Olivia Skance
Team Lead
Marketing Business Unit

Chevron Environmental Management Company
6001 Bollinger Canyon Road
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Tel (925) 790-6521

June 13, 2011
(date)

RECEIVED

10:49 am, Jun 22, 2011
Alameda County
Environmental Health

Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Chevron Facility # 9-0517

Address: 3900 Piedmont Avenue, Oakland, California

I have reviewed the attached report titled *Revised Work Plan for Additional Site Investigation* and dated June 13, 2011.

I agree with the conclusions and recommendations presented in the referenced report. The information in this report is accurate to the best of my knowledge and all local Agency/Regional Board guidelines have been followed. This report was prepared by Conestoga-Rovers & Associates, upon whose assistance and advice I have relied.

This letter is submitted pursuant to the requirements of California Water Code Section 13267(b)(1) and the regulating implementation entitled Appendix A pertaining thereto.

I declare under penalty of perjury that the foregoing is true and correct.

Sincerely,

Liv Skance

Olivia Skance
Project Manager

Enclosure: Report

CONESTOGA-ROVERS & ASSOCIATES

10969 Trade Center Drive
Rancho Cordova, California 95670
Telephone: (916) 889-8900 Fax: (916) 889-8999
www.CRAworld.com

June 13, 2011 Reference No. 611995

Mr. Mark Detterman, P.G., C.E.G.
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: Revised Work Plan for Additional Site Investigation
Former Chevron Service Station 9-0517
3900 Piedmont Avenue
Oakland, California
Case No. RO0000138

Dear Mr. Detterman:

Conestoga-Rovers & Associates (CRA) has prepared this *Revised Work Plan for Additional Site Investigation* (revised work plan) on behalf of Chevron Environmental Management Company (Chevron) for the site referenced above. CRA submitted a *Case Closure Request* (closure request) on October 12, 2010 in which closure was recommended based on low-risk conditions. In a letter dated April 14, 2011 (Attachment A), Alameda County Environmental Health (ACEH) expressed concerns regarding the site and requested additional investigation (Technical Comments 1-3). CRA provides responses to the Technical Comments below and proposes to perform sub-slab vapor sampling to evaluate potential vapor intrusion risk to site workers to satisfy the request for additional investigation.

A work plan submission due date of May 27, 2011 was originally specified by ACEH in the letter. However, an extension of this date to June 15, 2011 was approved by ACEH in an e-mail to CRA on May 25, 2011. This revised work plan replaces the previously submitted *Work Plan for Additional Site Investigation* dated July 16, 2009 and *Work Plan Addendum* dated March 3, 2010. The site description and background, responses to technical comments, and the details of the proposed investigation are presented below.

SITE DESCRIPTION AND BACKGROUND

The site is located on the eastern corner of the intersection of Piedmont Avenue and Montell Street (Figure 1), and is currently developed with a one-story commercial/office structure and associated parking areas (Figure 2). Land use in the site vicinity is mixed commercial and residential. The site is bounded by Piedmont Avenue to the northwest,

Montell Street to the southwest, an apartment building to the southeast and a restaurant to the northeast.

The site was occupied by a Chevron service station from at least 1940 through 1978 and included a lubrication building with two hydraulic hoists, and at least two generations of gasoline and used-oil underground storage tanks (USTs) and dispensers. In 1978, the station and USTs were removed, and the existing commercial building was subsequently constructed. Former station facilities are shown on Figure 2.

Environmental work has been performed since 1993, and has included the installation of monitoring wells MW-1 through MW-4 and the drilling of exploratory borings FNBO-1 through FNBO-8 (onsite), and SB-2 (offsite). Offsite wells MW-3 and MW-4 are currently sampled annually; sampling of onsite wells MW-1 and MW-2 was discontinued in 2009 with ACEH approval. A summary of the environmental work is included as Attachment B. The approximate well and boring locations are shown on Figure 2.

RESPONSES TO TECHNICAL COMMENTS

Technical Comment #1 - Onsite Subsurface Investigation and Vapor Intrusion
ACEH noted that due to the presence of the existing building, the previous onsite borings were drilled near, but not directly into, the former UST locations, and no soil sampling was conducted during removal of the tanks, as was typical at the time. Therefore, the presence and extent of residual petroleum hydrocarbons in soil in these areas had not been adequately evaluated. As such, ACEH indicated that potential vapor intrusion was also a concern as residual hydrocarbons may remain beneath the building, and needed to be evaluated.

CRA Response: To expedite the risk evaluation, we propose to perform sub-slab vapor sampling to evaluate whether there is a potential vapor intrusion risk to onsite commercial workers.

With regards to evaluating residual soil quality beneath the building, it is our opinion that further investigation is not warranted at this time. If residual impacted soil does in fact remain beneath the building, under the current land use scenario the only potential risk posed by the soil would be vapor intrusion, which the proposed sub-slab vapor sampling will address.

Technical Comment #2 - Offsite Subsurface Investigation
ACEH stated that the downgradient extent of impacted groundwater has not been fully evaluated, as only offsite boring SB-2 has been drilled. ACEH further stated that, because the downgradient extent of the groundwater plume was undetermined across Piedmont Avenue, it

may also be appropriate to dovetail a vapor intrusion investigation to building(s) across Piedmont Avenue as a partial alternative to full plume delineation.

