Ms. Barbara Jakub
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway
Alameda, CA 9502-6577

Subject: Former Val Strough Chevrolet Site
327 34th Street, Oakland, CA
Site ID #3035, RO#0000134

Dear Ms. Jakub:

This letter is to accompany the *Interim Remediation Action Plan* response to comments for the above-referenced site prepared by LRM Consulting, Inc. of Burlingame, CA.

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.

If you have any questions, please contact Mr. Mehrdad Javaherian of LRM Consulting, Inc. at 650-343-4633.

Sincerely,

Linda L. Strough
Trustee

cc: Mehrdad Javaherian, LRM Consulting, Inc., 1534 Plaza Lane, #145, Burlingame, CA 94010
Greggory Brandt, Wendel Rosen Black & Dean, 1111 Broadway, 24th Floor, Oakland, CA 94607

December 5, 2008

Barbara Jakub, P.G.
Alameda County Environmental Health (ACEH)
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway
Alameda, CA 9502-6577

Re: Response to Comments on the Interim Remedial Action Plan (IRAP)
327 34th Street, Oakland, CA, Site ID #3035, RO#0000134

Dear Ms. Jacobs:

Thank you for your email dated December 4th, 2008 summarizing ACEH's technical comments on the above-referenced document prepared by LRM Consulting, Inc. (LRM). LRM's understanding form your comments is that the ACEH is conditionally approving the proposed scope of work in the IRAP, with specific changes to be implemented based on the comments you've provided. LRM further understands that that the ACEH is requiring submittal of an investigation report by February 5, 2009, documenting additional information requested and the results of the proposed boring/well installations prior to initiation of the pilot testing.

LRM's responses and clarifications related to each of the ACEH's comments are outlined below. Per the ACEH comments, many of these clarifications will be further documented in the soil and groundwater investigation report requested by the ACEH in February 2009. LRM has scheduled the soil and groundwater investigation components of the IRAP for December 12th, and December 15th through December 18th, 2008.

RESPONSE TO COMMENTS

Comment 1. Source Area Borings. As per the e-mail modification to the work plan, you recommend advancing a Geoprobe boring to 60 feet to collect soil samples, then advancing two additional borings and using a hydropunch tool, collect water at 50 feet bgs and 60 feet bgs. ACEH is concerned that a Geoprobe rig will not be able to advance the borings to a depth of 60 feet and that another mobilization will need to be performed. We request that you consider using a CPT rig instead of a Geoprobe rig. If you use a Geoprobe rig and are unable to advance it to the required depth, the UST Fund may not reimburse you for a second mobilization. Also, CPT can provide continuous coring logs. Additionally, since groundwater samples collected at 40 feet contained elevated petroleum hydrocarbons, Installation of wells in the deeper zone may be required at a future date. Please update your cross-sections with the information obtained during this investigation. Include plots of the contaminant plumes on your maps, cross-sections, and diagrams in the report requested below.

Response to Comment 1: Following your comment, we checked further with Vironex whom we had scoped to perform the drilling. They, together with LRM's senior geologist, Joel Greger,

CEG, both confirmed the ability to drill borings down to the defined depth using Geoprobe at other locations near the subject site. Moreover, we don't think there will be a re-mobilization issue since we have scoped several shallow borings, enough for at least one day of drilling, at depths which we've previously drilled using Geoprobe technology at the site; hence, a Geoprobe rig, even if challenged, will be used to complete those borings. Lastly, we have worked out an arrangement with Vironex that should there be any challenges with the Geoprobe rig, we would not be charged an extra mobilization fee. While we agree that the CPT can provide better logs, we intend to perform continuous coring within at least one deep boring within the source area, and in all shallow borings in the vicinity of the box culvert, so the geology should be adequately defined using the drilling as proposed.

Comment 2. Box Culvert Borings. As shown on the ETIC cross-section, the top of the box culvert is at 17 feet bgs and the bottom is approximately at 23 ft bgs. The depths of the borings you propose only go to the top of the box culvert. Groundwater is typically below this interval. Please advance each of your proposed borings to at least 25 feet to obtain groundwater samples at each location. The box culvert is only drawn to the edge of the site. Please expand the map to include the location of the culvert offsite.

