



Geocon Project No. E8722-02-01B  
December 9, 2016

Mr. Keith Nowell  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502

Subject: INTERIM REMEDIAL ACTION WORKPLAN ADDENDUM  
FORMER CALTRANS HEGENBERGER MAINTENANCE STATION  
555 HEGENBERGER ROAD  
FUEL LEAK CASE NO. RO0000225  
OAKLAND, CALIFORNIA

Dear Mr. Nowell:

As requested in your directive letter dated October 4, 2016, we have prepared this *Interim Remedial Action Workplan Addendum* on behalf of Caltrans District 4 (Caltrans). Caltrans' authorization to submit this document is attached.

We will address the technical comments in your letter in the order they were presented.

**Technical Comment #1:**

**Groundwater Monitoring Well Abandonment – IRAWP Section 2.1 – *Mobilization* states wells MW-1, MW-3, and MW-4 will be abandoned. Section 2.2 – *Monitoring Well Destruction* says proposed to be abandoned. Additionally, if well MW-5 is to be abandoned, please include the rationale for its destruction in the workplan addendum requested below, as MW-5 does not appear to be located within any of the three proposed excavation areas.**

**Geocon Response:**

Section 2.1 of the *Interim Remedial Action Workplan* indicates that all five site wells will be abandoned and that we will need to obtain written permission from the owners of 8099 Coliseum Way to access and abandon MW-1, MW-3, and MW-4. We will obtain well destruction permits for all five wells.

The rationale for abandoning MW-5 is also contained in the second bullet under Section 2.1. Wells MW-1 to MW-5 are constructed with 15 feet of well screen to depths ranging from 19 to 20 feet. Based on groundwater sample results collected from borings SB15 and SB17 in April 2015, groundwater below 16 feet is relatively unaffected by the petroleum hydrocarbon release; therefore, the existing site well screen lengths are too long. Accordingly, groundwater sample results collected from the site wells may be diluted with cleaner underlying groundwater and not representative of shallow groundwater conditions.

## **Technical Comment #2:**

### **Excavation –**

- A. Depth – The IRAWP does not indicate the depth of the proposed excavations. ACDEH requests a discussion elaborating on the excavation depths in the workplan addendum requested below.**
  
- B. Backfill – Geocon proposes to backfill the excavation with drain rock or pea gravel to a level which exceeds the depth to groundwater in the excavation, that filter fabric will be placed over the drain rock; and the excavation will be backfilled to ground surface with Class II aggregate base rock.**

**Excavation backfill typically consist of pea gravel or similar material to no more than one foot above water level, filter fabric placed over drain rock, and the backfill brought up to the surface using like (native) material or aggregate base. However, ACDEH requests the on-site excavations be backfilled in accordance with Caltrans engineering specifications and specifications for any off-site excavations be reviewed with the property owner. ACDEH requests contacting the property owners regarding the backfill specifications and surface restoration requirements.**

### **Geocon Response:**

The depth of excavation is anticipated to be between 4 and 10 feet. As mentioned in Section 2.3 of the IRWAP, the bulk of the contaminant mass beneath the site is believed to exist within relatively porous channels (preferential pathways) emanating from the former UST excavation area. These channels, in most instances, are located between 4 and 8 feet below ground surface (bgs). Our intention is to remove obviously impacted soil and leave soil that does not appear to be impacted in-place. Since we do not know where the impacted soils are precisely located in the subsurface, we recommended starting each soil excavation at the furthest-most sample location where significant impacts are known to exist, and work our way back towards the excavation area where the contaminants are thought to have originated. This process should allow us to limit the volume of excavated soil that will need to be disposed offsite.

We will defer to Caltrans' direction on what fill materials they would like placed in the excavation. The offsite property owner will be consulted on how they would like the ground surface repaired on their property. The offsite property is currently paved with asphalt and is used as parking space for tractors. Presumably, the asphalt will need to be repaired to match the existing surface as mentioned in the IRAWP.

