CONESTOGA-ROVERS
& ASSOCIATES

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April 18, 2007

Mr. Jerry Wickham
Alameda County Environmental Health Services (ACEHS)
1131 Harbor Bay Parkway
Alameda, CA 94502

Re: **Site Investigation Workplan**
Former Texaco Service Station (Chevron Site # 21-1253)
930 Springtown Boulevard
Livermore, CA

Dear Mr. Wickham:

On behalf of Chevron Environmental Management Company (Chevron), Conestoga-Rovers & Associates (CRA), formerly Cambria Environmental Technology, Inc., is submitting this site investigation workplan in response to a request made an Alameda County Environmental Health Services (ACEHS) letter, dated January 31, 2007 (Attachment A). The investigation objective is to evaluate potential preferential pathways and plume extent for re-evaluation for case closure. The site is a former Texaco service station located on the corner of Springtown Boulevard and Lassen Road in Livermore, California (Figure 1).

SITE BACKGROUND

Site Background: Initial impact discovered in September 1984 consisted of approximately 1-inch of leaded non-aqueous phase liquid (LNAPL) hydrocarbons adjacent to the tank pit area. In the summer of 1985, the Underground Storage Tanks (USTs) and product lines were removed, concurrent with the construction of the 7-Eleven convenience store onsite. Field inspection of the tanks, and the relatively low levels of hydrocarbons detected in the tank pit area suggested a line leak, rather than a tank leak. Since September 1985, no measurable LNAPL has been observed in any of the site monitoring wells. The site is still occupied by a 7-Eleven convenience store, surrounded by a paved parking area.

PREVIOUS ENVIRONMENTAL WORK

1984 Initial Investigation: In September 1984, J.H. Kleinfelder and Associates (JKA) performed an initial site investigation and discovered LNAPL near the tank pit area. No additional information from this report is available at present.

1985 Hydrocarbon Investigation and UST/Product Line Removal: In August 1985, Groundwater Technology Incorporated (GTI) installed monitoring wells MW-1 through MW-4 around the tank pit area to assess the extent of the hydrocarbon plume. GTI also took soil samples in the tankpit during UST and product line removal. Low levels of impacted soil in the tank pit area suggested that impact on-site resulted from a product line leak, rather than a UST leak. GTI conducted a ½-mile well survey through the Alameda Flood Control and Water Conservation District. In addition, a sensitive receptor survey was performed.

1987 Monitoring Well Installation: In March 1987, GTI installed two additional monitoring wells (MW-5 and MW-6). During installation, GTI took soil samples from these wells and a complete round of groundwater samples from all the monitoring wells onsite. The new wells were surveyed and GTI began monthly monitoring of groundwater levels at the site.

1990 Additional Site Assessment: In April 1990, GTI advanced four soil borings, two of which were converted to monitoring wells MW-7 and MW-8. Groundwater samples from all wells (MW-A, MW-B, and MW-1 through MW-8) were analyzed. Wells MW-A and MW-B had the highest concentrations of total petroleum hydrocarbons as gasoline (TPHg) and benzene. Well MW-A contained 39,000 parts per billion (ppb) TPHg and 2,700 ppb benzene. MW-B contained 5,900 ppb TPHg and 28 ppb benzene. No detectable hydrocarbons were detected in wells MW-1, MW-4, MW-7, and MW-8.

1993 Extraction Well Installation and Feasibility Testing: In January 1993, Weiss Associates (WA) advanced two soil borings, installed one groundwater extraction well, one vapor extraction well, and one air sparge well. The highest hydrocarbon concentration detected in the soil was 1,200 ppb at 14.4 feet below grade (fbg) in boring B-1, just below the water table. WA developed, sampled, and conducted a 24 hour aquifer test from the groundwater extraction well EW-1. WA expected the extraction well to capture most of the dissolved hydrocarbons in the groundwater beneath the site. Due to its placement in coarse-grained channel deposits, WA also expected EW-1 to mitigate offsite migration of hydrocarbons. WA also conducted a vapor extraction test from vapor extraction well VE-1, groundwater extraction well EW-1, and existing monitoring wells MW-A, MW-B, and MW-5. WA concluded that soil vapor extraction (SVE) would effectively remove vapors from a majority of the impacted subsurface. WA conducted an air sparging test from the air sparge and vapor extraction wells SP-1 and VE-1, respectively, and concluded that air sparging with vapor extraction would effectively remove hydrocarbons from the subsurface at the site.

