Dave Patten
Project Manager
Marketing Business Unit

Chevron Environmental Management Company
6111 Bollinger Canyon Road
San Ramon, CA 94583
Tel (925) 543-1740
Fax (925) 543-2324
drpattenchevron.com

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

Re: Chevron Service Station No. 9-1153
3135 Gibbons Drive (3126 Fernside Blvd)
Alameda, CA

I have reviewed the attached report dated June 10, 2011.

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 to the best of my knowledge.

Sincerely,

Dave Patten
Project Manager

Attachment: Report

CONESTOGA-ROVERS
& ASSOCIATES

5900 Hollis Street, Suite A
Emeryville, California 94608
Telephone: (510) 420-0700 Fax: (510) 420-9170
http://www.craworld.com

June 10, 2011 Reference No. 311642

Mr. Mark Detterman
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502 6577

Re: Work Plan for Subsurface and Ambient Air Investigation
Former Chevron Service Station 9-1153
3135 Gibbons Drive (3126 Fernside Boulevard)
Alameda, California
Fuel Leak Case No. RO0000341

Dear Mr. Mark Detterman:

INTRODUCTION

Conestoga-Rovers & Associates (CRA) prepared this *Work Plan for Subsurface and Ambient Air Investigation* on behalf of Chevron Environmental Management Company (Chevron) for the site referenced above (Figure 1). This work plan was prepared in response to the March 3, 2011 Alameda County Environmental Health (ACEH) letter (Attachment A). The proposed ambient air investigation will evaluate the potential for hydrocarbon vapor migration from the subsurface. CRA proposes a subsurface investigation in alignment with ACEH's requests to additionally delineate hydrocarbon concentrations onsite. The site description and proposed scope of work are presented below.

SITE DESCRIPTION

Site Background

The site is located on a triangular-shaped lot at the intersections of Gibbons Drive, Fernside Boulevard, and High Street in Alameda, California (Figure 1). The former service station operated until June 1986. A residence was built on the property in 1989 (Figure 2). Surrounding area use is residential and commercial.

Previous Environmental Work

Environmental investigations began in 1986 with the underground storage tank (UST) removal. Since 1986, a total of 12 confirmation samples, 26 soil borings, 10 groundwater monitoring wells

(well C-2 has been destroyed), 1 extraction well, 1 temporary well, and 51 temporary soil vapor probes have been installed. Groundwater has been monitored since 1986. Remediation conducted has included an excavation during UST removal and during the foundation construction for the house, a groundwater pump and treat system, oxygen releasing compound (ORC) and hydrogen peroxide injections, groundwater extraction events, and since 1995 weekly to quarterly light non-aqueous phase liquid (LNAPL) removal by bailing. Two well surveys and preferential pathway analyses have also been conducted. A summary of previous environmental investigation and remediation is included as Attachment B.

Site Geology

Soil beneath the site consists primarily of sand with some silt and clay to the total depth explored of approximately 23 feet below grade (fbg).

Site Hydrology

The site is approximately 8 feet above mean sea level. Depth to water in wells ranges from approximately 0 to 6.5 fbg. Groundwater beneath the site is designated as an existing or potential drinking water resource.[1] Groundwater flow direction is typically east-southeast toward the Oakland Alameda Estuary. The estuary is the closest surface water and is approximately 550 feet downgradient. LNAPL is currently present in well C-1, ranging in thickness since 2010 from 0.04 to 0.25 foot.

PROPOSED SUBSURFACE AND AMBIENT AIR INVESTIGATION

CRA proposes advancing seven soil borings onsite, focusing on areas near the former dispenser islands and former USTs (Figure 2). To fill data gaps discussed by ACEH in the March 3, 2011 letter, these borings will be advanced to collect soil samples. The proposed boring locations were determined after a review of historical analytical data and a site visit with the property owners/residents. Boring locations are constrained by underground utilities and the availability of work space around the residence. Angled borings were not considered feasible due to the shallow angle needed to collect soil samples between four and eight fbg beneath the house. Shallowly angled borings would likely damage the house's footings. The property owner has also requested CRA perform no drilling through their walkways and driveway. In addition, CRA proposes collecting air samples from the crawlspace beneath the residence and

[1] East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, Alameda and Contra Costa Counties, California; California Regional Water Quality Control Board – San Francisco Bay Region Groundwater Committee; June 1999.

indoor and outdoor air. The combination of these samples will evaluate the potential for hydrocarbon vapor migration from the subsurface.

Site-Specific Health and Safety Plan
CRA will prepare a site-specific health and safety plan to protect site workers. The plan will be reviewed and signed by all site workers and visitors. The plan will be kept onsite during all field work.

Permits
CRA will obtain drilling permits for soil borings from Alameda County Public Works Agency and schedule all required inspections prior to beginning the subsurface investigation.

Underground Utility Location and Utility Clearance
CRA will contact Underground Service Alert to identify locations of underground utilities. A licensed geophysicist will also be contracted to perform geophysical surveys of pertinent areas to confirm utility locations and identify any previously unidentified utilities.

Soil Borings
Using 3-inch outside diameter hand augers, CRA will advance one soil boring at each location to a maximum depth of 10 fbg. CRA geologists will continuously log soils using the ASTM D2488-06 Unified Soil Classification System. Soils will be field-screened using a photoionization detector and visual observations. CRA's Standard Field Procedures for Soil Borings are included as Attachment C.

