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November 5, 2012

Ms. Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor (95814)
P.O. Box 100
Sacramento, CA 95812-0100
(Sent via E-mail to: commentletters@waterboards.ca.gov)

Subject: **Comment Letter - Chevron #9-0329 Case Closure Summary**, Revised Notice of Opportunity for Public Comment; Underground Storage Tank Cleanup Fund Case Closure Recommendation; Claim Number 6001; Fuel Leak Case No. RO0000269; Global ID # T0600101885; Chevron #9-0329, 340 Highland Avenue, Piedmont, CA 94611

Dear Ms. Townsend:

Alameda County Environmental Health (ACEH) staff has received the *Notice of Opportunity for Public Comment* dated August 31, 2012, and the *Revised Notice of Opportunity for Public Comment*, dated September 5, 2012, signed by Lisa Babcock, Fund Manager of the Underground Storage Tank Cleanup Fund (USTCF or Fund). The purpose of these notifications is to inform interested parties of 1) the USTCF's intent to recommend closure of the subject site to the California State Water Resources Control Board (SWRCB) at a future Board meeting, and 2) the sixty day public comment period on the Fund's *UST Case Closure Summary*, dated August 31, 2012, and signed by Lisa Babcock. According to the *Revised Notice of Opportunity for Public Comment*, written comments to the SWRCB on the Fund's *Case Closure Summary* must be received by 12:00 noon on November 5, 2012. This letter herein transmits ACEH's comments.

Requirements for Investigation and Cleanup of Unauthorized Releases from USTs

ACEH reviewed the USTCF's *UST Case Closure Summary*, including *Attachment 1: Compliance with State Water Board Policies and State Law* (i.e., the SWRCB's Low-Threat UST Case Closure Policy Paper Check List), and *Attachment 2: Summary of Basic Site Information (Conceptual Site Model)* in conjunction with the case files for the above-referenced site. A complete record of the case files (i.e., regulatory directives and correspondence, reports, data submitted in electronic deliverable format, etc.) can be obtained through review of both the SWRCB's Geotracker database, and the ACEH website at <http://www.acgov.org/aceh/index.htm>.

ACEH has additionally reviewed the requirements for investigation and cleanup of unauthorized releases from USTs contained in the following resolutions, policies, codes, and regulations:

- SWRCB Draft Resolution 2012-xx, *Additional Actions to Improve the UST Cleanup Program*, to be considered for adoption by the SWRCB at their November 6th, 2012 meeting;
- SWRCB Draft *Plan for Implementation of Low-Threat UST Case Closure Policy and Additional Program Improvements*, to be considered for adoption by the SWRCB at their November 6th, 2012 meeting;
- SWRCB Resolution 2012-0016, *Approve a Substitute Environmental Document and Adopt a Proposed Water Quality Control Policy for Low-Threat Underground Storage Tank Case Closure*, adopted on May 1, 2012; and effective August 17, 2012;

- California Code of Regulations (CCR) Title 23, Article 5 and Article 11, UST Regulations, as amended and effective July 1, 2011;
- California Health & Safety Code (HS&C) Sections 25280-15299.8, Underground Storage of Hazardous Substances, as amended on January 1, 2011;
- SWRCB Resolution 2009-0081, *Directing Additional Actions to Improve Administration of the UST Cleanup Fund and UST Cleanup Program*, adopted November 17, 2009;
- SWRCB Resolution 2009-0042, *Actions to Improve Administration of the UST Cleanup Fund and UST Cleanup Program*, adopted May 19, 2009;
- SWRCB Resolution 1992-0049, *Policies and Procedures for the Cleanup and Abatement of Discharges under California Water Code Section 13304*, as amended on April 21, 1994 and October 2, 1996.

Application of Case Review Tools

ACEH's case closure evaluation was also guided by the application of the principles and strategies presented in the *Leaking Underground Fuel Tank Guidance Manual* (CA LUFT Manual), dated September 2012, developed by the SWRCB "...[t]o provide guidance for implementing the requirements established by the Case Closure Policy" (Low Threat Closure Policy or LTCP) and associated reference documents including but not limited to:

- *Technical Justification for Vapor Intrusion Media-Specific Criteria*, SWRCB dated March 21, 2012;
- *Technical Justification for Groundwater Media-Specific Criteria*, SWRCB dated April 24, 2012;
- *Technical Justification for Soil Screening Levels for Direct Contact and Outdoor Air Exposure Pathways*, SWRCB dated March 15, 2012;
- *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air, Final DTSC*, dated October, 2011.

ACEH also utilized other case review tools developed by the SWRCB to aid in determining compliance of the subject fuel leak site with LTCP criteria, including both paper and electronic policy checklists. While ACEH has found the CA LUFT Manual to be a valuable tool, we are concerned that the over simplicity of the SWRCB checklists can result in erroneous conclusions regarding recommendations for case closure and a lack of transparency regarding the decision making process. Therefore, to attempt to address this issue, ACEH staff have enhanced the LTCP checklist by integrating the requisite level of questioning to enable consistent application of the LTCP, ensure that decisions are founded in appropriate technical basis, identify impediments to closure, improve the efficiency of the UST cleanup program, and document the decision making process as transparently as possible for all interested parties. This enhanced checklist, entitled the *Low Threat UST Case Closure Policy Compliance and Identification of Impediments to Case Closure Checklist*, was utilized by ACEH staff during our evaluation of the USTCF's *Case Closure Summary* and the Fund's recommendation for case closure of the subject site, and is included as an attachment to this response letter. ACEH is committed to implementing the LTCP and continuing to develop this tool to facilitate case review and identification of impediments to closure, and thereby make the cleanup and closure process more efficient.

Summary of ACEH's Review of the USTCF's UST Case Closure Summary

The results of ACEH's case closure review, indicates the USTCF closure recommendation under the LTCP to be lacking an appropriate technical basis. ACEH does not agree with the USTCF's technical analysis presented in their *UST Case Closure Summary*. ACEH's review indicates that the Conceptual Site Model (CSM) is deficient and that the site is uncharacterized in a number of elements. Our concerns include but are not limited to potential impacts to a local creek and public park due to the mismanagement and resultant discharge of highly contaminated groundwater (observed sheen or light non-aqueous phase liquid [LNAPL]) that daylights (or surfaces) at the site; potential and known impacts to existing domestic and irrigation wells downgradient of the site; lack of identification of an apparent diesel source; lack of characterization of secondary sources and shallow soil including analysis for the analytical suite of

chemicals associated with unauthorized releases of waste oil and diesel fuel including PAHs and naphthalene. Details of our analysis are provided in the narrative section below and in the accompanying attachments including the *Low-Threat UST Case Closure Policy Compliance and Identification of Impediments to Case Closure Checklist*.

ACEH presented our analysis of site data and our concerns about the appropriateness of recommending the site for closure under the LTCP to the USTCF prior to their issuance of the *UST Case Closure Summary* for the subject site. Although we were told that our objections would be incorporated into the *UST Case Closure Summary* for the subject site, our review of the document indicates that the USTCF staff has inappropriately oversimplified our technical evaluation.