CRA Response: Most of the previously planned offsite borings could not be advanced due to the numerous utility lines in the surrounding streets (see Figure 2), drilling refusal, and the fact that the City of Oakland does not allow drilling in the sidewalk. The presence of numerous large buildings also limits the available space. A grab-groundwater sample collected from downgradient boring SB-2 contained a low concentration of total petroleum hydrocarbons as gasoline (TPHg), but no benzene. As described in the closure request, area drinking water is provided by East Bay Municipal Utility District (EBMUD) from distant surface water sources, no wells were identified within 2,000 feet downgradient, and the nearest surface water body is Glen Echo Creek approximately 400 feet upgradient. Therefore, although the downgradient extent of hydrocarbons in groundwater has not been delineated to standard laboratory reporting limits, it is our opinion that it has been delineated to the extent necessary to determine whether the concentrations in groundwater pose a risk to current or potential future receptors. Since previous work has shown that no potential groundwater receptors are at risk, and the plume is degrading, groundwater is adequately delineated for the purposes of determining risk to receptors. Thus, the only remaining potential concern is vapor intrusion into the offsite buildings from underlying groundwater. The proposed onsite sub-slab vapor sampling will evaluate any potential vapor intrusion issues directly above the former source areas (worst-case scenario). Therefore, the sub-slab results will be used to determine if potential offsite vapor intrusion is a significant concern that warrants further evaluation.

Technical Comment #3 - Semi-Annual Groundwater Monitoring

ACEH noted that groundwater samples collected at the site have not been analyzed for all the standard waste oil constituents, with the exception of total recoverable petroleum hydrocarbons (TRPH) and volatile organic compounds (VOCs) in the sample collected from boring FNBO-6 on the downgradient side of the site. Therefore, a one-time sampling event in well MW-1 (located adjacent to the former used-oil USTs) to analyze for the remaining constituents was requested if such data did not exist.

CRA Response: The analyses mentioned above are the only ones for waste oil constituents that have been performed. Therefore, CRA concurs that additional data is needed. Please note that ACEH identified the site groundwater monitoring frequency as semi-annual; however, it was recently reduced to annual. Although sampling of MW-1 was discontinued with ACEH approval, this well will be sampled for the requested suite of analytes. Depending on the results of the proposed sub-slab investigation, the sampling may be performed during the next scheduled annual event (first quarter 2012) or sooner during a special event.

PROPOSED SCOPE OF WORK

To evaluate potential vapor intrusion risk, CRA proposes to install and sample two sub-slab vapor probes inside the building. The approximate proposed sub-slab vapor probe locations are shown on Figure 2. In addition, samples of air inside the building and ambient air outside the building will also be collected. The sub-slab sampling results will be compared to the indoor and ambient air results to evaluate whether a complete pathway exists for vapor intrusion into the building. All work will be conducted in accordance with the Department of Toxic Substances Control (DTSC) December 15, 2004 *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Revised February 2005)*. The details of the proposed work are presented in the sections below.

Permits and Notifications

Prior to drilling, CRA will obtain permits for installation of the proposed sub-slab vapor probes from Alameda County Public Works Agency (ACPWA). A minimum of 72 hours notification will be given to ACEH before initiation of drilling activities.

Site Health and Safety Plan

CRA will prepare a site-specific health and safety plan (HASP) to inform site workers of known hazards and to provide health and safety guidance. The plan will be reviewed and signed by all site workers and visitors, and will be kept onsite during field activities.

Underground Utility Clearance

The proposed sub-slab probe locations will be marked at least 48 hours prior to the start of drilling activities and Underground Service Alert (USA) will be notified to identify locations of nearby public utilities. A private utility locator will also be retained to additionally clear the probe locations of utility lines or other subsurface obstructions inside the building using ground-penetrating radar prior to drilling. The proposed probe locations may change based on the public and private utility survey results.

Sub-Slab Vapor Probe Locations

CRA proposes to install two sub-slab vapor probes within the building, per the guidance the desired locations are near the center of the slab and in the likely area of highest residual impacts (Figure 2). Utilities entering the building will be identified and marked, and any internal locations where utilities penetrate the slab (e.g. furnace, water heater, circuit breaker box, and water or sewer lines) will be identified and avoided. The final probe locations will be determined based on interior access and the presence of utilities or other subsurface obstructions.

Sub-Slab Vapor Probe Installation

Probe installation procedures are based on the U.S. Environmental Protection Agency (USEPA) *Draft Standard Operating Procedure (SOP) for Installation of Sub-Slab Vapor Probes and Sampling Using EPA Method TO-15 to Support Vapor Intrusion Investigations*. First, a rotary hammer drill will be used to create a 2-inch diameter and 1-inch deep "outer" hole that partially penetrates the slab. A small portable vacuum cleaner will be used to remove cuttings from the hole. The rotary hammer will then be used to create a smaller diameter "inner" hole through the remainder of the slab and into the granular sub-slab material. Drilling into the sub-slab material will create an open cavity for the probes to prevent obstruction by small pieces of gravel.

Once the thickness of the slab is known, stainless steel or brass tubing will be cut to ensure that the probe tubing does not reach the bottom of the hole to avoid obstruction by sub-slab material. The sub-slab vapor probes will be constructed using stainless steel or brass tubing and compression fittings. Stainless steel or brass materials will be used to ensure that construction materials are not a source of VOCs. The probe will then be set in the hole. The top of the probe will be flush with the slab and have recessed stainless steel or brass plugs to prevent interference with day-to-day use of the building. Quick-drying Portland cement will be pushed into the annular space between the probe and outside of the "outer" hole, and allowed to cure for at least 48 hours prior to sampling.

Sub-Slab Vapor Sampling and Laboratory Analysis

Vapor samples will be collected from the probes in 100% laboratory-certified 1-liter Summa™ canisters for analysis. Prior to collecting a sample, a closed circuit sampling train is created by attaching the sample Summa™ canister in series with a purge Summa™ canister via a laboratory-provided steam-cleaned, stainless-steel manifold. A "shut-in" test will be performed prior to connecting the sampling equipment to the probe tubing to check for any significant leaks in the sampling train and reduce the potential for ambient air to dilute the vapor samples. This test is performed by sealing all openings to ambient air, opening the purge canister briefly to establish a vacuum inside the sampling train, and waiting a minimum of 10 minutes to ensure the vacuum remains stable over time. Once the sampling train passes the "shut in" test, it is connected to the probe tubing. Using the same flow rate as is used during sampling (100-200 milliliters per minute), approximately three volumes (probe and tubing) will be purged using the purge canister before sampling begins. To collect a sample, the vacuum of the sample canister will be used to draw the vapor through a flow controller until a negative pressure of approximately 5 inches of mercury is observed on the vacuum gauge.

