ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Acting Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

October 8, 2009

George W. Lockwood
State Water Resources Control Board
Division of Water Quality
1001 I Street
Sacramento, CA 95814

Subject: Petition Response; Fuel Leak Case No. RO0000382 (GeoTracker Global ID T0600100980), Bill Chun Service Station, 2301 Santa Clara, Alameda, CA 94501

Dear Mr. Lockwood:

Alameda County Environmental Health has prepared this letter in response to the "Petition for Site Closure & Summary Report for the Underground Storage Tank Site (UST) Located at the Former Bill Chun's Service Station" dated July 8, 2009, submitted by Franklin J. Goldman (Goldman) and received by ACEH on September 3, 2009. Goldman contends that "...this site should be closed given new issues that have come to light..." as outlined within the petition for closure.

ACEH has reviewed the data for the subject site and Goldman's closure request and finds Goldman's arguments lacking technical basis and therefore reject his claims. Our responses to Goldman's arguments regarding the site's eligibility for closure are presented in the context of the criteria for a low-risk groundwater case as defined in the Regional Water Quality Control Board - San Francisco Bay Region's (RWQCBs) definition of a "low-risk fuel site" as defined in their memorandum *"Interim Guidance on Required Cleanup at Low-Risk Fuel Sites"*, dated January 5, 1996, as discussed below. ACEH is concerned with the series of protracted delays, without adequate justification that have postponed the implementation of previously approved corrective actions, which would have resulted in the cleanup of contaminated soil and groundwater beneath the site and adjacent properties in a timely manner. ACEH is dismayed that the subject site is attempting to receive closure while leaving significant contaminant mass in place, not only beneath the subject site but also beneath the commercial/residential structure on the adjacent property, which is owned by a third party who is an innocent adjacent landowner.

1. **Criterion 1: The leak has stopped and ongoing source(s), including SPH have been removed.**

   Petroleum hydrocarbon releases have stopped since the underground storage tanks were removed in 1992 and no new USTs have been re-installed at this site. However, a compelling demonstration that SPH source has been removed from the subsurface has not been made. SPH was indeed present at this site as evidenced by the presence of up to 7 inches of free product in well MW-5 and 6 inches of free product in MW-7 and hydrocarbon sheen in MW-1, MW-2, , MW-6, and, SV-1.

   Limited over-excavation of soil (50 CY) was performed in 1995, and confirmation soil samples collected at 8' bgs did not detect contamination above laboratory reporting limits. However, Loftin Associates state in the Remedial Action Plan dated September 2003, "Ten confirmation samples were collected from the tank excavation cavity at a depth of approximately 8 feet below ground surface (bgs). This depth is above any previously reported contamination, none of these samples indicated the presence of contaminants at this depth." Thus, it appears that the excavation work was

limited to depths above detected contamination thereby leaving residual contamination up to 16,000 ppm TPHG and 280 ppm benzene in place at 9.5' bgs in the source area, as reported during the UST removal.

Following soil removal activities, soil borings and monitoring wells were installed to delineate contamination in soil and groundwater. Additional soil data collected within 10 feet of the UST pit detected residual contamination at up to 13,000 ppm TPHg and 250 ppm benzene in soil at 10 feet bgs, approximately 4 inches of product was detected in source area well MW-7. Data thus indicates that significant contaminant mass remains in place at the subject site and is not limited to the immediate UST area.

In October 2002 additional monitoring wells were installed in the source area and high concentrations of TPHg and benzene continued to be detected in soil and groundwater at concentrations up to 2,760 ppm TPHg and 45.9 ppm benzene in soil and 110,000 ppb TPHg and 9,100 ppb benzene in groundwater from boring EW-13. These data demonstrate that a significant residual source is currently present beneath the former USTs and dispensers.

Additionally, contamination at concentrations cited above, in addition to free product, were detected in monitoring wells and borings at the property boundary of the immediately adjacent commercial/residential building at 2305 Santa Clara Avenue. As the subject site's free product wells abut the neighboring structure, no soil or groundwater samples were collected in the portion of the source area that appears to extend beneath the neighboring structure. However, soil and groundwater sampling performed on the downgradient side of the adjacent building detected up to 9,100 ppm TPHG and 30 ppm benzene in soil and 87,000 ppb TPHG and 11,000 ppb benzene in groundwater suggesting that source area contaminant mass and free product has likely migrated to and remains in place beneath the adjacent commercial/residential building.

