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

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September 25, 2008

Mr. Aaron Costa
6001 Bollinger Canyon Road K2256 B
PO Box 6012
San Ramon, CA 94583-2324

Mr. Mike & Dean Najdawi
990 Serramonte Blvd
Colma, CA 94014-3224

Mr. Amardeep Sidhu
Malwa Petroleum Sales LLC
32875 Bluebird Loop
San Ramon, CA

Subject: Fuel Leak Case No. RO0000274 (Global ID #T0600102079), Chevron #9-3322, 7225 Bancroft Avenue, Oakland, CA

Dear Mr. Costa, Mr. Najdawi and Mr. Sidhu:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above referenced site and the documents entitled "Soil Vapor Sampling Report" dated November 16, 2006, and "Remedial Action Workplan" dated October 16, 2006 both prepared by Conestoga Rovers Associates (CRA). Results from the soil vapor sampling conducted in September 2006 detected TPHg and benzene in soil gas at concentrations of up to 42,000,000 ppbv and 180,000 ppbv, respectively. In addition, due to the presence of residual separate phase petroleum hydrocarbon contamination in soil and groundwater beneath the site, CRA and Chevron have recommended remediation using surfactant injection into an existing monitoring well to remediate separate phase contamination. However, surfactant injection into a monitoring well is unlikely to remediate residual vapor phase contamination. ACEH does not agree with the proposed use of surfactant injection as a remedial option. To address contamination in the vadoze zone, soil and groundwater beneath your site a feasibility study and corrective action plan (FS/CAP) is required. In addition, we request that you prepare a site conceptual model (SCM) prior to designing any remedial action.

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. Please provide 72-hour advance written notification to this office (e-mail preferred to mail to: steven.plunkett@acgov.org) prior to the start of field activities.

TECHNICAL COMMENTS

1. **Soil Vapor Sampling**. Our review of the soil vapor analytical data indicate that 2-propanol was detected at high concentrations >1,000,000 ppbv indicating that breakthrough occurred during soil vapor sampling completed in 2005. However, this compound was not analyzed in subsequent soil vapor sampling in September 2006. Please discuss why analysis for 2-propanol was not conducted during the September 2006 soil vapor sampling event. Additionally, CRA asserts that high levels of isobutane detected in VP-4 are the result of separate phase contamination from the adjacent monitioring well; however, no data or technical discussion was presented to support this conclusion. Furthermore, comparison of soil vapor data collected in August 2005 with soil vapor data collected in September 2006 indicate a significant statistical variability between sampling events, up to three orders of magnitude. For example VP-3-5 (sampled on 8/2005) detected 330,000 ppbv TPHg, while VP-3-5 (sampled on 9-2006) detected <240 ppbv TPHg. Please discuss in detail the variability of concentrations of TPHg detected in soil gas. Please present your conclusion in the SCM requested below.

2. **Preferential Pathway Study**. The purpose of the preferential pathway study is to locate potential migration pathways and conduits and determine the probability of the NAPL and/or plume encountering preferential pathways and conduits that could spread contamination. The preferential pathway study should detail the potential migration pathways and potential conduits (utilities, pipelines, etc.) for vertical and lateral migration that may be present in the vicinity of the site. We request that you re-submit the preferential pathway study and include the results in the SCM. Please include maps and data tables to support your analysis. The results of your study shall contain all information required by California Code of Regulations, Title 23, Division 3, Chapter 16, §2654(b).

   a. Utility Survey

   An evaluation of all utility lines and trenches (including sewers, storm drains, pipelines, trench backfill, etc.) within and near the site and plume area(s) is required as part of your study. Please include maps and cross-sections illustrating the location and depth of all utility lines and trenches within and near the site and plume areas(s) as part of your study.