Soil Sampling
At least one soil sample will be collected for laboratory analysis approximately every 3 feet. Soil samples will be collected directly from hand auger buckets and considered disturbed samples. The samples will be sealed, capped, labeled, logged on a chain-of-custody form, placed on ice, and transported to a Chevron and State-approved laboratory for analysis.

Soil Chemical Analysis
Select soil samples will be analyzed for:

- Total petroleum hydrocarbons as gasoline (TPHg) by modified Environmental Protection Agency (EPA) Method 8015B
- Benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8260B

Ambient Air Survey
CRA will collect one air sample from within the crawlspace beneath the residence, one indoor air sample from the residence, and one outdoor ambient air sample. The crawlspace air sample will be collected by inserting Teflon® tubing through the crawlspace access panel in the garage. The sampling tube will be placed approximately half way between the ground surface and top of the crawlspace. The access panel will be closed during sampling to maintain typical air conditions in the crawlspace during sampling. The exact locations of the ambient air samples will be determined during a site meeting with the property owners/residents. All air samples will be collected using 100 percent lab-certified 6-liter Summa™ canisters connected to flow controllers set to 11.5 milliliters per minute. While sampling, the vacuum of the Summa™ canister will be used to draw air through the flow controller until a negative pressure of approximately 5 inches of mercury is observed on the Summa™ canister vacuum gauge. Indoor and outdoor air samples will be collected in the breathing zone. After sampling, the Summa™ canisters will be packaged and sent to the Air Toxics, Ltd. laboratory under chain-of-custody for analysis.

Air Chemical Analysis
All air samples will be analyzed for the following:

- TPHg, BTEX, MTBE and naphthalene by EPA Method TO-15 SIM (GC/MS)
- Air Phase Hydrocarbon (APH) Fractions (Sp) Aromatics C8-C12 Modified TO-15 GC/MS Full Scan
- APH Fractions (Sp) Aliphatics C5-C12 Modified TO-15 GC/MS Full Scan

AMBIENT AIR 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 volatile organic compounds (VOCs) that may be detected by indoor air testing. Table A presents a summary of BTEX background concentrations reported in several indoor air studies.

TABLE A: 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 (µg/m³)*
Benzene	2.51	0.69	4.39	5.16	3.16	1.28	0.69 -5.16	2.14 -16.8
Ethyl-benzene	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: USEPA = United States Environmental Protection Agency, ppbv = parts per billion by volume, µg/m3 = micrograms per cubic meter.

For example, the range of normal background concentrations for benzene spans the 1.41 to 14.1 µg/m³ range representing 10^{-5} to 10^{-4} incremental risk values published as part of the California Human Health Screening Levels (CHHSLs) by California EPA. Table B lists the Office of Environmental Health Hazard Assessment (OEHHA) hazard quotient concentration values of 1 and excess cancer risk concentrations of 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 B: CALIFORNIA HUMAN HEALTH SCREENING LEVELS FOR INDOOR AIR AND SOIL GAS

Chemical	*[1]Indoor Air Human Health Screening Levels (µg/m3)*	
	Residential Land Use	*Commercial/ Industrial Land Use Only*
Benzene	8.40 E-02	1.41 E-01
Carbon Tetrachloride	5.79 E-02	9.73 E-02
1,2-Dichloroethane	1.16 E-01	1.95 E-01
cis-1,2-Dichloroethylene	3.65 E+01	5.11 E+01
trans-1,2-Dichloroethylene	7.30 E+01	1.02 E+02
Ethylbenzene	0.97 E+00[2]	1.60 E+00[2]
Mercury, elemental	9.40 E-02	1.31 E-01
Methyl tertiary-Butyl Ether	9.35 E+00	1.57 E+01
Naphthalene	7.20 E-02	1.20 E-01
Tetrachloroethylene	4.12 E-01	6.93 E-01
Tetraethyl Lead	3.65 E-04	5.11 E-04
Toluene	3.13 E+02	4.38 E+02
1,1,1-Trichloroethane	2.29 E+03	3.21 E+03
Trichloroethylene	1.22 E+00	2.04 E+00
Vinyl Chloride	3.11 E-02	5.24 E-02
m-Xylene	7.30 E+02[3]	1.02 E+03[3]
o-Xylene	7.30 E+02[3]	1.02 E+03[3]
p-Xylene	7.30 E+02[3]	1.02 E+03[3]

Reference: Appendix 1, OEHHA Target Indoor Air Concentrations and Soil-Gas Screening Numbers for Existing Buildings under Residential and Industrial/Commercial land uses.

Notes: 1. "Residential Land Use" screening levels generally considered adequate for other sensitive uses (e.g., day-care centers, hospitals, etc.).

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.

Calculation of cumulative risk may be required at sites where multiple contaminants with similar health effects are present.

Carcinogens: CHHSLS based on target cancer risk of 10-6. Cal/EPA cancer slope factors used when available.

Noncarcinogens: CHHSLS based on target hazard quotient of 1.0.

Soil Gas: Screening levels based on soil gas data collected <1.5 meters (five feet) below a building foundation or the ground surface. Intended for evaluation of potential vapor intrusion into buildings and subsequent impacts to indoor-air. Soil gas data should be collected and evaluated at all sites with significant areas of VOC-impacted soil. Screening levels also apply to sites that overlie plumes of VOC-impacted groundwater.

2. Calculation of a screening number for the chemical outlined in OEHHA draft report, *California Human Health Screening Levels for Ethylbenzene* dated November 2009.

3. 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 concentration against the most conservative screening values, since these values do not account for background concentrations. Instead, indoor concentrations must be compared to both outdoor air and crawl space vapor concentrations to determine whether external or indoor sources are contributing to indoor air concentrations. A clear 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 VOC's (e.g., BTEX) than outdoor air, and also contained significantly lower concentrations of petroleum hydrocarbon VOC's than crawl space air.