ACEH's Review of the USTCF's Compliance with Public Notification Requirements

While the USTCF has made the *UST Case Closure Summary* available for public comment on the SWRCB's website, it appears to have failed to notify in a timely basis all interested parties, *including the actual site property owner*, as required by the LTCP, CCR Chapter 16, and Chapter 6.7 of the H&SC.

According to the LTCP Notification Requirements "municipal and county water districts, water replenishment districts, special act districts with groundwater management authority, agencies with authority to issue building permits for land affected by the petroleum release, and owners and occupants of all parcels adjacent to the impacted property shall be notified of the proposed case closure and provided a 60 day period to comment."

Further, it appears the USTCF has not conducted public notification requirements in accordance with the SWRCB and Regional Water Quality Control Board's April 2005 guidance document entitled *Final Draft Public Participation at Cleanup Sites*. According to this document "...[t]he level of public participation effort at a particular site should be based on the site's threat (to human health, water quality, and the environment), the degree of public concern or interest in site cleanup, and any environmental justice factors associated with the site. There may be more public concern or interest about a site when: contaminants have migrated or are likely to migrate off-site..."

The USTCF's *Revised Notice of Opportunity for Public Comment*, dated September 5, 2012, states that "a copy of the *Case Closure Summary* has been provided to the owner/operator, environmental consultant of record, the local agency that has been overseeing corrective action, the local water purveyor, and the water district specified by H&SC section 25299.39.2 subdivision (a)(1)." Concerned by this limited list of parties, ACEH contacted the USTCF and requested the list of recipients that the *Revised Notice of Opportunity for Public Comment* was sent to. Our review of this list of recipients indicates a lack of notification of the *actual site property owner, several downgradient public schools and multiple well owners*.

Case Closure Analysis Using the LTCP General and Media Specific Criteria

ACEH's case closure analysis is provided in the narrative section below and in the following attachments, including the *Low-Threat UST Case Closure Policy Compliance and Identification of Impediments to Closure Checklist*.

General Criteria a: The unauthorized release is located within the service area of a public water system.
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The water provider is the East Bay Municipal Utility District; however, the City of Piedmont Park (Piedmont Park) located immediately across Highland Avenue from the subject site, has a fully functioning irrigation well. The park well is located approximately 580 feet from the subject site's groundwater monitoring well C-2 in a down- to cross-gradient position. At least four groundwater sampling events of the park well have occurred since 2007. In January 17, 2007 260 micrograms per liter ($\mu\text{g/l}$) of total petroleum hydrocarbons as diesel (TPHd), 0.7 $\mu\text{g/l}$ of toluene, and 0.5 $\mu\text{g/l}$ of total xylenes were detected in groundwater samples collected from the park well. During two subsequent sampling events conducted on March 25, 2011 and May 4, 2011, no contaminants were detected above laboratory reporting limits. However, on May 22, 2012 the well was resampled in connection with the City of
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Piedmont site (Fuel Leak Case No. RO0003047), and 52 µg/l of total petroleum hydrocarbons as gasoline (TPHg) was detected. The source location of this contamination has not been determined. This well is not screened in a shallow zone, consequently the well documents hydrocarbon impacts at depth.

Based on a 1998 well survey a minimum of three additional wells appear to be present downgradient within 1,000 feet of the release, including two classified as domestic. Groundwater from these wells has not been tested to determine if they have been impacted by the petroleum release at the subject site. Additional water supply wells are understood to have been installed since 1998 in the general vicinity, but they have not been considered in an updated CSM to determine if they are located within a 1,000 foot distance.

General Criteria b: The unauthorized release consists only of petroleum.

The unauthorized release consists of petroleum hydrocarbons originating from gasoline USTs and waste oil USTs. An apparent diesel source remains unidentified at the site.

General Criteria c: The unauthorized (“primary”) release from the UST system has been stopped.

The primary source has not been identified; however, three releases have been identified from soil and groundwater analytical concentration trends collected from the site’s groundwater monitoring wells, including:

- A pre-1983 non-oxygenated fuel release (LNAPL discovered in well C-2 during well installation and development);
- Increasing TPHg and benzene trends in well C-2 that peaked in 1993 – 1995; and
- Increasing methyl tertiary butyl ether (MTBE) concentration trends that peaked in 1997.

A fourth release to soil is documented from soil samples collected during the waste oil UST removal conducted in 1999; however, required analysis for waste oil constituents including motor oil and related compounds (chlorinated volatile organic compounds [VOCs], semi-volatile organic compounds [SVOCs], metals, polychlorinated biphenyl [PCB], creosote, etc.) do not appear to have been included in analytical testing. The source of recently discovered diesel contamination has not been located, investigated, or characterized.

Based on concentrations of contaminants in groundwater, the gasoline release has been stopped. Residual soil contamination appears to be the source of on-going groundwater contamination; however the gasoline soil source has not been characterized.

General Criteria d: Free product has been removed to the maximum extent practicable.

LNAPL was reported at a thickness of ¾-inch (0.06 feet) at the time of development of well C-2. However, as onsite wells appear to be submerged by between 4 to nearly 7 feet (see discussion in General Criteria e), potentially up to 7 feet of product may have been present at that date, and not been detected. Analytical data indicates that contaminant concentrations are on a declining trend at the site; however, technical literature, including that cited in the SWRCB’s CA LUFT Manual, suggest that submerged wells do not produce representative groundwater concentrations or determine the thickness of LNAPL.

The *UST Case Closure Summary* notes the November 16, 2006 Cambria CSM update hypothesizing that the UST tank pit is filled with ponded groundwater as a result of the excavation of the pit into bedrock (i.e., creating a bathtub effect). This interpretation, which is not validated by available soil bore lithologic data, would also indicate that well C-2 is submerged by up to 7 feet. A well in this condition would not be capable of collecting required representative groundwater or LNAPL characterization data. In submerged well conditions LNAPL may be excluded from well entry by the refilling from the most productive (permeable) water zone (see cited technical literature, including that cited in the CA LUFT Manual). The presence of sheen and odor observed in groundwater monitoring wells during the May 2012 groundwater sampling event indicate substantial residual impact to soil. ACEH notes that the shallow source zone remains uncharacterized in multiple source areas as required by the policy and therefore does not meet the LTCP requirements.

The *Case Closure Summary* also indicates that well C-2 dewateres with purging on a *regular basis*. Data indicates that the well has been dry during that the last three sampling events (September 2011 to March 2012). These conditions represent a change in groundwater conditions not previously captured at the site. A complete review of past groundwater monitoring events indicates that the well has dewatered four times out of the 39 events that have been conducted since January 1995 (The majority of groundwater events conducted prior to the January 1995 date do not provide well purging details).

Please refer to Attachment 1, *Technical References Table* for a list of relevant state-of-the-practice technical references for appropriate well screen selection for LNAPL determination, and the significance of the absence of LNAPL in a well (and other relevant reference topics).