3. **Site Conceptual Model**. We anticipate that site remediation work, in addition to what is requested in this letter, will be necessary at and down-gradient from your site. Considerable cost savings can be realized if your consultant focuses on developing and refining a viable Site Conceptual Model (SCM) for the project. A SCM is a set of working hypotheses pertaining to all aspects of the contaminant release, including site geology, hydrogeology, release history, residual and dissolved contamination, attenuation mechanisms, pathways to nearby receptors, and likely magnitude of potential impacts to receptors. The SCM is used to identify data gaps that are subsequently filled as the investigation proceeds. As the data gaps are filled, the working hypotheses are modified, and the overall SCM is refined and strengthened. Subsurface investigations continue until the SCM no longer changes as new data are collected. At this point, the SCM is said to be 'validated.' The validated SCM then forms the foundation for developing the most cost-effective corrective action plan to protect existing and potential receptors.

   When performed properly, the process of developing, refining and ultimately validating the SCM effectively guides the scope of the entire site investigation. We have identified, based on our review of existing data, some initial key data gaps in this letter and have described several tasks that we believe will provide important new data to refine the SCM. We request that your consultant incorporate the results of the new work requested in this letter into their SCM, identify new and/or remaining data gaps, and propose supplemental tasks for future investigations. There may need to be additional phases of investigations, each building on the results of prior work, to validate the SCM. Characterizing the site in this manner will focus the scope of work to address the identified data gaps, which improve the efficiency of the work, and limit its overall costs.

   Both industry and the regulatory community endorse the SCM approach. Technical guidance for developing SCMs is presented in Strategies for Characterizing Subsurface Releases of Gasoline Containing MTBE, American Petroleum Institute Publication No. 4699 dated February 2000; 'Expedited Site Assessment Tools for Underground Storage Tank Sites: A Guide for Regulators' (EPA 510-B-97-001), prepared by the U.S. Environmental Protection Agency (EPA), dated March 1997; and 'Guidelines for Investigation and Cleanup of MTBE and Other Ether-Based Oxygenates, Appendix C,' prepared the State Water Resources Control Board, dated March 27, 2000.

   The SCM for this project is to incorporate, but not limited to, the following:

a. A concise narrative discussion of the regional geologic and hydrogeologic setting. Include a list of technical references you reviewed, and copies (photocopies are sufficient) of regional geologic maps, groundwater contours, cross-sections, etc.

b. A concise discussion of the on-site and off-site geology, hydrogeology, release history, source zone, plume development and migration, attenuation mechanisms, preferential pathways, and potential threat to down-gradient and above-ground receptors (e.g. contaminant fate and transport). Please include the contaminant volatilization from the subsurface to indoor/outdoor air exposure route (i.e. vapor pathway) in the analysis. Maximize the use of large-scaled graphics (e.g. maps, cross-sections, contour maps, etc.) and conceptual diagrams to illustrate key points.

c. Identification and listing of specific data gaps that require further investigation during subsequent phases of work and propose a scope of work to acquire data to address the identified data gaps.

d. The SCM shall include an analysis of the hydraulic flow system at down-gradient from the site. Include rose diagrams for depicting groundwater gradients. The rose diagram shall be plotted on the groundwater contour maps and updated in all future reports submitted for your site. Include an analysis of vertical hydraulic gradients. Please note that these likely change due to seasonal precipitation and groundwater pumping.

e. Provide extended site maps that show adjacent buildings, structures, roads and other pertinent facilities. We recommend the use of aerial photos as a base map.

f. Temporal changes in the plume location and concentrations are also a key element of the SCM. In addition to providing a measure of the magnitude of the problem, these data are often useful to confirm details of the flow system inferred from the hydraulic head measurements. Please include plots of the contaminant plumes on your maps, cross-sections, and diagrams.

g. Summary tables of chemical concentrations in different media (i.e. soil, groundwater, and soil vapor), including well logs, well completion details, boring logs, etc.

h. Other contaminant release sites may exist in the vicinity of your site. Hydrogeologic and contaminant data from those sites may prove helpful in testing certain hypotheses for your SCM. Include a summary of work and technical findings from nearby release sites, if applicable.