1994 Remediation System Start-Up: In November 1994, GTI started operation of a SVE system. GTI's March, 1995 report diagrams the remediation system and presents the testing and sampling activities GTI performed in order to begin regular operation of the remediation system.

1996 Well Destruction Report: In February 1996, Kaprealian Engineering Incorporated (KEI) destroyed monitoring wells MW-6 and MW-7 by overdrilling to a maximum depth of 25 fbg. The wells were then grouted using neat cement and a tremie pipe.

1997 Tier 2 RBCA Input Summary: In December 1997, KEI submitted a summary of the input parameters used for their Tier 2 Risk-Based Corrective Action (RBCA) analysis, including subsurface soil and groundwater sample analytical results.

1998 Soil Vapor Sampling Workplan: In December 1998, Pacific Environmental Group (PEG) proposed three soil vapor sampling points near wells MW-A, MW-B, and MW-1 to supplement the 1997 RBCA analysis.

2003 Well Destruction Report: In December 2002, KHM destroyed the remaining onsite and offsite wells, including: MW-1 through MW-5, MW-A, MW-B, EW-1, VE-1, and SP-1. KHM destroyed the wells by pressure grouting.

PROPOSED SCOPE OF WORK

To investigate potential preferential pathways and to define the plume extent, CRA will advance five cone penetration testing (CPT) borings at the locations identified on Figure 2. Borings may be moved due to safety concerns if deemed necessary. Borings will be advanced to approximately 50 feet below grade (fbg) or to approximately 10 below the deepest noticeable hydrocarbon impact.

To meet the objective of this investigation, CRA proposes the following tasks:

Site Health and Safety Plan: CRA will prepare a site health and safety plan to protect site workers. The plan will be reviewed and signed by all site workers/visitors and kept onsite at all times.

Permits: CRA will obtain boring permits from the Zone 7 Water District prior to field activities.

Underground Utility Location: CRA will contact Underground Service Alert to identify potential utilities in the vicinity of all proposed boring locations. A subsurface utility locating contractor will also be retained to clear each individual boring location. Each boring will be cleared to eight fbg using an air-knife assisted vacuum rig or hand auger.

CPT Borings: Per Chevron safety standards, each CPT location will be cleared with an air knife or a hand auger to a minimum of 8 fbg. Using CPT technology, CRA proposes to advance 6 borings (CPT-1 to CPT-6) to approximately 50 fbg. Grab groundwater samples will be collected at first encountered groundwater, within the

identified gravel zone, and at the bottom of the borings. Soil samples will be collected every five feet starting from five fbg to total depth, including areas of obvious lithologic change and in the capillary fringe zone. Samples will be labelled, placed on ice, and transported to a Chevron-approved laboratory under proper chain of custody. Upon completion, the CPT borings will be filled with Portland type I/II grout using a tremie pipe then patched to match the existing surface. CRA's *Standard Field Procedures for CPT Sampling* is presented as Attachment B.

Chemical Analysis: Soil and groundwater samples will be analyzed for the following:

- TPHg by modified EPA Method 8015M and
- Benzene, toluene, ethylbenzene, and xylene (BTEX), fuel oxygenates, and lead scavengers 1,2-DCA and EDB by EPA Method 8260B.

Water Disposal: Soil and water produced during field activities will be temporarily stored on site. Following review of analytic results, the soil and water will be transported to an appropriate Chevron-approved facility for disposal.

Reporting

Upon completion of field activities and review of the analytic results, CRA will prepare an investigation report that, at a minimum, will contain:

- Descriptions of the drilling and sampling methods;
- Boring logs;
- Tabulated analytic results for soil samples;
- A discussion of hydrocarbon distribution;
- Analytic reports and chain-of-custody forms;
- Conclusions and recommendations.