Indoor air, outdoor air, and crawlspace concentrations will be evaluated per the above protocols. Criteria indicative of vapor intrusion should be:

1. Indoor air benzene concentrations significantly higher than outdoor air.
2. Indoor air benzene concentrations significantly higher than the range of normal background (rather than the indoor air 10^{-6} standard values presented in OEHHA Table 2 above, which are within the lower range of normal background).
3. Crawl space benzene concentrations significantly higher than indoor air.

Any other combination of concentrations, and concentration ratios, will likely indicate either an indoor or outdoor background source rather than vapor intrusion to the building.

This information is gathered from the DTSC's 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

CRA will prepare a comprehensive report presenting the subsurface and ambient air investigation results. The report, at a minimum, will contain:

- Descriptions of the sampling methods
- Tabulated soil, groundwater, and vapor data
- Summary of results

- Analytical reports and chain-of-custody forms
- Feasibility and Corrective Action Plan Addendum
- Conclusions and recommendations

SCHEDULE

Following approval, CRA will obtain the necessary permits, meet with utility service providers, and obtain access to conduct the assessment. CRA has been working with the property owner to gain access to enter the residence. If there are any delays, CRA will notify ACEH.

Regards,

CONESTOGA-ROVERS & ASSOCIATES

Ian Hull Nathan Lee, PG 8486

IH/mws/15
Encl.

Figure 1	Vicinity Map
Figure 2	Site Plan with Proposed Boring Locations
Attachment A	ACEH Regulatory Correspondence
Attachment B	Previous Environmental Investigation and Remediation
Attachment C	CRA Standard Field Procedures for Soil Borings

cc: Mr. David Patten, Chevron
Mr. Mark Hom, Property Owner

FIGURES

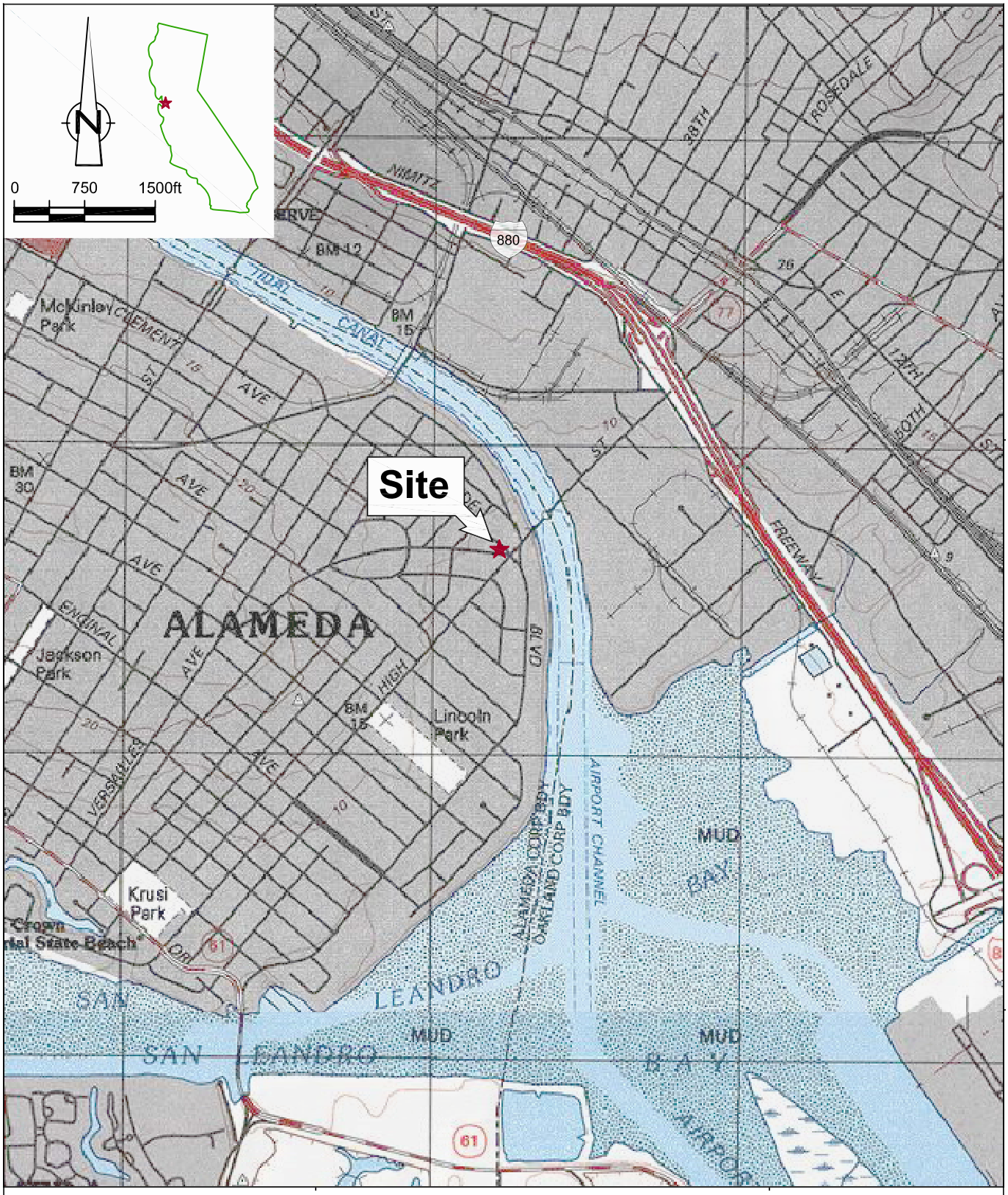
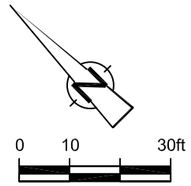
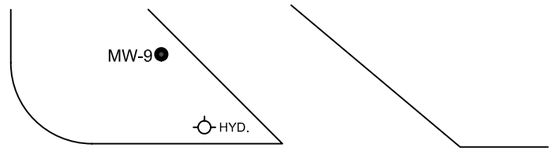