General Criteria e: A conceptual site model has been developed.

While a CSM was produced in 2003 and updated slightly in 2006, the CSM does not identify or address the following inconsistencies or data gaps that have been identified in more recent data as per the guidance presented in the CA LUFT Manual:

- Identification of and discussion of well conditions. As discussed above, submerged wells are incapable of collecting representative groundwater or LNAPL thickness measurements. Data documenting submerged conditions in wells at the site did not become available until February 2008, and thus this condition was not evaluated in the 2003 CSM and 2006 CSM update. Available generic (non-specific) well construction details indicate wells C-1 to C-4 were installed to depths of 15 feet below ground surface (bgs), with well screens installed between 5 and 15 feet bgs; however, field well depth measurements indicate these wells were installed to 17 feet bgs, thus the screen may be installed between 7 to 17 feet bgs, (implied by selection of a standard screen section length). Although no well construction details are available for wells C-1, C-2, and C-3. Given that depth to water at the site ranges from 0.25_ to 1.4 feet bgs, the site wells may consequently be submerged 6 to 7 feet. The exception to these apparently submerged water-table wells, is well MW-6 which was artesian shortly after installation and was therefore decommissioned; no other site wells have been artesian. The November 16, 2006 Cambria CSM update report states that there appears to be no hydraulic connection between well MW-6 and other site wells. This further suggests that well C-2 acts more as a submerged water-table well. Well C-2 is also currently measured to be 11.12 feet in depth and therefore contains up to approximately 6 feet of sediment. See Attachments 2, 3, and 4 for well construction details.
- Source area characterization. The upper five feet in a source area remains uncharacterized. Inherent inconsistency between soil bores C-A and C-E, which describe contaminated fill sand with a moderate to strong chemical odor between the depths of 2 and 12 feet and the presence of brick and shell fragments, and the 2012 geophysical survey which did not identify any fill soil or USTs in the same location of the site. Concentrations up to 1,600 milligrams per kilogram (mg/kg) TPHg, and 0.11 mg/kg benzene were detected in soil samples collected from the contaminated fill sand source area at depths of 5.5 feet bgs and deeper. A concentration of 220 mg/kg TPHg and 0.051 mg/kg benzene were detected in soil samples collected from gore C-E at 11.5 feet bgs. This is a data gap that affects the appropriate categorization of the site within the LTCP and is an impediment to implementation of the LTCP.
- Removal and off-site disposal of impacted soil. The *UST Case Closure Summary* acknowledges that an unknown number of USTs of unknown size appear to have been removed from the site, based on the July 2012 geophysical survey report. The removal and offsite disposal of soil associated with these USTs is not documented, would not be expected in the pre-environmental era, and the backfilled soil (a source area) is uncharacterized. This is a data gap that affects the appropriate categorization of the site within the LTCP and is an impediment to implementation of the LTCP. The *UST Case Closure Summary* states that impacted soil was removed from the site; this is not documented in the case file, and is contrary to standard practices in the pre-environmental era.
- Diesel source. Diesel has not previously been associated with the site, however, has been detected in well C-2, even with the use of silica gel cleanup, at elevated concentrations (recently at 5,700 µg/l). The USTCF misstates that the City of Piedmont site is upgradient of the subject site and is the source of the diesel contamination. The City of Piedmont site is not up-gradient of the site, but is down-gradient to cross-gradient and thus cannot be the source of the diesel

contamination. Well C-5 is positioned between the two source areas of the two sites, is not submerged to the extent of well C-2, and is nondetectable for TPHd. The source of the TPHd has not been located, nor has the extent of soil contamination been characterized. The discovery of a debris pit at the upgradient edge of the subject site by the geophysical survey may be a potential source for this contamination and remains uncharacterized.

- Waste oil USTs. The presence of analytes known to be associated with waste oil USTs do not appear to have been previously investigated in soil or groundwater. Concentrations up to 1,600 mg/kg of total petroleum hydrocarbons as motor oil (TPHmo), 190 mg/kg TPHd, 4.2 mg/kg TPHg, 4.0 mg/kg MTBE; and non-detect for benzene, toluene, ethylbenzene, and xylenes (BTEX) (collected at unknown depths) have been detected in soil samples; however, chlorinated VOCs, SVOCs, metals, PCB, creosote, etc. have not been included in the analytical suite. This is a LTCP data gap.
- Naphthalene concentrations. The *Risk Criteria* section of the *UST Case Closure Summary* dismisses the lack of naphthalene data as relevant due to the belief that the release is entirely gasoline, and thereby fails to recognize the presence of TPHd and TPHmo detections and their likely effect on naphthalene concentrations. This is a LTCP data gap.
- Disposal of contaminated groundwater. The disposal method associated with the onsite surfacing of potentially significantly contaminated groundwater or disposal of "Grease Interceptor" drain liquids has not been addressed. Discharge to both sanitary sewers and storm drains has been suggested. Disposal of the liquids to the storm drain appears to be present based on photos in Attachments 5 & 6. Discharge to Piedmont Creek directly downgradient at an approximate distance of 336 feet has not been eliminated and would be characterized as either a nuisance or an ecologic concern under the LTCP. ACEH notes the interceptor trench is not called a French Drain, for control of nuisance waters, but a Grease Interceptor drain, implying "Grease" (assumed to be sheen or thick LNAPL, etc.) was observed in the discharging waters as of late 2006. At a minimum this site will require an institutional control for this condition potentially with periodic regulatory review, if case closure is considered for this site.

General Criteria f: Secondary source removal has been addressed. The secondary source is the petroleum-impacted soil, free product, or groundwater that acts as a long-term source releasing contamination to the surrounding area. Unless site conditions prevent secondary source removal (e.g. physical or infrastructural constraints exist whose removal or relocation would be technically or economically infeasible), petroleum-release sites are required to undergo secondary source removal to the extent practicable.

Secondary source zone removal has not been conducted nor addressed at the site. The USTCF states in the *UST Case Closure Summary* that impacted soil has been removed from the site. To date the removal of contaminated soil from the site has not been documented. The disposal of soil excavated during the removal of the waste oil UST remains undocumented. The disposal of liquids associated with this action is documented and manifested. Reuse of contaminated soil is presumed without required documentation and is considered a data gap.

In the *UST Case Closure Summary* the USTCF acknowledges that an unknown number of USTs of unknown size appear to have been removed from the site, based on the July 2012 geophysical survey report. The removal and offsite disposal of soil associated with these USTs is not documented, and would not be expected in the pre-environmental era. The backfilled soil (in a source area) remains uncharacterized. This is a data gap that can affect the appropriate implementation of the LTCP.

General Criteria g: Soil or groundwater has been tested for MTBE and results reported in accordance with Health and Safety Code section 25296.15.

Soil and groundwater has been tested for MTBE.

General Criteria h: Nuisance as defined by Water Code section 13050 does not exist at the site.