Response to Comment 2: We will deepen the culvert borings to a depth of 25 feet bgs as requested.

Comment 3. Downgradient Monitoring Well. As stated in the IRAP, the contamination in this area may be coming from a different source. Please include an evaluation of whether the contamination in this area is coming from a separate source or if it is related to the USTs in the northern portion of the site in the report requested below.

Well permitting is performed through Alameda County Public Works Department. Please notify them as required before grouting the well. In addition to this, please notify ACEH 72 hours in advance and in writing (preferably e-mail), prior to initiating work at the site. Please allow at least 48 hours before developing the well to allow the grout to cure. Survey the well in accordance with Geotracker regulations and resurvey all of the wells to the NAVD 88 datum as specified in Geotracker. Wells are said to be surveyed to NAVD 29. When new well is surveyed, resurvey all wells to NAVD 88.

Response to Comment 3 The well permitting with Alameda County Public Works Department has already been performed. We will also notify you of the drilling 72 hours prior to initiation. We will resurvey the site wells per your guidelines.

Additionally, please note that following further discussions with the site tenant and the adjacent site, we intend to place the downgradient monitoring well within the onsite building, which extends to the property line. Due to the ceiling height limitations, we will need to use a small, rubber track-mounted Geoprobe rig to drill and install a 1", pre-packed well. Given the use of this well for monitoring only, we do not see any limitations with a smaller well than originally intended. In short, we have no other options at this location inside the building. Going outside the building will necessarily place this well offsite, requiring various rigorous agreements to be in place.

Comment 4. Proposed Interim Remediation. Interim remediation has already been performed at this site. At this point, ACEH requests that you perform a pilot test of the iSOC technology for three months rather than 6 months to determine if iSOC is effective and if scaling up the system would be an effective remediation solution or if another technology would be more effective in reducing separate phase hydrocarbons (SPH) at the site. Please provide the criteria you will evaluate to determine if iSOC is effective in the report requested below and submit it to this office for concurrence.

LRM proposes installing the iSOC oxygen diffusion well screen from 35 to 20 feet bgs. Setting the well screen at this interval will not intercept the top of groundwater or SPH in the rainy season. We are also concerned that dispersion of oxygen over 15 feet of screen will not effectively target the areas needing remediation. Also please specify the length of the microporous hollow-fiber membrane, at what depth it will be set and the oxygen flow rate. Please provide manufacturer's information on how oxygen is expected to move through the screened area to the formation to backup your proposal for the well screen intervals and iSOC placement. Please submit this information in the report requested below for concurrence.

LRM states that after the pilot test is completed, they will submit a work plan to scale-up the system. However, after the pilot test is evaluated, submittal of a CAP will be required. The CAP must be prepared in accordance with Title 23, California Code of Regulations, Section 2725 and evaluate at least three active remediation alternatives for remedying or mitigating the actual or potential adverse effects of the unauthorized release(s) besides 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 and shortest timeframes for both active remediation and to reach water quality objectives (cleanup goals). The CAP should also include, but is not limited to, a detailed description of site lithology, including soil permeability, and most importantly, contamination cleanup levels for active remediation and final cleanup goals. These can be applicable and justified ESLs or calculated, site-specific risk-based cleanup goals and water quality objectives.

Response to Comment 4. Given the relatively high initial hydrocarbon concentrations, we are concerned that three months will probably not be a long enough time frame to make decisions regarding alternative feasibility, which is why we selected a 6-month time frame. Please note that decisions regarding scaling up the system are relatively simple based on determining the effective radius of influence exhibited by the pilot test. We have noted the need for a formal CAP and are familiar with your related requirements to be contained within a CAP. We can discuss this further before initiation of pilot testing, and can perhaps further evaluate the need for a longer test once we have performed three months of pilot testing as you've suggested.

