NA	1,2-Dichloroethane 84
12/16/13				18.65♦	179.87	No sheen Petroleum odor	1300	NA	240	ND <2.5	5.7	ND <2.5	86	ND <2.5	460	ND <2.5	1,2-Dichloroethane 2.5
4/17/14				16.32◊	182.20	No sheen Gasoline odor	2100	NA	400	ND <2.5	30	ND <2.5	91	ND <2.5	440	ND <2.5	1,2-Dichloroethane 2.8 Isopropylbenzene 4.5 Propylbenzene 6.8
11/04/14				19.53♦	178.99	No sheen Petroleum odor	470[D]	NA	1.1	ND <0.5	0.9	ND <0.5	59	ND <0.5	320	ND <0.5	1,2-Dichloroethane 2.1 tert-Butylbenzene 1.2 sec-Butylbenzene 1.2
10/03/07 ★	MW-6 (200.20)	22	17-22	18.46♦	181.74	No sheen Petroleum odor	11,000	1,00	1,400	64	74	320	ND<1200[B] 210[C]	NA	ND <50	NA	1,2-Dichloroethane 6.6
1/09/08★				11.93◊	188.27	No sheen/Strong petroleum odor	8,400	1,300	790	17	210	51	ND<400[B] 160[C]	NA	87	NA	None Detected

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TABLE 3 CONT'D
GROUNDWATER MONITORING DATA (feet)
AND ANALYTICAL RESULTS (µg/L)

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	TPHd	B	T	E	X	MTBE	PCE	TBA	TCE	Other VOCs
4/04/08★	MW-6 (200.20)	22	17-22	15.69◊	184.51	No sheen/Strong petroleum odor	6,100	NA	630	52	430	130	ND<500[B] 200[C]	NA	ND <10	NA	1,2-Dichloroethane 2.7
12/16/13				19.60♦	180.60	No sheen Petroleum odor	1400[D]	NA	100	1.9	9.0	5.0	170	ND <1.0	110	ND <1.0	Isopropylbenzene 7.13 Propylbenzene 13 1,3,5-Trimethylbenzene 74 sec-Butylbenzene 2.1 para-Isopropyl Toluene 1.1 Naphthalene 14
4/17/14				17.38♦	182.82	No sheen Gasoline odor	740[D]	NA	49	1.1	22	0.9	97	ND <0.5	59	ND <0.5	Isopropylbenzene 8.1 Propylbenzene 11 sec-Butylbenzene 2.0 n-Butylbenzene 1.5
11/04/14				18.73♦	181.47	No sheen Petroleum odor	1300	NA	52	1.0	3.2	1.4	140	ND <0.5	110	ND <0.5	1,2-Dichloroethane 0.5 Isopropylbenzene 9.1 Propylbenzene 11 1,2,4-Trimethylbenzene 1.1 sec-Butylbenzene 3.5 para-Isopropyl Toluene 1.2 Naphthalene 3.6
12/16/13	MW-7			19.49	NA	No sheen Strong petroleum odor	21000	NA	7200	ND <50	280	164	ND <50	ND <50	2100	ND <50	None Detected
4/17/14				10.54	NA	No sheen Strong gasoline odor	11000	NA	3900	22	290	157	23	ND <5.0	1400	ND <5.0	Isopropylbenzene 24 Propylbenzene 38 1,3,5-Trimethylbenzene 19 1,2,4-Trimethylbenzene 78
11/04/14				20.32	NA	No sheen Strong petroleum odor	8400	NA	4100	ND <25	260	ND<25	ND <25	ND <25	1400	ND <25	Isopropylbenzene 35 Propylbenzene 49

TABLE 3 CONT'D
GROUNDWATER MONITORING DATA (feet)
AND ANALYTICAL RESULTS (µg/L)