Based on surfacing of potentially significantly contaminated groundwater as documented in the attached photographs (previously discussed in General Criteria e, Attachments 5 & 6), public nuisance factors can and appear to still be present at the site. Pavement at this location has been repaired; however, discharge to the storm drain system and the local creek appear to be present. Without functioning

engineering and institutional controls, and based on the definition of nuisance contained in Water Code section 13050, nuisance issues appear to be present at the site.

Media-Specific Criteria 1. Groundwater: If groundwater with a designated beneficial use is affected by an unauthorized release, to satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal (sic) extent, and meet all of the additional characteristics of one of the five classes of sites listed in the Policy. A plume that is "stable or decreasing" is a contaminant mass that has expanded to its maximum extent: the distance from the release where attenuation exceeds migration.

While contaminant concentrations in groundwater appear to suggest a declining trend at the site, submerged wells cannot produce representative groundwater concentrations or determine the thickness of LNAPL (See Attachment 1; *Technical References Table*, and the CA LUFT Manual). In the *UST Case Closure Summary*, the USTCF staff selected Class 5 of the groundwater-specific criteria to demonstrate compliance with the LTCP. This consists of a review of site-specific conditions coupled with a finding that the contaminant plume poses a low threat to human health and safety, and safety to the environment. The USTCF's review and selection of this criteria is based on an incomplete data set (uncharacterized soil in the upper 5 feet as required by the policy), and was generated from wells with screens incapable of answering the requisite question (LNAPL or valid groundwater concentrations due to inappropriately screened wells as discussed in multiple technical references, including the CA LUFT Manual). Existing characterization of the site does not support this conclusion.

Media-Specific Criteria 2. Petroleum Vapor Intrusion to Indoor Air: The low-threat vapor-intrusion criteria in the Policy apply to release sites and impacted or potentially impacted adjacent parcels when: (1) existing buildings are occupied or may be reasonably expected to be occupied in the future, or (2) buildings for human occupancy are reasonably expected to be constructed in the near future.

The site is an active gasoline service station, and the groundwater flow path does not suggest impacts to adjacent parcels by vapor concentrations derived from groundwater.

Media-Specific Criteria 3. Direct Contact and Outdoor Air Exposure. Release sites where human exposure may occur satisfy the media-specific criteria for direct contact and outdoor air exposure and shall be considered low-threat if they meet any of the following:

- a. Maximum concentrations of petroleum constituents in soil are less than or equal to those listed in Table 1 for the specified depth below ground surface (bgs). The concentration limits for 0 to 5 feet bgs protect from ingestion of soil, dermal contact with soil, inhalation of volatile soil emissions and inhalation of particulate emissions, and the 5 to 10 feet bgs concentration limits protect from inhalation of volatile soil emissions. Both the 0 to 5 feet bgs concentration limits and the 5 to 10 feet bgs concentration limits for the appropriate site classification (Residential or Commercial/Industrial) shall be satisfied. In addition, if exposure to construction workers or utility trench workers are reasonably anticipated, the concentration limits for Utility Worker shall also be satisfied; or
- b. Maximum concentrations of petroleum constituents in soil are less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health; or
- c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, the regulatory agency determines that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health.

The lack of source area characterization between 0 to 5 feet in depth in source areas indicates sufficient data does not exist yet to demonstrate that site characterization is complete. The *UST Case Closure Review* specifically utilizes option b above to satisfy the LTCP criteria; comparison of maximum concentrations in soil to a site specific risk assessment. However, the risk assessment does not appear to have utilized maximum concentrations due to insufficient characterization in the shallow soil and therefore a data gap in USTCF's implementation of the LTCP for this site exists.

The *Risk Criteria* section of the *UST Case Closure Review* indicates that soil vapor has been sampled. ACEH is not aware of any soil vapor data for the site. The data referenced by USTCF appears to be for another site; therefore any conclusions about health risks at the site drawn from this data are invalid. Availability of soil vapor data would be insightful in determining the extent of shallow soil impacts at the

site and would provide multiple lines of evidence that all technical references indicate are appropriate, including the CA LUFT Manual ("Risk Evaluation and Risk Management" section).

The *Risk Criteria* section of the *UST Case Closure Review* also dismisses the lack of naphthalene concentrations as relevant believing the release to be limited to gasoline, and therefore fails to recognize the presence of TPHd and TPHmo detections and their likely effect on naphthalene concentrations.

Low-Threat Case Closure: If a case has been determined by the regulatory agency to meet the criteria in this policy, the regulatory agency shall notify responsible parties that they are eligible for case closure and that the following items, if applicable, shall be completed prior to the issuance of a uniform closure letter specified in Health and Safety Code section 25296.10:

- a. **Notification Requirements:** Municipal and county water districts, water replenishment districts, special acts districts with groundwater management authority, agencies with authority to issue building permits for land affected by the petroleum release, and the owners and occupants of all parcels adjacent to the impacted property shall be notified of the proposed case closure and provided a 60 day period to comment.
- b. **Monitoring Well Destruction:** All wells and borings installed for the purpose of investigating, remediating, or monitoring the unauthorized release shall be properly destroyed prior to case closure unless a property owner certifies that they will keep and maintain the wells or borings in accordance with applicable local or state requirements.
- c. **Waste Removal:** All waste piles, drums, debris and other investigation or remediation derived materials shall be removed from the site and property managed in accordance with regulatory agency requirements.

A review of the *Notice of Opportunity for Public Comment* dated August 31, 2012, and the *Revised Notice of Opportunity for Public Comment*, dated September 5, 2012 appears to indicate that only the Responsible Party causing the release has been provided the opportunity to comment; neglecting the current property owner and other RPs of record. While ACEH has received (October 22, 2012) a list of immediately adjacent property owners, there is no indication that these interested parties were included in the original mailing. In fact the actual property owners of the site were not included in the list received from the USTCF. Interested parties that would be notified (RPs of record, immediately adjacent neighbors, owners of all adjacent potentially impacted property above a plume, and property tenants when appropriate) do not appear to have been included in USTCF's list. Notification of each of these potentially interested parties is required by California H&SC and the SWRCB and Regional Water Quality Control Board's April 2005 guidance document entitled *Final Draft Public Participation at Cleanup Sites*. The lack of clarity or transparency is contrary to the intent of the *Low Threat Closure Policy*. Please be aware that as standard ACEH procedure, notified individuals are and remain publically available in the electronic case record. ACEH has attached a copy of an appropriate public notification area map and a list of owners and tenants (Attachment 7), which for this site this includes several downgradient public schools and multiple documented well owners.

Path to Closure Plan

ACEH believes that the data gaps identified above and in the attached *Low-Threat UST Case Closure Policy Compliance and Identification of Impediments to Closure Tool* can be largely addressed in a single comprehensive effort. ACEH anticipates requisite activities would include a search and submittal of overlooked site records and documents, a multiple pronged targeted site investigation, and a well survey and door-to-door canvas, and supply well sampling. This data would either support closure of the site under the LTCP or identify additional impediments to closure.

