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11:42 am, May 17, 2012

Alameda County
Environmental Health

Ms. Karel Detterman
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Subject: Perjury Statement and Report Transmittal

1600 – 1630 Park Street
Alameda, California 94501
AEI Project No. 298931
ACEH RO#0000008

Dear Ms. Detterman:

I declare under penalty of perjury, that the information and/or recommendations contained in the attached report for the above-referenced site are true and correct to the best of my knowledge.

If you have any questions or need additional information, please do not hesitate to call me or Mr. Peter McIntyre at AEI Consultants, (925) 746-6004.

Sincerely,



5-4-12

John Buestad
President

JB/pm

Attachment

cc: Mr. Peter McIntyre, AEI Consultants, 2500 Camino Diablo, Walnut Creek, CA 94597



April 25, 2012

Alameda County Environmental Health Department
Attn: Ms. Karel Detterman
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Subject: Response to April 16, 2012 Comments
1630 Park Street,
Alameda, California
AEI Project No. 298931
ACEHD Case No. RO0000008

Dear Ms. Detterman:

On behalf of Foley Street Investments developer of the subject site, AEI Consultants (AEI) has prepared this response to the Alameda County Environmental Health Department (ACEH) April 16, 2012, comments to the IRAWP and CAP for the site. This letter presents FSI's response to the technical comments and includes information that will clarify the issues raised and, as needed, a timeline for the required deliverables. The subject of this report is the leaking underground storage tank (LUST) case located at the property 1630 Park Street, known as the Good Chevrolet site. ACEH is the agency with regulatory oversight of the LUST case.

ACEH Comment - (Introduction)

"Since data from the IRAWP investigation indicated that site characterization is incomplete to the east and west of the tank pit, we conclude that the CAP is premature and cannot be approved. ... Further, the HVDPE alone does not appear to be appropriate, especially when using a mobile treatment system, due to the uncertainty of the length of time required for use. ... We request that you address the following technical comments and send us reports by the dates listed below."

Thank you for your timely review of the CAP. As you are aware, our client is preparing the property for commercial development and thus under time constraints external to this process; your thorough review of the case is greatly appreciated. Many of the concerns raised in the April 16, 2012, ACEH letter were addressed in reports submitted to the ACEH after the September 16, 2011, Interim Corrective Action Plan. Our responses here will include excerpts from those reports and refer the reader to the full report for details.

As stated previously, the primary objective of recent activities is to remove the hydrocarbon source mass that may pose a threat to human health and act as a source for further groundwater impact. A secondary objective is to reduce the impact to soil

and groundwater, and to control migration of the dissolved petroleum hydrocarbon plume. AEI believes the following information and the proposed work will allow the stated objectives to be met. In an effort to continue the source removal activities on a reasonable timetable and allow for development of the site and its return to beneficial use, additional source removal actions are planned. The strategy to implement these activities is included in the responses to comments.

Although it is the intent of the project is to bring the case to closure, the schedule for construction dictates that portions of the work be performed post-construction. AEI believes that both objectives can be met with minor modifications to the original scope of work presented in the CAP. Modifications include focused hot-spot excavation to remove remaining source, modification of existing HVDPE wells and piping beneath the proposed buildings concrete slab foundation for possible use following construction, installation of subsurface-depressurization system piping which could be utilized to reduce the potential for vapor intrusion during the time following building completion and prior to case closure, and the development administrative and engineering controls to protect workers during construction.

ACEH Technical Comment 1 – Additional Site Characterization.

- a) **Data Gap Work Plan:** *“New data presented in the IRAWP indicated that site characterization is incomplete to the east and west of the tank pit and may signify the presence of another source. Grab groundwater samples from AEI-20 ... AEI-21 ... AEI-22 ... and AEI-23... ...as well as historic grab groundwater samples from borings GP-1, GP-4, GP-5, and EB-5... indicate that the extent of contamination is not defined to the west or east of the tank pit. Please provide a Data Gap Work Plan ...to define the lateral extent of contamination...”*

AEI agrees that the dissolved-phase TPH-g may exist beyond the existing monitoring well network to the east and west and will prepare a Data Gap Work Plan to identify the gaps and propose additional groundwater monitoring wells, if deemed necessary. As requested, the Data Gap Work Plan will be submitted by May 4, 2011, and will incorporate the data collected during the recent investigations including updated figures and data summary tables.