Lastly, although two corrective action plans for remediation have been approved for this site, no remediation has been implemented. To date no effective remediation activities to remove source area mass have been performed. Consequently, compliance with Criterion 1 has not been met.

2. Criterion 2: The site has been adequately characterized

The extent of the dissolved contaminant plumes appear to be adequately characterized at this time. Contamination in source area soil on the subject site appears adequately characterized. However, the portion of the source area that has migrated beneath the commercial/residential structure immediately adjacent to the subject site is not adequately characterized as soil and groundwater sampling has not been conducted beneath the structure. Thus the levels of contamination in soil and groundwater that remain in place beneath this structure are unknown.

Contamination present in the vapor phase does not appear to be adequately characterized at this time. Vapor samples collected beneath the adjacent property's building at 6' bgs detected significantly elevated levels of up to 500,000 ppbv benzene in soil vapor. Sub-slab sampling was not performed. Given the high concentration of contamination soil and groundwater remaining in place at the site and apparently beneath the adjacent property, along with the detection of significantly elevated levels of benzene in soil gas on the adjacent property and the subject site, collection and analysis of sub-slab soil gas samples is necessary to characterize and permit appropriate evaluation of this site. Consequently, compliance with Criterion 2 has not been met.

3. Criterion 3: The dissolved hydrocarbon plume is not migrating

ACEH generally concurs that the dissolved contaminant plume does not appear to be migrating beyond the current monitoring network however; the dissolved phase contaminant plume has migrated beneath the adjacent commercial/residential property, at least. Consequently, the adjacent property has been adversely impacted by the unauthorized release from the subject site and appears to currently contain significant residual contaminant mass originating from the subject site.

Further, ACEH finds Goldman's conclusions that concentrations of dissolved gasoline and benzene concentrations are exhibiting "a continued decreasing trend" and that the dissolved contaminant plumes are stable unpersuasive. Goldman concludes from interpretations of simple trend lines drawn on graphs showing concentrations of TPHg and benzene over time in MW-7, EW-13, and MW-11 that the plume is stable and decreasing at this site. This analysis is invalid for the following reasons:

- Separate phase hydrocarbons (SPH) concentrations were consistently observed in monitoring well EW-13 as recently as 2008. Several concentrations of TPHg that are included on the time concentration graphs exceed the expected normal range of solubility for gasoline. The intermittent incorporation of small volumes of SPH in groundwater samples has a significant effect on TPHg and benzene concentrations. It is not valid to project a linear trend over time using initial concentrations that exceed the solubility of gasoline. The decreases in concentrations over time are artifacts that reflect the incorporation of less SPH in the groundwater samples and clearly cannot be projected to continue at a linear rate over time.

- If only the data that represent dissolved phase concentrations that do not exceed the solubility of gasoline are plotted, a linear trend line drawn through the data shows an increasing or consistently elevated trend.

- We disagree that linear extrapolations like the ones performed by Goldman can be inferred as reliable predictors of future concentrations of dissolved contaminants. The primary reason for this is that Goldman has not adequately described the mechanism whereby the concentrations will be attenuating over time. There are several reasons why the rates of chemical and/or biochemical reactions my decrease over time, with the result that plots of declining concentrations over time reach asymptotic levels.

Based on the above factors, Goldman's projection of concentration decreases over time based on TPHG and benzene data from the three MWs is flawed and invalid.

ACEH finds Goldman's apparent hypothesis that biodegradation processes "are likely promoting natural attenuation" at the subject site unpersuasive. Goldman concludes that data from limited onsite measurements of sulfates, nitrates, and methane demonstrate biodegradation is occurring at this site. Natural attenuation would need to be demonstrated by several additional lines of evidence, such as measurement of by-products, dissolved oxygen, and oxidation-reduction potential, consumption of electron acceptors, etc. Additionally, the significantly elevated levels of residual pollution beneath and downgradient of the site will likely inhibit the rates of biodegradation.

Goldman suggests data from MW-7, EW-13, and MW-11 as evidence of natural attenuation and thus plume shrinking. A review of data from the other wells at the site suggests otherwise and indicates that hydrocarbon concentrations are increasing or maintaining a significantly elevated trend. High concentrations of dissolved contamination were detected in the monitoring network during the most recent sampling event (09/2008) at up to 73,000 ppb TPHG and 11,000 ppb benzene (EW-13). Further, contaminant concentrations in monitoring wells routinely exhibit fluctuations of one order of magnitude or more between successive monitoring events, indicating that the plume is not stable or attenuating. This is

apparent in well EW-13 where TPHG was detected at 120,000 ppb during the preceding quarter indicative of the presence of NAPL in the subsurface. Thus, Goldman has not demonstrated that hydrocarbon concentrations in groundwater are decreasing on-site; nor that decreasing hydrocarbon concentrations in groundwater indicate that natural attenuation and/or bioremediation is remediating the site hydrocarbons; nor that the plume in groundwater is stable and/or shrinking.