In accordance with the SWRCB's *Draft Plan for Implementation of Low-Threat UST Case Closure Policy and Additional Program Improvements*, ACEH recommends that a Path to Closure Plan be developed to include specific milestones and timelines for resolution of these impediments to closure and a goal date for closure.

Conclusions

The USTCF's evaluation fails to demonstrate that this site meets the criteria for the Low-Threat Closure Policy. As conducted, the USTCF's review conflicts with multiple technical resources, including the CA LUFT Manual which has been revised in part to provide support for the LTCP. The site has not been characterized to the extent required by the policy. While ACEH recognizes that the policy allows for exceptions, the preponderance of exceptions required for this site indicates that the review is insufficient. The recommended closure does not protect existing users of groundwater in the vicinity, may not protect a local creek and park, does not require maintenance of potentially existing engineering controls, and has not notified all appropriate interested parties of potential closure, including the current landowner, as required by regulations and policies. Consequently ACEH recommends that SWRCB not concur with closure at this time, the CSM be updated, that data gaps be addressed as identified in the attached ACEH *Low-Threat UST Case Closure Policy Compliance Checklist and Identification of Impediments to Case Closure Checklist*, a data gap work plan be prepared and submitted to ACEH for review and approval, and the work be conducted in order to progress the site towards closure under the LTCP.

Thank you for providing ACEH with the opportunity to comment on the subject site. Should you have any questions regarding the responses above, please contact me at (510) 567-6876 or send me an electronic mail message at mark.detterman@acgov.org.

Sincerely,

Donna L. Drogos, P.E.
Division Chief

Mark E. Detterman, PG, CEG
Senior Hazardous Materials Specialist

Attachments: Attachment 1 – Technical Reference Table
Attachment 2 – Well Construction Diagram
Attachment 3 – Well Construction Data Table
Attachment 4 – Well Gauging Data Sheet
Attachment 5 – City of Piedmont Site Drainage Photos
Attachment 6 – CRA Site Drainage Repair Photos (2 pages)
Attachment 7 – Public Notification Map and List of Owners and Tenants
Attachment 8 – ACEH LTCP and Impediment Identification Checklist

cc: Mr. John Randall, Chevron Products Co, 6101 Bollinger Canyon Road, #5244, San Ramon, CA 94583

Ms. Catalina Espino Devine, Chevron Environmental Management Co, 6101 Bollinger Canyon Road, San Ramon, CA; (sent via electronic mail to espino@chevron.com)

