ZONE 7 WATER AGENCY
TOXIC SITES SURVELLIENCE
ANNUAL REPORT 2011

INTRODUCTION

Zone 7 documents and tracks polluted sites across the groundwater basin that pose a potential threat to drinking water and interfaces with lead agencies to assure the Main Basin is protected. Information is gathered from state, county, and local agencies, as well as from Zone 7's well permitting program and the State Water Resources Control Board's (SWRCB) GeoTracker website. This tracking program is designated the "Toxic Sites Surveillance (TSS) Program" and a report is generated annually to update the progress of investigations and clean-ups. Each site has been given a Zone 7 number, which corresponds to the file number containing reports or other information about the site. In addition, all sites are reviewed and given a ranking based on criteria used by the Regional Water Quality Control Board (RWQCB) and Alameda County Environmental Health (ACEH) that have been modified to meet Zone 7 standards. Attachment A shows the priority ranking scheme. A site is designated as a high priority case if the following conditions occur:

1. Contamination at the site is in groundwater at concentrations greater than the drinking water maximum contaminant level (MCL); AND
   a) A water supply well is within 2,000 feet (ft) downgradient of the site; OR
   b) A currently used municipal or domestic aquifer is impacted or threatened by future contamination migration.

A secondary ranking is used to represent the remedial status of the site. Attachment B shows the status codes used in Zone 7's database. These codes differ slightly from those used by ACEH and RWQCB to better meet the needs of Zone 7. For example, a closed case is listed as a Status "CL" in the TSS program database, instead of the RWQCB's code of "9."

Zone 7's GIS database and map system allows for basic information on each site to be stored and displayed geographically. This database is maintained by Zone 7 staff to help assess the potential threat to our drinking water posed by a given site. Zone 7 staff may access the database at **\\zone7-file\mapinfo\Toxic\Toxsit.mdb,** using MS Access database software. The public may contact Colleen Winey at (925) 454-5064 for information regarding particular sites or to view Zone 7's Toxic Site files.

PRIMARY CONTAMINANTS

In general, the TSS program has found two types of contamination threatening groundwater in the Livermore-Amador Groundwater Basin: fuels and industrial chemicals. The fuels are petroleum-based products that include total petroleum hydrocarbons gasoline (TPHg), TPH diesel (TPHd), benzene, toluene, ethylbenzene, xylenes (collectively known as BTEX), and oxygenates including methyl tertiary-butyl ether (MTBE) and tertiary-butyl alcohol (TBA).

MTBE was used as a fuel additive in gasoline between approximately 1979 and 2004; the state of California banned the use of MTBE in gasoline on January 1, 2004. MTBE is a particularly troublesome compound because it readily dissolves in groundwater creating contamination that tends to migrate faster and farther than the other fuel components. California has established a primary Maximum Contaminant Level (MCL) for MTBE in drinking water of 13 micrograms per liter (µg/L) or parts per billion (ppb) and a cleanup goal of 5 µg/L (ppb) which represents the threshold for taste and odor detection.

TBA is another oxygenate that has been detected in our groundwater basin. TBA can be manufactured and added to gasoline as an oxygenate or it can occur as a degradation product of existing MTBE contamination. California has established a Provisional Action Goal (PAG) of 12 µg/L (ppb) for TBA. Of the BTEX constituents, benzene is considered to be the most harmful to human health and therefore has the lowest corrective action threshold; 1 µg/L (ppb), which is the MCL. A cleanup standard for total petroleum hydrocarbons as gasolines (TPHg) or as diesel (TPHd) has not officially been established. Cleanup standards for TPHg and TPHd vary among the different county and local regulatory agencies, and are generally driven by the cleanup standard for BTEX and MTBE. Environmental Screening Levels (ESLs) may also be used as the cleanup goal on a site specific basis.

The primary industrial chemical contaminants of concern in the Tri-Valley are tetrachloroethene (PCE), trichloroethene (TCE), and their degradation products. Both chemicals are chlorinated solvents. PCE is a common chemical used in the dry cleaning of garments. TCE is a common degreaser used in the electronics, automotive and metal plating industries. The MCL for both PCE and TCE is 5 µg/L (ppb).

UNDERGROUND STORAGE TANK CLEANUP PROGRAM

The State Water Resources Control Board (SWRCB) has been continuing to take steps to streamline the process for site closure in the interest of conserving the Underground Storage Tank (UST) Fund, without compromising water quality objectives and human health and safety. Case reviews and reports to the State Board were due June 30, 2010. None of the Zone 7 designated high priority sites has been closed under this review process. (One of the Zone 7 designated high priority sites was recommended for closure based on a SWRCB review in 2010. ACEH and Zone 7 did not concur with the State's approach and as a result the case is still open.) As a result of the Resolution, most petroleum cases have been reduced to a semi-annual monitoring basis.

The State has produced a Draft Low-Threat UST Case Closure Policy intended to be used to allow for closure of some of the low-threat cases in order to use funds on cases that are more pressing. The Policy includes criteria that, if met, would allow petroleum contamination to remain in soil and groundwater at certain UST or former UST sites while closing their cases. The proposed criteria take into account existing supply wells and surface water bodies, but in Zone 7's opinion are not protective enough of future water beneficial uses. Zone 7 has submitted written comments on the Draft Low-Threat UST Case Closure Policy to the SWRCB in March 2012. The comments included the recommendation that the first General Criteria of the Policy for low-threat case closure be modified to read "The unauthorized release is located

within the service area of a public water system *that does not use the local groundwater basin as a supply*." Zone 7 will also be voicing strong concerns by giving oral testimony at the SWRCB public hearing on the policy in April 2012.

CASE INFORMATION

Zone 7 Water Agency is currently tracking the progress of 70 active sites where contamination has been detected in groundwater or is threatening groundwater. There are 16 active sites where the contaminate plume is within 2,000 feet of a municipal water supply well and are classified as "High Priority" cases due to their impact or threat of impact on potable groundwater supplies. Zone 7's database contains 239 other contamination cases that have been either "Closed" or deemed "No Action Required" because they have been cleaned up or they pose minimal threat to drinking water supplies. Two new cases have been opened since the publication of the Toxic Site Surveillance TSS 2010 Annual Report in February 2011. During this same period, two cases were closed, and twelve more have requested and are being reviewed for closure at the time of this report.

The locations of all the toxic sites are shown on the enclosed maps; Livermore-Figure 1, Pleasanton-Figure 2, and Dublin-Figure 3. The maps also show the toxic site's proximity to the Valley's municipal water wells. Figure 4 shows the approximate locations of all the VOC plumes in Zone 7's groundwater basin. Table 1 contains an informational summary for each of the 70 active sites including the case status, its priority, and which agency is responsible for providing oversight on the case. It also shows the chemicals of concern for each case and provides brief notes regarding the case. Attachment A of this report describes the priority ranking scheme for sites, whereas, Attachment B contains the key for the Status Code designations.

New Sites:

The following Toxic Sites represent the new cases that were discovered and documented since the last TSS Annual Report was issued. All are classified "Low" to "Medium Priority" at this time; however, their priorities will be reevaluated as the results from further investigations are reported.

- Site 312: Cemex Sunol, 6527 Calaveras Road, Sunol. Priority: 3A1; Status: 1. A fuel spill occurred on the site September 7, 2011. The case was turned over to ACEH.
- Site 313: Just Tires, 1485 First Street, Livermore. Priority: 2A4; Status: 1, Diesel range organics (DRO) and oil range organics (ORO) were detected in one soil sample beneath the site. An MCL for diesel fuel has not been established but the sample contained DRO above the established ESL for subsurface soil. The contaminated soil will be removed and confirmation samples will be collected. This site is within 2,000 feet of a municipal supply well. However, contamination has not been detected in groundwater so it has been classified as a moderate priority site until the contamination is removed.

Closed Sites:

The following Toxic Sites were granted "Case Closed" status since the last TSS Annual Report was issued. Generally, the contamination at these sites was characterized, remediated and monitored sufficiently to demonstrate that they no longer pose a risk to human health and the environment. Zone 7 Staff concurred with the lead agency's decision to close these cases.

- Site 197: Shell-Branded Service Station, 11989 Dublin Boulevard, Dublin. A case closure letter was issued by ACEH on December 5, 2011. The letter states the site is certified for commercial land use only.
- Site 235: Geno's Country Store, 1000 Vasco Road North, Livermore. A case closure letter was issued by ACEH on November 7, 2011.

Sites Pending Closure Review:

"Case Closure" was requested by representatives for the following Toxic Sites. At the time of this report, the Lead Agencies have considered the requests, but have asked for additional information before making their decision.

- Site 111: Arco #00771, 899 Rincon Avenue, Livermore. A case closure request was submitted by the RP. The RP feels the case qualifies for low-risk closure under the draft guidelines. The case is classified as High Priority based on benzene elevated benzene levels (up to 15,000 ug/L) and it is 850 feet from an active municipal supply well. Zone 7 has notified ACEH that is it opposed to case closure at this time. ACEH response to the RP's closure request is pending.
- Site 128: Laidlaw Transport, 2908 Ladd Avenue, Livermore. A Soil and Groundwater Characterization Report/Request for Low Risk Closure Report was submitted to ACEH by the RP. The case is classified as High Priority based on benzene levels above the MCL and the proximity to a municipal supply well (500 feet). Localized high levels of TPHg (up to 65,000 ug/L) and benzene (up to 8,700 ug/L) are still present in groundwater at the site. Zone 7 has notified ACEH that is it opposed to case closure at this time. ACEH review of the request is still pending.
- Site 157: Arco #6041, 7249 Village Parkway, Dublin. A case closure request was submitted to ACEH by the RP. There are low levels of fuel constituents in the groundwater. This site is outside of the main basin and is classified as Low Priority. ACEH review is pending.
- Site 225: Springtown Gas/Arco, 909 Bluebell Drive, Livermore. ACEH is reviewing the case closure request for commercial use of the property. RP is required to distribute a Notification of Potential Case Closure to allow for public comment on the potential closure. There are localized low-levels of fuel constituents in groundwater at the site. The site is a Low Priority case located outside the main groundwater basin, and offers little or no threat to potable supplies.
- Site 226: Livermore Gas and Minimart, 160 Holmes Street, Livermore. The RP requested this case be considered for low-risk closure. This is a High Priority case within 2,000 feet of a municipal supply well. Active remediation has taken place at the site

which has significantly lowered the concentrations of fuel contaminants in the groundwater. Most of the off-site contamination has been lowered below detection limits. However, high concentrations of fuel oxygenates (MTBE and TBA) remain on site. Zone 7 and ACEH agree that case closure is not appropriate at this time. ACEH response to the RP's request is pending.

- Site 227: Can Am Plumbing, 151 Wyoming Street, Pleasanton. ACEH is reviewing this case for closure. The RP is required to distribute a Notification of Potential Case Closure to allow for public comment on the potential closure. MTBE remains in groundwater at concentrations up to 1,300 ug/L. This was a Moderate Priority case.
- Site 249: Sunol Pump Station/Maintenance Yard, 505 Paloma Way, Sunol. ACEH has reviewed the case and will issue a case closure letter once they have received documentation of proper decommissioning of the site's monitoring wells. This is a Low Priority case located outside the main groundwater basin and no domestic supply wells have been impacted.
- Site 254: Mission Valley Rock & Asphalt, 7999 Athenour Way, Sunol. The RP requested closure. A public meeting was held to allow for public comment on the potential closure. Comments on the case are still pending. This is a Low Priority case located outside the main groundwater basin and no domestic supply wells have been impacted.
- Site 283: Former Quest Laboratory, 6511 Golden Gate Drive, Dublin. Case closure is pending. A closure letter will be issued when ACEH has received documentation of proper destruction of the site monitoring wells and a list of land owners form. This is a Low Priority case outside the main groundwater basin.
- Site 286: East Avenue Services (Rotten Robbie No. 64), 4186 East Avenue, Livermore. ACEH reviewed the case and will issue a case closure letter once they have received documentation of proper decommissioning of the site's monitoring wells. This was a Moderate Priority case on the edge of the main groundwater basin more than 2,000 feet from a municipal supply well. Benzene (up to 92 ug/L) and TPHg (up to 4,800 ug/L) remain in groundwater at the site. The remaining contamination is limited and not likely to impact potable supplies.
- Site 291: Perciva/Metro Valley Cleaners, 224 Rickenbacker Circle, Livermore. RP submitted a Closure Summary Report. ACEH review pending. PCE concentrations remaining at the site are below the MCL. This is a Low Priority site outside the main groundwater basin.
- Site 297: Pleasanton Fire Station #3, 3200 Santa Rita Road, Pleasanton. ACEH has agreed to evaluate the site for closure after the 4th Quarter Groundwater Monitoring Report is reviewed and the case is brought back into compliance by uploading all reports to GeoTracker. This case is classified as Moderate Priority because it is inside the main basin but drinking water is not likely to be impacted by the residual TPHd (up to 170 ug/L) and TPHmo (up to 520 ug/L) remaining in groundwater beneath the site.

High Priority Sites:

The following are summaries of the "High Priority" Toxic Sites organized by the city in which they are located. The most recent activities are summarized in the "Current Action" sub-sections. The key for the priority numbering system can be found in Attachment A.

Livermore

SITE 62: B&C Mini Mart (Desert Petroleum)
Priority: 1A2

Background

This gas station, currently known as Valley Gas, is located at 2008 First Street in Livermore. Desert Petroleum owned and operated the site until 1994, when it filed for bankruptcy and sold the property to its current owner. The site is contaminated with TPHg, MTBE, and benzene. In total, there are 40 monitoring wells associated with this site.

Contamination was first detected at the site in 1988 in the backfill surrounding the underground storage tanks (USTs). Free product was detected in one monitoring well, MW-2. Product removal from this well began at that time and continued on a semi-monthly basis until early 1995. In March 1995, another release was reported from the site. Again free product was detected in MW-2 and product removal was performed. In 1996, all USTs were replaced with double-walled fiberglass tanks, fiberglass piping, and an automated leak detection system. Two additional monitoring wells were installed offsite at this time to further delineate the extent of the plume. Free product was detected in these wells and remedial actions were taken to remove the product from these wells. In 1999, nine more monitoring wells were installed further downgradient to define the extent of the plume, including monitoring wells D-1 and D-2 which were completed in a lower aquifer to examine whether contamination had impacted the deeper semi-confined aquifer that California Water Services wells produce from.

