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February 8, 2009

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Subject: Fuel Leak Case No. RO0000374 (Geotracker Global ID # T0600101374), Chevron #21-1285/Cal Gas,  
15595 Washington Avenue, San Lorenzo, CA 94580

Ladies and Gentlemen:

Alameda County Environmental Health (ACEH) staff has reviewed the case file and the documents entitled, "Site Conceptual Model and Corrective Action Plan" dated August 21, 2007, and "Offsite Drilling and Second Quarter 2007 Groundwater Monitoring and Sampling Report" dated July 26, 2007, both prepared by Enviro Soil Tech Consultants (ESTC). We request that you address the following technical comments and send us the reports requested below. Please provide 72-hour advance written notification to this office (e-mail preferred to [steven.plunkett@acgov.org](mailto:steven.plunkett@acgov.org)) prior to the start of field activities.

#### **TECHNICAL COMMENTS**

- 1. Dissolved MTBE Plume Characterization and Monitoring.** Historically, significantly elevated levels of Methyl tert-Butyl Ether (MtBE) have been detected in onsite monitoring wells at concentrations of up to 340,000 µg/L (MW-1), 210,000 µg/L (MW-2) and 99,000 µg/L (MW-3), respectively, indicating that a release of fuel oxygenates occurred at your site. Review of groundwater analytical data confirms that the concentration of MtBE in onsite monitoring wells has decreased by several orders of magnitude. For example, in April 2003 MtBE was detected in MW-3 at concentrations up to 38,000 µg/L, as compared with 100 µg/L MtBE in September 2005. Since MtBE is highly soluble, very mobile and not readily biodegradable in groundwater, the low levels of MtBE detected in onsite monitoring well MW-3 in September 2005 may indicate that the dissolved MtBE plume has migrated off site beneath the adjacent residences located at 823 and 845 Via Enrico Ave. Further, the well network in its current configuration is not adequate to evaluate the dissolved phase MtBE plume down-gradient of the wells MW-2 and MW-3. Therefore, we request that you prepare a work plan to evaluate the extent of the dissolved contaminant plume(s) beneath the adjacent residences and submit the work plan according to the schedule below.

2. **Contaminant Plume Monitoring.** The monitoring well network in its current configuration is not adequate to evaluate the dissolved phase MtBE plume down-gradient of wells MW-2 and MW-3 which have had high concentrations of MtBE up to 210,000 µg/L and 99,000 µg/L, respectively. Therefore we request that you prepare a scope of work to evaluate the dissolved phase plume down-gradient of MW-3 including the installation of groundwater monitoring wells near 823 and 845 Via Enrico Ave. Please submit the work plan according to the schedule below.
3. **Site Conceptual Model (SCM).** ETSC prepared a SCM that summarizes the site background, investigation history, contaminants of concern and potential sensitive receptors and site geology and hydrogeology. Please address the following technical comments in the SCM addendum requested below.

a. **Section 3.0 Contaminant Source**

The distribution of TPHg and MtBE in soil and groundwater is well documented throughout the site, and two discrete releases from two source areas have been identified. One release is associated with the 1<sup>st</sup> generation USTs (discovered in 1986), while a second release associated with the 2<sup>nd</sup> generation USTs was identified in 1998. ETSC has yet to acknowledge the existence of the release associated with the 2<sup>nd</sup> generation USTs and in their SCM maintain that the 1<sup>st</sup> generation USTs are the source of all contamination at the site. ACEH does not concur with ETSC hypothesis that one release is responsible for all of the contamination detected in soil and groundwater beneath your site.

ETSC states that a stronger hydrocarbon odor was noted in MW-3 (1<sup>st</sup> generation USTs) and the elevated concentrations detected in MW-3 indicate that the source was in the vicinity of MW-3. ACEH does not concur with this hypothesis. Data indicates that at least two releases have occurred at this site; the first release associated with the 1<sup>st</sup> generation USTs south of the station building; and a second release from the 2<sup>nd</sup> generation USTs located east of the station building. The hypothesis for the second release is presented below:

- i. Separate phase hydrocarbon contamination was noted in MW-1 (at 2<sup>nd</sup> generation USTs) in November 2000 and March 2002, while separate phase hydrocarbon has never been observed in MW-3 (1<sup>st</sup> generation USTs).
- ii. A hydrocarbon sheen and distinct petroleum odor were noted in groundwater in well MW-5 from 2005 through 2008. MW-5 is located down-gradient of the 2<sup>nd</sup> generation USTs but 70-foot cross gradient of the 1<sup>st</sup> generation USTs, indicating that dissolved phase contamination originates from the 2<sup>nd</sup> generation USTs.
- iii. 16 mg/kg MtBE was detected in SB-E located adjacent to the 2<sup>nd</sup> generation USTs and 2.5 mg/kg MtBE were detected in soil from boring SB-D also in the vicinity of the 2<sup>nd</sup> generation USTs. Also, the 1<sup>st</sup> generation USTs was used sometime prior to 1986 which predates the widespread use of MTBE in gasoline while the 2<sup>nd</sup> generation USTs stored gasoline containing MTBE.
- iv. MW-1 (at 2<sup>nd</sup> generation USTs) is located up-gradient of MW-3 (1<sup>st</sup> generation USTs). MW-1 had the highest concentrations of MTBE and the data indicate a decreasing trend in this well, while dissolved phase contamination in MW-3 and MW-5 exhibited continued elevated concentrations of MtBE and TPHg. It appears that a high concentration core is migrating down-gradient through MW-3 and MW-5.