At least one field duplicate sample per day will also be collected. In accordance with the DTSC *Advisory – Active Soil Gas Investigations* guidance document, dated March 2010, leak testing will also be performed during sampling. Helium will be used as a leak check compound to evaluate

if significant ambient air is entering the Summa™ canisters during sampling. To perform the leak testing, the sub-slab vapor probe, tubing, and entire sampling train will be enclosed in a rigid shroud and filled with helium. The helium concentration inside the shroud will be maintained above 10 percent and monitored using a helium meter. CRA's standard field procedures for vapor probe sampling are included as Attachment C.

After sampling, the Summa™ canisters will be kept at ambient temperature and submitted to a state-certified laboratory under chain-of-custody for analysis. The vapor samples will be analyzed for the following constituents:

- TPHg, benzene, toluene, ethylbenzene, and xylenes (BTEX), naphthalene, and TPH fractionation by modified EPA Method TO-15
- Helium (leak check compound), oxygen, carbon dioxide, nitrogen, and methane by modified ASTM Method D-1946

Indoor and Ambient Air Sampling and Laboratory Analysis

To further evaluate the potential vapor intrusion pathway, indoor air samples will be collected above the sub-slab probes. The indoor air samples will be collected in 6-L 100% certified Summa™ canisters approximately 3 to 5 feet above the floor to represent the breathing zone. To evaluate background conditions and possible influences on indoor air quality, ambient air samples will also be collected outside the building. The sample duration for the indoor and ambient air samples will be 8 hours to represent the typical work day. The indoor and ambient air samples will be analyzed for the same constituents as the sub-slab vapor samples.

Given the multitude of potential sources of analytes in indoor air, including office chemicals, a building survey will be performed prior to sampling to document and remove any potential sources of airborne contaminants as well as to determine specific building characteristics (construction details, heating, ventilation, and air conditioning [HVAC] system details, interior layout, etc.).

Data Interpretation

Indoor air samples may measure BTEX and other petroleum hydrocarbon compounds within the concentration ranges commonly seen as background values measured at sites where no subsurface petroleum hydrocarbon contamination is present. There are many sources of background contamination inside buildings. Materials and substances commonly found in commercial and residential settings, such as paints, paint thinners, gasoline-powered machinery, building materials, cleaning products, dry cleaned clothing, and cigarette smoke, contain VOCs that may be detected by indoor air testing. Table 1 below presents a summary of BTEX background concentrations reported in several indoor air studies.

TABLE 1. SUMMARY OF INDOOR AIR BACKGROUND STUDIES[1]

	USEPA (2002)							
Chemical of concern	Brown et al. (1994) (ppbv)	Sheldon (1992) (ppbv)	EPA IAQ (1991) (ppbv)	Shah and Singh (1988) (ppbv)	Stolwijk (1990) (ppbv)	Foster et al. (2002) (ppbv)	Range of values (ppbv)	Range of values ($\mu g/m^3$)
Benzene	2.51	0.69	4.39	5.16	3.16	1.28	0.69 -5.16	2.14 -16.8
Ethylbenzene	1.15	–	3.23	2.89	2.32	–	1.15 -3.23	5.08 -14.3
Toluene	9.83	–	16.21	7.39	22.0	–	7.39 -22.0	26.9 -80.0
Xylenes, m-p	5.54	–	–	–	4.57	–	4.57 -5.54	20.0 -24.2

Notes: ppbv = parts per billion by volume.

For example, the above range of normal background concentrations for benzene spans the 1.41 to 14.1 µg/m^3 range representing the 10^{-5} to 10^{-4} incremental risk values published as part of the California Human Health Screening Levels (CHHSLs) by the Office of Environmental Health Hazard Assessment (OEHHA) on behalf of Cal/EPA. Table 2 below lists the indoor air commercial/industrial CHHSLs and/or San Francisco Bay Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs) for various compounds associated with a non-cancer hazard quotient of 1.0 and an excess lifetime cancer risk of one-in-a-million (10^{-6}).

1 T.E. McHugh et al., *An Empirical Analysis of the Groundwater-to-Indoor-Air Exposure Pathway: The Role of Background Concentrations in Indoor Air*, 2004.

TABLE 2. ESLs AND CHHSLs FOR INDOOR AIR

Chemical	Commercial/Industrial Indoor Air Screening Levels (µg/m³)	
	ESLs	CHHSLs
TPHg	1.4 E+01	NE
Benzene	1.4 E-01	1.41 E-01
Carbon Tetrachloride	3.1 E-02	9.73 E-02
1,2-Dichloroethane	1.6 E-01	1.95 E-01
cis-1,2-Dichloroethylene	1.0 E+01	5.11 E+01
trans-1,2-Dichloroethylene	2.0 E+01	1.02 E+02
Ethylbenzene	1.6	Postponed[1]
Mercury, elemental	2.6 E-02	1.31 E-01
Methyl tert-Butyl Ether	1.6 E+01	1.57 E+01
Naphthalene	1.2 E-01	1.20 E-01
Tetrachloroethylene	6.9 E-01	6.93 E-01
Tetraethyl Lead	NE	5.11 E-04
Toluene	8.8 E+01	4.38 E+02
1,1,1-Trichloroethane	6.4 E+02	3.21 E+03
Trichloroethylene	2.0	2.04 E+00
Vinyl Chloride	5.2 E-02	5.24 E-02
m-Xylene	2.9 E+01	1.02 E+03[2]
o-Xylene		1.02 E+03[2]
p-Xylene		1.02 E+03[2]

References: Appendix 1, OEHHA Target Indoor Air Concentrations for Existing Buildings under Residential and Commercial/Industrial land uses. Table E, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, California Regional Water Quality Control Board, May 2008.