Schedule

The above scope of work will be implemented after receipt of written concurrence from ACEHS and execution of appropriate access agreements. An investigation report will be submitted approximately six weeks after receiving the analytic data.

Closing

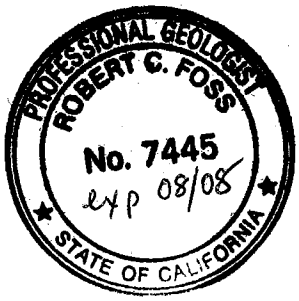
We appreciate the opportunity to work with you on this project. Please contact Charlotte Evans at (510) 420-3351 or Satya Sinha at (925) 842-9876 if you have any questions or comments regarding this work.

Sincerely,
Conestoga-Rovers & Associates

Charlotte Evans

Robert Foss

Robert Foss, P.G. #7445

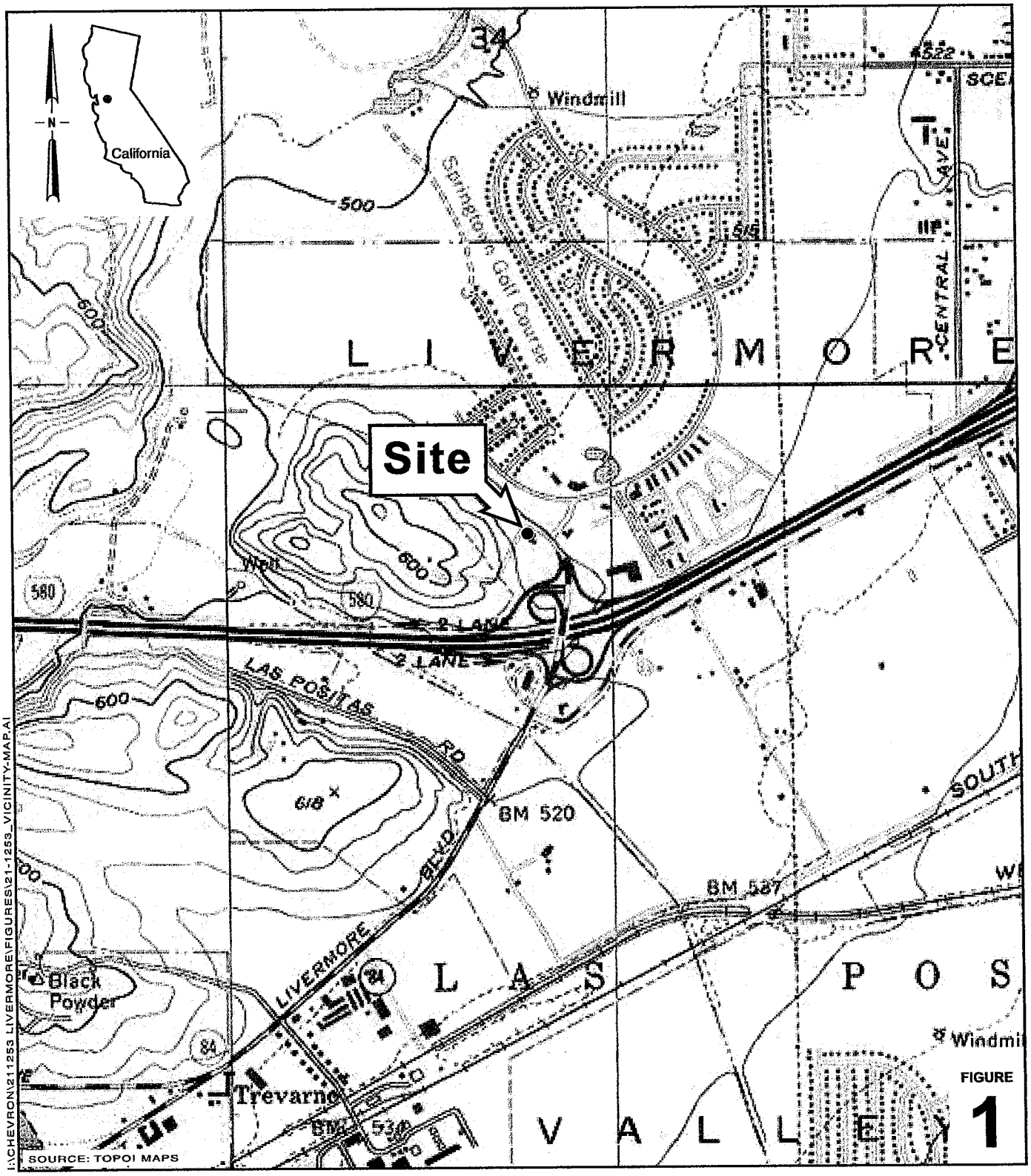


Figures: 1 – Vicinity Map