AEI believes that while the grab groundwater samples are useful as an indication of the extent of impacts, the use of groundwater data from properly constructed groundwater monitoring wells is a more accurate indicator of the distribution of dissolved phase groundwater impacts. Grab groundwater sample data collected during the IRAWP implementation was intended to be used to identify potential source areas and was not intended as a replacement for groundwater monitoring data as a means for defining the full extent of impact. Future well monitoring locations will be chosen based on the need to provide lateral dissolved plume definition.

- b) **A Complete Utility Survey:** *“A preferential pathway study was requested in ACEH’s November 3 and 23, 2011 letter and remains an unfulfilled request. It is understood that portions of the preferential pathway survey have been completed; however, the data has not been submitted or used in the SCM. ...*

Please complete the utility survey component of the preferential pathway study, present the complete preferential pathway study, and update the SCM using the results of the completed preferential pathway study in the revised SCM, by the schedule provided below."

AEI conducted a thorough underground conduit review and has completed the preferential pathway (or conduit) study which was presented in the March 30, 2012, *Subsurface Investigation & Well Installation Report (Section 8.0, page 12-13, and Figure 8)*. The study found that one 10-inch sewer line which runs along the middle of Park Street may intersect groundwater at the site. No other utilities were identified that likely intersect the water table in the vicinity of the release. The study concluded that although low dissolved phase concentrations may have intersected the line, with minor plume deflection resulting, the low concentrations detected in wells MW-4 and MW-5 (located between the sewer line and the core plume) suggests that any such deflection would not be materially significant.

The SCM is an important tool for the understanding of the overall project and is reviewed and updated whenever new information is available. The latest revised SCM will be included in the Data Gap Report and will use the most current information available at that time, including the information gained from the preferential pathway study.

ACHCS Technical Comment 2 - Appropriate Timely and Cost Effective Remedial Actions:

"Significant residual contamination appears to be present in the vicinity of the former tank pit. The recommended remedial option does not appear to take into account physical limitations (plastic liner) which are present in that location. ..."

- a) **Historical Evidence of Suspected Tank Pit Hot Spot:** *"Based on a review of the existing site data, it appears that the tank pit is a continuing source of petroleum hydrocarbons due the commonly accepted pre-1990's tank removal methods. In general, tanks were removed, followed by little or no sidewall soil removal, lining of the tank pit with plastic and subsequent backfilling of the tank pit with or without treatment of the soil removed. ... Unfortunately, the extent or success of the aeration (of the tank pit spoils) is undocumented and we infer from the limited documentation that the aerated soils were returned to the tank pit and, along with the unexcavated soil, are likely a continuing contaminant source."*

Based on the information available, AEI agrees that the source of groundwater impacts is the impacted soils beneath and around the former tank pit. PID screening of soil samples collected from the borings for DPE-3 and AS-1, drilled in November 2011, and located within the footprint of the former tank excavation, indicated a zone of impacted soil from approximately 6.5 ft. bgs to 12 ft. bgs. Boring logs show that that plastic sheeting was observed in one boring (DPE-3) at a depth of 4.5 feet below the ground surface (ft. bgs). No plastic was observed in the second boring (AS-1) located approximately 1.5 ft northwest. Possible tank pit backfill material consisting of gravel

with sand was observed in the borings above the depth of the layer of plastic sheeting suggesting the borings were located at the southwest edge of the former tank pit excavation. The backfill material and native soil encountered below it appeared to be un-impacted to a depth of approximately 6.5 ft. Since the plastic sheeting was only found in only one boring, and at a depth of only 4.5 ft. bgs, it is inconclusive whether or not the plastic sheeting surrounds the entire former tank pit excavation. Further, the tank pit material encountered displayed no indications of hydrocarbon impact at these locations. Based on these details, AEI believes that the material surrounding the former tank excavation is the primary source of impacts at the site, not the former tank pit backfill material. Additional evidence is the sidewall sample collected in 1987 by GTI that contained 1,441 ppm TPHG.