Goldman states that given the main constituent of concern, benzene, will decrease over time, that this case is similar to the SWRCB Order #WQ98-12 UST case (UNOCAL CORPORATION) which demonstrates that the requisite level of water quality for benzene does not have to be met at the time of site closure, as long as that level will be attained in a reasonable time period, per SWRCB resolution No. 92-49, IIIA.

While there are some similarities between the Chun site and the Unocal site, such as the leak has been stopped, both sites detected free product in groundwater and significantly elevated concentrations of TPHg and benzene in soil, there are several outstanding differences.

For example unlike the Unocal site where no water supply wells exist within 750 feet of the site, one water supply well is located approximately 600 feet away from the Chun site and two irrigation wells and two industrial supply wells are located with ½ mile of the Chun site. The presence of these wells demonstrates that the beneficial uses of groundwater in the vicinity of the Chun site are being utilized.

The Unocal site removed over 330 yd^3 of contaminated soil and confirmation soil samples collected between 10' to 14' bgs did not detect contamination in soil above laboratory reporting limits. The Chun site removed only a small fraction of soil, 50 yd^3, and only shallow confirmation soil samples, collected above the area of the most contaminated source areas soils were analyzed. Data from borings installed after excavation detected up to 13,000 ppm TPHg and 250 ppm benzene in soil at 10' bgs indicating that a significant secondary source(s) of contamination remains beneath the former UST tank pit and dispenser island and likely extends beneath the adjacent commercial/residential structure.

The Unocal site operated a soil vapor extraction system for 19 months and removed approximately 4,000 lbs of TPHg and 70 lbs of benzene. Post remediation soil sampling suggested that approximately 60% to 80% of the residual mass of hydrocarbon contamination was removed. The Chun site has performed minimal free product removal by hand bailing removing only 1.3 gallons (approximately) of free product from 1994 to 1997. Moreover, the Chun site has not completed remediation as repeatedly requested by ACEH since June 1998.

The Chun site has significantly elevated levels of TPHg and benzene, 16,000 ppm TPHg and 280 ppm, respectively that remain in source area soil and it is unlikely that water quality objectives will be achieved in a reasonable time frame, as Goldman suggests. Further, Goldman does not provide any evaluation of the length of time residual contamination will remain in place at this site and beneath the neighboring property upon which he bases his hypothesis that requisite levels of water quality will be attained in a reasonable time period.

In conclusion, we do not believe that the data presented by Goldman to date adequately demonstrate that dissolved hydrocarbon plume(s) at this site have stabilized and are decreasing or that the case is similar to SWRCB Order #WQ98-12 UST case (UNOCAL CORPORATION). Thus, Goldman has not shown that this site is in compliance with Criterion 3.

4. Criterion 4: No water wells, deeper drinking water aquifers, surface water or other sensitive receptors are likely to be impacted

Goldman measured total dissolved solid (TDS) results from water quality samples collected in 2007 and concluded that the data suggests that background water quality of groundwater beneath the site has limited beneficial uses for drinking water and further states that it is very unlikely that groundwater will ever be used in the foreseeable future. ACEH notes that Goldman's analysis does not present an accurate characterization of the criteria for beneficial use nor the actual groundwater uses in the vicinity of the subject site.

Requirements for beneficial use noted in the Basin Plan (not addressed by Goldman) are as follows, "Unless otherwise designated by the Water Board, all groundwater is considered suitable, or potentially suitable, for municipal or domestic water supply (MUN). In making any exceptions, the Water Board will consider the criteria referenced in State Water Board Resolution No. 88-63 where:

- The total dissolved solids exceed 3,000 milligrams per liter (mg/L) (5,000 microSiemens per centimeter, µS/cm, electrical conductivity), and it is not reasonably expected by the Water Board that the groundwater could supply a public water system; or

- The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day.