2 – Site Plan with Proposed CPT Locations

Attachments: A – ACEHS Letter dated January 31, 2007
B – Standard Field Procedures for CPT Sampling

cc: Mr. Satya Sinha, Chevron Environmental Management Company, 6001 Bollinger Canyon Road, San Ramon, CA 94583
Environmental Manager, Southland Corporation, P.O. Box 711, Dallas, TX 75211
Alameda County Database
Geotracker Database

04/06/07



I:\CHEVRON\211253 LIVERMORE\FIGURES\21-1253_VICINITY-MAP.AI

0 1/8 1/4 1/2 1

SCALE : 1" = 1/4 MILE

FIGURE 1

Former Texaco Service Station

930 Springtown Boulevard

Livermore, California

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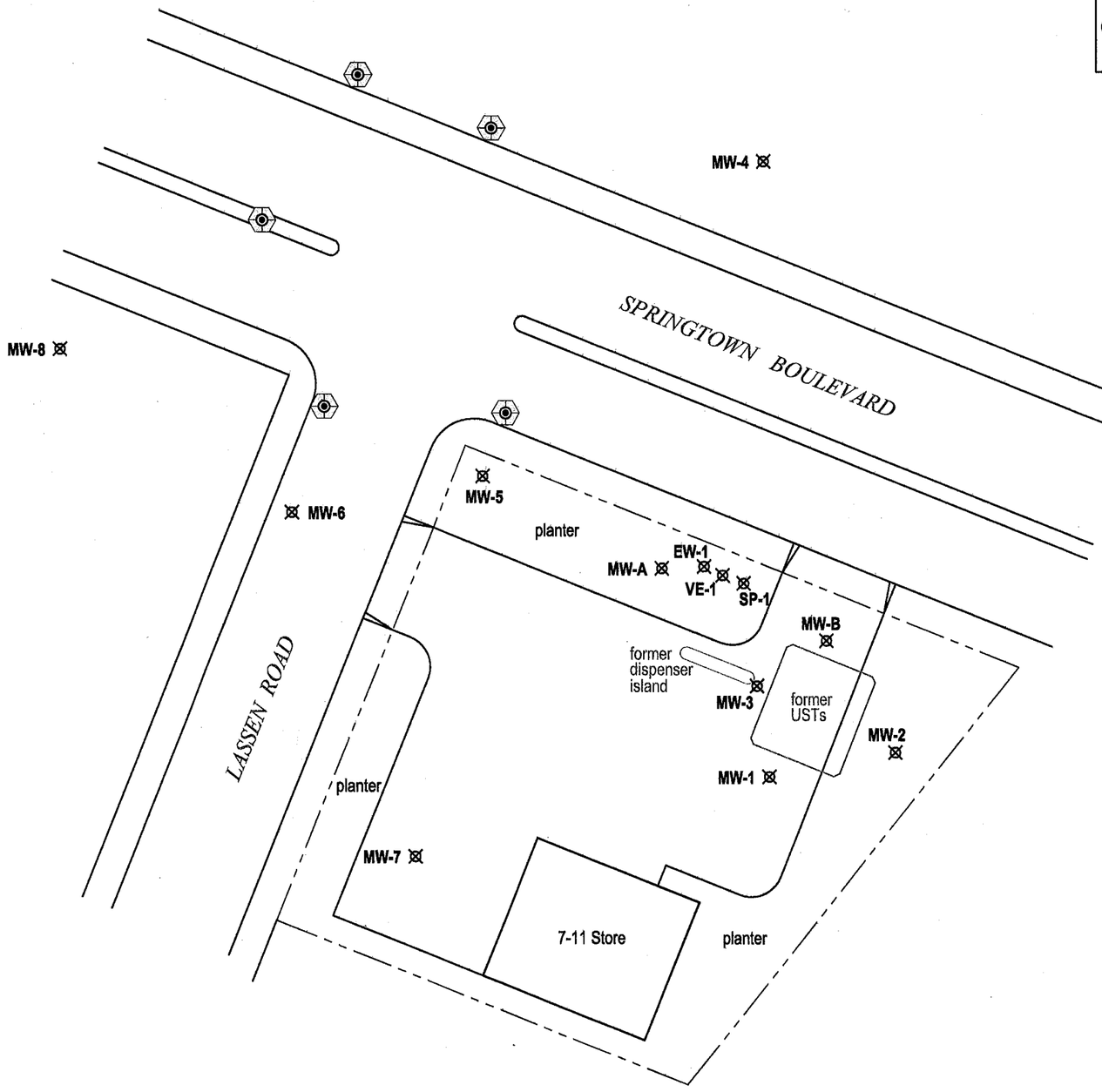
Vicinity Map