TPHg - Total Petroleum Hydrocarbons as gasoline
TPHd - Total Petroleum Hydrocarbons as diesel
BTEX - Benzene, Toluene, Ethylbenzene, Total Xylenes
MTBE - Methyl Tertiary Butyl Ether
TBA - tert-Butanol
TAME - tert-Amyl Methyl Ether
PCE - Tetrachloroethylene
TCE – Trichloroethylene
GW Elev. - Groundwater Elevation
Perf. – Perforation
NA - Not Analyzed
N/A - Not Available
***** Samples were analyzed by Priority Environmental Labs for TPHg & TPHd by 8015M and BTEX by 8020/8021
★ Samples were analyzed by McCampbell Analytical Inc. for TPHg & TPHd by 8015M and BTEX by 8020/8021
A Date of well was monitored
B MTBE was analyzed by EPA Method 8020/8021
C MTBE and other fuel additives were analyzed by EPA Method 8260
D Sample exhibits chromatographic pattern which does no resemble standard
♦ Well screens are not submerged
◊ Well screens are submerged
ND - Not Detected (Below Laboratory Detection Limit)

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A P P E N D I X "B"

FIGURES

ENVIRO SOIL TECH CONSULTANTS

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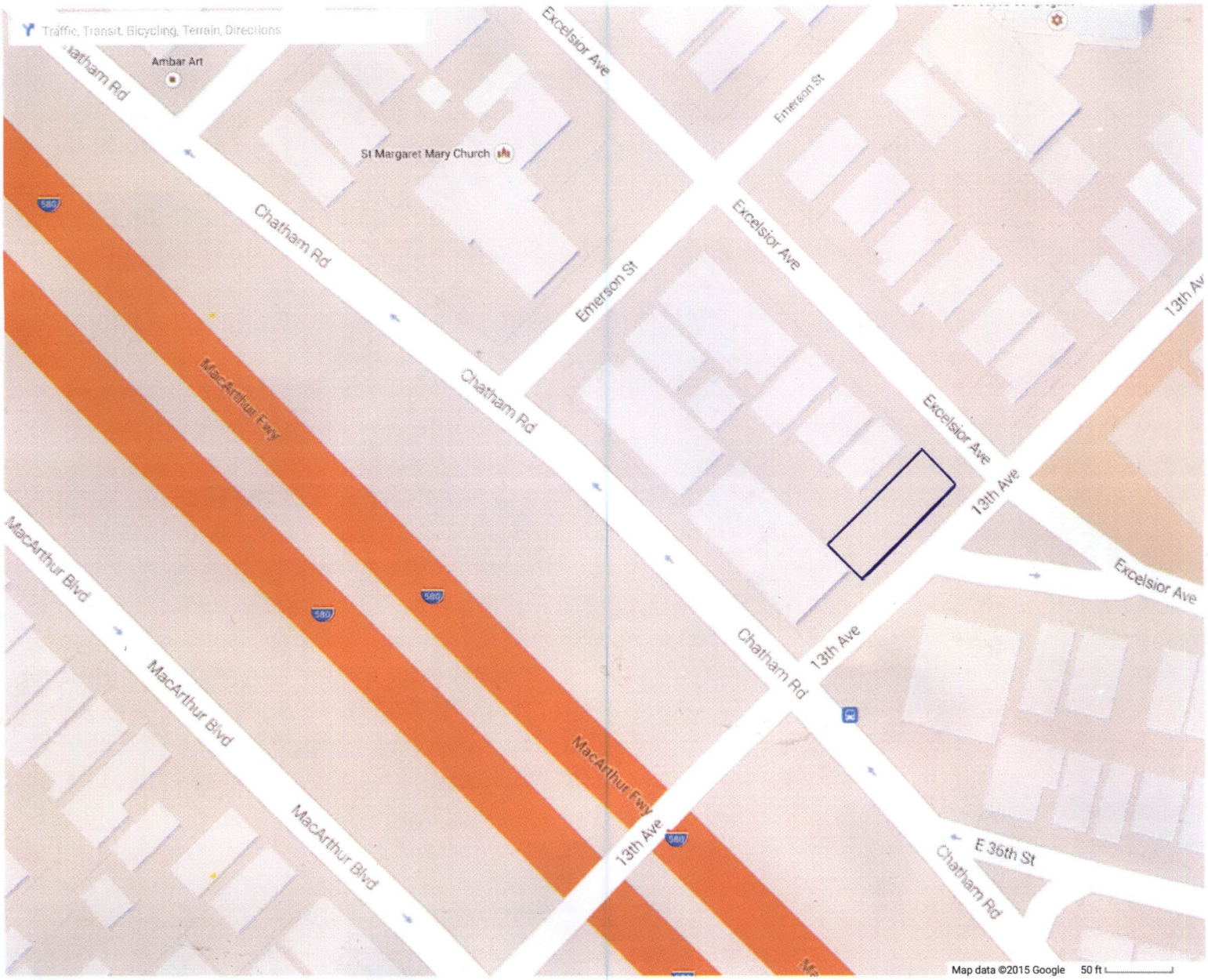