Water quality samples collected in 2007 measured TDS in all onsite wells at maximum concentrations of up to 760 mg/L, which is well below the San Francisco Regional Water Quality Control Board (Basin Plan) threshold level of 3,000 mg/L TDS for beneficial use. More importantly, a municipal supply well was identified within 600 feet of the site (Alameda High School) and at least two irrigation wells and two industrial water supply wells are located within ½ mile of the site, confirming that groundwater in the immediate vicinity of the site is of beneficial use.

Additionally, Goldman performed aquifer pump tests in onsite well EW-12 and determined that the sustained yield was 2.5 gallons per minute or 3,600 gallons per day, and field measurements of electrical conductivity collected during groundwater sampling ranged from 700 to 1100 microSiemens per centimeter, confirming that groundwater beneath the site meets the criteria for beneficial use.

Goldman's application of drinking water quality standards neglects the beneficial use of groundwater for irrigation, industrial or other uses. Considering the proximity of water supply wells to the site, ACEH does not concur with Goldman's conclusion that groundwater is unlikely to be used. Case closure does not necessarily require cleanup to municipal cleanup goals, only that those goals can be achieved within a reasonable timeframe; and no timeframe has been determined by Goldman.

Goldman references the City of Alameda plumbing code as essentially a codified determination that groundwater beneath the City of Alameda is not useable. ACEH finds Goldman's logic in interpreting a municipal plumbing code as being a determination of groundwater beneficial use curious. The City of Alameda plumbing code does not explicitly state that groundwater is not "useable". Rather, The City of Alameda plumbing code states, "the entire municipal water supply of the City of Alameda is transported via three aqueducts, which are vulnerable to earthquake and tidal flooding", and "Alameda is a low-lying island community with soil and groundwater conditions which are corrosive to metals". General statements such as those used in the City of Alameda plumbing code are not relevant to the potential beneficial use of groundwater as referenced in the Basin Plan. Further, Goldman's assertion that groundwater is not useable in Alameda is also invalid because one domestic water supply well, two irrigation wells and two commercial water supply wells are located proximal to the site. The presence of 5

wells in the vicinity of the site clearly demonstrates that groundwater near the Chun site is of beneficial use.

Goldman identifies a fine grain, clayey sand unit present in an industrial well and one site well as being an impermeable layer to downward migration of contamination. However, Goldman also states that the lateral extensiveness of this layer is unknown. ACEH concurs that the lateral extensiveness of any confining layer beneath the site and vicinity is unknown. Therefore, any conclusions regarding the potential for vertical migration of contamination originating from the subject site would need to be based upon data that supports the hypothesis of an impermeable layer (i.e., as in a validated SCM). Based on the above discussion, compliance with criterion 4 has not been satisfied.

5. <u>Criterion 5 and 6: The site presents no significant risk to human health or the environment</u>

Goldman states that the site is not a threat to public health based upon results from indoor air sampling for benzene and other COC's. ACEH finds Goldman's evaluation of risk to human health unpersuasive. In January 2006 indoor air sampling was completed in the commercial/residential structure on the neighboring property and benzene was not detected above laboratory reporting limits; however samples were collected over a 48 hr time period, which does not correspond to the 8 hour time period recommended in the DTSC Vapor Intrusion Guidance Document-Final Interim, December 15, 2004. In addition, the DTSC guidance recommends the collection of background ambient (outdoor) air samples in combination with indoor air sampling. It appears that no ambient outdoor air sample was collected during the indoor air sampling, which is not consistent with DTSC guidance, as stated above. Furthermore, the DTSC December 15, 2004 guidance recommends a minimum of two discrete indoor air sampling events to evaluate temporal fluctuation in the data before considering no further action for the exposure pathway or making a risk determination for a site. It appears Goldman only completed one indoor air sampling event and concluded that no further action was necessary and that there was no risk associated with the indoor air exposure pathway. Additionally, soil vapor samples collected beneath the building at 6' bgs detected significantly elevated levels up to 500,000 ppbv benzene in soil vapor; however, soil samples were not collected during the soil gas sampling, as recommended in the January 2003 DTSC Advisory-Active Soil Gas Investigations. Thus the indoor air sampling performed does not appear to have been conducted in accordance with applicable guidance. To assess the soil vapor to indoor air migration pathway sub-slab soil vapor sampling appears necessary.

The Chun site contains several buildings that are considered to be of historical significance by the City of Alameda. Several proposals for site redevelopment are being considered including a community center. Limited soil vapor sampling completed at the Chun site during the 2003 pilot test detected up to 5,100,000 ppbv TPHg and 220,000 ppbv benzene, which is consistent with the results that would be expected considering that concentrations of contaminants indicative of free product remain in place at the site. However the extent of contamination in soil vapor beneath the site remains undefined and no sub-slab sampling has been performed. Therefore, soil vapor sub-slab sampling appears necessary at the Chun site to evaluate the vapor intrusion pathway.