ACEH requested additional site characterization in 2003, including the installation of multi-level wells with more discreet screened intervals to replace the current long-screen wells and to help define the northern edge of the plume, leading to a site conceptual model. Four multi-level wells were installed and sampled in August 2003. Three are located off-site at the northern edge of the plume and one is located on-site near the source. MTBE concentrations have fluctuated since then but MTBE was detected in the onsite well above the MCL of 13 µg/L (ppb) during the most current sampling event in 2011. The northern edge of the plume has moved beyond the three multi-level wells, but does not appear to be moving directly toward Cal Water Service's Well No. 8 (CWS-08).

A site investigation performed in March 2006 revealed a source zone area estimated to be approximately 250 feet long, extending to the northwest from the tank pit, and approximately 80 to 120 feet wide. The zone of LNAPL (Light Non-Aqueous Phase Liquids or free product) is generally confined to the lower coarse grained unit with the majority of the impacted sediment from 36 to 48 feet bgs. In August 2007, an ozone sparge/vapor extraction (OS/SVE) test was conducted. The OS/SVE was put into operation soon after. The OS/SVE system has operated

sporadically and was operated during 2011 with multiple shutdowns for maintenance and repairs.

Special Notes

The former California Water Service (CWS) supply well CWS-03, the closest water supply well to the site, has been properly destroyed. However, the contamination has historically been detected within 800 feet of CWS-08, one of CWS' active municipal supply wells, but not in samples collected from CWS-08.

Current Action

ACEH approved an amended Corrective Action Plan (CAP) proposing target cleanup levels and an expanded soil vapor extraction pilot test submitted in September 2011 with the additional requirement of monitoring potential vapor migration. Groundwater monitoring is continuing on a semi-annual basis.

SITE 84: Arrow Rentals
Priority: 1A2

Background

A service station operated at the site between 1951 and 1968. In 1972, three 1,500-gallon USTs were removed from the site after they failed integrity tests. In 1985, one 1,000-gallon gasoline UST was installed in the southeastern portion of the site. Later that year, approximately 600 gallons of gasoline were accidentally dispensed into an adjacent vapor monitoring well.

Several soil and groundwater investigations were conducted between 1988 and the present, including soil and groundwater investigations, a dual-phase extraction pilot test, and regular groundwater monitoring from several onsite and offsite monitoring wells.

Investigation reports suggest that the extent of soil and groundwater impacts were limited to within 60 feet below ground surface (bgs) and up to 100 feet offsite. Concentrations in groundwater up to 65,000 ug/L of TPHg, 18,000 ug/L TPHd, and 14,000 ug/L benzene have been detected beneath the site.

Groundwater monitoring reports indicate that no free-phase hydrocarbons have been observed since November 2001 when 0.14 feet of hydrocarbons were measured in a well located approximately 40 feet downgradient of the impacted vapor well.

ACEH denied a request for case closure in 2005 due to their belief that the contamination had not been fully characterized. As a result, an additional soil gas investigation was conducted.

In 2006, a Dual Phase Extraction (DPE) pilot test was conducted at the site. Based on the pilot test results a Corrective Action Plan (CAP) was developed with DPE selected as the recommended remedial alternative. The CAP was approved by ACEH in August 2007, however, installation of the DPE system was delayed until Fall 2011 in spite of several enforcement letter written to the RP by ACEH.

Special Notes

This site is within 2,000 feet of Cal Water municipal supply well CWS-08.

Current Action

A 5-year review of the case was conducted by SWRCB in November 2011. In their Summary Report, the SWRCB agreed with ACEH's order for a DPE system to be installed and operated at the site. Consequently, a DPE System was installed and operated for 1,148 hours between Nov 15, 2011 and Feb 1, 2012. The RP shut down the system in February 2012 claiming lack of funding. The RP is now asking ACEH for help in restoring funding from the State's UST Cleanup Fund so they can afford to restart the system.

SITE 111: Arco #00771
Priority: 1A2

Background

In February 1990, a limited subsurface environmental assessment conducted in the area adjacent to four gasoline USTs indicated the presence of petroleum hydrocarbon impacted soil and free product beneath the site.

In December 1990, a supplemental subsurface investigation was conducted to evaluate the lateral and vertical extent of petroleum hydrocarbons in soil and ground water near the USTs. This investigation included the installation and sampling of monitoring wells. A sheen of free-phase product was observed in well MW-1 and 0.16 feet of product was measured in MW-2 during the first sampling event.

In 1991, an additional subsurface investigation was conducted to further evaluate the lateral and vertical extent of impacted soil and ground water, and to install four additional monitoring wells. Groundwater analytical results showed impacted groundwater at all the monitor well locations.

Later in 1991, a vapor extraction test demonstrated that vapor extraction was an effective method to remediate subsurface soils at the site.

In April 1992 and January 1993, additional soil sampling and monitoring well installations were conducted. No hydrocarbons were detected in any of the soil and groundwater samples collected offsite.

In March 1993, a Soil Vapor Extraction (SVE) system was installed. The system operated erratically due to rising groundwater conditions. The system was shut down permanently in October 1995. During its operation, the SVE system recovered a total of 56.9 pounds of hydrocarbons.

In 2006, an Air Diffusion (AD) Treatment system was installed for remediation of dissolved phase hydrocarbons.

Special Notes

This site is located within 800 feet of Cal Water municipal supply well, CWS-10.

Current Action

A Case Closure Request was submitted by the RP to ACEH in January 2012. The RP feels the case qualifies for low-risk closure because the source has been removed, concentrations are

below the draft low-risk criteria guidelines, the plume appears to be stable, and they believed there were no receptors nearby. Zone 7 has notified ACEH that we disagree with the claim of no nearby receptors because Cal Water operates an active municipal supply well approximately 800 feet from the site, and accordingly, request that ACEH deny the request for closure.

SITE 115: Livermore Arcade/Miller's Outpost Shopping Centers (LASC/MOSC)
Priority: 1A2

Background

The LASC/MOSC site formerly housed two dry cleaners that had various leaks/releases through time that caused groundwater contamination from PCE, a common dry-cleaning solvent. In 1990, soil and groundwater investigations determined the presence of PCE and petroleum hydrocarbons in groundwater. Remedial extraction wells were installed at the site later that year. In 1992, it was determined that the contamination at the LASC had co-mingled with contamination from the dry cleaner at MOSC. Soil-vapor extraction and air sparging began in 1993 as a joint remediation effort, and continued until late 1995, when monitoring determined that the amount of PCE being extracted was no longer significant. The pump and treat extraction wells continued operations until February 1996. In 1996, a non-attainment area (NAA), with an associated risk management plan was established around the LASC/MOSC, and approved by the RWQCB. Following the establishment of the NAA, PCE contamination was detected at levels exceeding the MCL or action levels outside of the NAA, and also in minor amounts at two downgradient water supply wells owned by CWS. In March 2000, the RWQCB revised the sampling requirements for the site and requested that a workplan be drafted to reinstate groundwater remediation at the site. Then in July 2003, the Water Board issued a Notice of Violation for failure to resume active remediation and submit and adequate 5-Year Status Report.

In 2004, the remedial strategy of in-situ chemical oxidation was pilot-tested using injected chemical oxidizers. Results of the pilot test showed the injection of permanganate reduced concentrations of PCE to below detection limits; however, no plans for a full-scale in-situ remediation project have been received by the RWQCB or Zone 7.

In 2007, a 5-Year Status Report was submitted that reported trigger level exceedences for MW-33 and CWS-14. In January 2008, Zone 7 requested that the Water Board issue a Cease and Desist Order for Violation of Order No. 96-052 and adopt a new clean up order with a more aggressive characterization and remediation. In a March 21, 2008 letter, the RWQCB approved a Contingency Plan which recalculated trigger levels of eight monitoring wells within the non-attainment area using the same method established in the original Board Order, but included data from 1992 to 2007.

In 2008, the multiple RPs collectively formed a Trust, the LASC/MOSC 2008 Trust 1 (2008 Trust) to manage and coordinate the ongoing investigation and future remedial plans. In a Groundwater Investigation Report submitted in 2009, the consultant delineated the PCE plume in the shallow and deep aquifers and assessed its impact to Cal Water supply wells CWS-08, CWS-14 and CWS-31. A concept level evaluation of remedial activities was also presented in the report.

Discrete sampling near the source area to determine the vertical and lateral extent of elevated PCE concentrations (ie: greater than 50 ug/L), was performed in November 2010. Preliminary data showed that the vertical extent of the elevated concentrations was about 70 feet bgs around the source areas, though low concentrations near or below the MCL were widely scattered to about 90 ft bgs. PCE concentrations above the MCLs have migrated down gradient of the source area and are entering the top of CWS-14's screened interval. The RWQCB required a remedial strategy to address the elevated concentrations in the source area, the above-MCL concentrations at the distal end of the plume and measures to protect CWS-14 be developed by March 2011.

Special Notes

This site is a major concern because PCE continues to impact California Water Service (CWS) wells CWS-08, CWS-14 and CWS-31. CWS currently operates a granulated activated carbon (GAC) system to remove PCE from the water produced by CWS-14 which otherwise has PCE concentrations above the MCL.

Current Action

In July 2011, the RP requested that they be allowed six to ten months to complete their financial arrangements among the various RPs and to select a contractor before constructing the planned remediation system(s). RWQCB is allowing this while considering their options for a new or revised Order. The design/construction of the new remediation system(s) is expected in spring 2012. The last groundwater monitoring event was conducted in October 2011.

SITE 128: Laidlaw Transport
Priority: 1A2

Background

The site is located at 2900 Ladd Avenue in Livermore, California and is currently occupied by Laidlaw Transit Maintenance Yard (a.k.a. the LVJUSD Bus Barn). Three former USTs were removed from the site in 1992. A fourth UST located on an adjacent LVJUSD property was also removed in 1992.

Following tank removal, numerous soil and groundwater investigations were conducted at the site to delineate the extent of impact. Groundwater monitoring and sampling continued at the site until 2003. It is unclear why the groundwater-monitoring effort was discontinued in 2003.

On November 18, 2010 ACEH issued a Notice of Violation (NOV) to LVJUSD. In the NOV, ACEH requested a work plan be prepared for an additional investigation to: 1) evaluate whether, the existing monitoring wells act as conduits for vertical contamination migration; 2) characterize the magnitude of concentrations in the shallow and deeper groundwater zones through detailed lithologic assessment; 3) conduct a survey of water supply wells within 2000 feet of the site; and 4) comply with GeoTracker reporting requirements.

Special Notes

There are two municipal supply wells within 2,000 feet of this site. Cal Water Well CWS-17 is approximately 500 feet south of the site and CWS-12 is approximately 1,200 feet from the site.

Current Action

The RP submitted a Soil and Groundwater Characterization/Request for Low Risk Closure Report to ACEH in January 2012. According to the RP's report only residual hydrocarbons and BETX remain and the plume is stable and decreasing and the residual hydrocarbons to not threaten the public's drinking water supply. However, the report only identified one of the nearby Cal Water municipal supply wells. Zone 7 is opposed to closure of this case because there is a supply well, previously unidentified by the RP, within 500 feet of the site. ACEH has indicated they will be denying the RP's request based on this new information provided by Zone 7.

SITE 191: Former Beacon, #3604
Priority: 1A2

Background

The site is currently an active service station and is located southwest from the Livermore Arcade Miller's Outpost (LASC/MOSC) site. In November 1992, three USTs were removed and replaced with new double-walled USTs. The fuel tank excavation was over-excavated removing approximately 1,200 cy of contaminate soil. A confirmatory soil sample contained 490,000 µg/L TPHg, 1400 µg/L benzene and 13,000 µg/L naphthalene. Hydropunch borings were advanced to further delineate the down gradient extent of the contaminant plume. In 1995, 27 dual-completion wells (capable of soil vapor and groundwater extraction) were installed. A remediation system began operating in June 1996 and ceased in January 1997. Benzene levels had decreased from 21,000 µg/L in March 1994 to 3,900 µg/L in June 1997.

Not much progress was made between 1997 and 2003 during which the property changed owners twice. In September 2003, three groundwater monitoring wells were installed to determine the lateral extent of petroleum hydrocarbons. Elevated levels of TPHg were detected in the 2004 and again in January 2006 which prompted ACEH to require remedial action. In September 2008, ACEH approved an Interim Remedial Action Plan to install deep monitoring wells, an oxygen injection system and a soil vapor extraction (SVE) system. Baseline sampling of injection wells revealed the highest concentrations of TPHg and benzene at 120,000 µg/L and 7,800 µg/L, respectively adjacent to the existing USTs. Construction of the oxygen injection system and soil vapor extraction system was completed in June 2010 and the SVE system operated using four wells. In October 2010, one foot of free product was detected in injection well IP-8, which is adjacent to the existing USTs. After removal by bailing, the thickness was measured at no more than 0.02 foot. A Work Plan to perform an investigation to determine the extent of free product near the USTs was approved by ACEH.

Special Notes

CWS supply well CWS-08, is located approximately 1,600 ft down gradient from this site.

Current Actions

An investigation using Membrane Interface Probe (MIP) technology was conducted in January 2011. Based on the investigation results, an offsite deep monitoring well was installed just down gradient of the USTs in April 2011. Elevated levels of TPHg (72,000 ug/L) and benzene (5,200 ug/L) were detected in the new deep zone monitoring well. The RP is continuing the

operation of the SVE and oxygen injection remediation systems. In addition, they will evaluate potential technologies and submit a work plan for remediation of the groundwater impacts observed down gradient of the USTs in the new deep well.