Figure 1

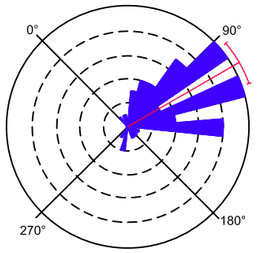
VICINITY MAP
FORMER CHEVRON STTION 9-1153
3135 GIBBONS DRIVE (3126 FERNSIDE BLVD)
Alameda, California

I:\Chevron\3116--\311642 9-1153 Alameda\311642-FIGURES\311642-2010 GN-EM001.DWG

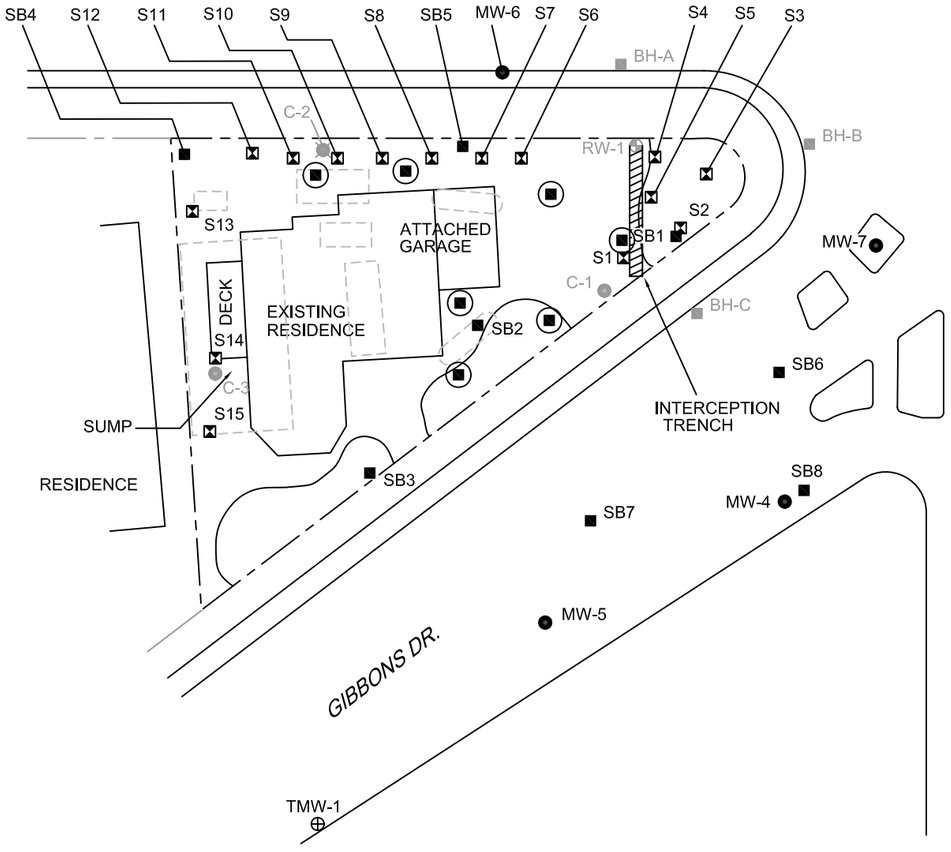


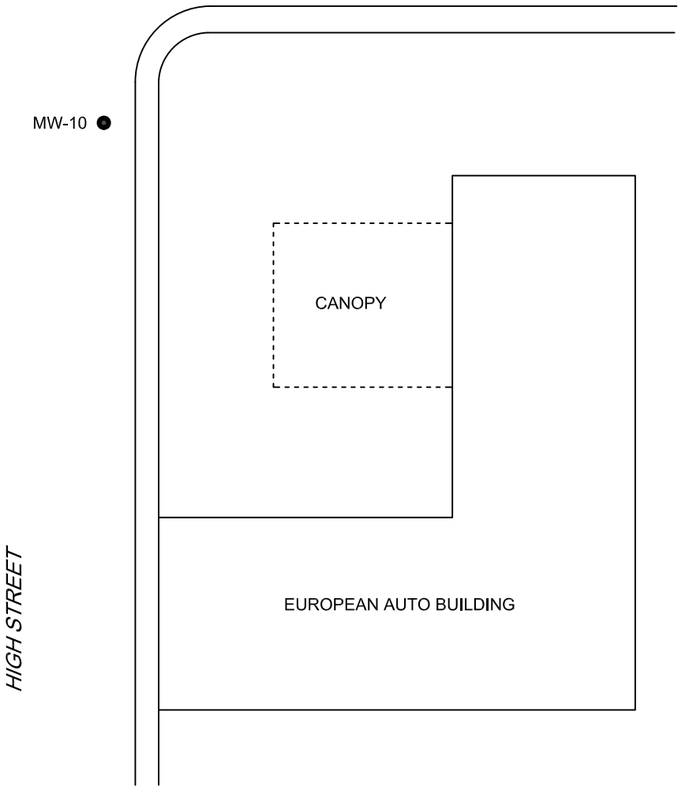


FERNSIDE BLVD.