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Electronic File, GeoTracker

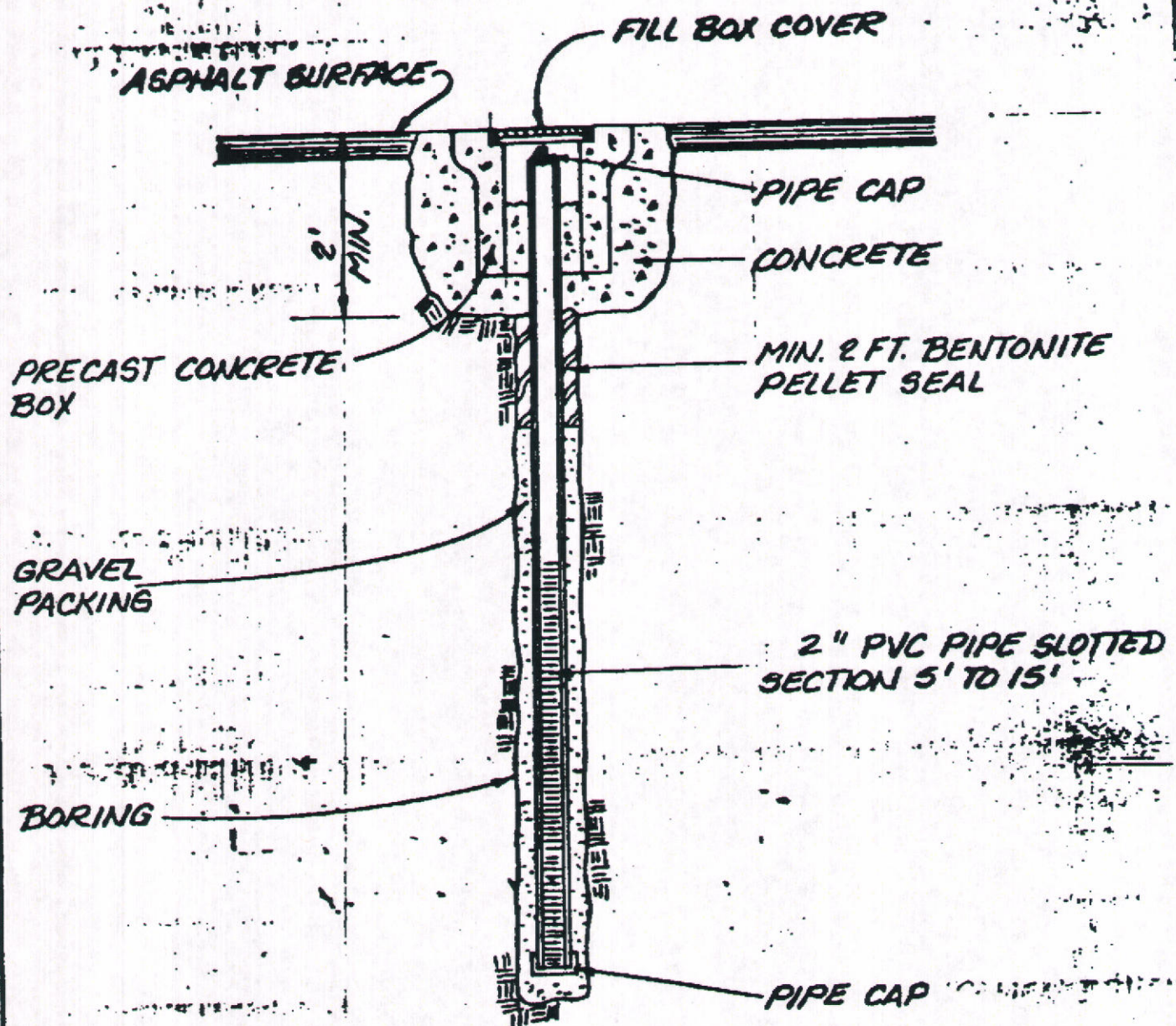
Technical References Table

TOPIC	KEY CONCEPT	QUOTATION	REFERENCE CITATION
Selection of Appropriate Screen Interval for LNAPL Detection	Wells intended to monitor for LNAPL can have long (10 - 15 ft) well screens that MUST extend across the interface; shorter well screens are recommended as appropriate for depth specific sampling (see further below).	For wells installed specifically to monitor the presence of LNAPLs, well screen length must be determined by the degree of water table fluctuation. ...the screen must be long enough to keep the water table within it during extreme highs as well as extreme lows, which means the...historical water-level data for the site or surrounding data [must be considered]. If the water table rises above the top of the screen, or falls below the bottom of the screen, it is not possible to use the well for LNAPL detection. Additionally, if a sediment sump is used on a well in which the bottom of the screen is above the water table, the sump may remain filled with water and the well may provide a false indication of the absence of LNAPL. Therefore, the well screen must be long enough to extend above the historical high (at least 3 feet), and below the historical low (at least 2 feet) and, if a sediment sump is used, it should have a drain hole to allow water to escape in the event the water level drops below the bottom of the screen. ...wells that are used for LNAPL detection, and in which LNAPLs are found, should not be used to collect groundwater samples for determination of dissolved-phase concentrations.	<i>Practical Handbook of Environmental Characterization and Groundwater Monitoring; David Nielson; 2006; 2nd ed.</i>
		(pg 643; paraphrasing) ... well screens that monitor groundwater quality at the top of the water table usually are 10 to 15 ft long, depending on anticipated long-term changes in groundwater elevation, and that some of the screen remains above the water table in the vadose zone. Wells with this design are used to monitor for the presence of LNAPLs (and well yield is sufficient to obtain a reliable water sample – e.g. is not a production well). This same paragraph also states that well screens (non-water table implied) are typically 5 to 10 ft in length because samples should come from specific depths (again because well yield is not the main objective).	<i>Groundwater & Wells; Robert J. Sterrett; 2007; 3rd ed. (The new Johnson Screen Book)</i>
		To avoid dilution, well screens should be kept to the minimum length appropriate for intercepting a contaminant plume, especially in a high-yielding aquifer. The screen length should generally not exceed 10 feet. If construction of a water table well is the objective, either for defining flow gradient or detecting the presence of floating non-aqueous phase liquid (NAPL), then a longer screen spanning the water table is acceptable, to account for NAPL's or seasonal water table fluctuations. The RP should not use screen lengths that create a conduit for contaminant transport across hydraulically separated geologic units.	<i>Monitoring Well Design and Construction for Hydrogeologic Characterization; CalEPA; July 1995</i>
		...the well screen must be designed to prevent clogging and intercept the water table at both high- and low-groundwater conditions....	<i>40 CFR Section 280.43(f) and Preamble</i>
		Section 8.2.7, Screen Length and Setting, pp 385 - 388, it states " To monitor the position of the water table or to detect the presence of LNAPLs, the screen must be set so that it intersects the water table. The screen must be long enough to intersect the water table over the range of annual fluctuation..." See Figure 8.6 for examples of screens set incorrectly and correctly.	<i>Contaminant Hydrogeology, C.W. Fetter; 2008, 2nd ed.</i>
The Absence of LNAPL in a Well	LNAPL Myths (In-Well LNAPL Thickness Dilemmas)	The absence of LNAPL in a monitoring well means that LNAPL is not present at that Location. <i>Not necessarily true</i> : The presence of LNAPL in a well in an LNAPL-affected area is highly dependent on the water table elevation, in relation to the LNAPL impacts, as well as many other factors relating to the characteristics of the LNAPL and soil. In an unconfined setting, in-well LNAPL thicknesses often vary inversely with water table elevation. Hence, an increase in water table elevation typically results in a decrease in in-well LNAPL thickness. Sometimes, during high water tables, the LNAPL becomes entirely submerged, and no LNAPL remains in the well. However, as the water table elevation decreases over time, the LNAPL reappears in the well. In a confined setting, in-well LNAPL thickness varies directly with potentiometric surface elevation. Hence, as the potentiometric surface elevation increases, in-well LNAPL thicknesses also tend to increase.	<i>Evaluating LNAPL Remedial Technologies for Achieving Project Goals; ITRC LNAPLs Team; December 2009; Appendix D</i>
		LNAPL showing up in a well(s) where it hasn't been detected in an extended period of time (months or years) suggests that the plume is migrating or that a new release has occurred. <i>Not necessarily true</i> : Water table elevations/fluctuations may prevent LNAPL from appearing in a given well for months or years. The LNAPL has not necessarily moved away; it may simply be submerged and does not have the ability to displace water and flow into the well screen.	<i>Evaluating LNAPL Remedial Technologies for Achieving Project Goals; ITRC LNAPLs Team; December 2009; Appendix D</i>

ATTACHMENT 1

Technical References Table

Contaminant Dilution	Contaminant dilution is a factor of screen length	<p>If the objective of a monitoring program is to define the true nature and distribution of groundwater contamination and hydraulic heads at a site where complex geologic and hydraulic conditions and contaminant distribution patterns occur...multiple wells with short screens placed at close intervals, or multilevel monitoring systems are needed. Wells screens should generally be between 2 and 5 feet, rarely exceeding 10 feet in length. On the other hand if the objective of the well is to monitor for gross presence of contaminants in an aquifer, a longer screen might be selected. This type of well would provide both an integrated water sample and an integrated hydraulic head measurement, and would thus serve only as a screening tool.</p>	<i>Groundwater & Wells; Robert J. Sterrett; 2007; 3rd ed. (The new Johnson Screen Book)</i>
		<p>...concentration of chemical constituents in samples collected from wells are composited over the length of the screen, typically representing a weighted average of concentrations across the screen. Concentrations are normally skewed toward zones of highest hydraulic conductivity, which will yield more water to the well when it is <u>purged and sampled</u>. Because the highest hydraulic conductivity zones are the most important contaminant transport pathways, it may be rationalized that such samples are acceptable in terms of accurately representing conditions in the formation. However, <u>significant dilution of samples</u>, caused by screens penetrating zones in which contaminants may not be present (e.g., lower hydraulic conductivity zones) and by <u>inappropriate purging and sampling practices</u> (e.g., purging large volume of water prior to sampling) is bound to occur....in fact concentrations in water table wells can vary by several orders of magnitude, depending on well screen placement and length.</p>	<i>Groundwater & Wells; Robert J. Sterrett; 2007; 3rd ed. (The new Johnson Screen Book)</i>
		<p>Seasonal variations in concentrations of dissolved-phase hydrocarbons can be extreme, because the vertical profiles of contamination below the water table essentially remain constant as the water table rises (when concentrations are typically more dilute) and falls (when concentrations are typically higher). Complicating this situation is the fact that in water table wells, samples represent a smaller interval of the saturated zone when the water table is lower, and a larger interval when the water table is higher. This makes accurate interpretation of sampling results, in terms of defining contaminant plumes, very difficult at best.</p>	<i>Groundwater & Wells; Robert J. Sterrett; 2007; 3rd ed. (The new Johnson Screen Book)</i>
		<p>...because of heterogeneities in geologic material that control contaminant transport, contaminant concentrations often vary by one to three orders of magnitude over vertical distances ranging from a few inches to a few feet.</p>	<i>Groundwater & Wells; Robert J. Sterrett; 2007; 3rd ed. (The new Johnson Screen Book)</i>
		<p>The length of the well screens in wells installed to define these conditions [groundwater chemistry, contaminant distribution, and hydraulic head] is the most important element in the success of a contaminant detection and monitoring program.</p>	<i>Groundwater & Wells; Robert J. Sterrett; 2007; 3rd ed. (The new Johnson Screen Book)</i>
Conceptual Site Model	The Official ASTM Definition: A CSM is not scattered	<p>ASTM Method 1689-95 describes development of an CSM. Section 1, Scope, states that this guide is intended to assist in the development of CSMs to be used for <i>integration</i> of technical information from various sources. Section 6.1, Assembling Information, under Procedure, calls for assembling information from numerous types of data. Per a dictionary "assembling" is an antonym for "scatter".</p>	ASTM 1689-95
DTSC Vapor Guidance	The State of the Practice - The collection of valid vapor data	<p>Quoting the DTSC Website: "DTSC's Vapor Intrusion Guidance provides a stepwise and sometimes iterative process for the investigation of vapor intrusion and describes procedures for screening and site-specific evaluation of potential risks associated with this exposure pathway. Indoor air concentrations estimated from soil gas or groundwater concentrations by fate and transport models for vapor intrusion and/or measured indoor air concentrations are used in the assessment. Models for estimating indoor air concentrations include default attenuation factors for vapor migration from soil gas or groundwater to indoor air, and default and site-specific inputs to the U.S. EPA version of the Johnson and Ettinger vapor intrusion model."</p>	<p>Final Guidance for the Evaluation & Mitigation of Subsurface Vapor Intrusion to Indoor Air (October 2011)</p> <p>http://www.dtsc.ca.gov/SiteCleanup/Vapor_Int rusion.cfm</p>