NE: Not established.

Commercial/industrial properties should be evaluated using both residential and commercial/industrial CHHSLs. A deed restriction that prohibits use of the property for sensitive purposes may be required at sites that are evaluated and/or remediated under a commercial/industrial land use scenario only.

Carcinogens: CHHSLS based on target cancer risk of 10E-06. Cal/EPA cancer slope factors used when available.

Noncarcinogens: CHHSLS based on target hazard quotient of 1.0.

1. Calculation of a screening number for the chemical has been postponed (pp) until the toxicity criterion currently being developed by OEHHA is published as a final document.

2. Representative Screening Numbers for mixed xylenes. The representative value for mixed xylenes is based on the calculated lowest one amongst the three isomers.

As a result, it is not possible to interpret whether vapor intrusion is occurring by simply comparing indoor air concentrations against the most conservative screening levels, since these values do not account for background concentrations. Instead, indoor air concentrations must be compared to both outdoor air and sub-slab soil vapor concentrations to determine whether external or indoor sources are contributing to indoor air concentrations. A likely indication of active vapor intrusion would be a combination of indoor and outdoor air samples where indoor

air contained significantly greater concentrations of petroleum hydrocarbon VOCs (e.g., BTEX) than outdoor air, and also contained significantly lower concentrations of petroleum hydrocarbon VOCs than sub-slab soil vapor.

The DTSC February 2005 guidance document (pg. 19) specifies the use of a 100-fold attenuation factor (sub-slab concentration x 0.01) for comparison of sub-slab concentrations through the slab into indoor air. Indoor air, outdoor air, and sub-slab vapor concentrations will be evaluated per the above protocols. Criteria indicative of vapor intrusion should be:

- Indoor air TPHg and/or benzene concentrations significantly higher than outdoor air
- Indoor air benzene concentrations significantly higher than the range of normal background (rather than the indoor air 10^{-6} standard values presented in Table 2 above, which are within the lower range of normal background).
- Sub-slab TPHg and/or benzene concentrations significantly higher than indoor air (factors per DTSC guidance Table 2, pg. 58).

Any other combination of concentrations, and concentration ratios, will likely indicate either an indoor or outdoor background source rather than vapor intrusion into the building. This information is gathered from the DTSC 2005 guidance document and the OEHHA November 2002 *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance)*.

Reporting

Following receipt of the analytical results, CRA will prepare an investigation report documenting the activities and results. The report will include, at a minimum, the following elements:

- A description of field activities
- A figure illustrating the sub-slab vapor probe locations
- Sub-slab vapor probe construction diagrams
- Tabulated analytical results
- Laboratory analytical reports and chain-of-custody forms
- Our conclusions and recommendations

CLOSING AND SCHEDULE

Upon concurrence from ACEH, or if at least 60 days have passed since submittal of this revised work plan with no response, CRA will implement the proposed investigation. We will submit our investigation report approximately six to eight weeks after receipt of the analytical results.

We appreciate your assistance on this project and look forward to your reply. Please contact James Kiernan at (916) 889-8917 if you have any questions or need any additional information.

Sincerely,

CONESTOGA-ROVERS & ASSOCIATES

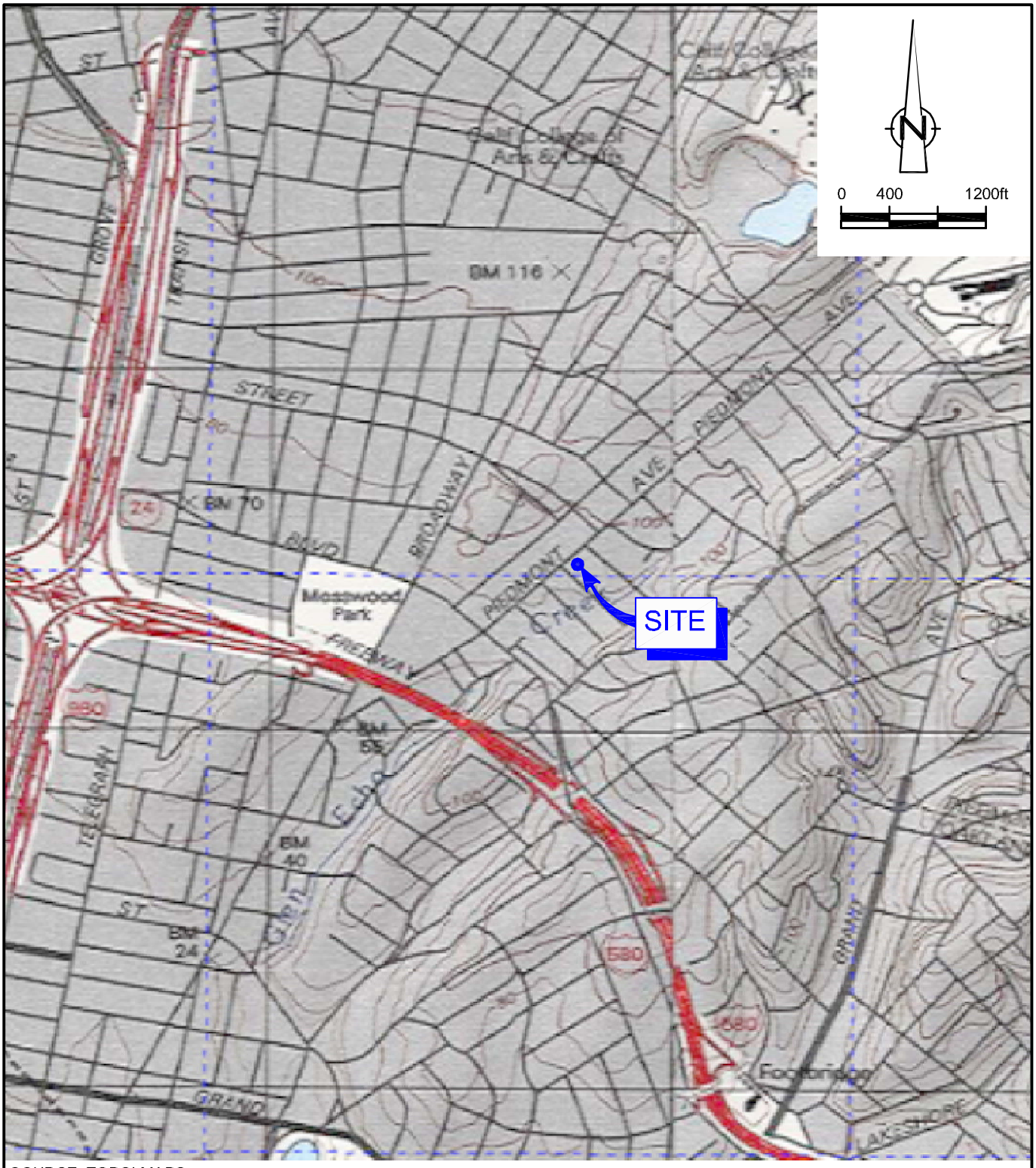
James P. Kiernan, P.E.