GROUNDWATER FLOW DIRECTION
1986 - 1Q 2011





LEGEND

- PROPOSED SOIL BORING LOCATION
- MONITORING WELL LOCATION
- TEMPORARY MONITORING WELL LOCATION
- EXTRACTION WELL LOCATION
- DESTROYED WELL LOCATION
- SOIL BORING LOCATION
- SOIL SAMPLE LOCATION

Figure 2

SITEPLAN WITH PROPOSED BORING LOCATIONS
FORMER CHEVRON SERVICE STATION 9-1153
3135 GIBBONS DRIVE (3126 FERNSIDE BLVD)
Alameda, California

311642-2010(012)GN-EM007.DWG MAY 23/2011

ATTACHMENT A

ACEH REGULATORY CORRESPONDENCE

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

March 3, 2011

Mr. Aaron Costa
Chevron Corporation
6111 Bollinger Canyon Road, Rm 3660
San Ramon, CA
(sent via electronic mail to acosta@chevron.com)

Mr. Mark Hom and Anna Cheng
3135 Gibbons Drive
Alameda, CA, 94501-1749

JL and Jane Bolton
3135 Gibbons Drive
Alameda, CA 94501-1749

Subject: Inadequate FS / CAP and Request for a Work Plan(s); Fuel Leak Case No. RO0000341; (Global ID # T0600100330); Chevron #9-1153, (3126 Fernside Blvd), 3135 Gibbons Drive, Alameda, CA 94501

Ladies and Gentlemen:

Alameda County Environmental Health Department (ACEH) staff has reviewed the case file, including the most recently submitted reports prepared by Conestoga-Rovers & Associates (CRA) for this site, the *Feasibility Study and Corrective Action Plan*, (FS/CAP) dated December 30, 2010, and the *Fourth Quarter 2010 Groundwater Monitoring Report,* dated December 29, 2010. Thank you for submitting the reports; they help to move the site forward; however, based upon review of the FS / CAP, ACEH noted a number of concerns or deficiencies and consequently finds the report inadequate. Regardless, it is notable that free phase (FP) product in well C-1 has again decreased in thickness and returned to more typical, recent (and long-term) product thicknesses at the site (0.03 feet, down from 0.25 feet). Use of hydrocarbon adsorbent socks in well C-1 as a temporary measure while the residential site is evaluated for remedial actions is appropriate.

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. **Crawl Space Vapor Intrusion Study -** The FS / CAP usefully describes our understanding of the site and illustrates the currently understood extent of contamination. This includes the clarification that the existing residential home is constructed with a perimeter footing rather than slab-on-grade construction. While unspecified, ACEH presumes that the attached garage uses a slab-on-grade construction. To help evaluate and generate appropriate remedial alternatives and costs, ACEH requests that a crawl-space vapor intrusion study be conducted at the site. This is based on a number of reasons:

    a. **Crawl Space Environments –** Technical literature, as well as ACEH experience, indicates that the presence of a crawl space does not eliminate vapor intrusion exposure, but rather potentially increases that exposure due to unimpeded vapor diffusion (such as a concrete slab provides) and subsequent direct infiltration through floor boards or utility penetrations of the floor. While presumed to be present, standard perimeter crawl space ventilation openings typically provide limited mixing to the crawl space environment. The site is potentially further limited due to the presence of property perimeter landscaping walls, expected to further limit crawl space air flow and mixing.

b. **Limited Soil Sampling Beneath Residence –** Review of available site documents indicate that there is limited soil analytical data collected from beneath the majority of the existing residence. The majority of soil samples near the residence were collected at a depth of 1.5 feet below surface grade (bgs) during site investigations, and at depths ranging from approximately 8 to 12 feet bgs during UST removal confirmation sampling (It is understood that shallow groundwater may have limited the vertical depth of sampling during site investigations). All of the UST removal confirmation soil samples were non-detectable; not unusual at depths approximately 4 to 8 feet below groundwater at the time of the UST removals (as well as currently). This observation is not intended to limit the usefulness of the data; it remains useful as it helps constrain the vertical extent of contamination. Finally, the limited data (four locations) collected at intermediate depths beneath, and in the vicinity of, the home yield both low as well as elevated concentrations of gasoline related compounds. This is consistent with data collected in other areas of the site at intermediate depths, and suggests that additional soil samples in this depth range beneath the home may yield additional concentrations of concern.

c. **Limited Understanding of UST Backfill Soils –** Review of available UST removal documents appear to indicate that the extent of excavation associated with the removal of the former USTs was limited to the area vertically overlying the USTs, suggesting that the excavations were not expanded laterally to remove impacted soils. Samples were not collected at sidewall, product line, and dispenser locations. Both of these actions were typical for the era. Additionally, after approximately one month of onsite aeration between June and July 1986, all excavated soils were used to backfill the UST excavations. The aerated soil was characterized with only two composite soil samples, both nondetectable for TPHg only; BTEX compounds were not analyzed. Each of these data suggests that a potential for concentrations of concern in soil remains beneath the residence as backfill or in excavation sidewalls.

As a consequence of these reasons ACEH requests a Work Plan for a crawl space vapor intrusion survey by the date identified below. This can take the form of an addendum to the previous work plan for a sub-slab vapor intrusion survey.