The comments outlined above demonstrate that a release associated with either the dispenser island or tank pit associated with the 2<sup>nd</sup> generation USTs has also occurred at this site.

b. **Data Inconsistencies.** During review of the site conceptual model we noted numerous inconsistencies in reporting, data tables and figures including but not limited to the following:

- i. Groundwater analytical data from well MW-3 shows TPHg concentrations of 690,000 µg/L (November 2000), 370,000 µg/L (August 2001) and 320,000 µg/L (January 2003), however, our review of laboratory analytical data note that the correct concentrations are 69,000 µg/L, 37,000 µg/L and 32,000, respectively;
- ii. Concentrations of TPHg in MW-1 reported as 330,000 µg/L (May 2000) and 460,000 µg/L (August 2001), actual concentrations are 33,000 µg/L and 46,000 µg/L;
- iii. Concentrations of MtBE in well MW-3 were reported as 380,000 µg/L (April 2003), actual concentration is 38,000 µg/L;
- iv. Groundwater data for MtBE in well MW-1 reported as 370,000 µg/L (December 2001), actual concentration is 37,000 µg/L;
- v. Table 1 shows soil sample results from monitoring wells MW-1 through MW-3 and SB-1 through SB-3, however the date of sampling from the table is 8/8/2006, the corrected date should be 8/8/1986;
- vi. Table 2 shows groundwater sample results from monitoring wells MW-1 through MW-3 and SB-1 through SB-3, however the date of sampling from the table is 8/8/2006, the corrected date should be 8/8/1986;
- vii. Table 3 and Table 8 present groundwater elevation data for onsite wells MW-1, MW-2 and MW-3. ETSC notes that the well screen (from 5 feet bgs to 15 feet bgs for all wells) is below the water table (submerged), however ACEH notes that from May 2000 through December 2006 the minimum depth to water was approximately 6.5 feet bgs, demonstrating that since May 2000 the screen interval in wells MW-1 MW-2 and MW-3 have not been submerged;
- viii. Figure 5. It is unclear what figure 5 "Stick Map" is meant to depict and it does not show a vertical scale to indicate the specific depth of distinct lithologic units. Further, it is not a valid scientific graphic.

Please review all data for this site and update the text, tables and figures and submit in the SCM addendum requested below.

c. **Section 4.2 Contaminated Groundwater**

ETSC hypothesizes that the release history of the site is centered on the 1<sup>st</sup> generation USTs, with the bulk of dissolved contaminant mass originating from this location, and the "apex" of the plume between boring GP-3 and MW-2 (south of the 1<sup>st</sup> generation USTs). ETSC further hypothesizes that the dissolved contaminant plume has a northerly trajectory toward GP-7 (northwest of the 2<sup>nd</sup> generation USTs) and then makes an abrupt turn west toward MW-5. ACEH does not concur with ETSC's hypothesis that dissolved contamination detected in MW-1 and MW-5 is from the 1<sup>st</sup> generation USTs and strongly disagrees that the dissolved phase plumes make any 90-degree turns at this site. ACEH's provides additional comments below:

- i. In August 1998 the maximum concentration of 340,000 µg/L MtBE was detected in MW-1 (2<sup>nd</sup> generation USTs containing MTBE) while 99,000 µg/L MtBE was detected in MW-3 (1<sup>st</sup> generation

USTs, pre-MTBE widespread use). Based on local and regional hydraulic gradient data it is unlikely MTBE concentrations in up-gradient well MW-1 would increase.

- ii. MW-2 is located approximately 25 feet up-gradient of the 1<sup>st</sup> generation USTs, based on local and regional hydraulic gradient data, making it unlikely that the MTBE detected in MW-2 is from the 1<sup>st</sup> generation USTs.
- iii. Grab groundwater samples from borings SB-C, SB-D and SB-E, down-gradient of the 2<sup>nd</sup> generation USTs, detected MtBE at concentration of 13,000 µg/L 140,000 µg/L and 15,000 µg/L, respectively, indicate that a release occurred from the 2<sup>nd</sup> generation UST system.

Groundwater analytical and gradient data at this site indicate that two separate releases of petroleum constituents have occurred at your site. Furthermore, considering that the widespread use of MtBE did not occur until the 1990s, it is unlikely that the pre-1986 1<sup>st</sup> generation USTs is the source of the MtBE contamination detected at this site. Therefore, we require that you prepare a revised SCM that includes a detailed discussion of the multiple releases that have occurred at this site and a re-evaluation of the hydraulic gradient. Please present the revised SCM according to the schedule below.