DEPTH OF HOLE: Varies

ATTACHMENT 3

Table 1 Well Construction Data, Former Chevron Station 9-0329, 340 Highland Avenue, Piedmont, California

Well	Top of Casing Elevation (ft msl)	Total Depth (ft)	Diameter (In)	Screen Interval (fbg)	Comments
C-1	Unknown	17.0	2	Unknown	This well was never sampled. It's status is unknown.
C-2	343.39	17.0	2	Unknown	Logs do not indicate screen interval
C-3	347.08	17.0	2	Unknown	Logs do not indicate screen interval
C-4	344.94	13.0	2	Unknown	Logs do not indicate screen interval
C-5	345.14	18.0	2	3-18	
C-6	338.61	17.5	2	2.5-17.5	
MW-6	Not Surveyed	20.0	2	5-20	Well abandoned

ft = feet msl = mean sea level
 fbg = ft below grade in = inches

ATTACHMENT 4

WELL GAUGING DATA

Project # 120309-PCI

Date 3/9/12

Client Chevron

Site 340 Highland Ave, Piedmont

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or <u>TOG</u>	Notes
C-2	0835	2					0.90	11.12	↓	
C-3	0800	2				1.42	13.30			
C-4	0752	2				2.42	9.72			
C-5	0845	2				2.45	17.00			
C-6	0915	2				0.72	17.31			
A	0808	6				1.37	8.13			
B	0816	6				3.60	9.00			

ATTACHMENT 5

340 Highland Ave.

1. Southern driveway showing continued seepage and pavement distortion.
2. Sewer drain inlet at end of driveway showing continued malfunctioning.
3. Small concrete patch of driveway at location of former barricades.



340 Highland Ave.

11-30-06/CGN

ATTACHMENT 6



**CONESTOGA-ROVERS
& ASSOCIATES**

January 26, 2011

Reference No 311776

- 2 -

Repair of Grease Interceptor/Drain and Asphalt Paving

As shown in the photo below, it appears that the asphalt surrounding the interceptor drain has been repaired. CRA and Chevron have attempted to gather information related to the repair, but no one has replied to our inquiries. Chevron does not own this property or facility and is not able to control the repairs requested by the ACEH.



Utility Map

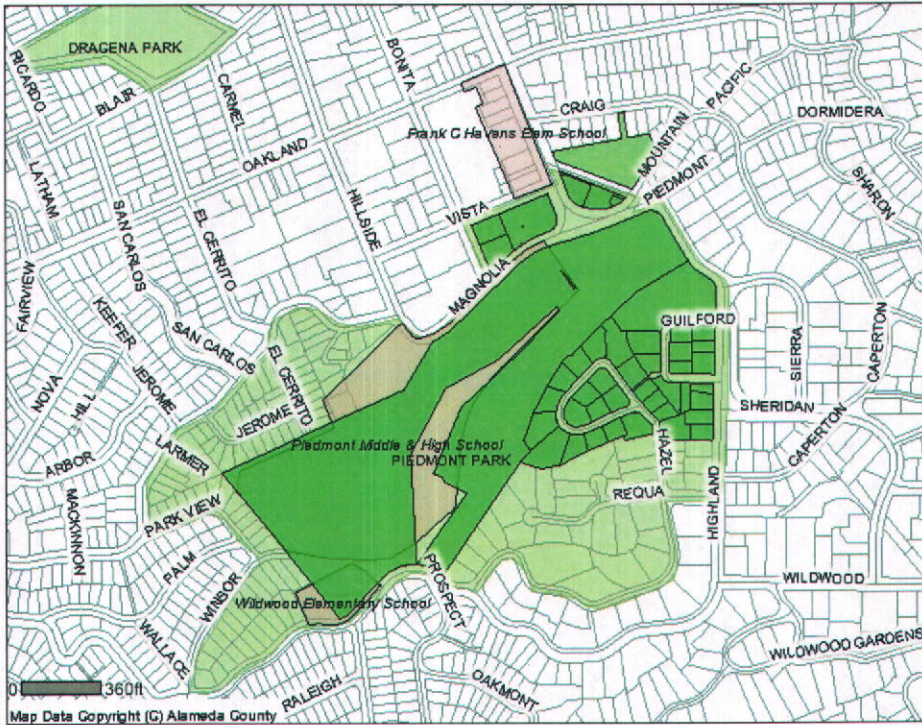
All utility locations and depths and diameters in the vicinity of the site are depicted on Figure 2. Based on CRA's site visit and Pacific Environmental Group's 1998 utility survey, the grease interceptor drain is connected to the sanitary sewer, not the storm water drains.¹ A sanitary

¹ Pacific Environmental Group, Inc., *Workplan for Groundwater Investigation* date September 9, 1998.



ATTACHMENT 7

RO269 Chevron #9-0329 Public Notification Map



- LEGEND**
- selected
 - Landmark
 - Landmark Name
 - County Buildings
 - Water Body
 - Railroad
 - Street Centerline
 - Parcel
 - Concrete Channel
 - Closed Conduit
 - Improved Creek
 - Natural Creek
 - Park



Printed: 10/31/2012

Disclaimer: The data, information, and maps provided herein are derived from various sources and are dynamic and in an ongoing state of maintenance, correction and update, and are subject to verification by the user and/or Alameda County. The mapped data depicted herein does not constitute a legal survey. The County of Alameda makes no warranty, representation or guarantee as to the content, accuracy, timeliness or completeness of any of the information implied herein. The County of Alameda explicitly disclaims any representation and warranties, including, without limitation, the implied warranties of merchantability and fitness for a particular purpose.