JK/kw/11
Encl.

Figure 1	Vicinity Map
Figure 2	Site Plan
Attachment A	ACEH Letter Dated April 14, 2011
Attachment B	Summary of Environmental Investigation and Remediation
Attachment C	Standard Field Procedures

cc: Ms. Olivia Skance, Chevron (electronic copy only)
Mr. Neil B. and Mrs. Diane C. Goodhue

FIGURES



SOURCE: TOPO! MAPS.

figure 1

VICINITY MAP
FORMER CHEVRON SERVICE 9-0517
3900 PIEDMONT AVENUE
Oakland, California

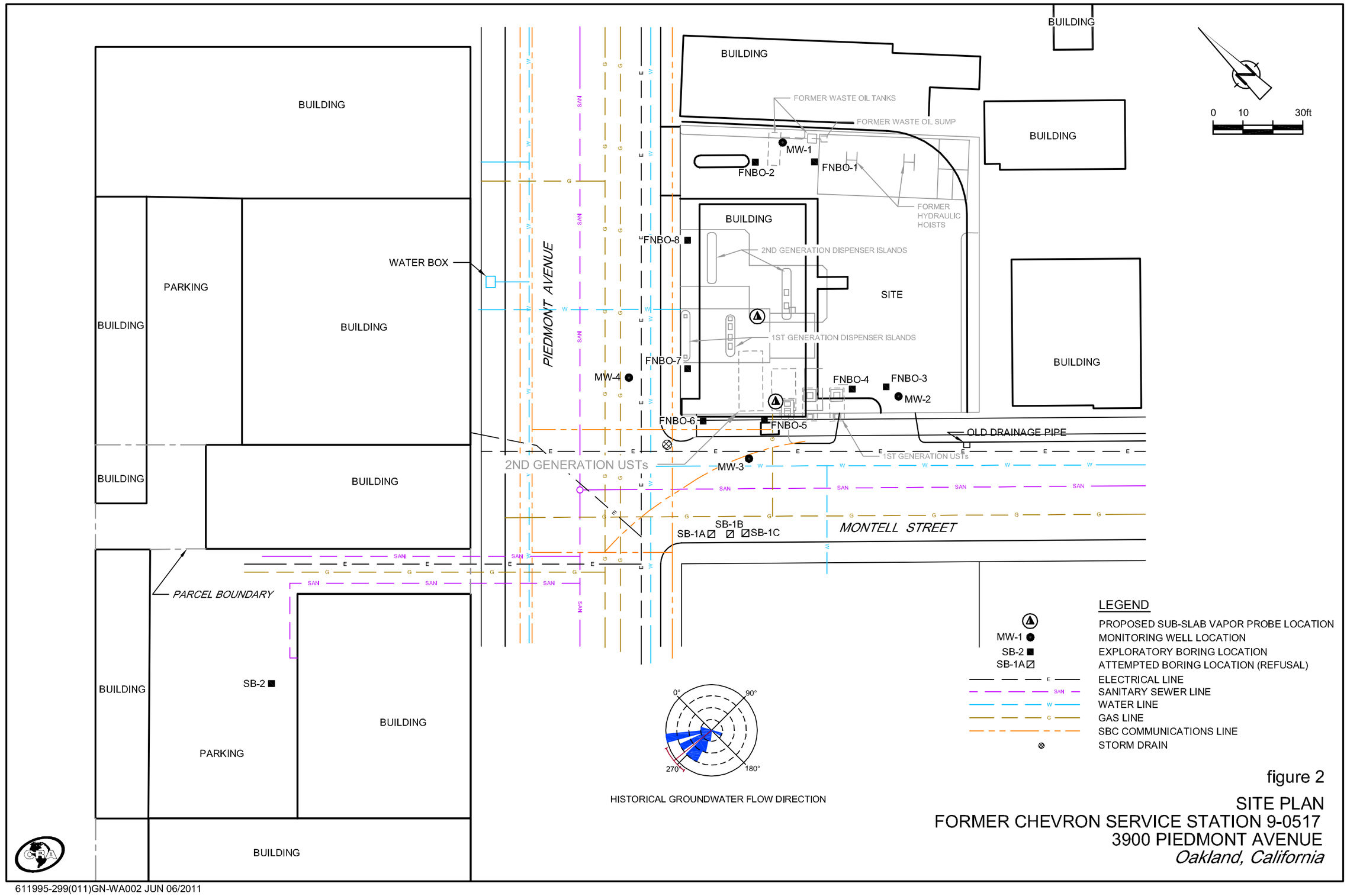


figure 2

SITE PLAN
FORMER CHEVRON SERVICE STATION 9-0517
3900 PIEDMONT AVENUE
Oakland, California