- b) *"The recent pilot test further indicates that the presence of the plastic liner would significantly limit the ability of the HVDPE to achieve a timely and cost effective remediation of the core contaminant zone. At the beginning of the 30-day HVDPE pilot test, TPHG groundwater concentrations in DPE-3 (screened 7-14 feet) were 6,400 ppb while at the end of the study, concentrations nominally declined to 5,500 ppb, again indicating the presence of a significant contaminant source. The nominal TPHG reduction indicates that the HVDPE alternative alone will not be timely or cost effective. However, a combination of a focused hot spot source removal followed by an additional remedial action would be expected to shorten the time interval to permit construction to start and ultimately obtain case closure.*

If the tank pit source is not removed, it will pose an ongoing impediment during site development... Since the preliminary site development plans indicate that the new building will be placed directly of the tank pit and the core of the groundwater plume, vapor intrusion will have to be addressed, potentially preventing agency approval to build and/or allow tenants to occupy the new building. Additional site investigations and groundwater monitoring could likely continue long after completion of the new construction."

Acknowledging the observations outlined above, several other wells immediately surrounding the tank pit (DPE-1, DPE-2 and MW-1, MW-2) showed appreciable decreases following the first HVDPE event. In addition, during this first event, which was focused around the tank pit, an estimated 5300 lbs. of hydrocarbons were extracted from this area. Based on the mass of hydrocarbons removed from the site during the subsequent 3 months of extraction (an estimated 11,100 lbs.), it is clear that HVDPE has made significant progress toward the stated objective of source removal. Given the uncertainty regarding the effect of plastic on the ability to extract hydrocarbons that possibly exist in the immediate vicinity of the tank pit, a very focused excavation of the tank pit is proposed. To perform this efficiently and cost effectively, this work will be conducted concurrent with oil impacted soil removal.

- c) **Inconsistency of Site Cleanup Objectives and Chosen Removal Option:**
"The CAP states that the primary objective of the interim action was to remove

source mass that may pose a threat to human health and act as a source for further groundwater impact and a secondary objective to reduce the impact to groundwater and control migration of the dissolved petroleum hydrocarbon plume. ... Critically, based on the cost estimates provided in Appendix C of the CAP, HVDPE is the most expensive method, particularly when estimated over a time period of a minimum 12 months or more, which in ACEH experience is more likely a realistic period."

HVDPE was chosen for pilot testing in October 2011, based on site conditions as a remedial alternative with a high likelihood of success, comparatively low cost, flexibility to address a wide area, and due to its minimal disruption to the site during the proposed construction. Excavation was deemed as a more expensive method for source removal, and had a higher likelihood of increased cost due to unknown quantities of soil and the potential need for costly excavation shoring if the excavation extended to the sidewalk and property boundaries. Based on the results of the pilot test in December, FSI elected to continue HVDPE during the first quarter 2012.

Although HVDPE is not expected to have removed all residual hydrocarbon mass to date, it has certainly been effective at removing a substantial portion of source mass from the subsurface. During the 30-day pilot test, the HVDPE system removed an estimated 5300 pounds of hydrocarbons. At the end of the pilot testing, it was decided to continue operation for approximately 90 days as a prudent interim source removal pending re-evaluation. As of April 22, the system has removed an estimated additional 11,100 pounds of hydrocarbons from the subsurface. In total approximately 16,400 lbs. of hydrocarbons, equivalent to approximately 2,625 gallons of THPG, were removed from the subsurface through the use of HVDPE. Further evidence that the system is achieving the intended goal of source removal in soil is shown by the reduced influent concentrations of the system through time. At the end of the 30-day pilot study the system was removing an estimated 46 pounds per day, while the most recent data show the current removal rate is 28 pounds per day. Based on our experience with similar sites, AEI believes the bulk of the hydrocarbon mass has been removed and that the target goals can be achieved within a reasonable time-frame. Critically, the HVDPE system can be incorporated into the construction design and operated as needed after completion of the new buildings. Contrary to the comment letter, in wells aside from DPE-3, concentrations decreased significantly following 30 days of focused extraction. Since that time, as stated above, significant additional mass has been removed from a larger area of the property, therefore dissolved phase concentrations can reasonably be expected to decrease further. Post extraction monitoring will be addressed in the data gaps workplan discussed below.