SITE 226: Livermore Gas & Mini Mart
Priority: 1A2

Background

This gas station is located at 160 Holmes Street in Livermore. In April 1999, three gasoline USTs and one diesel UST were removed. In July 2000, three groundwater monitoring wells were installed at the site and TPHg, TPHd, benzene, and MTBE were detected in groundwater samples. At that time, the benzene and MTBE concentrations were 6,400 µg/L and 320,000 µg/L, respectively.

Three additional offsite monitoring wells and an onsite extraction well were installed at the site in 2001: however, the extraction well did not produce significant amounts of water so a groundwater extraction system was not installed. During an additional investigation in November 2005, elevated levels of TPHg, TPHd, and MTBE were detected in groundwater samples collected adjacent to the former UST pit and directly downgradient of the site in all three water bearing zones tested (28, 50 and 70 feet bgs).

Based on the data collected during the 2005 investigation, seven new discrete depth monitoring wells and two new extraction wells were installed in the first quarter of 2006. Additional grab groundwater samples were collected in early 2007 to help define the source area and delineate the extent of contamination. Very high MTBE and TPHg concentrations (1,500,000 µg/L and 210,000 µg/L, respectively) were detected in CP-14, located near the source area.

A Dual Phase Extraction (DPE) pilot test was conducted in the two new extraction wells, but there was no vapor recovery during the test so it didn't appear that SVE would be an effective remediation alternative for this site. Consequently, batch groundwater extractions began on September 6, 2006 with ACEH approval. By the end of the first quarter of 2007, 16,652 gallons of groundwater were extracted and an estimated 0.49 pounds of TPHg, 0.033 pounds of benzene, and 2.21 pounds of MTBE were removed. An additional extraction well was installed adjacent to the location of CP-14, however a proposed GWE-only system was not approved by ACEH. As a consequence, a Soil Vapor Extraction (SVE) system was approved and added in the fourth quarter of 2009. A pilot scale operation was conducted April-July 2010 resulting in a cumulative mass removal of approximately 12.95 lbs of TPHg, 0.088 lbs benzene and 44.77 lbs MTBE combined.

Special Notes

Former CWS supply well CWS-03, which was approximately 1,000 ft downgradient from this site, has been taken out of service and destroyed. However, the contamination plume is within 1,500 feet of CWS supply well CWS-08.

Current Action

A Remedial Implementation, consisting of three separate chemical oxidant injection events between April 11, 2011 and May 23, 2011 was conducted at approximately 32 locations in the area of concern. A Soil and Groundwater Remedial Implementation Report was submitted to ACEH in August 2011. ACEH requested that quarterly groundwater monitoring be continued to better evaluate the effectiveness of the chemical oxidant injections, and that quarterly groundwater reports should include concentration versus time graphs and isoconcentration maps. Quarterly reports were requested through the First Quarter of 2012. In December 2011, the RP submitted a request for Low-Threat Case Closure. Zone 7 has notified ACEH that it is opposed to case closure at this time. ACEH's response is pending but case closure is unlikely to be considered prior to the completion of the requested quarterly monitoring and evaluation.

SITE 231: Unocal Station #4186
Priority: 1A2

Background

This gas station is located at 1771 First Street in Livermore and is owned by Tosco Marketing Co. Contamination includes TPH, benzene, and MTBE. MTBE has been detected in both onsite and offsite wells. In December 2001, an Ozone Microsparge system was put into operation. Concentrations in the on-site wells have decreased since the Ozone Microsparge system began operating, but the concentrations remained above the MCLs in both on- and off-site wells. In April 2006, additional borings were advanced to a depth of 60 feet bgs to delineate the vertical and lateral extent of contamination, and to more clearly define the subsurface lithology. Three coarse-grained water-bearing units were identified, suggesting a possible pathway for downgradient hydrocarbon migration. Dissolved phase hydrocarbons were detected in all three units. The Ozone Microsparge system was shut down in October 2006 to assess whether dissolved gasoline concentrations would rebound or remain stable in the absence of ozone injection with the current well configuration. The RP's consultant claimed that existing data showed ozone injection is effective in reducing petroleum hydrocarbon impact to the groundwater; however, ACEH points out that tertiary-butyl alcohol (TBA), a fuel oxygenate, concentrations remain elevated.

A magnesium sulfate pilot test was conducted from May 2010 to July 2010. Magnesium sulfate was applied to the "middle zone" (45'-50' bgs) via U-11, because it was the most impacted zone of the three zones. The Pilot Test Report reported increased concentrations of TPHg and MTBE following application. The consultant claimed it is not an uncommon short term reaction and recommended continued monitoring on a semi-annual basis. ACEH approved of their approach, but requested that they add monitoring for TBA by February 2011.

Special Notes

ACEH re-prioritized this site to 1A2 based on Zone 7's recommendation due to the proximity to CWS-08, and the presence of MTBE and benzene in concentrations exceeding their MCLs.

Current Action

First Semi-Annual Report of 2011 showed some decrease in concentrations of TPHg, MTBE, and BTEX. TBA was detected in onsite well U-11 at 11,000 ug/L. A Compound Specific

Isotope Analysis was performed on samples collected during the first semi-annual monitoring event to help determine the biodegradability of TBA at the site. The results will be presented in a later report. Semi-annual monitoring continues.

SITE 238: All Rents
Priority: 1A2

Background

This site at 2247 Second Street in Livermore once housed a dry cleaner. The soil and groundwater at this site are contaminated with PCE. The RWQCB has yet to recognize this site as an official case. Contamination was detected during a Phase I/limited Phase II site assessment when the property was being sold to the present owner in 1999. PCE was detected up to 5,280 micrograms per kilogram (µg/kg) in one of the four-foot depth borings. An additional site assessment was performed in May 2000 and confirmed that the contamination had spread to groundwater. One groundwater sample at a depth of 27 ft showed a PCE concentration of 430 µg/L and a TCE concentration of 250 µg/L. No permanent monitoring wells have been installed on the site; however, Zone 7 requested at least one downgradient well be installed subsequent to the removal of contaminated soil. The current property owner has no plans to fund clean up or investigation activities, and is researching the option of selling the property "as is". No action has been formally requested by the RWQCB because they have not opened an official case. In June 2009, Zone 7 Staff forwarded a letter from the property owner indicating that prior groundwater sampling took place at the site. Information on previous dry cleaners in the vicinity from a dry cleaner survey acquired by ACEH was also provided to the RWQCB.

Special Notes

Source removal at this site could theoretically downgrade its ranking to moderate or low priority, assuming the contamination is not widespread. The property is currently occupied by "It's All About Dancing," a dance studio.

Current Action

Now that a viable Responsible Party (RP) has been identified, Zone 7 is urging the RWQCB to open this site as a formal case and direct corrective action. The RWQCB attributes its inactivity on this case to resource constraints. Zone 7 may share the burden of locating the potential RP(s) for this site to expedite the process of opening this case.

SITE 259: Mills Square Park
Priority: 1A2

Background

This former service station site is the current location of the City of Livermore's Mill Square Park. Aerial photos indicate that the site was a retail service station from 1959 to 1973.

In 2003, a Phase I investigation and a subsurface soil and groundwater investigation were performed at the site as part of the City of Livermore's "due diligence" assessment of the property prior to their purchase. The latter investigation detected TPHd up to 42,000 ug/L, TPHg up to 18,000 ug/L, and benzene up to 140 ug/L in groundwater beneath the site.

In 2006, an additional soil investigation confirmed that TPHd and TPHg existed in soil above their respective ESLs. A geophysical survey revealed that two USTs remained at the site. These two tanks and their associated piping were removed in 2007, however, the soil samples collected during the tank removals indicated that TPHd and TPHg remained onsite above their ESLs. Groundwater samples were not collected in either of these investigations.

In 2008, another investigation was performed including, soil, soil vapor and grab groundwater sampling, and the installation of three groundwater monitoring wells. TPHd up to 52,000 ug/L, TPHg up to 18,000 ug/L, and benzene up to 14 ug/L were detected in groundwater beneath the site, no fuel oxygenates, including MTBE, were detected in any of the groundwater samples collected.

In 2010, three perched zone and six deeper zone (approximately 54 to 59 feet bgs) monitoring wells were installed to further define the extent of contamination at the site. ACEH has requested that a Pilot Test Work Plan or Corrective Action Plan (CAP) be submitted by the RP to start remediation activities at the site.

Special Notes

This well is approximately 1,500 feet from a municipal supply well operated by Cal Water, CWS-12.

Current Action

ACEH conditionally approved a “Work Plan for Feasibility Testing and Additional Assessment" which was submitted in October 2011. The conditions placed on ACEH’s approval were based on adding the following to the workplan: 1) increase the area of surface gypsum application; 2) add additional monitoring wells to evaluate effectiveness of the gypsum; 3) conduct a risk assessment on the application of gypsum in the landscaped area; and 4) reassess the lead risks based on the lower lead screening levels provided.

SITE 23: South Hop Shell
Priority: 1A2

Background

This Shell gas station is located at 3790 Hopyard Road on the corner of Hopyard Rd. and W. Las Positas Blvd, approximately 1,500 feet northwest of Zone 7’s supply well Hopyard No. 6. In 1987, the first two of many monitoring wells were installed. Detections of TPH-g and BTEX constituents caused Zone 7 to request additional monitoring wells. Three monitoring wells were installed in early 1988, and groundwater remediation began in 1989. In May 2001, groundwater extraction was resumed in three monitoring wells.

Between 2002 and 2005, site investigation work required by ACEH was conducted including the installation of additional soil borings and monitoring wells including two down gradient wells along the Arroyo Mocho to help define the extent of contamination off-site. Groundwater samples were collected from three identified water-bearing zones in the nine soil borings. Most of the detections of MTBE and TBA were in the first water bearing zone, approximately 15 to 20

feet bgs. However, these contaminants were also detected in three of 16 samples collected below the clay aquitard identified at around 50 feet bgs.

MTBE was not detected in the wells installed along the Arroyo Mocho; however, based on the MTBE concentration maps, it was thought that the southern edge of the MTBE plume may be discharging to the Arroyo Mocho. Samples collected to date from the Arroyo indicate that surface water quality does not appear to be impacted by the release.

In all, the groundwater extraction and remediation system removed 7.96 pounds of hydrocarbons and 15.6 pounds of MTBE since re-activation on July 1, 2003, while influent concentrations decreased, from 3,400 ppb of MTBE in July 2003 to 2.9 ppb in March 2006. After approval from ACEH, the groundwater extraction system was shut down in May 2006 to monitor groundwater quality under non-pumping (equilibrium) conditions. Since May 2006, the concentration of TBA in downgradient, off-site well MW-6 increased from 212 ppb in April 2006 to 7,100 ppb in November 2009. While the GWES may have been controlling plume migration, it was not achieving much mass removal.

In 2010, the State's UST Cleanup Fund performed a case review of all sites in their program and this site was considered for case closure. ACEH and Zone 7 did not agree with the State's proposal. Subsequently, a Work Plan for a Feasibility Pilot Study of magnesium sulfate injection was submitted to ACEH in May 2010, and after approval magnesium sulfate was applied to two onsite wells in the vicinity of the existing USTs. Although preliminary results indicated limited success in contaminant reduction, a decrease in sulfate detection correlates to higher hydrocarbon concentration and vice versa. This suggested that magnesium sulfate injection is a viable remedial method, but volume and frequency of application needs to be fine-tuned.

Special Notes

The contamination appears to be approximately 1,100 ft from Zone 7's municipal supply well Hopyard Well No. 6. Very low levels of MTBE detected in Hopyard Well No. 6 during Zone 7's aquifer storage recovery (ASR) project conducted in 2001 are attributed to low levels of MTBE present in the surface water injected into the well and not from this site.

Current Action

In April 2011, the RP submitted a Corrective Action Plan (CAP) that recommended monitored natural attenuation (MNA) as the preferred remedial alternative. ACEH disagreed with the proposed alternative at this time because of the increasing trend of TBA in downgradient well S-6. ACEH did accept, as the next remedial action, the RP's proposal to continue the semi-annual monitoring at this time to assess whether the plume is stable. The next semi-annual monitoring report is due April 2012.

SITE 54: Shell #13-5783
Priority: 1A2

Background

The site is an active service station located on Santa Rita Road at Valley Avenue. There are three fuel USTs present at the site.

In 2002, a soil and groundwater investigation was conducted. At that time, four monitoring wells were installed. Some BTEX compounds and TPHd were detected. Water levels rose substantially between the installation of the monitoring wells and 2006. In response, four additional monitoring wells were installed. Contaminants have been detected in groundwater beneath the sites at concentrations up to 25,900 ug/L of TPHg, 1,200 ug/L TPHd, 3,720 ug/L benzene, 250 ug/L MTBE, and 1,300 ug/L TBA. Groundwater sampling is conducted quarterly.

Special Notes

This site is located approximately 1,680 feet from the City of Pleasanton municipal supply well P-6 and approximately 1,970 from P-5.

Current Action

The monitoring wells at the site were sampled quarterly in 2011, however, sampling will be switched to semi-annual in 2012 (wells will be sampled during the 2nd and 4th quarters of each calendar year.) Concentrations appear to be relatively stable and the groundwater contamination appears to be contained onsite. In the 3rd quarter of 2011, MTBE was detected in two of the seven monitoring wells; both detections (63 and 27 ug/L) were above the MCL of 13 ug/L. However, there was insufficient water in these shallow wells during the 4th quarter sampling event to obtain a representative sample for comparison.

SITE 60: Former Steve's Exxon, #7-3399
Priority: 1A2

Background

This former Exxon gas station is located at 2991 Hopyard Road on the corner of Hopyard Rd. and Valley Ave. Pleasanton Well No. 7 is 250 ft from the site but has not operated since 1993. Zone 7's Hopyard Well No. 9 is 950 ft from the site. Contaminants at this site include TPHg, MTBE, and benzene. Quarterly groundwater sampling was initiated after free product was detected in an onsite well in 1988. Groundwater extraction and vapor recovery began shortly after and continued until June 1990 when it was terminated due to dropping groundwater levels. Vapor extraction methods were used intermittently to remove hydrocarbons from the subsurface until March 1993. In general, the majority of contamination was found in a perched aquifer that is encountered at a depth of approximately 10 ft. Some elevated levels of MTBE are documented in the 'Zone 1' aquifer at a depth of approximately 55 ft. In August 2000, three additional monitoring wells, two deep (up to 135 ft below grade) and one intermediate (70 ft below grade), were installed offsite to determine the extent of contamination and to serve as sentinel wells for municipal supply wells Pleasanton Well No. 7 and Hopyard Well No. 9.