611995-299(011)GN-WA002 JUN 06/2011

ATTACHMENT A

ACEH LETTER DATED APRIL 14, 2011

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

April 14, 2011

Ms. Stacie Harting-Frerichs
Chevron Corporation
6111 Bollinger Canyon Road, Rm 3596
San Ramon, CA 94583
(sent via electronic mail to staciehg@chevron.com)

Ms. Leslie Riasanovsky
Unknown address

Neil & Diane Goodhue
300 Hillside Avenue
Piedmont, CA 9461

Subject: Request for Work Plan; Fuel Leak Case No. RO0000138; Global ID # T0600102248; Chevron #9-0517 / Homestead Federal Savings, 3900 Piedmont Avenue, Oakland CA 94610

Ladies and Gentlemen:

Alameda County Environmental Health Department (ACEH) staff has reviewed the case file, including the *Work Plan for Additional Site Investigation,* dated July 16, 2009, the *Work Plan Addendum,* dated March 3, 2010, the *Case Closure Request*, dated October 12, 2010, and the *Second Semi-Annual 2010 Groundwater Monitoring Report,* dated November 5, 2010. The reports were prepared and submitted by Conestoga-Rovers & Associates (CRA) on your behalf. Thank you for submitting the reports; they continue the conversation at the site. The *Case Closure Request* reviews the history of the site and in an effort to move the case towards closure compares the site to the seven SWRCB low-risk criteria contained in the January 13, 2010 *Resolution 2009–0042 – UST Cleanup Program Task Force Report.* These criteria were derived from the 1996 Lawrence Livermore National Laboratories Report generated for the San Francisco RWQCB, but which does not consider vapor intrusion concerns. Consequently, based on this unevaluated concern and other factors discussed below in Technical Comments, this fuel leak case cannot be closed at this time. This decision is subject to appeal to the State Water Resources Control Board (SWRCB), pursuant to Section 25299.39(b) of the Health and Safety Code (Thompson-Richter Underground Storage Tank Reform Act - Senate Bill 562). Please contact Mr. George Lockwood in the SWRCB Underground Storage Tank Program at (916) 341-5752 or GLockwood@waterboards.ca.gov for information regarding the appeal process.

Based on ACEH staff review of the case file, we request that you address the following technical comments and send us the reports described below.

TECHNICAL COMMENTS

1. **Onsite Subsurface Investigation and Vapor Intrusion -** The subject site has been investigated through the installation of four groundwater wells and nine soil bores, including a downgradient offsite soil bore (SB-2). In general the wells and bores have been installed around the perimeter of the existing (former Home Federal Savings Association) building. The building was constructed subsequent to the removal of four USTs in 1978. These are understood to have been second generation USTs and dispensers that replaced four first-generation USTs and dispensers, removed at an undefined time previously. Bores at the site were installed near several, but not into any of, the eight former UST locations due to the construction of the building directly over a number of the former

USTs and dispensers. The investigations thus have had limited success in evaluating the extent and magnitude of residual soil impacts remaining in proximity to a number of the former USTs or if UST removal spoils were reused to backfill the removal excavations, as would be fairly typical for pre-environmental time periods. This is otherwise indicated by the existence of the most highly impacted groundwater known at the site at the most downgradient wells, MW-3 and MW-4 and in grab groundwater at FNBO-6; all located just offsite in the streets.

In general this affects two issues of concern at the site, the previously mentioned magnitude of residual contamination beneath the site, especially beneath the existing building, and the potential for vapor intrusion into the building at the site. Recent research appear to suggest that a number of feet of contamination free soil are required to preclude vapor intrusions issues; this site would not fit that model without further investigation. Consequently it appears reasonable to investigate both the magnitude and extent of impacted soil beneath the building, as well as the vapor intrusion risk to the building. Three soil vapor locations were proposed in the existing *Work Plan for Additional Site Investigation*; however, are exterior to the building and will not address vapor intrusion concerns to the building. Please incorporate more recent vapor guidance documents from DTSC into a work plan, by the date identified below.

2. **Offsite Subsurface Investigation –** At present the downgradient extent of the hydrocarbon plume has not been defined, except potentially with soil bore SB-2, located at a distance of approximately 160 feet downgradient from the site. Bore SB-2 was the only bore of four planned bores to be successfully installed during the previous phase of investigation; soil bore SB-1 encountered an obstruction at three adjacent locations, while bores SB-3 and SB-4 could not be installed at their planned locations due to the presence utilities. The presence of 1 µg/l MTBE in the groundwater sample from SB-2 has been used to suggest that at least a portion of the contamination (MTBE) may be from another source (540 µg/l TPHg was the only other hydrocarbon constituent detected).

   Additionally the use of utility conduits as a preferential pathway has been discounted in several reports. It is reported that utility conduits in the downgradient vicinity of the site typically do not extend to groundwater, except for the sanitary sewer line which is reported to have been installed at 12 to 13 feet bgs. Groundwater was initially encountered at depths of 10 to 12 feet in wells MW-1 to MW-4; however, typical groundwater ranges as shallow as 6 to 7 feet bgs are not unusual. In either situation, the sewer lines appear to be potential conduits that have not been evaluated.