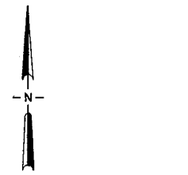
04/17/07

EXPLANATION

MW-1 ⊠ Destroyed monitoring well location

CPT-1 ⊕ Proposed CPT location





0 20 40 80

Scale (ft)

Basemap modified from drawing provided by Matteson Engineering

I:\CHEVRON\211253 LIVERMORE\FIGURES\21-1253_SITEPLAN.DWG

Site Plan with Proposed CPT Locations

Former Texaco Service Station #21-1253

930 Springtown Boulevard

Livermore, California

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FIGURE

2

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ATTACHMENT A
ACEHS Letter dated January 31, 2007

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

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

January 31, 2007

Mr. Satya Sinha
Chevron Environmental Management Company
6001 Bollinger Canyon Rd., K2256
San Ramon, CA 94583-2324

Environmental Manager
Southland Corporation
P.O. Box 711
Dallas, TX 75211

Subject: Fuel Leak Case No. RO0000189 and Geotracker Global ID T0600101353, Chevron #21-1253/Texaco, 930 Springtown Boulevard, Livermore, CA 94550

Dear Mr. Sinha:

I have been assigned as the caseworker for the above referenced case, which remains an open fuel leak case. Please send any future correspondence for this case to my attention. In correspondence dated March 8, 2002, Alameda County Environmental Health (ACEH) staff indicated that ACEH and the San Francisco Regional Water Quality Board had reviewed the case closure summary for this case and concurred that no further action related to the underground storage tank release is required at this time. The March 8, 2002 correspondence went on to request that the nine monitoring wells at the site be decommissioned, if they will no longer be monitored. The most recent correspondence in the case file is a March 11, 2003 letter from Ms. Karen Streich of ChevronTexaco, which indicates that monitoring wells at the site were destroyed and requests a remedial action completion certificate. No remedial action completion certificate appears to have been issued and a signed case closure summary is not in the files.

ACEH staff recently reviewed the case file for the above referenced site and find that the existing data do not support case closure. We have identified several data gaps in the technical comments below that are to be addressed prior to re-evaluating the site for case closure. Therefore, we request that you address the data gaps identified in the technical comments below and submit a Work Plan **by April 19, 2007.**

TECHNICAL COMMENTS

1. **Plume Extent and Preferential Pathways.** Previous reports appear to assume that the plume is limited in size to 0.1 acre along the northern property boundary. Based on our review of the contaminant distribution and site hydrogeology, it appears that the plume may extend northwest of the site. No monitoring wells were located northwest of the site to monitor the downgradient extent of the plume in that direction. Well MW-4 was located directly north of the site. However, an approximately 15-foot thick gravel zone encountered in the wells along the northern property boundary was not encountered in the boring for well