Active groundwater remediation was restarted in March 2001. The groundwater extraction system targeted the perched (10 ft) and "Zone 1" (55 ft) aquifers. In March 2004, ExxonMobil requested authorization to shut down their groundwater extraction system citing low flow rates, low influent concentrations and low mass removal rates. The groundwater extraction system was shut down in October 2004 to monitor the groundwater under non-pumping conditions after having removed a total of 0.0078 pounds of benzene and 0.782 pounds of MTBE. The groundwater extraction system was restarted in February 2007 due to trigger levels being exceeded for three consecutive quarters.

A Work Plan was submitted by the RP and approved by ACEH to further characterize the vertical extent of MTBE in the source zone especially between the perched zone and "Zone 1."

Special Notes

MTBE has never been detected in Hopyard Well No. 9. Hydraulic communication between Zone 7's Hopyard 9 and the sentinel wells was confirmed in 2002. Some minor detections of MTBE had been reported in the sentinel wells in the past but they are thought to be from cross contamination during sampling and no contamination has been detected in these wells recently.

Current Action

The results of the Additional Soil and Groundwater Investigation conducted in February 2011 showed MTBE detected in all nine soil borings and groundwater samples. The Site Investigation Report stated that recommendations will be submitted under a separate cover and that document is still pending. Groundwater monitoring and active remediation continues at this site. The 3rd Quarter 2011 Report states that up to 10.2 lbs TPH, 0.2 lbs benzene and 10.7 lbs MTBE have been removed since remediation began.

SITE 242: Alameda County Fairgrounds
Priority: 1A1

Background

The Alameda County Fairgrounds is located within the Bernal Subbasin and is considered to be a small public supplier of drinking water. In December 2000, PCE was detected in the main fairgrounds well 3S/1E 20B 2 (20B2) at 5 ppb, which is the MCL established by the State. In early 2001, the well was resampled and the PCE level had risen to 16 ppb. This 500-foot deep well is within 7,000 feet of the Hopyard Well Field and within 4,000 feet of the San Francisco Water District's (SFWD) well field and screened from 218 to 500 feet below ground surface. This interval overlaps the screened intervals of the municipal water supply wells in the vicinity; however, PCE contamination has not been detected in the municipal supply wells.

Zone 7 staff requested that the RWQCB open this site as an official case; however, they have been reluctant to do so without the source of contamination being identified. There are several active dry cleaners in the area; however, the source of the PCE contamination has not been determined. PCE is continuing to be detected in the Fairgrounds Well, and there is some concern these concentrations could be trending upward. In 2001, Zone 7 staff sampled and analyzed a few monitoring wells existing in the area for general VOCs in an attempt to identify the source/direction of the PCE plume. The groundwater samples were analyzed in August 2001, but PCE was not detected in any of the samples collected.

Special Notes

Under the direction of the Department of Public Health (DPH), the Fairgrounds installed a wellhead treatment system (i.e., granular activated carbon (GAC) filtration system) in June 2001. The well and treatment system are still in operation.

Current Action

Zone 7 is continuing its effort convincing the RWQCB that this site should be opened as an official case. Staff is also continuing to research locations of former dry cleaners with ACEH's help to identify potential sources of the contamination. Historic aerial maps and Sanborn maps of the area will be examined to help determine past uses of properties nearby.

SITE 245: Hopyard Cleaners
Priority 1A2

Background

The Hopyard Cleaners is located at 2771 Hopyard Road in Pleasanton, just southeast of Site 60, Former Steve's Exxon. Phase II investigations of soil and groundwater were conducted at this site in April 2002. VOCs were detected in two soil samples and one groundwater sample collected from beneath the concrete floor. During a follow-up investigation in April 2003, four groundwater samples were collected from beneath the dry cleaners. PCE and its daughter product, TCE, were detected in all four groundwater samples collected. Investigations conducted between September 2003 and May 2004, detected PCE and TCE up to 3,300 µg/L (ppb) and 440 µg/L (ppb), respectively in groundwater samples collected near the dry cleaners. The MCLs for PCE and TCE are both 5 ppb.

Further investigations in January 2006, found dense non-aqueous phase liquid (DNAPL) is present at the site within the silt/clay confining zones beneath the water bearing zones.

In September 2006, the RWQCB adopted a tentative order requiring the RP to finalize the site investigation, implement interim remedial actions, and propose final remedial actions.

Between 2007 and 2008 additional monitoring wells were installed and sampled both on and off-site. PCE was detected above the MCL in two zones between 20 and 60 feet bgs both on- and off-site, but not in samples collected from the residential area beyond Hopyard Road.

As a consequence, RWQCB issued Board Order R2-2008-0032 which set final site cleanup standards and required additional site investigation, implementation of a cleanup plan, and long term groundwater monitoring. RWQCB also approved a Work Plan for a Soil Vapor Extraction and Treatment (SVET) System using 5 SVE wells. Installation and startup of the SVET System was initiated in August 2008. With elevated levels of PCE in shallow groundwater, the RWQCB issued a deed restriction, which prevents use of shallow groundwater beneath the site, and prohibits sensitive uses of the site such as day care or residential use during the remediation. After two years of operation, the SVET system has removed approximately 14.32 pounds of VOCs, and the groundwater-VOC plume appears to be stable.

A pilot study conducted in May 2010, to evaluate enhanced in-situ bioremediation (EISB) as a method to treat the groundwater zones. Third quarter 2010 performance monitoring results indicated decreasing concentrations of TCE and PCE, while concentrations of degradation products (cis 1,2-DCE and vinyl chloride) increased.

Special Notes

At this time, no outside funding source is available to assist with the investigation and clean up of "dry cleaner" cases.

Current Actions

A workplan for full-scale enhanced in-situ bioremediation (EISB) implementation was submitted to and approved by the RWQCB in January 2012. The follow up report is due sixty days after completing the first carbon substrate injection. Groundwater monitoring continues on a quarterly basis.

Sunol

SITE 250: Sunol Tree Gas Station
Priority 1A1

Background

Five 15,000-gallon gasoline USTs were removed from the site in April of 2002. During the tank removal approximately 4,000 cubic yards of contaminated soil were over excavated from the pit and approximately 160,000 gallons of water impacted by hydrocarbons were removed. The onsite supply well was tested and no fuel contaminants were detected. However, elevated MTBE and TPHg concentrations were detected in soil samples collected from borings drilled near the former UST and four shallow groundwater samples collected from beneath the site.

In February 2003, MTBE was detected in a domestic supply well located on the property adjacent to the Sunol Tree Station at 130 µg/L.

A temporary water treatment system was installed on the neighbors impacted well, in late 2003, but the gas station owner did not comply with ACEH's further site characterization directives, so the contamination investigation was taken over by ACEH as an Emergency, Abandoned, Recalcitrant (EAR) UST Account.

In July 2004, ACEH installed three nested piezometers on the impacted property to help characterize the extent of contamination and in December 2004, a new domestic supply well was installed on the neighboring property to provide a clean drinking water source for its residents. Also conducted in December 2004 was the installation of multi-level piezometers that transect the plume. Samples collected from these piezometers detected MTBE at levels up to 320 µg/L. The original domestic supply well on the adjacent property continued to pump and treat the groundwater, using granulated active carbon filters, as a remedial action.

However, in July 2010, ACEH issued a Notice to Comply to the new property owner and stated that the current pump and treat system was not an acceptable remedial strategy for the site. A Draft Corrective Action Plan screening viable remedial options was submitted to ACEH in December 2010.

Special Notes

Although this site is outside of the Main Groundwater Basin, it is within Zone 7's service area. It is classified as a high priority site because it has impacted a domestic water supply well. MTBE was not detected in any of the other water supply wells on the surrounding properties.

Current Actions

In November 2011, ACEH approved the RP's Interim Remedial Action Plan (IRAP) addendum with one addition. If toxic daughter products are detected above ESLs, ACEH must be notified immediately and contingency actions must be taken as outlined in the plan.

Dublin

Although several sites in Dublin have elevated levels of MTBE (i.e., >10,000 ppb) and one has elevated levels of TCE, none are classified as High Priority because they are not near drinking water wells.

Other Special Sites:

The following sites are not listed as high priority sites for the endangerment of the Livermore-Amador Valley Municipal Supply; however, these sites have a high profile due to media attention, recent activities, and/or local involvement. They are not considered to be high risk to drinking water because they either are in non-municipal supply areas of the groundwater basin and/or have undergone extensive remediation.

SITE 1: Lawrence Livermore National Laboratory (LLNL)
Priority 3A1

LLNL is a multipurpose research facility owned by the U.S. Department of Energy (DOE) and run by a management team which includes Bechtel National, University of California, Babcock and Wilcox, Washington Division of URS Corporation, and Battelle. Prior to its current use, the site was a Naval Air Station where aircraft maintenance was performed. The site was added to the National Priorities List (NPL) in 1984 and Superfund activities began at this time to address westward migrating Volatile Organic Compounds (VOCs) present in the groundwater. An annual environmental report is produced by LLNL to update monitoring and remedial activities that are continuing at the site. Copies of this report and other environmental publications can be accessed via the Web at www-envirinfo.llnl.gov.

Since remediation began in 1989, through 2010, approximately 2,876 kg of VOCs have been removed from soil vapor and groundwater. The LLNL 2010 Annual Report states that there has been very little change in VOC concentrations or the areal extent of contaminant plumes during 2010. Although the large budget shortfall in 2008 resulted in the non-operation of many LLNL groundwater remediation facilities, there was little to no evidence of measureable contaminant plume migration while these facilities were not operating. Hydraulic containment along most portions of the western and southern boundaries of the site was maintained. Remedial treatment facilities operations were restored in 2010, and progress was made toward interior plume and

source area cleanup. The latest results will be published in LLNL 2011 Annual Report due in Spring 2012.

Site 300, LLNL's Experimental Test Site, is located 12 miles east of the Livermore site in the Altamont Hills of the Diablo Range in San Joaquin and Alameda Counties. The major contaminants of concern at Site 300 are VOCs (primarily TCE), nitrate, perchlorate, tritium, depleted uranium, and metals. Site 300 is located outside of our main groundwater basin. The contamination plumes at Site 300 have been clearly defined and are part of an ongoing monitoring and remediation program. Annual Reports are forwarded to Zone 7 on a regular basis.

SITE 5: Sandia National Laboratory (SNL)
Priority 3A3

SNL consists of two sites of concern that are monitored on a quarterly basis: Navy Landfill and Fuel Oil Spill Site. Both sites are outside of our main groundwater basin. The Navy Landfill was operated from 1942 to approximately 1960, and received construction debris and soil.

Carbon tetrachloride was detected in one monitoring well at the Navy Landfill (NLF-6) in 1998. The RWQCB approved closure of the case in 1998 with conditions, including the monitoring of well NLF-6.

A diesel fuel spill occurred in 1975 at the Fuel Oil Spill Site (FOS). SNL began monitoring this site in 1985 and detected low levels of contamination. A cleanup system was installed and in 1995, bioremediation was begun. In 1999, the RWQCB allowed remediation to cease and monitoring to continue at a reduced scale.

Sandia currently samples seven groundwater monitoring wells (two at the Fuel Oil spill site on a semi-annual basis, one at the Navy Landfill site and four along the Arroyo Seco to monitor the effect of site operations on groundwater on an annual basis). No water samples were taken at the Fuel Oil Site in 2010 due to dry well conditions. These two wells have been dry for 6 consecutive years. The latest results of the annual sampling event at the Navy Landfill detected 1.2 ug/L of tetrachloride which is up slightly from 2009 (0.77 ug/L) and is above California's MCL of 0.5 ug/L but below the Federal MCL of 5 ug/L for tetrachloride. There was no TPH or metals above their respective MCL detected in any of the Arroyo Seco wells. An annual environmental report is produced by Sandia National Labs to provide a summary of environmental management performance and compliance efforts at its facilities. The 2011 report is due out in June 2012. This report can be accessed at www.sandia.gov/news/publications/environmental/index.html.

SITE 11: Intel Fabrication Plant 3
Priority 2A3

Intel owned and operated a semiconductor manufacturing plant at this location from 1972 to 1995. The VOC contamination is thought to have originated from a basement storage area. It is suspected that the VOCs leaked through a sump in the concrete floor. Groundwater monitoring

began in 1982. In 1983, limited source removal was conducted of the subsurface soil. In 1986, a groundwater extraction and treatment system was installed and began operating onsite. In 2000, additional source area remediation of soil and groundwater was begun to further reduce the contamination at the site. Groundwater extraction was discontinued in May 2000 after the source area remedial action began, and monitoring and contingency plans were prepared for the site. In 2003, Intel implemented an Enhanced In-situ Bioremediation project in the A-zone area in the northwestern portion of the site. In December 2004, an Order to Amend Final Cleanup Requirements was adopted by the RWQCB. The amendment states that Intel is still responsible for site cleanup even though Mines Road, LLC has acquired the property. Following the Enhanced In-situ Bioremediation, the consultant reported a 99% reduction of VOCs in this area from 2003 to 2005. In 2005, Intel expanded these remediation measures into the B-zone area, also located in the northwest portion of the site. The extent of the plume has been defined and monitored natural attenuation continues at the site. Annual Technical Reports are provided to Zone 7 every year.