With respect to separate phase petroleum hydrocarbons (SPHs), their presence was historically and sporadically recorded in wells MW2 and MW3; however, no SPHs have been detected in routine quarterly monitoring events in any wells, including none in well MW3 since March 2004 and none in well MW2 since June 2006. Moreover, no SPHs were encountered during the most recent soil and groundwater investigation within the immediate vicinity of MW2 and MW3 (i.e, within residual source area). Therefore, we do not believe the reference to addressing SPHs is warranted.

Based on your comment, we will adjust the screen interval for the oxygen injection well to range from 15 feet bgs to 40 feet bgs, covering the measured groundwater elevation of 15.66 feet bgs in March 2006 (MW2) and the depth at which previously detected hydrocarbon mass was encountered in grab groundwater samples (i.e, 40 feet bgs). Please let me know if you have any further concerns about this interval.

As shown in the technology information attached herein, the iSOC unit is one foot long. The diffuser will be set near the bottom of the well to take advantage of the highest possible pressures. The diffuser charges the entire saturated interval of the well casing with oxygen, effectively turning the full length of the well into an oxygen delivery unit. Unlike air or oxygen SPARGE units, the flow of oxygen from the diffuser is not pre-set; rather it is determined by the oxygen demand of the groundwater. Oxygen flows into the well at rates that maintain oxygen concentrations above saturation concentrations determined by the pressure and temperature of the groundwater at the point of the diffuser unit.

Oxygen moves into the groundwater by advection and concentration gradient-driven diffusion. The typical radius of influence for a given well is approximately 10 to 15 feet according to the manufacturer, but has been noted to be both larger and smaller based on hydrogeological factors and chemical/biological oxygen demand characteristics of the aquifer sediments and groundwater. The effectiveness of oxygen distribution will be measured by monitoring groundwater at adjacent well locations, as specified in the IRAP.

Comment 5. Soil Vapor Survey. A soil vapor survey was performed, the results of which were submitted in LRM's investigation report and indicate that vapor intrusion is not a concern based on these results. However, Standard Operating Procedures for collecting these samples were not provided in the investigation report and in particular, no analysis for leak detection appears to have been performed. Please provide your sampling methods or specify where they are located, in the report requested below.

Response to Comment 5. The sampling methods for the soil vapor survey were included as Appendix A in the workplan submitted to Alameda County in December 2006. That appendix, which also contained soil and groundwater sampling methods, was subject to review approximately a year later by Ms. Donna Drogos, who's comments in part led to two addenda to the workplan prior to approval. Please note that there were no comments on the soil vapor sampling methods within Appendix A of the workpan. The soil vapor survey was conducted in accordance to the methods outlined in the approved workplan.

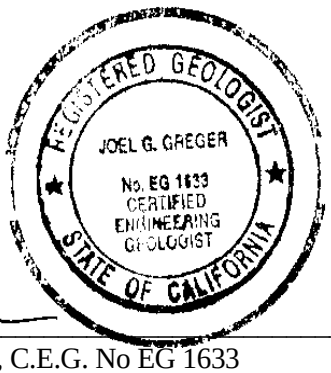
CLOSING

LRM greatly appreciates your review of and input on the IRAP. Should you have any further questions or concerns regarding the proposed plan, please contact Mehrdad Javaherian at mjavaherian@lrm-consulting.com or at 415-706-8935.

Sincerely,

LRM Consulting, Inc.

Mehrdad Javaherian, Ph.D/MPH(candidate)
Principal-in-Charge



Joel G. Greger, C.E.G. No EG 1633
Senior Geologist

iSOC® Technology

iSOC® Technology: A Brief Introduction

Bioremediation:

- Since the mid-1990's pure oxygen to enhance natural attenuation has been growing as a remediation technology.
- Today there are a variety of technologies that can provide low to moderate concentrations (10-20 ppm) of DO.
- As these elevated DO levels mix with contaminated ground water, natural biodegradation occurs (due to existing in situ micro-organisms).
- Unfortunately, technologies such as sparging, chemical oxidation and powdered peroxide compounds are not effective in low permeability sites.

inVentures Technologies Incorporated:

- iSOC® developed inVentures Technologies Incorporated.
- inVentures developed mass transfer technology, where they can transfer any gas into a liquid.
- Offices in Ontario and Fredericton, NB.
- Started by three Professional Engineers (Graduates of University Of Waterloo).

iSOC® History:

- Used at hundreds of sites in the US, Canada, Europe and Asia (Since 2001).
- iSOC® installations are occurring monthly.
- The European And Asian markets are beginning to use iSOC®.
- Many state regulators and national companies are actively using iSOC®.