**d. Section 5.1 Hydrogeologic Units**

ETSC suggests that the presence of gasoline odors detected in soil borings confirm that gasoline has migrated within "sand bed A". ETSC again states that the source of the contamination is from the pre-1986 release. ACEH does not concur with this hypothesis. PID readings from boring GP-4 detected 1,500 ppm (undetermined vapor) at 14 feet bgs, which is above the "sand bed A, the bed of principal concern". ETSC also states that "sand bed A" is the unit with the highest concentration of TPHg and MtBE detected in soil. ETSC is correct that "sand bed A" detected the highest concentration of 1,100 mg/kg TPHG. However the highest concentration of 16 mg/kg MtBE was detected in boring SB-E-10 feet bgs also above "sand bed A". Please revise your SCM to address this comment.

**e. Section 5.2 Groundwater Flow Direction**

ETSC hypothesis that groundwater elevation contours trend south to north. We do not concur with this evaluation as discussed below;

- i. Regional groundwater gradient is toward the west, with minor variability north or south. Gradient data from the site correlates with this regional gradient as Figure 8 shows a well defined groundwater gradient with a distinct westerly trend and a minor north or south component.
- ii. Review of other LUFT sites within ¼-mile radius confirms a west to southwest groundwater gradient (RO0000372, Shell #129460, 15275 Washington Avenue and RO0000309, ARCO#0601, 712 Llewelling Blvd.).

Therefore, we require that you re-evaluate the hydraulic gradient data for the site and vicinity and present your results in the revised SCM according to the schedule below.

4. **Utility Survey.** ACEH previously requested a preferential pathway study in directives dated August 6, 2004 and November 2, 2005. A well survey was completed however, a utility survey was not. Therefore, we request that you complete the preferential pathway study and submit the utility survey component, including data tables, maps, and cross-sections, and interpretation of the data in the revised SCM report requested below.

5. **Feasibility Study.** A draft CAP was included with the SCM for this site. However, the contaminant plumes associated with this site have not been adequately defined, the SCM has not been validated, and the draft CAP does not meet the requirements for a CAP document (such as evaluation of 3 active remediation methods including cost and time to reach cleanup objectives, establishing cleanup levels and goals for on and offsite remediation, etc.). At this juncture in site corrective actions it is more appropriate that the draft CAP be revised as a Feasibility Study for interim remediation. As such, ACEH provides the following comments to the report:
- a. The Feasibility Study for interim remediation must evaluate at least three active alternatives for interim remediation at the source areas. Cleanup levels for active remediation are required for each alternative. Please discuss the expected effectiveness of the various options with regard to reducing the concentrations of contamination to cleanup levels within a reasonable and acceptable timeframe. Each alternative shall also be evaluated for cost-effectiveness and the Responsible Party must propose the most cost-effective corrective action. Based on the findings of the feasibility study, the most appropriate remediation alternative for the site must be selected and justification for the selected methodology must be presented. Please present the results of your evaluation in the Feasibility Study requested below.
  - b. **Section 7.2 Soil Remediation Plan.** ETSC recommends soil excavation as the most feasible remediation method for reducing contamination associated with the 1<sup>st</sup> generation USTs. While soil excavation is a viable remedial option for removing residual contamination associated with the 1<sup>st</sup> generation USTs, this method will not address the residual contamination associated with the 2<sup>nd</sup> generation USTs. In addition, ETSC does not discuss confirmation soil sampling once the excavation has been completed. Confirmation soil samples must be collected from the excavation sidewalls (at least every 1 soil sample every 20 linear feet) and bottom (1 soil sample 10 feet on center). Any remedial action must include a plan to address residual contamination at both UST locations. In addition, ETSC has not proposed cleanup levels for the excavation of contaminated soil. Please propose cleanup levels for active soil remediation and include in the Feasibility Study requested below.
  - c. **Section 7.3 Groundwater Remediation Plan.** ETSC has proposed air sparging and soil vapor extraction (AS/SVE) in the excavation backfill to remove residual contamination in groundwater. While the proposed remedial method may be effective at removing contamination at the 1<sup>st</sup> generation USTs it does not address residual contamination associated with the 2<sup>nd</sup> generations USTs. Any groundwater remedial action must address both UST locations. Therefore, we request that you revise your groundwater remediation plan in the Feasibility Study requested below.
6. **Soil Vapor Assessment.** ACEH previously requested a soil vapor survey in a directive dated February 2, 2007. Once the CAP has been approved and a remedial action has been completed a soil vapor survey will be required in order to evaluate the vapor pathway.

#### **TECHNICAL REPORT REQUEST**

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

- **April 30, 2009** – Revised Site Conceptual Model with Utility Survey and Work Plan for off-site investigation
- **June 1, 2009** – Feasibility Study

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](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.

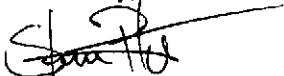
### **AGENCY OVERSIGHT**

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) 383-1767.

Sincerely,



Steven Plunkett  
Hazardous Materials Specialist



Donna L. Drogos, PE  
Supervising Hazardous Materials Specialist

cc: Frank Hamadi, Enviro Soil Tech Consultants, 131 Tully Road, San Jose, CA 95111

Donna Drogos, Steven Plunkett, File