At this juncture, prepare a site conceptual model (SCM) as described above, including developing and/or identifying site cleanup goals, and include the results of the SCM in the decision-making process. If data gaps (i.e. vertical and lateral extent of contamination, potential contaminant volatilization to indoor air, or contaminant migration along preferential pathways, etc.) are identified in the SCM, please include a work plan to address those data gaps.

Once site characterization is completed and all identified data gaps have been addressed, a Feasibility Study, should be prepared in accordance with California Code of Regulations, Title 23, Division 3, Chapter 16, §2725(f), which evaluates at least three cost-effective remedial approaches, not including the no action and monitored natural attenuation remedial alternatives, having likelihood of attaining site cleanup objectives.

4. **Risk Evaluation to Adjacent Properties.** Please evaluate the risk to offsite properties posed by TPHg and benzene contamination remaining at the site, including soil gas. We request that you assess the potential

human health risk and evaluate any data gaps (including dissolved phase plume(s) and vapor migration pathways) that may exist associated with the contamination beneath your site. Please present the results from your evaluation in the SCM requested below.

5. **Feasibility Study/Corrective Action Plan**. Currently, high concentrations of dissolved phase TPHg and benzene are present in onsite monitoring wells MW-1 and MW-7, and free product has been detected in onsite wells as recently as December 2007. CRA recommends the use of surfactant injection into an existing monitoring well to remediate residual petroleum hydrocarbon contamination. However, no discussion has been presented to evaluate the distribution of surfactant in the subsurface, recovery and monitoring of surfactant after injection, or potential remobilization of surfactant and capture of contaminated surfactant using vacuum enhanced fluid recovery.

   Therefore, we request that you prepare a Feasibility Study/Corrective Action Plan to address the residual contamination beneath your site. The FS/CAP must include a concise background of soil and groundwater investigations performed in connection with this case and an assessment of the residual impacts of the chemicals of concern (COCs) for the site and the surrounding area where the unauthorized release has migrated or may migrate. The FS/CAP should also include, but not limited to, a detailed description of site lithology, including soil permeability, and most importantly as stated above, contamination cleanup levels and cleanup goals and the timeframe required to reach these cleanup values, in accordance with the San Francisco Regional Water Quality Control Board Basin Plan including appropriate ESL guidance for all COCs and for the appropriate groundwater designation. Please note once again that soil cleanup levels should ultimately (within a reasonable timeframe) achieve water quality objectives (cleanup goals) for groundwater in accordance with San Francisco Regional Water Quality Control Board Basin Plan. Please propose appropriate cleanup levels and cleanup goals in accordance with 23 CCR Section 2725, 2726, and 2727 in the FS/CAP.

   The FS/CAP must evaluate at least three viable alternatives for remedying or mitigating the actual or potential adverse affects of the unauthorized release(s) beside the 'no action' and 'monitored natural attenuation' remedial alternatives. Each alternative shall be evaluated for cost-effectiveness and the Responsible Party must propose the most cost-effective corrective action.

   Public participation is a requirement for the Corrective Action Plan (CAP) process. Therefore, upon approval of a CAP, but before implementation, ACEH will notify potentially affected members of the public and concerned citizens who live or own property in the surrounding area of the proposed remediation described in the CAP. Public comments on the proposed remediation will be accepted for a 30-day period. We request that you perform the proposed work and send us the reports described below. Please submit the FS/CAP by the date specified below.

TECHNICAL REPORT REQUEST

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

- **January 30, 2009** – Site Conceptual Model with Preferential Pathway Study
- **60 days after concurrence with SCM** – Feasibility Study/Corrective Action 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

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.

If you have any questions, please contact me at (510) 383-1761 or send me an electronic mail message at steven.plunkett@acgov.org.

Sincerely,

Steven Plunkett
Hazardous Materials Specialist

Donna Drogos, PE
Supervising Hazardous Materials Specialist

cc: Charlotte Evans
CRA
5900 Hollis Street, Suite A
Emeryville, CA 95608

Leroy Griffin
Oakland Fire Department
250 Frank Ogawa Plaza, Suite 3341
Oakland, CA 94612

Donna Drogos, ACEH Steven Plunkett ACEH, File