What is iSOC®?

- It is a gas delivery technology that will infuse any gas into a liquid.
- iSOC®, stands for "in situ submerged oxygen curtain".
- It is a low cost technology for enhancing natural attenuation.

How does it work?

- iSOC® contains over 700 hydrophobic microporous hollow fibers that allow for the mass transfer of oxygen into the ground water.
- The technology supersaturates the ground water with low decay D.O. at concentrations ranging from 40 to 200 ppm depending on aquifer conditions and depth of injection.
- The oxygen transfer efficiency is nearly a 100%.
- The underlying scientific principle for the iSOC® is the equilibrium that exists between the dissolved concentration of a gas in a liquid and the partial pressure of the gas above the liquid. ***Henry's Law states***: the weight of any gas that will dissolve in a given volume of liquid is directly proportional to the pressure that the gas exerts above the liquid.

iSOC® Technology

iSOC® Has Many Advantages

Distinguishing Features:

- Will infuse any gas into a liquid.
- No moving parts and does not require electricity.
- Very low O & M.
- Easily moved to a new injection point or new site.
- Works in a 2-inch (51mm) monitoring well or larger.
- Powered by the pressure of the gas in the cylinder.
- Installation compound above ground or below ground.

Construction:

- The iSOC® unit measures 1.62 inches by 12.5 inches. (41 mm X 318 mm)
- Made of stainless steel.

Connecting Tube:

- 1/4” (6mm) inch polyurethane tube connects iSOC® and iSOC® Distribution Header.

Site Compatibility:

- Primary remediation strategy to attack the source.
- Polish off low level contaminated sites.
- Curtain to stop off-site plume migration.
- Can be used on petroleum or chlorinated solvents.
- Not bothered by high levels of iron, BOD_5 or COD.

Radius of Influence:

- Typically 10-15 feet (3-4.5m) – higher depending upon soil and groundwater flow
- Primarily depends on ground water velocity and the oxygen demands of the aquifer.
- Installs at any depth (deeper the water column the higher the DO level).
- Infuses 4 to 10 times more dissolved gas than any competitive technology.

What Determines DO levels?

- Atmospheric Pressure Determines DO Levels.
- iSOC® will deliver about 41 PPM of dissolved oxygen per atmosphere of head pressure.
- Example: A 33-foot (10 m) column of water would equal about 2 atmospheres. (1 atm = 14.7 psi = I Bar; plus the water head pressure (2.306 ÷ 33) = 14.31 total pressure (1 bar), or 29 psi, or about 2 atmospheres 0r 2 bar. 2 atm x 41 PPM = 82 PPM DO in 33 foot (10 m) column).

iSOC® Technology

iSOC®: An Innovative Technology

Versatile:

- Use to treat source, polish off sites or to stop off-site migration.
- Will infuse any gas (oxygen, propane, methane, hydrogen and ethane).
- Can be used for cometabolic treatment (with alkane gases).

Portable:

- No moving parts and no electricity.
- Easily moved to a new injection point or new site.
- Installs in existing two inch monitoring wells (or larger).

Affordable:

- Annual cost of oxygen for 3-iSOC®s is less than $250.00 a year.
- Lowest annual O & M of any competitive technology.
- True pay-for-performance technology for cleaning up sites.
- Installs in a few hours and is extremely easy to use.
- The iSOC® unit will last for several years.

Effective:

- Can deliver 40-200 ppm of dissolved oxygen into the ground water.
- Is 4-10 times more effective than any competitive technology.
- Oxygen transfer efficiency is nearly a 100%.

- **iSOC® is now operating on hundreds of sites North America, Europe and Asia.**
- **It is the best technology for enhancing natural attenuation.**
- **It has the lowest O & M of any bioremediation technology.**