## **Technical Comment #3:**

**Confirmation Soil Sample Collection – As noted above, Geocon states confirmation soil samples will be collected at select locations to determine the excavation limits, with no fewer than five soil samples per excavation area. The IRAWP does not address sample collection density, depth, of if excavation bottom samples will be collected.**

**ACDEH is in general agreement that no fewer than five confirmation soil samples be collected from an excavation. For excavations of the size proposed, it has been our experience that a sampling frequency of one sample per every 20-linear feet of sidewall is typically performed. Additionally, with regard to the LTCP, ACDEH recommends soil samples be collected and**

**analyzed from within the 0- to 5-foot and 5- to 10-foot intervals as measured from the ground surface. Please expand Section 2.3 – Soil Remediation to address this information in the work plan addendum.**

Geocon Response:

The sample density mentioned in the IRAWP was a minimum of 5 soil samples per excavation area; however, we have no objection to collecting samples every 20 linear feet, as recommended by the ACDEH.

Since the excavation areas are expected to be irregular-shaped and varying in depth it is not possible to predict how many soil samples will be collected from a particular depth. In general, we will attempt to collect soil samples from areas where obvious petroleum impacts were present to assess whether enough subsurface material has been removed. We will also collect a soil sample from the bottom of each excavation area on approximately 25-foot centers to demonstrate that the vertical extent of impacts has been adequately remediated.

Since the excavation is anticipated to be no deeper than 10 feet, all soil samples collected during the remediation effort will be collected within the 0- to 5-foot and 5- to 10-foot sample intervals.

**Technical Comment #4:**

**Soil Scope of Analysis – in order to evaluate the case against the LTCP, please include naphthalene as an analyte in the scope of soil sample analysis. Naphthalene can be reported as an analyte along with BTEX compounds using EPA Test Method 8260.**

Geocon Response:

In addition to soil samples being analyzed for total petroleum hydrocarbons as gasoline (TPHg) and diesel (TPHd), and benzene, toluene, ethylbenzene, and xylenes (BTEX), we will also have the samples analyzed for naphthalene.

**Technical Comment #5:**

**Excavation Infiltration Water Extraction – Geocon states the bulk of the contaminant mass resides in groundwater and that approximately 50,000 gallons of water will be removed from the excavations and transported off-site for treatment/disposal. ACDEH requests clarification on how the 50,000 gallon quantity was arrived at for removing the bulk of the contaminant mass. Please present your determination in Section 2.4 – Groundwater Remediation in the work plan addendum requested below.**

Geocon Response:

The 50,000 gallon quantity was arrived at for budgetary purposes. This volume is roughly equal to three 21,000-gallon holding tank capacities, assuming the tanks are not completely full before being emptied. We anticipate that this should be a sufficient volume to effectively remove free product that may be present on the water table surface in preparation of the chemical oxidation remediation effort mentioned in Section 2.4.

The primary purpose of the groundwater removal effort is to remove free product to the maximum extent practicable as stated in the LTCP, and to prepare groundwater within the excavation area for further dissolved-phase contaminant reduction via in-situ oxidation. The effectiveness of the proposed chemical oxidation process may be compromised if free product is present when the oxidation solution is introduced into the groundwater that has ponded in the excavation area.

**Technical Comment #6:**

**Water Sample Collection – As indicated above, Geocon proposes collecting pre- and post-oxidation water samples for TPHg, TPHd, and BTEX analysis. It is unclear to ACDEH if the pre-oxidation application grab groundwater sample, in part, represents a baseline water sample to be used in evaluating the effectiveness of the remediation.**

**Therefore, in addition to the pre-oxidation pit water sample analysis, ACDEH recommends sampling the existing monitoring well network prior to its destruction. The event will document pre-remediation baseline contaminant concentrations. The monitoring well data can be compared with the analytical results from the post-remediation replacement well network.**

**Geocon Response**

The pre-oxidation groundwater sample collected from the open excavation area is intended to assess the baseline contaminant concentrations. These results will be also used to determine how much oxidant solution will be necessary to treat the excavation groundwater.