   While understandably limited and difficult, it appears that additional soil bore locations appear needed in the downgradient direction to define the extent of the hydrocarbon contamination associated with the site and to determine if offsite properties have been impacted without resorting to the installation of soil bores at a distance of approximately 170 to 350 feet downgradient of the site, and across several separate utility corridors that may be preferential conduits as proposed in the *Work Plan Addendum*. Because the downgradient extent of the groundwater plume is undetermined across Piedmont Avenue, it may also be appropriate to dovetail a vapor intrusion investigation to building(s) across Piedmont Avenue as a partial alternative to full plume delineation. As a consequence, ACEH requests an offsite investigation work plan be submitted by the date identified below.

3. **Semi-Annual Groundwater Monitoring –** Two waste oil USTs and a waste oil sump were previously located at the site; however, the only groundwater analytical result for oil range hydrocarbons was collected at FNBO-6 at the downgradient edge of the site (TRPH was present at a concentration of 2,800 µg/L). Although volatile organic compounds have been analyzed in groundwater at the site at least once, not all of the standard analytical tests for waste oil constituents have been conducted at the site. Please incorporate these standard constituents a minimum of one time at well MW-1 in an effort to determine if they represent a point of concern for the site, or conversely please locate and forward previously collected analytical results for this issue if they exist. Please incorporate this request in the next regularly scheduled semi-annual event.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Mr. Mark Detterman), according to the following schedule:

- **May 27, 2011** – Work Plan
- **60 Days After Approval of Work Plan** – Subsurface Investigation and Vapor Survey Report

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

Should you have any questions, do not hesitate to call me at (510) 567-6876.

Sincerely,

Mark E. Detterman, PG, CEG
Senior Hazardous Materials Specialist

Enclosures: Attachment 1 – Responsible Party (ies) Legal Requirements / Obligations
Electronic Report Upload (ftp) Instructions

cc: James Kiernan, 10969 Trade Center Drive, Suite 106, Rancho Cordova, CA 95670
(sent via electronic mail to jkiernan@craworld.com)

Donna Drogos (sent via electronic mail to donna.drogos@acgov.org)
Mark Detterman (sent via electronic mail to mark.detterman@acgov.org)
eFile, GeoTracker

Responsible Party(ies) Legal Requirements / Obligations

REPORT REQUESTS

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/electronic_submittal/report_rqmts.shtml.

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	**REVISION DATE:** July 20, 2010
	ISSUE DATE: July 5, 2005
	PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- **Please do not submit reports as attachments to electronic mail.**
- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection**.
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- **Signature pages and perjury statements must be included and have either original or electronic signature.**
- **Do not password protect the document**. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted**.
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:

  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Submission Instructions

1) Obtain User Name and Password
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to deh.loptoxic@acgov.org
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for**.

2) Upload Files to the ftp Site
   a) Using Internet Explorer (IE4+), go to ftp://alcoftp1.acgov.org
      (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
   b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
   c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
   d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to deh.loptoxic@acgov.org notify us that you have placed a report on our ftp site.
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
   d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

ATTACHMENT B

SUMMARY OF ENVIRONMENTAL INVESTIGATION AND REMEDIATION

SUMMARY OF ENVIRONMENTAL INVESTIGATION AND REMEDIATION
FORMER CHEVRON STATION 9-0517
3900 PIEDMONT AVENUE, OAKLAND, CA

1993 Phase I Environmental Site Assessment (ESA)

In May 1993, Augeas Corporation (Augeas) conducted a Phase I ESA. It was determined that Chevron owned the property from at least 1940 through 1979, and it was used as a Chevron service station until approximately 1978. Four underground storage tanks (USTs) were identified on a site plan dated 1955. These included two used-oil USTs along the northeastern site boundary, a 7,500-gallon fuel UST, and at least one other UST (size and contents unknown) located further to the east along Montell Street. A copy of an Oakland Fire Prevention Bureau permit dated October 1978 indicated four USTs (7,500-, 5,000-, and 3,000-gallon gasoline USTs, and a 1,000-gallon used-oil UST) were to be removed as the station was to be demolished. It was noted on the permit that the USTs were located 25 feet east of Piedmont Avenue. No information regarding the condition of the tanks upon removal or the underlying soil quality was available. Details of the assessment were presented in Augeas' *Phase I Assessment Report* dated May 1993.

1993 Phase II Environmental Site Assessment

In October 1993, Environmental and Science Engineering, Inc. (ESE) advanced exploratory borings FNBO-1 through FNBO-8 to evaluate soil and groundwater quality. A total of 11 soil samples were collected at various depths (6 to 11 feet below grade [fbg]) from the borings and analyzed for total petroleum hydrocarbons as gasoline (TPHg) and diesel (TPHd), and benzene, toluene, ethylbenzene, and xylenes (BTEX). TPHg was detected in eight of the soil samples at concentrations ranging from 1.4 to 3,400 milligrams per kilogram (mg/kg); the maximum concentration was detected in the sample collected at 6 fbg from boring FNBO-5 immediately downgradient of the former USTs. Benzene was only detected in two of the samples (up to 1 mg/kg). TPHd was not detected in any of the soil samples. Five of the soil samples were additionally analyzed for total recoverable petroleum hydrocarbons (TRPH) and volatile organic compounds (VOCs). TRPH was detected in all five of the samples analyzed at concentrations up to 350 mg/kg; VOCs were not detected. A groundwater sample was also collected from boring FNBO-6 located in the southwest corner of the site and analyzed for TPHg, BTEX, TRPH, and VOCs; the sample contained TPHg, benzene, and TRPH at 7,800 micrograms per liter (µg/L), 7.7 µg/L, and 2,800 µg/L, respectively. The only VOCs detected were acetone (30 µg/L) and carbon disulfide (33 µg/L). Details of the investigation were presented in ESE's *Phase II Environmental Site Assessment* dated November 15, 1993.