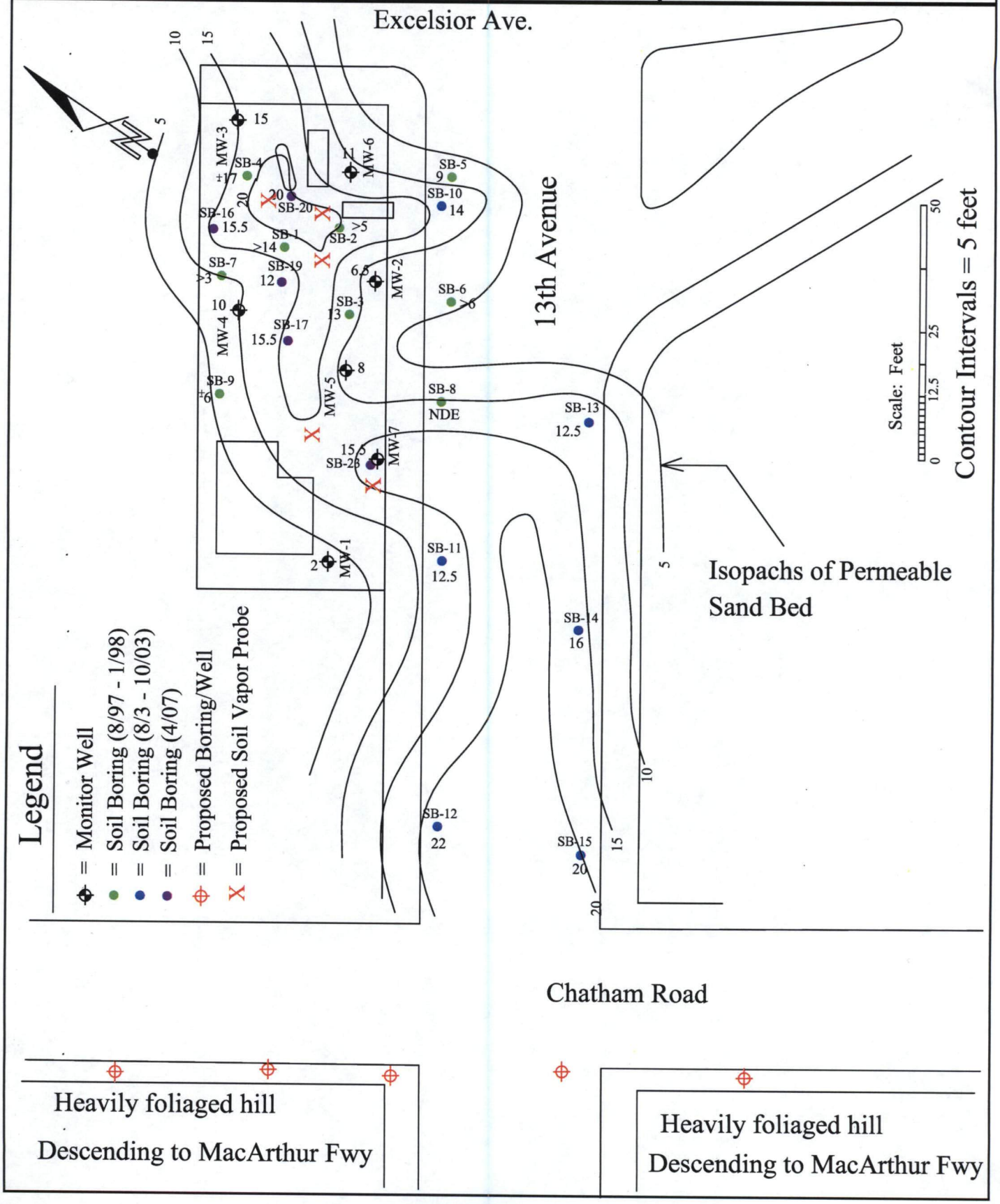
3635 13TH AVENUE, OAKLAND, CA

ENVIRO SOIL TECH CONSULTANTS

Figure 1

F1

Enviro Soil Tech Consultants 131 Tully Road San Jose, CA 95112	PROJECT 3635 13th Avenue Oakland, California PROJECT # 3-13-855-SC DATE: 2/16/2015	Figure 2 Site Plan



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A P P E N D I X "C"

SITE CONCEPUTAL MODEL

ENVIRO SOIL TECH CONSULTANTS

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SITE CONCEPTUAL MODEL

CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
Geology and Hydrogeology	Site	According to the drilling investigation report prepared by AEI Consultants in 2008, the site is underlain primarily by fine-grained sediment to approximately 15 feet below grade. The sediment ranges from clay to clayey sand. Grain size increases below 18 feet, ranging from fine to medium-grained sand to a depth of as much as 25 feet. Below this, the material is stiff clay that is non-water-bearing. The deepest borings reached a depth of 35 feet. The sandy zone above 25 feet is water bearing. Groundwater levels ranged from about 5 to 18 feet in 2007 and 2008, but since ESTC began monitoring the wells in 2013, the depth has ranged from 18 to nearly 21 feet in all seven wells. Because the clay below 25 feet has low permeability, this suggests that the thickness of the saturated zone has declined by at least 6 feet since AEI ceased monitoring in 2008. Monitoring data have been fairly consistent, indicating that the hydraulic gradient is to the south, from MW-6 towards MW-7. A more easterly gradient was mapped in April 2014, but this appears to have been an anomaly, as the gradient returned to the southwest in November. Because the topography is not flat in the site area, the elevation of the water table varies by more than 4 feet from north to south beneath the site.	None	NA