Ordinarily, we would concur with the ACDEH that collecting pre-remediation groundwater samples from the existing well network would be useful towards assessing pre-remediation baseline contaminant concentrations in groundwater; however, there are two problematic issues associated with this approach:

- 1) As stated in our response to Technical Comment #1, the five existing monitoring wells have screen lengths that are too long. Based on the results of grab groundwater samples collected from borings SB15 and SB17 in April 2015, there appears to be a relatively clean water-bearing zone beneath the investigation area starting around 16 feet. This zone appears to be the primary water-supplying zone beneath the site and, as such, may be diluting the sample results obtained from the existing wells.
- 2) Unless the post-remediation wells are constructed near the same locations as the existing wells and screened across the same depth intervals, we are uncertain whether an accurate assessment of the remediation effort can be obtained using these data.

Once the interim remediation action effort has been completed and new wells are constructed to the proper depth intervals, contaminant concentration trends can be more accurately assessed.

**Technical Comment #7:**

**Water Sample Scope Analysis – ACDEH requests the baseline water sampling of groundwater recovered from the existing well network include analyses for TPHg, TPHd, and volatile organic compound (VOC) analysis using the full suite of VOCs by EPA Test Method 8260.**

Geocon Response

We will have the pre-oxidation groundwater sample collected from the open excavation area additionally analyzed for VOCs following EPA Test Method 8260.

**Technical Comment #8:**

**Monitoring Well Installation – As indicated above, Geocon proposes to install up to five groundwater monitoring wells within the boundaries of the former excavation areas to monitor post-remediation groundwater quality trends. The number, location, and design of the wells will be discussed with the ACDEH after the remediation project has been completed.**

**It is unclear to ACDEH what “after the remediation project” refers as the IRAWP proposes to install the monitoring wells. In order to clarify the schedule of events, ACDEH requests a Well Installation Work Plan (WIWP) be prepared under separate cover following the issuance of the Interim Remedial Action Report (IRAR) documenting soil and groundwater removal activities. A discussion with the SCDEH regarding the well installation can occur following our review of the IRAR.**

Geocon Response

Following the completion of the Interim Remedial Action Report (IRAR), we will prepare and submit a separate Well Installation Work Plan (WIWP).

If you have any questions, please contact John Love at (925) 371-5900, extension 407.

Sincerely,

**GEOCON CONSULTANTS, INC.**



John Love, PG  
Senior Project Geologist



Richard Day, CEG, CHG  
Senior Geologist

Attachment: Caltrans Authorization Letter

cc: Mr. Bahram Sazegar, Caltrans District 4

December 9, 2016

Mr. Keith Nowell  
Alameda County Health Care Services  
Environmental Protection Division  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

Reference: Interim Remedial Action Workplan Addendum  
Former Hegenberger Maintenance Station  
555 Hegenberger Road  
Oakland, California

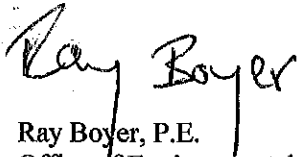
Dear Mr. Nowell:

Attached for your review is the *Interim Remedial Action Workplan Addendum* for the Former Hegenberger Maintenance Station located at 555 Hegenberger Road in Oakland, California. This workplan addendum was prepared for the Alameda County Health Care Services Environmental Protection Division by Geocon Consultants, Inc.

I declare under penalty of perjury, that the information and/or recommendations contained in the referenced report is true and correct, to the best of my knowledge.

If you have any questions, please don't hesitate to contact me or Geocon project manager John Love at (925) 371-5900 extension 407.

Sincerely,



Ray Boyer, P.E.  
Office of Environmental Engineering  
Division of Planning & Engineering  
Caltrans District 4