2. **Subsurface Investigation Work Plan –** For the reasons discussed above ACEH also requests a work plan for the installation of soil bores, including potential angled soil bores, to more completely investigate UST backfill soils or potential perimeter UST excavation impacts beneath the residence, the garage, or in close proximity to these locations, by the date identified below. The location of residual soil contamination acting as a source for free phase in well C-1 remains unknown. The requested work is additionally intended to help target this source, rather than simply targeting the symptom. This work plan can be combined with the vapor intrusion work plan.

3. **Inadequate FS / CAP –** The FS / CAP was found to be inadequate based on several reasons including the following:

a. **Soil Cleanup Levels and Groundwater Levels and Goals –** The FS / CAP proposes no remedial levels for soil at the site stating that because the residential house is situated over the majority of the site, cleanup goals (ESLs) may not be technically or economically feasible. Instead the identified cleanup goal was removal of free phase and offsite (MW-7) dissolved phase concentration reductions. Because our understanding of the scope or magnitude of soil contamination beneath the house is limited, it is reasonable that the residual soil contamination continues to harbor free phase quantities of hydrocarbons as demonstrated at well C-1. Until free phase concentrations cease leaching from soil to groundwater where ever they are encountered beneath the site, achieving the remedial levels or cleanup goals in groundwater remain unlikely.

b. **Inadequate Scope and Monitoring –** It appears that the proposed interim remediation pilot test is simply a spot treatment of one well, rather than a treatment of a larger soil mass yielding free phase quantities of hydrocarbons 25 years after removal of a UST source. When further coupled with wells

currently spaced a minimum of 50 feet apart, significant unintended flow of liberated product can occur prior to recognition or could be missed completely with the existing well network. A denser monitoring well network, with associated costs currently not captured in the FS / CAP, would be required to monitor the extent of surfactant migration should this remedial contingency ultimately be found appropriate. Considering the site location is in close proximity to an estuary and is a residential property with a limited understanding of residual concentrations in soils and backfill beneath the house, the use of surfactant appears to be inappropriate remedial technology.

c. **Incomplete Remediation Costs –** As discussed, and at a minimum, costs associated with a denser well network were not captured in the FS / CAP. However, the inclusion of additional data such as a vapor intrusion survey or better understanding of residual contamination beneath the house also would be expected to affect the scope of the remedial effort, the approach ultimately selected, and the associated costs.

d. **Incorporation of Vapor Intrusion or Other Work** – A revised FS / CAP will allow the incorporation of data generated during the requested investigations, and will allow management any resulting implications for the site. Please note that a submittal deadline for a revised FS / CAP has not been defined pending the results of the vapor intrusion survey or other proposed work.

TECHNICAL REPORT REQUEST

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

- **April 29, 2011** – Work Plan or Addendum for Vapor Intrusion Survey and Subsurface Investigation
- **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,

Digitally signed by Mark E. Detterman
DN: cn=Mark E. Detterman, o, ou, email, c=US
Date: 2011.03.03 16:54:53 -08'00'

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

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

cc: Nathan Lee, Conestoga-Rovers & Assoc., 5900 Hollis Street, Suite A, Emeryville, CA 94608
(sent via electronic mail to NLee@craworld.com)
Kiersten Hoey, Conestoga-Rovers & Assoc., 5900 Hollis Street, Suite A, Emeryville, CA 94608
(sent via electronic mail to KHoey@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.

Lee, Nathan

From: Detterman, Mark, Env. Health [Mark.Detterman@acgov.org]
Sent: Monday, April 11, 2011 11:17 AM
To: Lee, Nathan
Cc: Patten, David R.
Subject: RE: RO 341 9-1153 3126 Frenside Blvd. Extension Request

Please use this email as approval of your request. It is understood that close coordination with a home owner can be more problematic due to conflicting schedules.

Mark Detterman
Senior Hazardous Materials Specialist, PG, CEG
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502
Direct: 510.567.6876
Fax: 510.337.9335
Email: mark.detterman@acgov.org

PDF copies of case files can be downloaded at:

http://www.acgov.org/aceh/lop/ust.htm

From: Lee, Nathan [mailto:nlee@craworld.com]
Sent: Friday, April 08, 2011 3:39 PM
To: Detterman, Mark, Env. Health
Cc: Patten, David R.
Subject: RO 341 9-1153 3126 Frenside Blvd. Extension Request

Mark,

In response to your March 3, 2011 letter, CRA and Chevron have been reviewing the requested investigation. CRA on behalf of Chevron would like to request an extension to the April 29, 2011 deadline to submit a Work Plan or Addendum for Vapor Intrusion Survey and Subsurface Investigation. Additional time is needed to coordinate and complete a site visit with the residents of the property. This will determine feasible locations for soil borings, and determine locations in the house from which to collect crawl-space air samples. We request an extension of a June 15, 2011 to complete the work plan.

Please call me if you have any questions.

Thank you,

Nathan Lee, P.G.
Conestoga-Rovers & Associates (CRA)
5900 Hollis Street, Suite A
Emeryville, CA 94608

Phone: 510.420.3333
Fax: 510.420.9170
Cell: 510.385.2499
Email: nlee@CRAworld.com

ATTACHMENT B

PREVIOUS ENVIRONMENTAL INVESTIGATION AND REMEDIATION

PREVIOUS ENVIRONMENTAL INVESTIGATION AND REMEDIATION

FORMER CHEVRON SERVICE STATION 9-1153 ALAMEDA

1986 UST Removal and Excavation

The underground storage tanks (USTs) were removed and an unreported volume of soil was excavated from the former UST pit and product line trenches. Excavated soil was aerated onsite and used as backfill. Additional information is available in Blaine Tech Services, Inc.'s June 19, 1986 *Field Sampling* report and Weiss Associates' (Weiss) December 20, 1994 *Comprehensive Site Evaluation and Proposed Future Action Plan*.