Surface Water Bodies		The closest body of surface water is		
Nearby Wells				

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Release Source and Volume		Three underground fuel tanks were removed from the site in December 1992. Low concentrations of petroleum hydrocarbons were detected in soil beneath the 500-gallon gasoline tank, but hydrocarbons ranging from gasoline to oil and grease were detected beneath the 250-gallon waste oil tank. Gasoline compounds were also detected beneath the south end of the two gasoline tanks. The tanks are considered to be the primary contaminant sources at the site. Two hand-auger borings were done at the east and west ends of the dispenser island, and samples were collected at depths of 4.5, 5, and 10 feet. No hydrocarbons were detected in these samples. Boring SB-20 was later drilled adjacent to the dispenser island and was sampled from 14 to 30 feet. No hydrocarbons were detected in this soil. SB-4 is located west of the island and was sampled at 10 feet, within the upper clay layer, and no hydrocarbons were detected. Monitor well MW-3 is located north of the dispenser. Groundwater samples from this well were impacted between 1994 and 2004, but samples collected since then have been impacted. Hence, there is no indication that the dispenser was a contaminant source. However, ACHCSA requests additional data to support this inference. The timing and volume of the release were undetermined	ACHCSA requests additional soil samples near the dispenser.	One or two soil borings will be drilled between the dispenser island and the 1000-gallon tank to investigate the dispenser and piping runs as possible secondary sources of gasoline.