SITE 137: Busick Gearing
Priority 3A3

This site at 6341 Scarlett Court in Dublin consists of three buildings located within a light industrial/commercial area. The site was originally occupied by a metal fabrication company and then by a company that manufactured printed circuit boards. Building 2, located in the southern part of the site, had a sump that was used to collect excess fluids from the various manufacturing processes. Various VOCs leaked from this sump into the underlying soil, and then migrated to the groundwater. The sump, and contaminated soil, was over-excavated in 1991 to a depth of 6 feet to achieve source removal; however, CPT/grab groundwater sample data collected in 2006 indicate that TCE exceeding 200 ppb extends across Interstate 580 to the south. An additional investigation to further delineate the extent of contamination, including collecting 14 grab groundwater samples, was conducted in 2008. The results of the investigation were submitted in a technical report in June 2008. However, the RWQCB stated that the investigation was inadequate because it did not address the full vertical extent of the plume.

The RP and their consultant have been meeting frequently with the RWQCB to determine an acceptable, but economical remedial strategy. They are currently leaning towards initially using in situ remediation methods to reduce contamination in the source area. RWQCB has maintained Zone 7's involvement in determining a reasonable timeframe for restoration of groundwater beneficial uses since if the TCE plume migrates further south, it will enter the main groundwater basin and could threaten future groundwater use.

SITE 290: Kinder Morgan Pipeline Leak
Priority 3A3

On June 15, 2006 residents of Dublin in close proximity to the South San Ramon Creek complained about a gasoline odor. A subsequent investigation by crews from Dublin Public Works and Kinder Morgan revealed that a leak of approximately 200 gallons of refined petroleum had been released from a pipeline along the Iron Horse Trail midway between Alcosta and Amador Valley Blvd. The City of Dublin oversaw the emergency clean-up, and the

RWQCB is the lead agency for the remaining investigation and cleanup. As part of this investigation and cleanup, 21 temporary wells were sampled during the fourth quarter of 2006. The concentrations of TPHg and BETX have remained steady or decreased in all but one well, Pit-1. On August 27, 2007, the consultant submitted a Comprehensive Site Status Report and Request for Closure letter report which was denied by the RWQCB. RWQCB then required that a workplan for additional investigation to determine the extent of contamination and establish quarterly monitoring of all existing monitoring wells at the site, commencing with the first quarter of 2009 be prepared. Discrete groundwater samples during the 1st quarter of 2009 revealed significant residual concentrations of total petroleum hydrocarbons and BTEX compounds in groundwater where three pits were excavated as part of the emergency cleanup action. Subsequently, the RWQCB issued a letter, requiring another Work Plan be prepared that addresses the data gaps in soil contamination assessment, and the vertical and lateral extent of groundwater contamination. Because the work and the resulting 2010 Technical Report did not address the RWQCB's requirements, the RWQCB issued a Notice of Violation. In October 2011, a Supplemental Site Assessment Report was submitted by Kinder Morgan's consultant. The report evaluated potential contamination pathways and recommends quarterly sampling in order to evaluate whether additional remediation is necessary.

LIST OF ACRONYMS

ACEH	Alameda County Environmental Health
BTEX	Benzene, toluene, ethylbenzene, and xylenes
CAP	Corrective Action Plan
CWS	California Water Service
EISB	Enhanced In-Situ Bioremediation
ESL	Environmental Screening Levels
GWE	Groundwater Extraction
IRAP	Interim Remedial Action Plan
MCL	Maximum Contaminant Level
MNA	Monitored Natural Attenuation
MIP	Membrane Interface Probe
MTBE	Methyl Tertiary-Butyl Ether
PCE	Tetrachloroethene
RP	Responsible Party
RWQCB	Regional Water Quality Control Board
SVE	Soil Vapor Extraction
SWRCB	State Water Resources Control Board
TBA	Tertiary-Butyl Alcohol
TCE	Trichloroethene
TPHg	Total Petroleum Hydrocarbons from gasoline
TSS	Toxic Site Surveillance
UST	Underground Storage Tank
VOC	Volatile Organic Carbon

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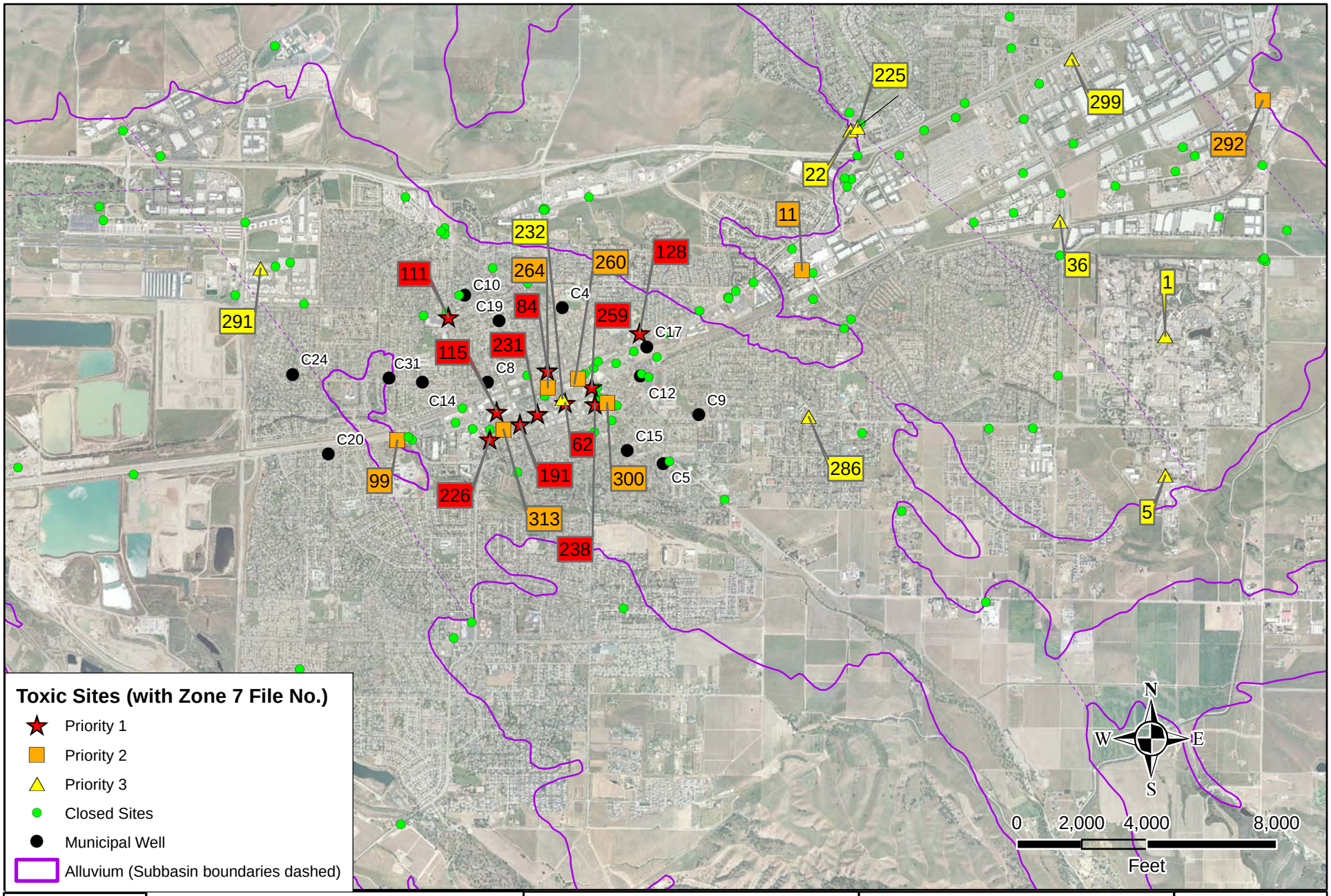
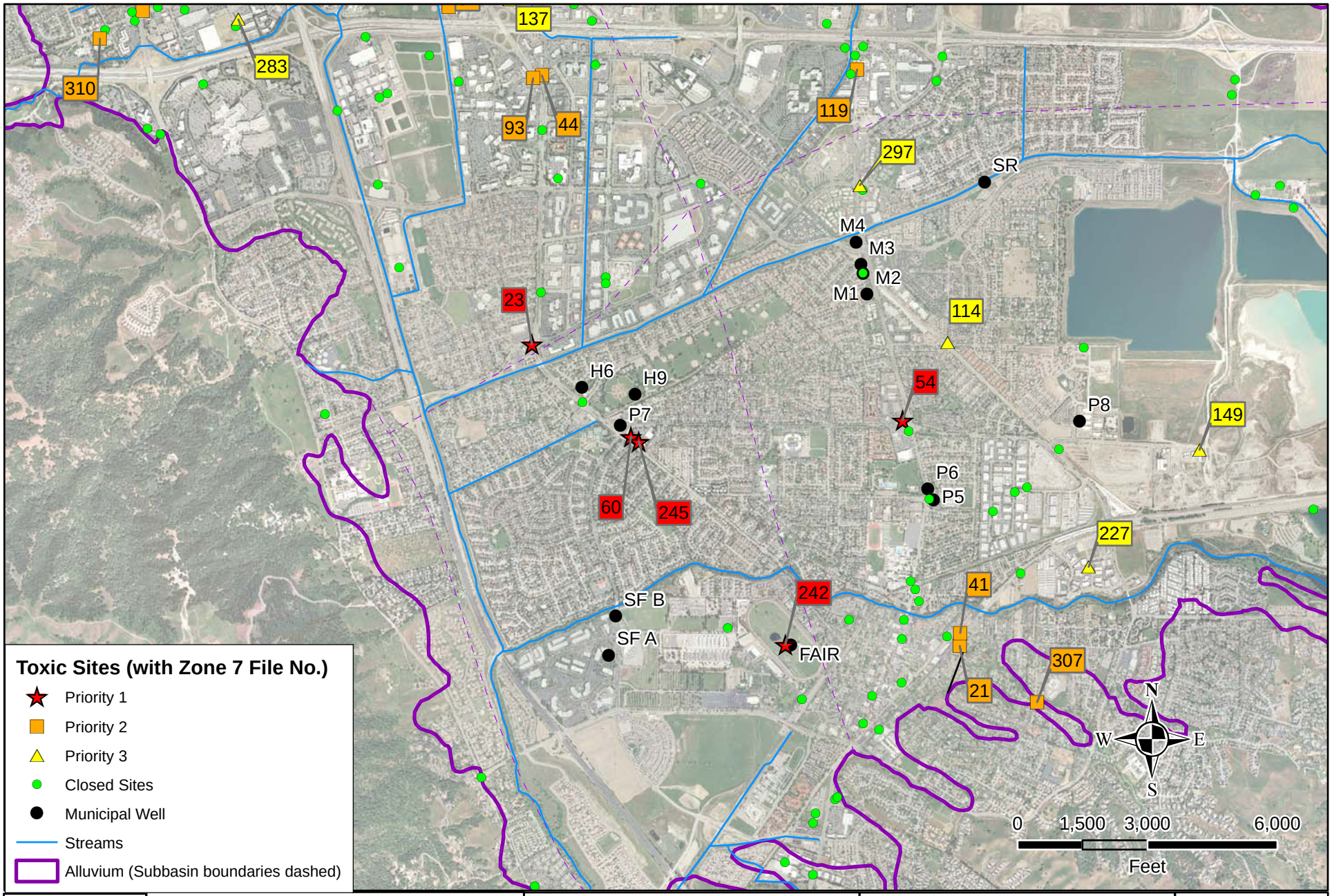
FIGURES AND TABLES



	ZONE 7 WATER AGENCY 100 North Canyons Parkway, Livermore, CA	DRAWN: CD/CW	**Toxic Site Surveillance Livermore Area Sites**	Scale: 1" = 4000'
		REVIEWED: MK		Date: April 2012
		File: E: \ Toxics\Toxics-Livermore.mxd		FIGURE 1



ZONE 7 WATER AGENCY
100 North Canyons Parkway,
Livermore, CA

DRAWN: CD/CW

REVIEWED: MK

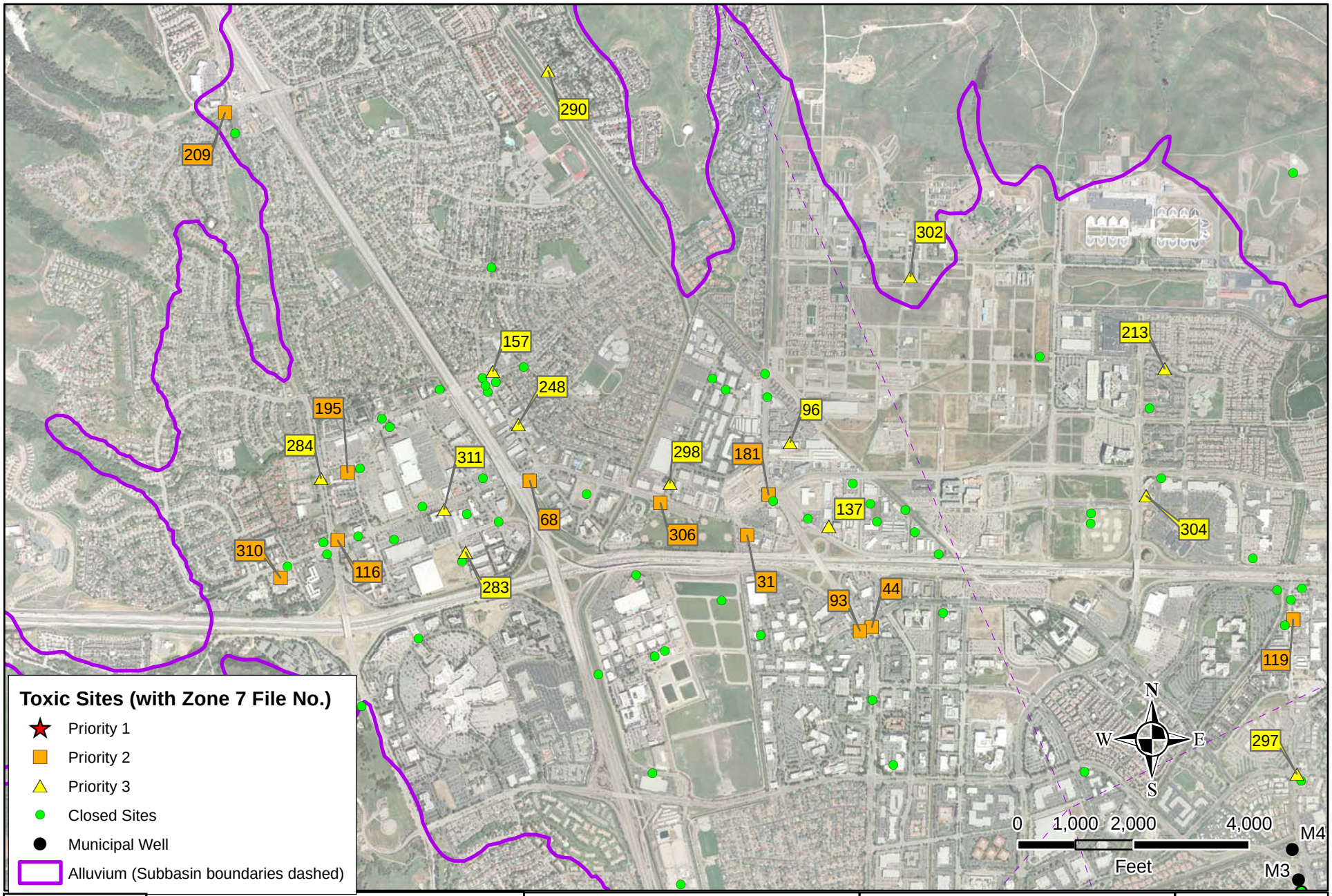
File: E: \ Toxics\Toxics - Pleasanton.mxd