1986 Well Installation

Wells C-1 through C-3 were installed onsite. Additional information is available in Emcon Associates' September 18, 1986 *Well Installation Memorandum*.

1987 Area Well Survey

In August 1987, Pacific Environmental Group, Inc. (PEG) conducted a well survey and indentified wells within approximately 0.5 mile of the site. The majority of these wells were used for groundwater monitoring or cathodic protection and some were used for irrigation. None of the wells were listed as municipal drinking water supply wells. Additional information is available in PEG's August 12, 1987 *Well Survey Report*.

1989 House Construction and Destruction of Monitoring Well C-2

According to Weiss' December 20, 1994 *Comprehensive Site Evaluation and Proposed Future Action Plan*, a majority of the soil beneath the planned residence footprint was removed for construction in early 1989. Groundwater monitoring well C-2 was apparently destroyed during construction prior to May 1989. Additional information is available in Weiss' December 20, 1994 *Comprehensive Site Evaluation and Proposed Future Action Plan*.

1987 and 1989 Soil Vapor Survey

Soil vapor surveys were conducted to quantify vapor intrusion to indoor air risks for onsite residents. Based on vapor concentrations from samples collected from the southeastern portion of the site, a vapor barrier was recommended for any structures. Additional information is available in EA Engineering's August 19, 1987 *Risk Assessment* and June 9, 1989 *Soil vapor Contaminant Assessment Report of Investigation*.

1989 Subsurface Investigation

In July 1989, EA collected soil samples from between 0.5 and 9.5 feet below grade (fbg) in five shallow onsite borings and three shallow offsite borings (SB1 through SB8). The highest concentrations of total petroleum hydrocarbons as gasoline (TPHg) and benzene, toluene,

ethylbenzene and xylenes (BTEX) were found in the areas east of the UST complex and pump islands. Additional information is available in Weiss' December 20, 1994 *Comprehensive Site Evaluation and Proposed Future Action Plan*.

1991 Groundwater Treatment

A groundwater pump and treat system was installed and operated by EA from 1991 to 1994. The system extracted groundwater from a recovery trench and extraction well RW-1. Additional information is available in Weiss' December 20, 1994 *Comprehensive Site Evaluation and Proposed Future Action Plan*.

1992 Well Installations

Offsite wells MW-4 through MW-6 were installed to further delineate the lateral extent of dissolved hydrocarbons. Additional information is available in Groundwater Technology Inc.'s (GTI) July 16, 1992 *Environmental Assessment Report*.

1993 Offsite Groundwater Sampling

Weiss collected groundwater samples from temporary offsite borings BH-A, BH-B, and BH-C, located crossgradient and downgradient of the groundwater extraction trench. Additional information is available in Weiss' December 20, 1994 *Comprehensive Site Evaluation and Proposed Future Action Plan*.

1993 Monitoring Well Installation

On November 11, 1993 GTI installed groundwater monitoring well MW-7 and temporary monitoring well TMW-1 to further characterize the distribution of hydrocarbons in soil and groundwater upgradient and downgradient of the site. Additional information is available in GTI's January 31, 1994 *Additional Environmental Assessment Report*.

1994 Site Evaluation and Proposed Further Action

At Chevron's request, Weiss prepared a site evaluation to summarize all investigative and remedial actions performed to date and to outline a recommended future action plan. Additional information is available in WA's December 20, 1994 *Site Evaluation and Proposed Further Action Plan*.

1995 Well Installations

Wells MW-8 through MW-10 were installed to further delineate the downgradient extent of hydrocarbons in groundwater. Additional information is available in GTI's October 31, 1995 *Additional Site Assessment Report*.

1996 Evaluation for Potential Migration Pathway via Buried Utility Pipelines

Fluor Daniel GTI (FD-GTI) compiled utility location and depth information to analyze the potential for offsite migration of dissolved hydrocarbons in utility trenches. The report concluded that several utilities penetrated groundwater, but that these utilities were not acting as preferential pathways. The report states that the buried utilities were installed in materials similar to native soil and were unlikely to result in preferential flow. In addition, monitoring well data near the utilities was not consistent with preferential flow. Additional information is available in FD-GTI's May 15, 1996 *Evaluation for Potential Migration Pathway via Buried Utility Pipelines*.

1996 Geophysical Investigation for Buried Underground Storage Tanks

FD-GTI performed a geophysical survey of approximately 70 feet of sidewalk along Gibbons Boulevard and near monitoring well C-1. Both ground penetrating radar and vertical magnetic gradiometer were used. No buried underground storage tanks were identified within the survey areas. Additional information is available in FD-GTI's July 8, 1996 *Geophysical Investigation for Buried Underground Storage Tanks*.

1997 Shallow Soil Investigation

Shallow soil samples S-1 through S-15 were collected along the north, west, and east property boundaries to assess lead concentrations in onsite soil. Additional information is available in Gettler-Ryan's (G-R) October 22, 1997 *Soil Sampling Report*.