Residual contamination in soil and groundwater beneath the site significantly exceed ESLs for multiple exposure pathways including direct exposure to soil and potential soil vapor intrusion to indoor air, and soil leaching to groundwater. Residual contamination in soil, groundwater, and soil gas significantly exceed ESLs for commercial and residential land use scenarios. The residual contamination in soil significantly above ESLs will continue to impact groundwater beneath the site. The potential for residual source (16,000 ppm TPHg and 280 ppm benzene in soil) to continue to add mass to groundwater will continue to pose a risk to human health and the environment if the contamination is left in place beneath the site. Also, significant contamination remains in place beneath the neighbor's commercial/residential structure and an evaluation of the potential risk was not performed in accordance with regulatory

guidance. These potentially completed exposure pathways were either not considered and/or not evaluated appropriately in the risk evaluation. Also, Goldman identified the potential for numerous preferential migration pathways due to the presence of construction debris, fill soil, etc., beneath the site. As discussed by Goldman, these pathways remain unevaluated.

Goldman concludes that the plume is stable and/or shrinking and that here is no significant risk to human health, or the environment. However, Goldman has not demonstrated that the plume is shrinking (as discussed in Comment 3). Goldman uses TPHg and benzene concentration vs. time graphs for two monitoring wells, in which he has drawn decreasing trend lines (through data showing an increasing trend). Goldman uses this evaluation as justification for case closure. However, recent data indicates that the significantly elevated concentrations of TPHg and benzene in EW-13 at concentrations of up to 73,000 ppb and 11,000 ppb, respectively, substantially exceed the ESLs and dissolved contaminant concentrations routinely fluctuate one or more orders of magnitude between successive monitoring events. For reasons stated in Comment 3, Goldman's projection of concentration decreases over time based on TPHg and benzene data from MWs is flawed and invalid.

ACEH notes that up to 280 ppm benzene was left in place in shallow soil at the site in addition to 11,000 ppb benzene presently in groundwater. Additionally, the fate of the SPH at this site is unknown (as discussed in Comment 1). Therefore, resultant migration of vapors, in particular the more toxic constituents of gasoline, emanating from residual contamination and LNAPL at the site could pose an inhalation risk at and/or in the vicinity of the site. Thus, Goldman has failed to demonstrate compliance with Criterion 5 and 6.

Conclusion

Goldman has failed to demonstrate that this site meets any criteria for case closure including the RWQCB criteria for a low-risk fuel site for the reasons discussed in this letter. Moreover, the concentrations of TPHg and benzene in samples collected during the most recent quarter (73,000 ug/L TPHg and 11,000 ug/L benzene in 3rd Quarter 2008) are substantially higher than the ESL values, even for groundwater that is not a source of drinking water (500 ug/L TPHg and 46 ug/L benzene). A significant mass of residual contamination remains in place not only beneath the subject site but also beneath a neighbor's commercial/residential structure. Significantly elevated levels TPHg and benzene (17,000,000/700,000 $\mu g/m^3$, respectively) constituents were detected (during the DPE pilot test conducted in September 2003) in soil gas beneath the subject site and the neighboring commercial/residential structure, significantly above residential and commercial ESLs, demonstrating that the site poses a potential risk to human health and the environment. Consequently, we recommend that Goldman implement the previously approved remediation plan which will reduce petroleum hydrocarbon concentrations beneath the site and the neighboring property in a reasonable time frame.

If you have any questions regarding this case, please call Steven Plunkett at 510-383-1767.

Sincerely,

Steven Plunkett
Hazardous Materials Specialist

Donna L. Drogos, P.E.
Supervising Hazardous Materials Specialist

Enc: Petition dated 07/08/09 (w/o attachments) and RWQCB Petition Response dated 09/28/09, Attachment A - Non Compliance with Interim Remedial Action Implementation

cc: Mr. Wayne and Lily Chun
Bill Chun Service Station
740 Canterbury Ave
Livermore, CA 94550-6226

Georgianna Towata Trust (w/Enc)
c/o Ms. Georgainna Towata
639 Larchmont Isle
Alameda, CA 94501-5618

Mr. Frank Goldman
Environmental & Hydrogeological Consulting
PO Box 59 Sonoma, CA 95467

Ms. Mary Rose Cassa
San Francisco Bay RWQCB
1515 Clay Street
Oakland, CA 94612

Ms. Sue Russell (w/Enc)
City Of Alameda
2263 Santa Clara Avenue
Alameda, CA 94501

ATTACHMENT A
Non Compliance with Interim Remedial Action Implementation

ACEH is concerned with the subject site's history of non-compliance with regulatory directives for implementation of approved remediation plans. This site history pertaining to remediation activities is outlined below.