BAINS TARVINDER TRUST
Parcel #: 50-4623-6-1
6111 TURNBERRY CT
DUBLIN CA 94568

BENSON JOHN E & DIANE C
Parcel #: 51-4676-36
140 HAZEL LN
PIEDMONT CA 94611

BERL STEVEN H & BLOCH
Parcel #: 51-4676-38
132 HAZEL LN
PIEDMONT CA 94611

BERLEKAMP ELWYN &
Parcel #: 51-4676-24-1
120 HAZEL LN
PIEDMONT CA 94611

BURGE R G & TERRI S
Parcel #: 51-4676-45
131 HAZEL LN
PIEDMONT CA 94611

CALVIN & JANE
Parcel #: 51-4676-3-1
777 HIGHLAND AVE
PIEDMONT CA 94611

CASTRO ROBERTO B &
Parcel #: 51-4676-5
137 GUILFORD RD
PIEDMONT CA 94611

CITY OF PIEDMONT
Parcel #: 50-4625-1-3
120 VISTA AVE
PIEDMONT CA 94611

CITY OF PIEDMONT
Parcel #: 51-4680-1-4
760 MAGNOLIA AVE
PIEDMONT CA 94611

CITY OF PIEDMONT
Parcel #: 51-4676-1
120 VISTA AVE
PIEDMONT CA 94611

CITY OF PIEDMONT
Parcel #: 50-4625-3-1
120 VISTA AVE
PIEDMONT CA 94611

CLARK FREDERIC H & NOLAN
Parcel #: 51-4676-25-1
114 HAZEL LN
PIEDMONT CA 94611

COLBY CHRISTOPHER P &
Parcel #: 51-4676-29
104 HAZEL LN
PIEDMONT CA 94611

COMBES GENEVIEVE &
Parcel #: 51-4676-31-3
160 HAZEL LN
PIEDMONT CA 94611

CORNELIUS JODY A TR
Parcel #: 51-4676-44
141 HAZEL LN
PIEDMONT CA 94611

CROWLEY THOMAS B JR &
Parcel #: 51-4676-43
151 HAZEL LN
OAKLAND CA 94611

DEUTSCHE RICHARD A &
Parcel #: 51-4676-41
121 HAZEL LN
PIEDMONT CA 94611

ESCOBOSA PAUL & LAURA
Parcel #: 51-4676-39
128 HAZEL LN
PIEDMONT CA 94611

GOLDMAN JAY M &
Parcel #: 51-4676-7
793 HIGHLAND AVE
PIEDMONT CA 94611

HOEFS WILLIAM F & M K TRS
Parcel #: 51-4676-32
156 HAZEL LN
PIEDMONT CA 94611

HOFFMAN INVESTMENT
Parcel #: 50-4623-6-2
1035 EDWARDS RD
BURLINGAME CA 94010

HOFFMAN INVESTMENT
Parcel #: 50-4623-5
1035 EDWARDS RD
BURLINGAME CA 94010

JEWELL NICHOLAS P &
Parcel #: 51-4676-28
108 HAZEL LN
PIEDMONT CA 94611

JOHN & ELIZABETH D
Parcel #: 51-4676-6
791 HIGHLAND AVE
PIEDMONT CA 94611

JOSEPH CATHERINE & TOM
Parcel #: 51-4676-20
124 GUILFORD RD
PIEDMONT CA 94611

KRUSI GEORGE S & BARBARA
Parcel #: 51-4676-42
111 HAZEL LN
PIEDMONT CA 94611

KWAN SIMON H & CHAN
Parcel #: 51-4676-40-2
124 HAZEL LN
PIEDMONT CA 94611

LEE CHARLES S & KIM YAERI
Parcel #: 50-4625-4
342 BONITA AVE
PIEDMONT CA 94611

MANOLIS PAUL G & ELENE Z
Parcel #: 51-4676-21
100 GUILFORD RD
PIEDMONT CA 94611

MULHOLLAND LESLIE D TR
Parcel #: 51-4676-19
132 GUILFORD RD
PIEDMONT CA 94611

NEWTON PAUL & DEBORAH K
Parcel #: 51-4676-17
131 GUILFORD RD
PIEDMONT CA 94611

NUGENT GEORGE J & DIANA
Parcel #: 51-4676-18
135 GUILFORD RD
PIEDMONT CA 94611

PIEDMONT CHURCH CORP
Parcel #: 50-4623-4
400 HIGHLAND AVE
PIEDMONT CA 94611

RESIDENT
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129 GUILFORD RD
PIEDMONT CA 94611

RESIDENT
Parcel #: 50-4623-6-2
356 HIGHLAND AVE
PIEDMONT CA 94611

RESIDENT
Parcel #: 51-4680-1-4
MAGNOLIA AVE
PIEDMONT CA 94611

RESIDENT
Parcel #: 51-4676-1
711 HIGHLAND AVE
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RESIDENT
Parcel #: 51-4676-34
HAZEL LN
PIEDMONT CA 94610

RESIDENT
Parcel #: 50-4625-3-1
801 MAGNOLIA AVE
PIEDMONT CA 94611

RESIDENT
Parcel #: 50-4623-6-1
340 HIGHLAND AVE
PIEDMONT CA 94611

RESIDENT
Parcel #: 50-4623-5
HIGHLAND AVE
PIEDMONT CA 94610

SCHMIDT DAVID E & MARION
Parcel #: 51-4676-4-1
781 HIGHLAND AVE
PIEDMONT CA 94611

SEAVEY WILLIAM A & MARY
Parcel #: 51-4676-16
90 HAZEL LN
PIEDMONT CA 94611

SHERRERD SUSAN M
Parcel #: 51-4676-35
144 HAZEL LN
PIEDMONT CA 94611

STOCK JOHN V & PEGGY M
Parcel #: 51-4676-2
50 GUILFORD RD
PIEDMONT CA 94611

STRAUCH ROGER A &
Parcel #: 51-4676-23
125 GUILFORD RD
PIEDMONT CA 94611

SULLIVAN WILLIAM J &
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1530 LEIMERT BLVD
OAKLAND CA 94602

TAYLOR ROBERT O, ANN R &
Parcel #: 51-4676-33
152 HAZEL LN
PIEDMONT CA 94611

TAYLOR ROBERT O, ANN R &
Parcel #: 51-4676-34
152 HAZEL LN
PIEDMONT CA 94611

THEIS DAVID S & ROYCE
Parcel #: 51-4676-30
100 HAZEL LN
PIEDMONT CA 94611

VANDEBYL MICHAEL
Parcel #: 51-4676-8
795 HIGHLAND AVE
PIEDMONT CA 94611

WIETELMANN ROLF T &
Parcel #: 51-4676-37
136 HAZEL LN
PIEDMONT CA 94611