- d) ***Request for Re-Evaluation of Remedial Options:*** *"ACEH recommends evaluation of a remedial option which focuses on focused hot spot source removal consisting of excavation of the tank pit, removal of the plastic liner, over excavation and performance of later and vertical confirmatory sampling to approved clean up levels, followed by implementation of another cost effective alternate to remove the remaining TPH contamination. Please address all issues discussed in Technical Comment 2 when submitting the revised CAP..."*

AEI understands the concern posed by the possibility of a plastic liner in the tank pit. If it exists and encapsulates untreated backfill, then HVDPE may not be an effective method for treating the soil within it. It is also understood that excavation of the tank pit backfill material and removal of the plastic liner, if found, will ensure that the hydrocarbon mass is removed within a reasonable time-frame. AEI is concerned, however, that due to the apparent configuration of the soil plume which includes a significant thickness at the tank pit with limbs of impacts tapering to a thickness of approximately up to 4 feet at the property boundary with Park Street, that lateral confirmation soil samples would show impacts above the target concentrations extending beyond the feasible removal area. This proposed focused excavation is not intended to extend beyond the target tank pit or "chase" such impact if it remains. If encountered, remaining impacts may then require other remedial measures, such as monitored natural attenuation, in-situ treatment, or possibly continued HVDPE.

ACHCS Technical Comment 3 – Corrective Action Plan Requirements:

"A Draft Corrective Action Plan (Draft CAP) must meet the provisions of section 2725 of the UST regulations (CCR, Title 23, Chapter 16, section 2600, et seq.) and is to include the following information.

- A. Proposed cleanup goals and the basis for the goals.*
- B. Summary of site characterization data.*
- C. Receptor information including likely future land use scenarios, adjacent land use and sensitive receptors, and potential groundwater receptors.*
- D. Evaluation of a minimum of three remedial alternatives including a discussion of feasibility, cost effectiveness, estimated time to reach clean up goals, and limitations for each remedial alternative.*
- E. Detailed description of proposed remediation including confirmation sampling and monitoring during implementation.*
- F. Post-remediation monitoring.*
- G. Schedule for implementation of cleanup."*

- a) **CAP deficiencies:** *"Each of the sections listed above were either missing from the CAP or were inadequately addressed. Please provide thorough coverage of each section in the revised CAP by the schedule provided below. cursory treatment will only serve to delay regulatory approval. "*

Item A was addressed thoroughly and completely in Section 5.0 of the February 3, 2012, CAP. Clean up goals for groundwater were established based on the San Francisco Bay Region (Region 2) Water Quality Control Plan (Basin Plan) dated December 31, 2010. If the ACEHD has specific requirements or recommends alternate goals, please advise us.

Item B was addressed thoroughly in Section 2.1 of the February 3, 2012, CAP. Three alternatives were evaluated based on the information available at the time of the CAP preparation. Recent data suggests that the extent of impact was larger than prior assessments suggested; however, based on the findings of the expedited assessment and remediation well installation work conducted in January 2012, these areas were

targeted during the subsequent 3 months of extraction. Current site data and data collected during post interim removal action monitoring and the requested data gaps investigation will be incorporated in the Revised CAP.

Item C was addressed in Sections 3.6 through 3.8 of the February 3, 2012, CAP, and was complete with the exception that a preferential pathway was being conducted simultaneously with the CAP preparation. The preferential pathway study has since been completed and the results were submitted to the ACDEH in Section 8 of the March 30, 2012, *Subsurface Investigation and Well Installation Report*.

Item D was addressed in Section 6 of the February 3, 2012, CAP. Three options were evaluated. The methods were first screened based on criteria that included: potential reduction of mass; feasibility of the implementation; and capital and O&M costs. Estimated clean up times were discussed only in a relative sense for excavation and ISCO. The estimated clean up time for HVDPE as an interim mass removal action was given as an additional 2 to 4 months not including the pilot test. A more thorough description of the estimated times for the options under consideration will be included in the Revised CAP.

Items E through F will be addressed in the Revised CAP and will be based on the results of additional removal actions, data gaps investigation, and monitoring data.