MW-4. It is also possible that the plume may have migrated preferentially through channel deposits. The possible presence of coarse-grained preferential pathways is supported by the results of an aquifer test conducted in well EW-1 in 1993. The largest drawdowns during the aquifer test were observed in wells MW-1 and MW-3, suggesting that the wells were in better hydraulic communication with extraction well EW-1 than other monitoring wells ("Extraction Well Installation and Feasibility Testing Report," by Weiss Associates dated January 5, 1993). The January 5, 1993 report interpreted the better hydraulic communication as an indication that," EW-1 may preferentially withdraw groundwater from a possible channel deposit." The potential for the plume to have migrated off-site to the northwest, possibly along a preferential pathway represents a data gap for the site. Therefore, we request that you propose a scope of work to evaluate potential plume migration to the northwest and along a preferential pathway such as channel deposits. The proposed scope of work is to include continuously logged soil borings or cone penetrometer borings. Depth-discrete grab groundwater sampling will be required.

2. **Vertical Extent of Contamination.** The deepest soil boring (SB-1) at the site extends to a maximum depth of 32 feet bgs. A moderate product odor was observed in the lowermost soil encountered in boring B-1. Based on the potential for downward migration of contamination at the site due to long-term water level fluctuations and the observation of fuel hydrocarbons at the lowest depths investigated, the vertical extent of contamination has not been defined. We request that you propose a scope of work in the Work Plan requested below to define the vertical extent of soil and groundwater contamination.

3. **Well Decommissioning.** The March 11, 2003 correspondence from ChevronTexaco references a letter from, "KHM Environmental Management, Inc. to Mr. Wyman Hong at Zone 7 Water Agency documenting destruction of the wells." Please submit to ACEH the documentation prepared by KHM Environmental Management, Inc. that documents the well decommissioning.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Jerry Wickham), according to the following schedule:

- **April 19, 2007** – Work Plan

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

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. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program ftp site are provided on the attached "Electronic Report Upload (ftp) Instructions." Please do not submit reports as attachments to electronic mail.

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. Submission of reports to the Geotracker website does not fulfill the requirement to submit documents to the Alameda County ftp site. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for 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 monitor wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, electronic submittal of a complete copy of all necessary reports was required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/cleanup/electronic_reporting).

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.

If you have any questions, please call me at (510) 567-6791.

Sincerely,

Jerry Wickham
Hazardous Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Colleen Winey, QIC 80201
Zone 7 Water Agency
100 North Canyons Parkway
Livermore, CA 94551

Danielle Stefani
Livermore-Pleasanton Fire Department
3560 Nevada Street
Pleasanton, CA 94566

Sunil Ramdass
SWRCB Cleanup Fund
1001 I Street, 17th floor
Sacramento, CA 95814-2828

Donna Drogos, ACEH
Jerry Wickham, ACEH
File

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ATTACHMENT B
Standard Field Procedures for CPT Sampling

STANDARD FIELD PROCEDURES FOR CONE PENETROMETER TESTING AND SAMPLING

This document describes Cambria Environmental Technology's standard field methods for Cone Penetrometer Testing (CPT) and direct-push soil and groundwater sampling. These procedures are designed to comply with Federal, State and local regulatory guidelines.

Use of CPT for logging and soil and groundwater sampling requires separate borings. Typically an initial boring is advanced to estimate soil and groundwater characteristics as described below. To collect soil samples a separate boring must be advanced using a soil sampling device. If groundwater samples are collected, another separate boring must be advanced using a groundwater sampling device. Specific field procedures are summarized below.