1998 Monitoring Well Installation

In July 1998, Gettler-Ryan Inc. (G-R) installed onsite wells MW-1 and MW-2 and offsite wells MW-3 and MW-4 to further evaluate soil and groundwater quality. Soil samples were collected at depths of 6, 10.5 or 11, and 16 fbg from the well borings and analyzed for TPHg, BTEX, and methyl tertiary butyl ether (MTBE). TPHg and benzene generally were not detected in the soil samples with the exception of benzene (0.007 mg/kg) in the sample collected at 6 fbg from boring MW-2, and TPHg (80 mg/kg) and benzene (2 mg/kg) in the sample collected at 11 fbg from boring MW-4. MTBE was not detected in

any of the soil samples. The results of the investigation were presented in G-R's *Monitoring Well Installation Report* dated September 17, 1998.

2002 Well Search, Utility Survey, and Risk-Based Corrective Action (RBCA) Evaluation

In May 2002, Delta Environmental Consultants, Inc. (Delta) performed a well search, utility survey, and RBCA evaluation for the site. Alameda County Public Works Agency (ACPWA) files were reviewed to identify any water-supply wells in the vicinity of the plume; none were identified. The nearest well was an irrigation well located approximately 750 feet northeast (upgradient) of the site. The utility survey determined that the sewer lines adjacent to the site were approximately 12 to 13 fbg. The specific burial depths of water, gas, and electrical lines were not available, but these lines usually were buried less than 5 fbg. Based on this information, and the historic depth to groundwater, it was concluded that the utility trenches in the site vicinity likely were not acting as preferential pathways. The results of the RBCA evaluation indicated that the risk to potential future residential receptors due to residual contamination at the site was within acceptable levels, and no further work was warranted. The results of the investigation were presented in Delta's *Well Search/Utility Survey/Risk-Based Corrective Action Evaluation* dated May 3, 2002.

2008 Subsurface Investigation

In July 2008, CRA advanced offsite exploratory boring SB-2 to further evaluate downgradient soil and groundwater quality. Three attempts were also made to advance a boring in Montell Street; however, subsurface interference resulted in drilling refusal. Soil samples were collected from SB-2 at approximate depths of 5, 10, 15, and 20 fbg and analyzed for TPHg, BTEX, fuel oxygenates, 1,2-dichloroethane (1,2-DCA), and 1,2-dibromoethane (EDB). No analytes were detected. A groundwater sample was also collected from the boring and analyzed for the same constituents as the soil samples; only TPHg (540 µg/L) and MTBE (1 µg/L) were detected. The results of the investigation were presented in CRA's *Site Investigation Report* dated November 24, 2008.

ATTACHMENT C

STANDARD FIELD PROCEDURES

STANDARD FIELD PROCEDURES FOR SOIL VAPOR PROBE INSTALLATION AND SAMPLING

This document describes Conestoga-Rovers & Associates' standard field procedures for soil vapor probe installation and sampling. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

Objectives

Soil vapor samples are collected and analyzed to assess whether vapor-phase subsurface contaminants pose a threat to human health or the environment.

Shallow Soil Vapor Probe Installation

The shallow soil vapor probe method for soil vapor sampling utilizes a hand auger or drill rig to advance a boring for the installation of a soil vapor sampling probe. Soil vapor probes facilitate the collection of in-situ vapor samples. Once the boring is advanced to the final depth, #2/12 filter pack is poured through a tremie pipe to fill the bottom 6 inches of the boring. A permeable, stainless-steel probe tip is connected to ¼-inch outside diameter Teflon tubing via a push-to-connect fitting. The probe tip is then placed approximately 6 inches from the bottom of the boring and covered by 6 inches of #2/16 filter sand. A 12 inch layer of dry granular bentonite is placed on top of the filter pack. Pre-hydrated granular bentonite is then poured to fill the borehole. The tube is labeled, capped, and placed within a traditional well box finished flush to grade. Soil vapor samples will be collected no sooner than 48 hours after installation of the soil vapor probe to allow adequate time for representative soil vapors to accumulate. Soil vapor sample collection will not be scheduled until after a minimum of three consecutive precipitation-free days and irrigation onsite has ceased.

Purging

At least three purge volumes of vapor are removed from the soil vapor probe prior to sampling. The purge volume is defined as the amount of air within the probe and tubing. Purging is performed using the vacuum of a dedicated Summa canister, a flow regulator set to the same flow rate used for sampling, and vacuum gauges. Immediately after purging, soil vapor samples will be collected using the appropriate size Summa canister with attached flow regulator and sediment filter.

Sampling Soil Vapor Probes

Samples will be collected using a SUMMA™ canister connected to the sampling tube of each vapor probe. Prior to collecting soil vapor samples, the initial vacuum of the canisters is measured and recorded on the chain-of-custody. The vacuum of the SUMMA™ canister is used to draw the soil vapor through the flow controller until a negative pressure of approximately 5-inches of mercury is observed on the vacuum gauge and recorded on the chain-of-custody.

The flow controllers should be set to 100-200 milliliters per minute. Field duplicates should be collected for every day of sampling and/or for every 10 samples collected.

In accordance with the DTSC guidance document titled *Advisory-Active Soil Gas Investigations*, dated March 2010, leak testing is necessary during sampling. Helium is recommended, although shaving cream is acceptable. Helium is pumped into a shroud that contains the entire sampling apparatus and the soil vapor probe well vault. A helium meter is used to quantify the percentage helium in the shroud during sampling.

Vapor Sample Storage, Handling and Transport

Samples are stored and transported under chain-of-custody to a state-certified analytic laboratory. Samples should never be cooled due to the possibility of condensation within the canister.

Soil Vapor Probe Destruction

The soil vapor probes will be preserved until they are no longer needed for risk evaluation purposes. At that time, they will be destroyed by extracting the tubing, hand augering to remove the sand and bentonite, and backfilling the boring with neat cement. The boring will be patched with asphalt or concrete, as appropriate.