- b) **Cost Effectiveness:** *"Based on an analysis of the cost estimate, it appears that 4 months of HVDPE has been reached with limited contaminant reduction indicating that HVDPE budget severely underestimated the time required to achieve cleanup or a critical factor was overlooked, such as the existence of an ongoing contaminant source. Please make sure the cost estimate for all alternatives are thorough and complete to facilitate the cost effectiveness evaluation. "*

The cost estimate presented in the February 3, 2012 CAP was based on information available and was considered valid at that time. While it does appear that additional previously undocumented source may be present and the late January assessment did not fill all data gaps, we would respectfully remind ACEH that an estimated 16,400 pounds of contaminant have been removed via HVDPE. Based on the declining recovery rates at the site, this represents a substantial portion of the contributing source and this method has made significant progress toward the stated objective of source removal.

An updated discussion of the potential costs, incorporating the apparent additional source, will be included in the Revised CAP.

- c) **Hydraulic Lift Area:** *"A cost estimate was included to excavate and dispose approximately 355 cubic yards of soil contaminated with oil-range petroleum hydrocarbons in the former hydraulic lift area in the northeastern part of the existing building. Please provide the rationale for determining the areal and vertical extent of excavation, sampling protocols and disposal information. "*

Excavation of oil impacted soil is planned as additional interim removal action, as outlined in the CAP; details of those planned activities will be presented in the excavation work plan discussed below.

- d) **Estimated time to reach cleanup goals:** *“Three remedial alternatives are proposed in the CAP; however, a timeframe to reach cleanup levels (18 to 36 months) is only provided for one fo the three alternatives (ISCO); please provide a timeframe to reach cleanup levels for all three alternatives.”*

A discussion of the estimated time to reach cleanup goals will be included for each alternative in the Revised CAP.

ACHCS Technical Comment 4 – HVDPE Pilot Test Report:

“A pilot test report was submitted with the CAP for the December 5, 2011 to January 9, 2012 timeframe, however, it is ACEH's understanding that the HVDPE system was restarted on January 25, 2012 and continued operation through March or April, however status reports have not been received. Please conclude the Pilot test and provide a final HVDPE pilot test report for the entire period of operation by the date specified below; ... ”

The results of HVDPE pilot testing were presented in the January 12, 2012, *Investigation and Remedial Action Workplan* (IRAWP, Sections 5, page 6). A progress update and post-pilot study HVDPE operation data were presented in the April 9, 2012 site update. A Final HVDPE Pilot Test Report will be submitted by May 18, 2012, which will include data collected for the entire operating period.

If HVDPE is restarted at the site, monthly progress reports would be submitted. ACEH had been asked for their requirements for such update reports in March 2012; however, to date, no response has been received.

ACHCS Technical Comment 5 – Request for Final Building Plans:

“Please submit the final City of Alameda Building Department-approved construction plans displaying the Building Departments approval stamp. ”

Based on information AEI received on April 23, 2012, the City of Alameda Planning Department is expected to approve the project no later than May 29, 2012, after which engineering drawings will be prepared for submittal to the Building Department. According to FSI, the City will request concurrence from ACEH before they issue a certificate of occupancy upon completion of construction. We respectfully request that ACEH be available in a timely manner to coordinate questions from the City during the Planning and Building Department's review of various aspects of the development. The stamped City of Alameda Building Department-approved construction plans will be submitted to the ACEH when they become available.

ACHCS Technical Comment 6 – Updated ‘Alameda Station Tentative Entitlement Schedule’:

“...Please submit an updated schedule which accommodates the following items: 60-days for all ACEH review periods...; installation and operation of chosen remedial option; a minimum of two years of post-construction groundwater monitoring and sampling; vapor sampling; and future well de-commissioning.”

According to FSI, the overall development schedule has not changed from that submitted to ACEH in January 2012. An updated schedule will be submitted that incorporates planned action and includes 60-day review periods. Where conflicts between anticipated review periods and construction schedules exist, ACEH will be notified.

Planned Activities

The following is a summary of planned activities. The strategy outlined below has been developed to A) perform interim source removal action that needs to be completed prior to construction, B) address the request of ACEH, and C) incorporate contingency measures into the strategy that may be needed following construction but prior to achieving final case closure.