Toxic Site Surveillance
Pleasanton Area Sites

Scale: 1" = 3000'

Date: April 2012

FIGURE 2



ZONE 7 WATER AGENCY
100 North Canyons Parkway,
Livermore, CA

DRAWN: CD/CW

REVIEWED: MK

File: E: \ Toxics\Toxics - Dublin.mxd

Toxic Site Surveillance
Dublin Area Sites
(North of Main Basin)

Scale: 1" = 2000'

Date: April 2012

FIGURE 3

TABLE 1

The structure of the attached table is as follows:

Z7 ID - Zone 7 designation corresponds to file number in Toxic Sites Surveillance Files and the location on the site maps.
Owner - The property owner or responsible party for the contamination investigation/cleanup.
Site Name - Indicates a site name if different from the Owner Name.
Site Address
City
Chemical - The chemical(s) of concern at the site.

BENZ – benzene
CCl4 – carbon tetrachloride
Cr(VI) – hexavalent chromium
1,2-DCE – 1,2-dichloroethene
DRO – diesel range organics
GRO - gasoline range organics
MTBE – methyl tertiary-butyl ether
NO3 – nitrate
PCE – tetrachloroethene
TBA - tertiary-butyl alcohol
TCE – trichloroethene
TOLU – toluene
TPHg – total petroleum hydrocarbons gasoline
TPHd – total petroleum hydrocarbons diesel
TPHmo – total petroleum hydrocarbons motor oil
VC – vinyl chloride
XYL – xylenes

Concentration ug/L - The most recent concentration in groundwater in micrograms per liter (parts per billion).
Priority - The first number of the priority code indicates the whether the case is closed (0), high priority (1), moderate priority (2), or low priority (3). See Attachment A for the full list of codes and descriptions
Status - The status code is based on the RWQCB ranking of the progress of a case; see Attachment B for the full list of codes and descriptions. Zone 7 uses these additional codes to represent status:

NR - further investigation not required
ReO - reopened

Notes - Highlights current activities or concerns at a site.

Table 1 - Active Sites Summary

Z7 ID	OWNER	SITE NAME	ADDRESS	CITY	PRIORITY	STATUS	LEAD AGENCY	NOTES
1	Lawrence Livermore National Laboratory	Lawrence Livermore Lab	7000 East Avenue	Livermore	3A3	7	ACEH	3/1/2011 - Plumes are back under control after remediation system shutdown in 2008. Groundwater Extraction and SVE systems are operational again. Treatability tests have been conducted to evaluate technologies to accelerate source area cleanups. In 2010, VOC concentrations declined or remained stable, 6 dual extraction wells, 2 gw extraction wells, 9 mon wells, and multiple CPT borings were installed, and 90 well destructions were completed.
					CHEMICAL	CONCENTRATION ug/L		
					TCE	2,700		
5	Sandia National Laboratory	Sandia National Labs	7011 East Avenue	Livermore	3A3	8	RWQCB	PCE = ND; Carbontetrachloride = 1.2 ppb and Trichlormethane = 0.71 pbb at Landfill No wells sampled at Fuel Site due to insufficient water. Http://www.sandia.gov/news/publications/environmental/index.html
					CHEMICAL	CONCENTRATION ug/L		
					TPHd	ND		
					NO3	26		
					CCL4	0.95		
					CR(IV)	ND		
11	Intel	Intel Livermore Fabrication Plant 3	250 North Mines Road	Livermore	2A3	8	RWQCB	1/30/12 - 2011 Annual Report indicates that the remaining plume is stable with some concentrations decreasing. Groundwater monitoring will continue in 2012 and an Annual Report will be prepared.
					CHEMICAL	CONCENTRATION ug/L		
					TCE	860		
					1,2-DCE	350		
					VC	82		
					PCE	13		
21	Shell Oil	First Street Shell	4212 First Street	Pleasanton	2A3	5R	ACEH	1/5/12. ACEH does not agree with the monitored natural attenuation proposed in the Oct 2011 CAP. A work plan for a duel-phase extraction and air sparging pilot test is due 3/16/12. Vapor intrusion potential for on-site receptors needs to be evaluated as well.
					CHEMICAL	CONCENTRATION ug/L		
					TPHg	4,500		
					MTBE	5,200		
					BENZ	28		

Z7 ID	OWNER	SITE NAME	ADDRESS	CITY	PRIORITY	STATUS	LEAD AGENCY	NOTES
22	Chevron Environmental Management	Former Texaco/Chevron #21-1253	930 Springtown Boulevard	Livermore	3A1	5C	ACEH	12/27/11 - Drilling permit issued for the installation of 5 monitoring wells. A Site Conceptual Model and Workplan was approved by ACEH which proposed 4 shallow and one intermediate monitoring wells. The work was supposed to be completed and the report submitted by 9/2011.
					CHEMICAL	CONCENTRATION ug/L		
					TPHg	12,000		
					BENZ	1,200		
					MTBE	NA		
23	Shell Oil (Equilon)	South Hop Shell #13-5784	3790 Hopyard Road	Pleasanton	1A2	7	ACEH	5/9/11 - ACEH does not support selecting MNA, as proposed in the CAP, as the final remedial alternative for the site at this time. Semiannual groundwater monitoring to assess whether the plume will reach or has reached stable conditions should continue.
					CHEMICAL	CONCENTRATION ug/L		
					TPHg	880		
					MTBE	22		
					TBA	3,700		
					BENZ	3.2		
31	Ozzie Davis Pontiac Toyota	Dublin Toyota Pontiac	6450 Dublin Court	Dublin	2A4	5C	ACEH	3/17/11 - Five ozone injection points were installed as proposed in the FS/CAP. Ozone Injection Pilot Test is scheculed for the first half of 2011.
					CHEMICAL	CONCENTRATION ug/L		
					TPHg	790		
					MTBE	2,700		
					BENZ	53		
33	Republic Services (Formerly Browning-Ferris Industries)	Vasco Road Landfill	4001 North Vasco Road	Livermore	3	5	RWQCB	2009 Self Monitoring Report on file
					CHEMICAL	CONCENTRATION ug/L		
					TDS	1,400		
					TPH	NA		

Z7 ID	OWNER	SITE NAME	ADDRESS	CITY	PRIORITY	STATUS	LEAD AGENCY	NOTES
36	Richmond Lox/ Salinas Reinforcement	Salinas Reinforcing Inc.	355 South Vasco Road	Livermore	3A3	8	RWQCB	12/29/11 - Active Site remediation is considered complete and no additional injections are planned. In June 2010, a closure request was submitted to the RWQCB and is pending. Monitoring and reporting will continue during 2012.
					CHEMICAL	CONCENTRATION ug/L		
					TCE	450		
					TPHg	61		
					BENZ	NA		
40	Pleasanton Garbage Service	Old Pleasanton Landfill	2512 Vineyard Avenue and Pietronave Lane	Pleasanton	3	ReO	UNK	3/26/04 permit 24035 for installation of soil vapor monitoring point. 5/21/03 permit application filed for 5 additional landfill gas extraction wells
41	Unocal (Tosco), #7376	First Pleas Unocal, #7376	4191 First Street	Pleasanton	2A3	5C	ACEH	12/21/11 The RP's consultant requested an extension to complete a Revised Remedial Design. The request was for 3/31/12 but ACEH approved an extension to 3/9/12.
					CHEMICAL	CONCENTRATION ug/L		
					MTBE	3,100		
					BENZ	1,500		
					TPHg	10,000		
44	Shell Oil (Equilon)	North Hop Shell	5251 Hopyard Road	Pleasanton	2B2	8	ACEH	10/20/11 - 3rd Quarter Monitoring Report. Concentrations appear relatively stable. The RP sent a case closure request to ACEH in August 2011.
					CHEMICAL	CONCENTRATION ug/L		
					MTBE	21		
					TBA	95		
					BENZ	110		

Z7 ID	OWNER	SITE NAME	ADDRESS	CITY	PRIORITY	STATUS	LEAD AGENCY	NOTES
54	Shell Oil	Shell #13-5783	1801 Santa Rita Road	Pleasanton	1A2	5C	RWQCB	10/6/11 - Site was changed from quarterly to semi-annual monitoring. TPHd within historical levels.
					CHEMICAL	CONCENTRATION ug/L		
					BENZ	1.4		
					TPHd	340		
					MTBE	63		
					TBA	200		
60	Exxon	former Steve's Exxon, #7-3399	2991 Hopyard Road	Pleasanton	1A2	5R	ACEH	12/21/11 - Groundwater Pump and Treat System (GWPTS) still operating. To date: 275,760 gallons of water treated 0.3906 pounds of TPHg removed 0.0096 pounds of Benzene removed 0.5244 pounds of MTBE removed Soil and groundwater samples collected in 2/2011. MTBE detected in soil and groundwater at all 9 boring locations. Recommendations for next steps are pending.
					CHEMICAL	CONCENTRATION ug/L		
					MTBE	560		
					TPHg	76		
					BENZ	0.85		
62	Balagi Angle	Desert Petroleum/B&C Mini Mart/ B&C Mini Mart	2008 First Street	Livermore	1A2	7	ACEH	11/2/11 - 2nd SA GMR 2011 showed MTBE and BETX concnetrations within historic ranges. Some concentrations appear to be decreasing due to the ozone sparging system and natural attenuation. 10/3/11 - ACEH approves the CAP Addendum for the operation of an ozone sparging system. ACEH added on comment that potential vapor migration is monitored by testing monitoirng wells with a PID at defined intervals.
					CHEMICAL	CONCENTRATION ug/L		
					MTBE	23		
					BENZ	34		
					TPHg	1,800		
68	Chevron	Chevron, #9-2582 (Dublin Auto Wash)	7240 Dublin Boulevard	Dublin	2B3	7	ACEH	11/30/11 - Fourth quarter of monitoring completed since the dual phase extraction system was shut down due to low concentrations and operating expenses. Groundwater concentrations have been increasing so the RP proposed to enhance contamination bioremediation using biosparging and bio-organic catalyst in the Groundwater Monitoring Report and Bioremediation Workplan dated July 19, 2011. The proposal is still being evaluated.
					CHEMICAL	CONCENTRATION ug/L		
					MTBE	1,700		
					BENZ	620		
					TPHg	9,400		

Z7 ID	OWNER	SITE NAME	ADDRESS	CITY	PRIORITY	STATUS	LEAD AGENCY	NOTES
84	Livermore Redevelopment Agency	Arrow Rentals	187 North L Street	Livermore	1A2	7	ACEH	2/9/12 The Dual Phase Extraction System was shut down due to lack of funding from the USTCF. The RP asked for any assistance ACEH can give to help secure additional funding to restart the system.
					CHEMICAL	CONCENTRATION ug/L		
					TPHg	26,000		
					TPHd	NA		
					MTBE	NA		
					BENZ	11,000		
93	Chevron	Chevron, #9-0917	5280 Hopyard Road	Pleasanton	2B3	7	ACEH	1/9/12 ACEH reviewed the case. In the last report dated 8/27/10 it was concluded that there was not a pathway for soil vapor from the subsurface into the station building and that a low-risk closure would be requested. ACEH has not received a low risk closure request to date. ACEH is requesting that confirmation samples be collected then a Soil Vapor and Ambient Air Sampling Report be submitted by 4/23/12.
					CHEMICAL	CONCENTRATION ug/L		
					TPHg	7,000		
					MTBE	3		
					BENZ	81		
96	G&G International Holding Co.	Bay Counties Petroleum	6310 Houston Place	Dublin	3	8	ACEH	1/4/2012 - No work conducted 4th quarter. Sampling conducted in 1st and 3rd quarters only. If 1st quarter 2012 samples show concentrations continuing to decrease then RP will request case closure.
					CHEMICAL	CONCENTRATION ug/L		
					MTBE	0.96		
					TPHd	780		
99	Arco	Arco, #6113	785 East Stanley Boulevard	Livermore	2B4	5R	ACEH	7/29/11 - A Dual Phase Extraction Workplan was submitted on 3/7/11. RP is waiting for ACEH approval to start the DPE event. Groundwater levels and concentrations were within historic levels in the 2nd Quarter monitoirng event.
					CHEMICAL	CONCENTRATION ug/L		
					TPHg	26,000		
					MTBE	380		
					BENZ	4,700		