1) June 1998 - ACEH requested the implementation of interim remediation by DPE. Remediation not implemented.
2) June 1998 - Groundwater monitoring discontinued without ACEH concurrence.
3) May 1999 - WP submitted for design and implementation for RAP
4) June 1999 - ACEH approves RAP. RAP report due to July 16, 1999
5) September 1999 - ACEH requests groundwater monitoring reports and RAP due by October 1999
6) January 2000 - RAP for DPE for cleanup of soil and groundwater contamination.
7) March 2000 - ACEH request the re-establishment of GW monitoring concur that vapor and groundwater extraction tests are necessary for extraction system design.
8) September 2000 - NOV issued to RP for non-compliance with previous directive letters.
9) In October 2000 - significantly elevated levels of dissolved phase contamination were detected in groundwater beneath the site (220,000 ppb TPHg and 32,000 ppb benzene). ACEH requests the immediate implementation of previously approved interim remediation. Remediation not implemented.
10) November 2000 - RBCA concluding that remediation is necessary due the potential human health risk associated with residual benzene contamination
11) December 2000 - ACEH requests schedule for GW and SVE testing.
12) April 2002 – ACEH notes that GW monitoring was discontinued w/out notification, and requests GW monitoring be performed, and a report submitted by May 1, 2002. Requests WP for GW and SVE testing and implementation schedule to perform testing due April 16, 2002. Requests immediate implementation of remedial action in April 2002, conditionally approved by ACEH in June 1998. Due to significant delays in performing previously approved work, ACEH determined that continued non-compliance will result with referral to USTCUF and ineligibility to reimbursement and/or enforcement action by Alameda County District Attorney may be appropriate.
13) May 2002 - WP for 3 additional extraction wells with GW and SVE extraction testing.
14) June 2002 - ACEH approves WP and request a well installation report by July 31, 2002 and GW and SVE report by September 30, 2002. No GW monitoring report submitted, therefore ACEH will recommend that USTCUF remove eligibility for funding.
15) August 2002 - GW monitoring report submitted by fax to ACEH; max concentrations up to 140,000 ppb TPHg and 15,000 ppb benzene. ACEH informed RP that WP for well installation and GW and SVE extraction testing (due July 31, 2000) must be submitted. ACEH requests well installation be completed by September 6, 2002 and GW and vapor extraction test report by December 6, 2002
16) August 2003 results from the groundwater extraction test reported to ACEH.
17) September 2003 RAP to ACEH (with conditional approval), remediation progress report due by July 2004 (not submitted).
18) December 2003 - WP submitted for 3 extraction wells groundwater extraction wells
19) February 2004 - Report recommends immediate implementation of groundwater extraction and treatment without SVE.
20) March 2004 - ACEH requests immediate implementation of groundwater and soil vapor extraction with remediation progress report due July 26, 2004
21) In February 2005 - ACEH directive letter underscores lack of progress with interim remediation, without any explanation for delays, or schedule for remediation as requested. City of Alameda, Development Services notifies ACEH that the City will initiate enforcement action against the Chun's, as a result of their lack of compliance.

22) March 2005 – WP submitted to complete SWI, proposes a schedule for interim remediation was also presented.
23) July 2005 – SWI submitted
24) August 2005 - ACEH concurs with July 2005 SWI and requires soil vapor sampling.
25) October 2005 – WP submitted
26) November 2005 - ACEH concurs with work plan and requests a human health risk assessment.
27) February 2006 - USTCUF notified that previously approved remedial action has not occurred. USTCUF finds the site out of compliance with ACEH directive, and suspends the claim until site returns to compliance.
28) February 2006 through May 2008, remediation approved by ACEH remains uninitiated.
29) April 2008 - RAP addendum for mobile HVDPE. Received May 23, 2008.
30) December 2008 – 3rd revised RAP for oxygen releasing compound ("ORC socks") in monitoring wells.
31) January 2009 ACEH rejects unsolicited 2nd and 3rd RAP submissions, and request previously approved corrective action be implemented.