1. **HVDPE Operations:** HVDPE will cease upon completion of approximately 90 days (expected during the week of April 23), as outlined in the CAP. Based on significant removal rates it is apparent that a large portion of the hydrocarbon mass has been removed. However, as with any treatment method, HVDPE is approaching a state of diminishing returns. Post interim removal groundwater monitoring will determine whether HVDPE, or an alternative method, will be appropriate following construction. Recommendations for such remedial action, if needed, will be incorporated into the Revised CAP.
2. **Data Gap Work Plan:** A Data Gap Work Plan will be prepared and submitted to ACEH by the May 4, 2012, submittal date. The Work Plan will identify the areas where information is needed to provide definition of the groundwater plume to the east and west, and the proposed measures to obtain the information. It is anticipated that at least two additional groundwater monitoring wells will be proposed. The well locations will be chosen based upon the data from recent investigations and from the most recent groundwater monitoring data. The workplan will include a scope of work to monitor soil gas conditions for indications of vapor intrusion potential. In addition, the Data Gap Work Plan will include a Post Interim Remediation Groundwater Sampling Program which will specify groundwater sample collection to assess the effectiveness of the Interim measures at reducing dissolved phase constituents, aid in determining the final location of the proposed new wells, and in selecting an appropriate strategy to achieve case closure.

3. **Source Removal Work Plan.** Concurrent with submittal of the Data Gap Work Plan, a second work plan will be prepared for the focused excavation of soil at the former tank pit and at the oil impacted soil. At this time it is expected that a focused excavation of these areas will reduce the source of the subsurface impacts at the site to allow construction of the buildings. The excavation work plan will include: an estimate of the soil volumes and the criteria used for estimating the volume; soil screening criteria that will be used to determine the limits of the excavations; a soil sampling plan to describe the rationale and number of confirmatory samples to be collected; and a soil management plan to describe the handling, storage and disposal of excavation spoils.

The results of the excavation activities will be incorporated in the Revised CAP. While it is anticipated that the focused excavations will remove additional source of impacts, it is not intended to be a complete removal action for all contaminated soil at the site. Remaining impacts will be addressed as stated in the current CAP, i.e.: via monitored natural attenuation, resumed episodic operation of the HVDPE system, or alternative method.

Given FSI's schedule to begin site development work, it is expected that soil excavation work will need to commence in less than 60 days from submittal of this work plan; therefore it is respectfully requested that ACEH review this document in a timely manner.

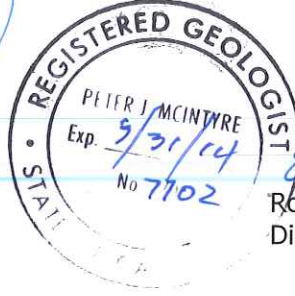
4. **Contingency Measures:** As it is anticipated that the buildings will be ready for occupancy prior to case closure, a contingency for the potential for vapor intrusion will be installed. The vapor intrusion abatement system is intended to protect occupants from potential vapors arising from the remaining impacted soil and groundwater, pending site closure. The design for vapor intrusion mitigation will be presented in the Revised CAP, or as site drawings are being prepared, whichever is sooner, and will likely include a sub-slab depressurization system (active or passive) installed beneath the building. Included with this contingency measure will be additional details on plumbing of the existing extraction wells for possible use once construction is completed.
5. **HVDPE Operation report:** The HVDPE report of the December 2011 pilot test and January to April 2012 interim removal action will be submitted as requested by May 18, 2012.
6. **Site Management Plan:** Although data indicate that impacted soil at the site is below depths that will be encountered during site work and the proposed excavation is not expected to remove additional impacted soil, there is a possibility that deeper utility installation work may encounter residual impacts. To protect workers during development who may encounter such conditions, a Site Management Plan (SMP) will be prepared.

We appreciate your time and consideration in this matter. Please contact us at 925-746-6000 with addition questions or comments.

Sincerely,
AEI Consultants



Peter McIntyre, PG, REA
Sr. Vice President



Robert Robitaille,
Director of Site Mitigation

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