Z7 ID	OWNER	SITE NAME	ADDRESS	CITY	PRIORITY	STATUS	LEAD AGENCY	NOTES
111	Arco	Arco, #00771	899 Rincon Avenue	Livermore	1A2	8	ACEH	1/5/12 - A Case Closure Request was submitted by the RP to ACEH. The request feels the case qualifies for low-risk closure because the source has been removed, concentrations are below the draft low-risk criteria guidelines, there are no close by receptors, and the plume appears stable.
					CHEMICAL	CONCENTRATION ug/L		
					MTBE	150		
					BENZ	310		
					TPHg	2,600		
114	Joseph Callahan	Heller Seasonings INC	2000 Oakland Avenue	Pleasanton	3	1	UNK	Fire dept. says building demoed, residential area now. No other info from AC or RB. Site is shown as open in Geotracker. Follow up with ACEH on status.
					CHEMICAL	CONCENTRATION ug/L		
					BENZ	33		
115	LASC/MOSC (Livermore Arcade)	Livermore Arcade (Miller's Outpost)	1410/1554 First Street	Livermore	1A2	5R	RWQCB	Source zone investigation reveals high concentrations limited to ~70'bgs. Remedial Strategy due March 2011. RP in constant contact w/Z7 and RWQCB. 11/21/11 PCE concentrations increased in wells MW-34, DMW-04, and DMW-05 compared to the sampling round in 4/2009. MW-34 increased from 6.4 to 20.0 ug/L, DMW-04 increased from 5.1 to 8.1 ug/L, and DMW-05 increased from 0.9 to 16.0 ug/L.
					CHEMICAL	CONCENTRATION ug/L		
					PCE	25		
					TCE	<0.5		
116	Chevron	Rich's Chevron Service	7007 San Ramon Road	Dublin	2B5	5R	ACEH	4/5/11 Additional soil vapor sampling was conducted. Results of the report were that there is seasonal fluctuation of the TPH in soil vapor but the levels for all constituents are below ESLs. Report recommends low-risk case closure.
					CHEMICAL	CONCENTRATION ug/L		
					MTBE	<10		
					BENZ	480		
					TPHg	21,000		

Z7 ID	OWNER	SITE NAME	ADDRESS	CITY	PRIORITY	STATUS	LEAD AGENCY	NOTES
119	East Bay BMW	BMW	3830 Old Santa Rita Road	Pleasanton	2	3B	RWQCB	1/12/12 According to Geotracker, site is still open. GeoTracker indicates that a case review was conducted 1/12/12.
					CHEMICAL	CONCENTRATION ug/L		
					TPH			
128	Livermore Valley Unified School District	Laidlaw Transport	2900 or 2908 Ladd Avenue	Livermore	1A2	5C	ACEH	1/6/12 - Soil and Groundwater Characterization Report/Request for Low Risk Closure Report submitted by RP. ACEH review is pending.
					CHEMICAL	CONCENTRATION ug/L		
					MTBE	20		
					BENZ	8,700		
					TPHg	65,000		
137	Busick Air Conditioning	Busick Gearing Properties	6341 Scarlett Court	Dublin	3A3	5C	RWQCB	5/13/11 Geotracker shows some Regulatory Action was taken with no description. The RP's consultant is working with RWQCB and Zone 7 to possibly revise the Work Plan and determine a reasonable time for beneficial use.
					CHEMICAL	CONCENTRATION ug/L		
					TCE	5,200		
					PCE	120		
149	Kaiser Sand and Gravel	Hanson Aggregates	3000 Busch Road	Pleasanton	3A1	5R	ACEH	12/27/11 Both SLIC case funds are overdrawn. ACEH is asking for funding to cover remaining work. ACEH case RO0002858 is closed as of 09/26/07. Residual TPHd remails in soil at conc up to 210,000 ppb. RO0002952 and RO0002941 are still open. Case closure will not be conducted until facility closure, investigation and cleanup are complete for all areas of concern.
					CHEMICAL	CONCENTRATION ug/L		
					BENZ	ND		
					TPHd	50		

Z7 ID	OWNER	SITE NAME	ADDRESS	CITY	PRIORITY	STATUS	LEAD AGENCY	NOTES
157	Arco	ARCO #6041	7249 Village Parkway	Dublin	3C	7	ACEH	2/24/11 - Case Closure Request was submitted by RP. Pending review by ACEH.
					CHEMICAL	CONCENTRATION ug/L		
					MTBE	5.3		
					BENZ	8.6		
					TPHg	73		
181	Unocal (Tosco) #6419	Unocal, #6419	6401 Dublin Boulevard	Dublin	2A4	8	ACEH	10/19/11 - Site Investigation included 2 CPT borings with soil and groundwater samples collected. No contamination was detected off site. Semi-Annual Sampling showed no TPH or benzene detected above reporting limits and MTBE was not detected above MCL on-site. RP requesting no further action.
					CHEMICAL	CONCENTRATION ug/L		
					MTBE	9.1		
					BENZ	ND		
					TPHg	ND		
191	Ultramar/Tesoro No. 67076	Former Beacon, #3604	1619 First Street	Livermore	1A2	7	ACEH	11/15/11 - SVE System and Oxygen Injection Systems were both operating in 3rd Q 2011. Approx. 80 pounds TPH removed by volitilization and 1,050 removed by biodegradation. SVE System mass removal shows improvement. 3rd Q 2011 Status Report recommends continuing SVE and conducting ISCO Pilot Test. Results of Pilot Test in 4th Q 2011 Status Report.
					CHEMICAL	CONCENTRATION ug/L		
					TPHg	16,000		
					MTBE	660		
					BENZ	1,900		
					TBA	1,000		
195	Unocal (Tosco)	Unocal, #7176	7850 Amador Valley Boulevard	Dublin	2A4	8	ACEH	9/19/11 - 2nd Semi-Annual 2011 GMR reported the only fuel compounds above their ESLs were TPHg in U-1 and U-2 and TPH-d in U-1 and U-2. The report concludes that the low VOCs detected indicate that biodegradation of the TPH has taken place.
					CHEMICAL	CONCENTRATION ug/L		
					TPHd	760		
					TPHg	2,400		
					MTBE	<5		
					BENZ	<0.50		

Z7 ID	OWNER	SITE NAME	ADDRESS	CITY	PRIORITY	STATUS	LEAD AGENCY	NOTES
209	Shell Oil	SHELL #13-5244	8999 San Ramon Rd.	Dublin	2A	5C	ACEH	8/30/11 - 7 new monitoirng wells were installed, developed and sampled during the 2nd quarter. One additonal monitoring well was not able to be developed and was re-installed and sample data will be included in the next quarterly report.
					CHEMICAL	CONCENTRATION ug/L		
					TPHd	230		
					TPHg	370		
					TBA	4,500		
					MTBE	190		
212	GE Nuclear Energy	Vallecitos Nuclear Center	6705 Vallecitos Road	Sunol	3	ongoing	RWQCB	Latest report on file 3/2000, monitoring of effluent
					CHEMICAL	CONCENTRATION ug/L		
					RAD			
					TDS			
213	Camp Parks	Parks Reserve Forces Training Area (PRFTA)	5th Street, multiple locations	Dublin	3C	5R	DTSC	3/17/11 - DTSC approved a Phase III Investigation Work Plan for the Tassajara Creek Disposal Trenches that will include surface-soil, subsurface-soil, soil-gas, stream sediment, and groundwater sampling at the Tassajara Creek Disposal Trenches site.
					CHEMICAL	CONCENTRATION ug/L		
					PCE	8.3		
					Metals	NA		
225	Arco	Springtown Gas/Arco	909 Bluebell Drive	Livermore	3C	8	ACEH	11/15/11 ACEH is reviewing the case closure report. GW monitoring can be suspended during the review. If the case is closed it is for commercial use. If the property is rezoned for residential ACEH must be notifed and the case re-evaluated. RP must distribute the Notification of Potential Case Closure to the ACEH provided distribution list by 11/21/11.
					CHEMICAL	CONCENTRATION ug/L		
					TBA	290		
					MTBE	14		
					TPHg	10		
					BENZ	<0.5		

Z7 ID	OWNER	SITE NAME	ADDRESS	CITY	PRIORITY	STATUS	LEAD AGENCY	NOTES
226	Manwel Shuwyahat	Livermore Gas and Minimart	160 Holmes Street	Livermore	1A2	7	ACEH	12/30/11 - RP asked for low-risk closure. ACEH response is pending. Previously ACEH had asked for quarterly monitoring to be continued through the 1st quarter of 2012 to be able to evaluate the effectiveness of the chemical oxidation injections. Most off-site contamination has been lowered to non-dect but very high levels of MTBE remain onsite.
					CHEMICAL	CONCENTRATION ug/L		
					TPHd	150		
					BENZ	1.3		
					MTBE	150		
					TBA	21,000		
					TPHg	100		
227	Can-Am Plumbing Inc.	CAN AM PLUMBING	151 Wyoming Street	Pleasanton	3C	8	ACEH	12/1/11 ACEH is reviewing the case for low-risk case closure. The RP must submit a List of Landowners Form and List of Interested Parties to Receive Notification of Potential Case Closure by 1/6/12 in order to be qualified. Groundwater monitoring can be suspended while the case is being reviewed.
					CHEMICAL	CONCENTRATION ug/L		
					BENZ	ND		
					MTBE	1,300		
231	Unocal #4186	Unocal #4186	1771 First Street	Livermore	1A2	7	ACEH	8/26/11 - First Semi-Annual Report of 2011 shows some decrease in concentrations of TPHg, MTBE, and BTEX. Compound Specific Isotope Analysis was performed on samples during this monitoring event to help determine the biodegradablilty of TBA at the site. The results will be presented in a later report.
					CHEMICAL	CONCENTRATION ug/L		
					BENZ	420		
					MTBE	3,600		
					TPHg	7,500		
232	Bordoni Ranch LLC and Green Valley Corporation Tenancy in	Groth Brothers Chevrolet	59 South L Street	Livermore	3A1	8	RWQCB	2/18/11 - Risk Management Plan prepared to protect worker and public safety during site redevelopment. Several USTs obtained case closure. T0600101656 case is closed as of 11/5/2009 with oil and grease remaining in soil up to 1,100 ppm. Remaining environmental issues are being tracked as SL0600147081
					CHEMICAL	CONCENTRATION ug/L		
					BENZ	3,100		
					MTBE	1,2000		
					TPHg	61,000		
					PCE	38		

Z7 ID	OWNER	SITE NAME	ADDRESS	CITY	PRIORITY	STATUS	LEAD AGENCY	NOTES
238	All Rents	All Rents	2247 Second St	Livermore	1A2	5C	UNK	Permit # 20034, RWQCB informed of site
					CHEMICAL	**CONCENTRATION ug/L**		
					1,2-DCE	14		
					TCE	250		
					PCE	430		
242	Alameda County Fairgrounds	Fairground Main Well (3S/1E 20B 2)	4501 Pleasanton Avenue	Pleasanton	1A1	1		RWQCB informated of site. Not yet a formal case.
					CHEMICAL	**CONCENTRATION ug/L**		
					PCE	16		
245	Ms. Clare Leung	Hopyard Cleaners	2771 Hopyard Road	Pleasanton	1A2	5R	RWQCB	1/25/12 - The RWQCB required a workplan for full-scale enhanced in-situ bioremediation (EISB) implementation. The workplan was submitted and approved. The follow up report is due sixty days after completing the first carbon substrate injection.
					CHEMICAL	**CONCENTRATION ug/L**		
					1,2-DCE	590		
					TCE	570		
					PCE	3,600		
248	Mr. Roger Woodward/Mr. Kewal Singh	Corwood Carwash	6973 Village Parkway	Dublin	3	8	ACEH	7/21/11 - Site still out of compliance. Case must be claimed in GeoTracker by 8/19/11 and the Revised Soil and Water Investigation Report (originally due in 2008) is due 9/30/11.
					CHEMICAL	**CONCENTRATION ug/L**		
					BENZ	310		
					MTBE	1800		

Z7 ID	OWNER	SITE NAME	ADDRESS	CITY	PRIORITY	STATUS	LEAD AGENCY	NOTES
249	San Francisco Water District	Sunol Pump Station/Mantenance Yard	505 Paloma Way	Sunol	3C	5C	ACEH	11/1/11 ACEH letter concurs with case closure request once well decommisionning is complete. A remedial action completion certificate will be issued following receipt of the documentation.
					CHEMICAL	CONCENTRATION ug/L		
					BENZ	ND		
					MTBE	ND		
250	Murray Kelsoe	Sunol Tree Gas	3004 Andrade Road	Sunol	1A1	5C	ACEH	11/7/11 ACEH approved IRAP addendum with one addition. If Toxic Daughter products are detected above ESLs ACEH must be notified immediately in additon to other procedures outlined in the plan.
					CHEMICAL	CONCENTRATION ug/L		
					TPHd	ND		
					TPHg	ND		
					MTBE	71		
254	Mission Valley Rock & Asphalt	Mission Valley Rock & Asphalt	7999 Athenour Way	Sunol	3C	8	ACEH	1/18/12 - Public meeting was held by the Sunol Citizen's Advisory Committee to allow public comment on the case closure. ACEH extended the public comment period to 1/31/12.
					CHEMICAL	CONCENTRATION ug/L		
					TPHd	54,000		
					TPHg	6,800		
					BENZ	38		
					MTBE	160		
259	City of Livermore	CHEVRON #30-7233 /Mills Square Park/Performing Arts Theater	2259 First Street	Livermore	1A2	5R	ACEH	12/15/11 ACEH conditionally approved the "Work Plan for Feasibility Testing and Additional Assessment" submitted 10/28/11. Due dates: - Prior to surface application of gypsum – Evaluations described in technical comment 3 (12/15/11 ACEH letter) - April 30, 2012 – Semi-Annual Groundwater Monitoring Report – First Quarter 2012 - May 11, 2012 – Feasibility Test Report
					CHEMICAL	CONCENTRATION ug/L		
					TPHg	4,600		
					BENZ	1,800		
					TPHd	6,800		