1997 ORC and Peroxide Injection

Oxygen releasing compound (ORC) was placed in well MW-6 and MW-7 and hydrogen peroxide was injected in well MW-1 to remediate light non-aqueous phase liquids. Additional information is available in ChevronTexaco Energy Research and Technology Company's (Chevron ETC) May 2003 *Risk-Based Corrective Action Evaluation of Vapor Intrusion to Indoor Air from Soil Vapor*,

1998 Bio-Parameter Evaluation

Three samples collected during the third quarter 1998 groundwater monitoring event were analyzed for bio-parameter data to evaluate biodegradation processes. The report concluded that not enough parameters indicated biodegradation was occurring. However, the report states that the recently added ORC and hydrogen peroxide would potentially increase bioremediation. Additional information is available in Chevron's September 29, 1998 *Bio-Remediation Evaluation Letter*.

1999 Hydrogen Peroxide Injection

In July 1999, Cambria Environmental Technology, Inc. (Cambria) injected a hydrogen peroxide solution into well C-1 to oxidize residual hydrocarbons. Additional information is available in Cambria's July 12, 1999 *Hydrogen Peroxide Injection* report.

2001 to 2002 Groundwater Batch Extraction Events

Five groundwater batch extraction events were conducted. These events were discontinued because of inconvenience to the resident. Additional Information available in Chevron ETC's May 2003 *Risk-Based Corrective Action Evaluation of Vapor Intrusion to Indoor Air from Soil Vapor*.

2002-2003 Vapor Intrusion Study and Risk-Based Corrective Action Evaluation of Vapor Intrusion to Indoor Air from Soil Vapor

Borings SV-1 through SV-7 were hand-augered along the edges of the current building and soil-vapor samples were collected from temporary probes. These data were used to evaluate potential indoor air risks to onsite residents. Data was compared to the United States Environmental Protection Agency's established target risk levels for adults and children. The report concludes that vapor intrusion risks from soil vapor intrusion to indoor air were below the established guidelines. Additional information is available in Chevron ETC's May 2003 *Risk-Based Corrective Action Evaluation of Vapor Intrusion to Indoor Air from Soil Vapor*.

2010 Preferential Pathway and Well Survey

In 2010, Conestoga-Rovers & Associates (CRA) completed another preferential pathway analysis and well survey. CRA located electric, natural gas, water, communication, storm drain sewer, and sanitary sewer lines near the site. Although some of these utilities periodically intersect the groundwater table, hydrocarbon concentrations in monitoring wells indicate that utilities are not acting as significant pathways for hydrocarbon migration. This is consistent with previous assessments. The closest water supply wells are over 1,000 feet from the site. These wells are either upgradient or located in Oakland across the Oakland Alameda Estuary and off the island. The wells identified in the survey are not at risk from hydrocarbons originating from the site. Additional information is available in CRA's September 30, 2010 *Preferential Pathway Study and Well Survey Report*.

2010 Feasibility Study and Corrective Action Plan

CRA proposed soil and groundwater cleanup goals based on site conditions and reviewed remedial methods to reach the cleanup goals. CRA determined Surfactant Enhanced Remediation was both a technically and economically feasible approach to removing LNAPL and protecting human health and the environment. Additional information is available in CRA's December 30, 2011 *Feasibility Study and Corrective Action Plan*.

ATTACHMENT C

CRA STANDARD FIELD PROCEDURES FOR SOIL BORINGS

STANDARD FIELD PROCEDURES FOR SOIL BORINGS

This document presents standard field methods for drilling and sampling soil borings and installing, developing and sampling groundwater monitoring wells. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

SOIL BORINGS

Objectives
Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor or staining, and to collect samples for analysis at a State-certified laboratory. All borings are logged using the ASTM D2488-06 Unified Soil Classification System by a trained geologist working under the supervision of a California Professional Geologist (PG).

Soil Boring and Sampling
Prior to drilling, the first 8 feet of the boring are cleared using an air or water knife and vacuum extraction or hand auger. This minimizes the potential for impacting utilities. Soil borings are typically drilled using hollow-stem augers or direct-push technologies such as the Geoprobe®. Soil samples are collected at least every five ft to characterize the subsurface sediments and for possible chemical analysis. Additional soil samples are collected near the water table and at lithologic changes. Samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments at the bottom of the borehole.

Drilling and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Analysis
Sampling tubes chosen for analysis are trimmed of excess soil and capped with Teflon tape and plastic end caps. Soil samples are labeled and stored at or below 4° C on either crushed or dry ice, depending upon local regulations. Samples are transported under chain-of-custody to a State-certified analytic laboratory.

Field Screening
One of the remaining tubes is partially emptied leaving about one-third of the soil in the tube. The tube is capped with plastic end caps and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable volatile vapor analyzer measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. Volatile vapor analyzer measurements are used along with the field observations, odors, stratigraphy and groundwater depth to select soil samples for analysis.

Water Sampling
Water samples, if they are collected from the boring, are either collected using a driven Hydropunch® type sampler or are collected from the open borehole using bailers. The groundwater samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

Grouting
If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

Waste Handling and Disposal
Soil cuttings from drilling activities are usually stockpiled onsite and covered by plastic sheeting. At least three individual soil samples are collected from the stockpiles and composited at the analytic laboratory. The composite sample is analyzed for the same constituents analyzed in the borehole samples in addition to any analytes required by the receiving disposal facility. Soil cuttings are transported by licensed waste haulers and disposed in secure, licensed facilities based on the composite analytic results.

Groundwater removed during development and sampling is typically stored onsite in sealed 55-gallon drums. Each drum is labeled with the drum number, date of generation, suspected contents, generator identification and consultant contact. Upon receipt of analytic results, the water is either pumped out using a vacuum truck for transport to a licensed waste treatment/disposal facility or the individual drums are picked up and transported to the waste facility where the drum contents are removed and appropriately disposed.