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LNAPL		ACHCSA considers the reported concentration of 11,000 µg/L TPH in the groundwater sample from MW-7 in April 2014 as suggestive of the possibility that free-phase gasoline is present in the vicinity of this well. In our experience, this concentration is below that required for the formation free product. Further, the concentration declined to 8,400 µg/L in November, and no free product was observed in the bailer during either monitoring event. The concentration is far lower in all other wells.		Continue to monitor for free product in regularly scheduled monitoring events.
Petroleum Hydrocarbons in Soil		Six shallow borings (<20 feet) and eight deep borings (>20 feet) have been drilled in the northern half of the site to map the extent of soil contamination in the vicinity of the two gasoline tanks and the dispenser island. Analytical results of approximately 50 samples from these borings indicate that the soil near the western site boundary is not impacted (borings SB-4, SB-16, SB-18). In the central and eastern half of the site, the maximum, depth of soil contamination is about 25 feet, and the sandy soil between 15 and 25 feet is the most impacted zone. This soil lies within the saturated zone and was probably impacted by migrating groundwater. Samples from SB-22 and SB-23 in the southern half of the site were also impacted in the sandy zone at 20 feet, and this soil was also likely contaminated by migrating groundwater. Except for MW-1, no borings have been drilled on the south of SB-23, so the southern limit of this		

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CSM Element	CSM Sub-Element	Description	Data Gap Item #	Resolution
Petroleum Hydrocarbons in Groundwater		impact is unclear. However, borings southeast of the site (SB-11, SB-12, SB-14, SB-15) encountered contaminated soil and/or groundwater. These borings are too far from the source to have been contaminated by downward leaching from the tanks, implying that soil contamination is again due to migrating groundwater. The clay layer below the water-bearing zone (i.e. below 25 feet) is not impacted in any borings, so the vertical extent of soil contamination has been delineated. The eastern limit of soil impact is undetermined by is east of SB-10, where gasoline, diesel, toluene, ethylbenzene, and xylene were detected in the saturated zone in the deepest sample from the sandy layer at 19 feet. This soil was probably also impacted by migrating groundwater, but the 500-gallon gasoline tank is sufficiently close to SB-10 that soil in that area could have been impacted by direct leaching. Of the seven monitoring wells located on site, six are currently impacted by TPHg, TPHd, BTEX, and/or MTBE. MW-3, the only well that is located north of the contaminant sources, is the only non-impacted well. In addition, all six of the off-site borings are known or inferred to lie within the plume of impacted groundwater. Concentrations tend to decline to the south, east, and west, which is consistent with the known groundwater flow direction. The limits in these directions are undefined, and no monitor wells have been installed off-site.	Additional data are needed to determine the eastern limit of impacted soil east of the primary source. Groundwater monitoring points are needed south of the site to define the limit of groundwater impact and to monitor its movement.	One or two borings will be drilled east of SB-10 if street access can be obtained. A minimum of two additional monitor wells will be drilled southeast of the site. One will be located on the east side of 13th Avenue south of SB-15, and the other will be located on the west side of the street south of SB-12.

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Source Removal Activities		The waste-oil tank was over-excavated to a depth of 18 feet, and the impacted soil was removed and disposed of. Gasoline-stained soil was evident in the sidewalls of the gasoline tank excavations at the time of tank removal, but this soil was not removed, and the excavations were not enlarged or deepened. The overburden soil from above the gasoline tanks was used as backfill.	Residual soil contamination exists around and beneath the former gasoline tank excavations.	Since the property will be redeveloped for residential use and all former structures have been removed, the former gasoline tank pits will be re-excavated and impacted soil will be removed and disposed of at a license facility.
Contaminants of Concern		The primary contaminants of concern are gasoline (TPHg), benzene, toluene, ethylbenzene, xylene, and MTBE. The reported TPHd concentrations are considered to be the high-molecular weight components of gasoline, since diesel was not dispensed at the site.		
Risk Evaluation		The site is a former Mobil Gas Station. In order to evaluate hazard/risk and cleanup levels due to risk of vapor intrusion into buildings, soil-gas samples will be taken. These samples will be analyzed for all on-site volatile contaminants, and the results used in the Cal/EPA HERO SG-Screen vapor intrusion model and compared to allowable risk and hazard thresholds.		Soil-gas samples may also be taken after remediation to confirm risk/hazard profile.