Cone Penetrometer Testing (CPT)

Cone Penetrometer Testing is performed by a trained geologist or engineer working under the supervision of a California Professional Geologist (PG) or a Certified Engineering Geologist (CEG). Cone Penetrometer Tests (CPT) are carried out by pushing an integrated electronic piezocone into the subsurface. The piezocone is pushed using a specially designed CPT rig with a force capacity of 20 to 25 tons. The piezocones are capable of recording the following parameters:

Tip Resistance (Qc)
Sleeve Friction (Fs)
Pore Water Pressure (U)
Bulk Soil Resistivity (rho) - with an added module

A compression cone is used for each CPT sounding. Piezocones with rated load capacities of 5, 10 or 20 tons are used depending on soil conditions. The 5 and 10 ton cones have a tip area of 10 sq. cm. and a friction sleeve area of 150 sq. cm. The 20 ton cones have a tip area of 15 sq. cm. and a friction sleeve area of 250 sq. cm. A pore water pressure filter is located directly behind the cone tip. Each of the filters is saturated in glycerin under vacuum pressure prior to penetration. Pore Pressure Dissipation Tests (PPDT) are recorded at 5 second intervals during pauses in penetration. The equilibrium pore water pressure from the dissipation test can be used to identify the depth to groundwater.

The measured parameters are printed simultaneously on a printer and stored on a computer disk for future analysis. All CPTs are carried out in accordance with ASTM D-3441. A complete set of baseline readings is taken prior to each sounding to determine any zero load offsets.

The inferred stratigraphic profile at each CPT location is included on the plotted CPT logs. The stratigraphic interpretations are based on relationships between cone bearing (Qc) and friction ratio (Rf). The friction ratio is a calculated parameter (Fs/Qc) used in conjunction with the cone bearing to identify the soil type. Generally, soft cohesive soils have low cone bearing pressures and high friction ratios. Cohesionless soils (sands) have high cone bearing pressures and low friction ratios. The classification of soils is based on correlations developed by Robertson et al (1986). It is not always possible to clearly identify a soil type based on Qc and Rf alone. Correlation with existing soils information and analysis of pore water pressure measurements should also be used in determining soil type.

CPT and sampling equipment are steam-cleaned or washed prior to work and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent. Groundwater samples are decanted into 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.

After the CPT probes are removed, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor odor or staining, estimate groundwater depth and quality and to submit samples for chemical analysis.

Soil Classification/Logging

All soil samples are classified according to the Unified Soil Classification System by a trained geologist or engineer working under the supervision of a California Professional Geologist (PG) or a Certified Engineering Geologist (CEG). The following soil properties are noted for each soil sample:

- Principal and secondary grain size category (i.e., sand, silt, clay or gravel)
- Approximate percentage of each grain size category,
- Color,
- Approximate water or separate-phase hydrocarbon saturation percentage,
- Observed odor and/or discoloration,
- Other significant observations (i.e., cementation, presence of marker horizons, mineralogy), and
- Estimated permeability.

Soil Sampling

Soil samples are collected from borings driven using hydraulic push technologies. A minimum of one and one half ft of the soil column is collected for every five ft of drilled depth. Additional soil samples can be collected near the water table and at lithologic changes. Samples are collected using samplers lined with polyethylene or brass tubes driven into undisturbed sediments at the bottom of the borehole. The ground surface immediately adjacent to the boring is used as a datum to measure sample depth. The horizontal location of each boring is measured in the field relative to a permanent on-site reference using a measuring wheel or tape measure.

Drilling and sampling equipment is steam-cleaned or washed 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 Storage, Handling and Transport

Sampling tubes chosen for analysis are trimmed of excess soil and capped with Teflon[7] 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

After a soil sample has been collected, soil from the remaining tubing is placed inside a sealed plastic bag and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable photoionization detector measures volatile hydrocarbon vapor concentrations in the bag=s headspace, extracting the vapor through a slit in the plastic bag. The measurements are used along with the field observations, odors, stratigraphy, and groundwater depth to select soil samples for analysis.

Grab Groundwater Sampling

Groundwater samples are collected from the open borehole using bailers, advancing disposable Tygon[7] tubing into the borehole and extracting groundwater using a diaphragm pump, or using a hydro-punch style sampler with a bailer or tubing. 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.

Duplicates and Blanks

Blind duplicate water samples are usually collected only for monitoring well sampling programs, at a rate of one blind sample for every 10 wells sampled. Laboratory-supplied trip blanks accompany samples collected for all sampling programs to check for cross-contamination caused by sample handling and transport. These trip blanks are analyzed if the internal laboratory quality assurance/quality control (QA/QC) blanks contain the suspected field contaminants. An equipment blank may also 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.