Z7 ID	OWNER	SITE NAME	ADDRESS	CITY	PRIORITY	STATUS	LEAD AGENCY	NOTES
260	Mike Madden	V&G Muffler	21 South Livermore Ave	Livermore	2A1	1		Received data report as part of drilling permit 6/27/03
					CHEMICAL	CONCENTRATION ug/L		
					XYL	3,630		
					TOLU	5,100		
					TPHd	67,000		
					TPHg	22,000		
264	Livermore Redevelopment Agency/Signature Properties	Railroad Ave-Livermore Site	1934 - 1950 Railroad Avenue at North L Street	Livermore	2A4	1	ACEH	3/7/05 Letter from ACEH doesn't think enough investigation has been done to rule out the PCE coming from onsite source. More invest by 6/7/05. Site is adjacent to Arrow Rentals. MTBE under site may be from B&C Mini Mart. Spoke to DD at ACEH. She transferred case to Reg Board. Awaiting latest info from Reg Board
					CHEMICAL	CONCENTRATION ug/L		
					MTBE	280		
					BENZ	130		
					TPHg	1,200		
					PCE	30		
283	Safeways	Former Quest Laboratory	6511 Golden Gate Dr	Dublin	3C	8	ACEH	7/22/10 - Case closure pending the proper destruction of monitoring wells and the submittal of a list of land owners form to ACEH.
					CHEMICAL	CONCENTRATION ug/L		
					TPHg	ND		
					TPHd	ND		
					TPHmo	ND		
284	Gabriel Chiu	Former Crow Canyon Dry Cleaner	7272 or 7242 San Ramon Road	Dublin	3	5R	ACEH	11/9/11. Site is out of compliance. Draft Fact Sheet (in MS Word format) with List of Fact Sheet Recipients is due by 11/16/11. And the IRA Summary Report is due by 11/30/11. Otherwise the case may be turned over to the DA.
					CHEMICAL	CONCENTRATION ug/L		
					TCE	3		
					PCE	22		

Z7 ID	OWNER	SITE NAME	ADDRESS	CITY	PRIORITY	STATUS	LEAD AGENCY	NOTES
285	Chevron	Chevron Sunol Pipeline	2793 Calaveras Road	Sunol	3A3	5R	ACEH	12/28/11 The SLIC oversight fund for this case has a negative balance of $192.40. ACEH has requested a check for $3,000 for continued oversight.
					CHEMICAL	CONCENTRATION ug/L		
					TPHg	27,000		
286	Thomas Robinson	East Avenue Services (Rotten Robbie No 64)	4186 East Avenue	Livermore	3C	8	ACEH	10/26/11 - ACEH agrees with closure request. Will issue remdial completion report after receiving documentation of proper well decommisioning.
					CHEMICAL	CONCENTRATION ug/L		
					BENZ	92.1		
					TPHg	4,810		
					TPHd	<47		
290	Kinder-Morgan Energy Partners, L.P.	Dublin-Iron Horse Trail Release	Iron Horse Trail	Dublin	3A3	5C	RWQCB	10/28/11-A Supplemental Site Assessment Report was submitted by the RP. The report evaluated potential contamination pathways. The report recommends quarterly sampling to be able to evaluate whether additional remediation is necessary.
					CHEMICAL	CONCENTRATION ug/L		
					TPHg	4,700		
					Benzene	350		
					MTBE	ND		
291	Country Club Cleaners	Perciva/Metro Valley Cleaners	224 Rickenbacker Circle	Livermore	3C	8	ACEH	11/8/10 - Closure Summary Report submitted by RP recommending low-risk closure be considered.
					CHEMICAL	CONCENTRATION ug/L		
					PCE	4.9		

Z7 ID	OWNER	SITE NAME	ADDRESS	CITY	PRIORITY	STATUS	LEAD AGENCY	NOTES
292	CW Roen	Former K&S Heavy Equipment	495 Greenville Rd.	Livermore	2A4	3A	ACEH	LPFD transferred to ACEH. Soil Contamination
					CHEMICAL	CONCENTRATION ug/L		
297	City of Pleasanton	Pleasanton Fire Station #3	3200 Santa Rita Road	Pleasanton	3C	8	ACEH	1/4/12 - ACEH concurs with RP's recommendation to conduct 4th quarter groundwater monitoring then evaluate the case for closure. The case is currently out of compliance with the GeoTracker requirements. The case cannot be considered for closure until all reports are submitted to GeoTracker.
					CHEMICAL	CONCENTRATION ug/L		
					TPHd	780		
					TPHmo	990		
298	Chevron	Former Chevron Records Facility	6400 Sierra Ct	Dublin	3A2	5C	RWQCB	1/6/12 - Fact sheet was developed for the site. A Site Investigation Report that recommended interim SVE was approved by RWQCB. An additional technical report requested by the RWQCB showing how the Alamo Canal will be protected from potential contamination is due March 31,2012.
					CHEMICAL	CONCENTRATION ug/L		
					TCE	69		
299	TDW Construction	Nica Metals	101 Greenville Rd	Livermore	3A2	3A	ACEH	5/10/10 - Site is non-compliant. Soil removal and implementation of site assessment was due May 2010. ACEH evaluating options.
					CHEMICAL	CONCENTRATION ug/L		
					GRO	unknown		

Z7 ID	OWNER	SITE NAME	ADDRESS	CITY	PRIORITY	STATUS	LEAD AGENCY	NOTES
300	Atlantic Richfield Company	ARCO #0498	286 South Livermore Ave	Livermore	2A4	5C	ACEH	10/17/11 - No enviromental field work was performed in the 3rd Quarter. Sampling events are in the 2nd and 4th Quarters. RP is still unable to get permission from the adjacent property owner to access and do work for the pending Soil and Water Investigation proposed in the work plan that was approved by ACEH.
					CHEMICAL	CONCENTRATION ug/L		
					TPHg	4,500		
					BENZ	560		
					MTBE	74		
302	Federal Corrections Institution Dublin	FCI Dublin	5701 8th St	Dublin	3A1	3B	ACEH	5/20/10 - ACEH responded to the Site Investigation Report. Further investigation is needed to determine groundwater gradient and extent of contamination. Quarterly monitoring is required. Soil and Water Investigation Work Plan due 7/19/10.
					CHEMICAL	CONCENTRATION ug/L		
					TPHd	680,000		
304	Denis Brown	Shell #16-5112	4895 Hacienda Drive	Dublin	3A3	3B	ACEH	6/20/11 - ACEH approved the work plan addendum. Site Investigation Report due December 19, 2011.
					CHEMICAL	CONCENTRATION ug/L		
					TPHg	150		
					MTBE	210		
306	City of Dublin	City of Dublin Civic Center	100 Civic Plaza	Dublin	2A4	1	ACEH	Notice of Responsibility sent to City of Dublin. Awaiting submittal of Soil and Water Investigation Work Plan
					CHEMICAL	CONCENTRATION ug/L		
					TPHg	300		

Z7 ID	OWNER	SITE NAME	ADDRESS	CITY	PRIORITY	STATUS	LEAD AGENCY	NOTES
307	City of Pleasanton Public Works	City of Pleasanton Theater Parking Lot	0 Kottinger Drive	Pleasanton	2A4	1	ACEH	Awaiting Supplementary Site Investigation Report. It was due on 08/10/09. Zone 7 is urging ACEH to issue notice to comply.
					CHEMICAL	CONCENTRATION ug/L		
					TPHg			
					TPHmo			
309	7-Eleven Inc	7-Eleven #32266	1339 Vasco Road	Livermore	2A4	5C	ACEH	11/21/11 ACEH reviewed the Work Plan submitted 10/26/11 and does not feel the proposed monitoring well will adequately define the extent of MTBE contamination in the groundwater at the site. They have requested grab samples be collected and evaluated prior to the installation of monitoring wells. The supply wells identified during a well search should also be inspected and the potential risk to these wells be evaluated. Revised work plan due 3/8/12.
					CHEMICAL	CONCENTRATION ug/L		
					TPHg	ND		
					BENZ	ND		
					TBA	85		
					MTBE	1,900		
310	City of Dublin	Associated Gasoline City of Dublin	11759 Dublin Blvd	Dublin	2A4	1	ACEH	Groundwater verification sampling needed.
					CHEMICAL	CONCENTRATION ug/L		
					TPHg			
311	Crown Chevrolet	Crown Chevrolet Cadillac Isuzu	7544 Dublin Blvd	Dublin	3A1	5R	ACEH	12/21/11 - Remediation Report completed. Sump excavated and backfilled with cement. Soil and groundwater samples showed VOCs above their ESLs near the sump. Report recommends that no further remediation is necessary since the source is removed and the contamination is localized.
					CHEMICAL	CONCENTRATION ug/L		
					TPHg	4,900		
					TPHd	6,200		
					TPHmo	64		

Z7 ID	OWNER	SITE NAME	ADDRESS	CITY	PRIORITY	STATUS	LEAD AGENCY	NOTES
312	Cemex	Cemex Sunol	6527 Calaveras Road	Sunol	3A1	1	ACEH	12/9/11 - Case Opened 12/27/11 ACEH requesting a check for $6,000 be submitted to cover oversight costs for the fuel spill that occurred on 9/7/10.
313	Good Year Tire and Rubber Company	Just Tires	1485 First Street	Livermore	2A4	1	ACEH	12/9/11 - Case Opened, DRO and ORO detected in one soil sampled collected at 10 feet. The DRO sample was above the ESL. The contaminated soil will be removed and confirmation samples will be collected. 12/27/11 - ACEH requested funds ($6,000) for SLIC oversight. Diesel fuel and oil were detected in subsurface soils beneath the site.

ATTACHMENT A

ZONE 7's PRIORITY RANKING SYSTEM

Priority 1 — High Priority Sites

A. Current Drinking Water Source — Impacted or Likely Impacted Through Future Migration

1. Currently used municipal or domestic well impacted (i.e., drinking water wells where MCLs are exceeded)
2. Currently used municipal or domestic well threatened (e.g., release site within 2000 ft of currently used well and/or possible vertical conduit exists to deep zone if deep zone currently used as drinking water source for the threatened well.
3. Currently used identified regional "sole source aquifer" impacted (i.e., MCLs exceeded at any aquifer point)
4. Other currently used municipal or domestic aquifer impacted
5. Currently used aquifer threatened by future migration (i.e., lateral pollutant transport or vertical movement through conduit)

B. Known Health/Safety/Environmental Impacts Requiring Prompt Action

1. Vapors at explosive levels in confined space (i.e., sewers or basements)
2. Vapors detected above human health safe levels at/near human receptors
3. Free product in soil/groundwater
4. SW/Aquatic/Environment impacted (sheen or habitat covered)
5. Soil quality levels exceed human health safe levels and exposure likely given existing site conditions

C. Administrative or Enforcement Need Requires Prompt Action

1. 2004 Funding available through "letter of commitment"
2. Enforcement action follow-up is necessary
3. Closure request received from RP
4. Public/RP/Political concerns require expeditious efforts

Priority 2 — Moderate Priority Sites

A. Water Resource Other than Currently Used Drinking Water Is or May Be Impacted

1. Existing beneficial use (other than municipal or domestic drinking water) impacted (e.g., agriculture, cooling water)
2. Potential or Known source of drinking water (defined by SWRCB Policy 88-63) significantly impacted with high probability of future use determined

3. Existing beneficial use threatened (requires pollutant migration study and re-prioritize)
4. Soil contamination currently exists (requires additional investigation of GW/SW and/or soil to review threat and re-prioritize)

B. Other Health/Safety/Environmental Impacts Exists or Is Unknown (Requires Additional Investigation (GW/SW), and/or Health or Ecological Risk Assessment)

1. Potential vapors at explosive levels in confined space
2. Potential vapors above human health safe levels with receptors
3. Potential free product at site
4. Potential for migration to aquatic habitats or surface water
5. Potential human exposure to soil above safe level

Priority 3 — Low Priority Sites

A. Minor or No Potential Water Resource Impact Exists

1. No designated beneficial uses of the water which is impacted
2. Potential or Known source of drinking water (defined by SWRCB Policy 88-63) with limited or minor impacts
3. Potential or Known source of drinking water (defined by SWRCB Policy 88-63) impacted where low probability of future use is determined

B. Low Potential Health/Safety/Environmental Impact Exists After Investigation and, if necessary, a Health or Ecological Risk Assessment Completed and Accepted by Lead Agency

1. Soil only cases with residual contaminated soil left in place (with or without follow-up verification monitoring)
2. Soil only cases where full cleanup to background levels is achieved

C. Slated for Closure

Notes:

a. A “0” is used to represent a closed site.
b. Zone 7 ranks sites outside the main groundwater basin as Priority 2 or Priority 3 unless a water supply well is directly impacted.

ATTACHMENT B

STATUS CODES

1 Leak Confirmed: A lab report received confirming a leak/spill from a tank.

3A Preliminary Site Assessment Workplan Submitted: A workplan and implementation schedule has been submitted to determine if the groundwater has been or will be impacted. This plan includes the installation of monitoring wells.

3B Preliminary Site Assessment Underway: Implementation of workplan. This phase of work involves determining if groundwater has been impacted. Work performed during this phase includes the installation of up to three monitoring wells in order to determine the specific gradient. At least one well should be placed within 10' of the suspected point of discharge in a verified downgradient location. Other work performed during this phase may include soil borings, soil gas surveys, additional excavation and interim remediation measures. The case would move to status 5 when the work exceeds that which was required for gradient definition and initial groundwater verification (usually the installation of more than three wells).

5C Pollution Characterization Underway: this phase of work involves the definition of the boundaries of the contaminated plume. In order to be a 5C the responsible party must be taking steps to further define that lateral and vertical extent of contamination in the soil and groundwater. This phase is characterized by the installation of additional monitoring wells and/or borings, aquifer tests, soil gas surveys, continual groundwater gradient determination and monitoring, and an assessment of all impacts on surface and groundwater.

5R Remediation workplan (Corrective Action Plan) Submitted: a proposal and implementation schedule evaluation long term remediation options have been submitted. The proposal should include a feasibility study, i.e., a remediation plan based on the consideration of a few options.

7 Remediation Underway: Implementation of the corrective action plan, i.e., actual remediation begins. Usually requires regulatory agency approval.

8 Post Remediation Monitoring Begun: Periodic groundwater or other monitoring at the site as necessary in order to verify and/or evaluate the effectiveness of remedial activities.

CL Case Closure