

STATE OF CALIFORNIA  
REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OCTOBER 19, 2007

September 12, 2007

ITEM NUMBER: 9

SUBJECT: Underground Tank Program and MTBE Priority Sites

DISCUSSION

*New information is shown in italics.*

Water Board staff members are working on numerous petroleum underground storage tank (UST) cleanup cases involving MTBE. Some high profile sites or "worst case" problems are discussed below. Also attached to this report is a list of sites with MTBE in groundwater that gives an overall perspective of the regionwide problem.

*As a follow up to Water Board member concerns regarding the Orcutt Chevron at 5506 Orcutt Road, Orcutt, the responsible party installed six groundwater monitoring wells to approximately 80 feet and collected groundwater samples on August 28, 2008. Preliminary laboratory testing indicated a maximum concentration of 2.8 µg/L MTBE in one monitoring well. Total petroleum hydrocarbons, benzene, and tert-butyl ether were not detected in this or any of the other five monitoring wells. The wells will be sampled again in the future to confirm the initial results. In the meantime, with the maximum concentration of 2.8 µg/L MTBE, this case is not included in the MTBE Listing and High Priority Sites list.*

*The UST cleanup oversight program performed near or above the level of workplan commitment for Fiscal year 2006-2007. Our greatest success last year was cleaning up and closing 16 of a projected 20 cases. The 'Request and Review of initial workplans' task (note: this is the task that represents new cases) counts were down to six this year, which is good news. The unit reviewed 376 workplans, technical reports, and corrective action plans and 913 monitoring reports, which resulted in 146 enforcement letters (Water Code Section 13267) in response. A program summary is provided below.*

<i>Request/review initial workplan (new cases)</i>	<i>6 of 18 = 33%</i>
<i>Review workplan, reports, and CAPs</i>	<i>376 of 235 = 160%</i>
<i>Review monitoring reports</i>	<i>913 of 675 = 135%</i>
<i>Conduct site inspections</i>	<i>60 of 70 = 86%</i>
<i>Close case</i>	<i>16 of 20 = 80%</i>
<i>13267 Letters</i>	<i>146 of 175 = 83%</i>

*The underground storage tank cleanup oversight unit consists of five caseworkers, a student intern, and a senior. Program resources for fiscal year 2007/08 are similar to last year's at approximately 6.2 personnel years and \$900,000. Program staff will remain focused on requiring clean up and bringing more low-risk cases to closure. Cases with contaminant concentrations above cleanup goals will be recommended for closure on a site-by-site basis, when case specific risk analyses indicate that closure is protective of water quality. One final*

*program note, Chris Adair, Senior Water Resource Control Engineer, will be taking over the UST program and unit as lead staff member.*

*The Regionwide MTBE Listing and High Priority Sites list is included as Attachment 1. The list shows site names and addresses as well as the priority listing (Rank A, B, or C) based on State Board MTBE guidelines. Staff has required accelerated cleanup at some higher priority Rank A sites. Interim cleanup action is required as soon as technically feasible until full-scale cleanup activity can begin. MTBE cleanup goals are typically set at the secondary maximum contaminant level (MCL) for drinking water of 5 micrograms per liter ( $\mu\text{g}/\text{L}$ ), which is a taste and odor threshold. The primary MCL, based on threat to public health, is 13  $\mu\text{g}/\text{L}$ .*

## **HIGH PRIORITY SITES STATUS**

### **Chevron Service Station, 2194 Main Street, Cambria, San Luis Obispo County** **[John Mijares 805/549-3696]**

Chevron Cambria service station, located on the corner of Main Street and Burton Drive in Cambria, has been a Regional Board-lead groundwater investigation and cleanup case since December 1993. In 1995 Chevron Products Company (Chevron) removed the underground storage tank (UST) system and Chevron transferred service station ownership to an independent owner/operator who installed a new UST system.

Chevron is cleaning up a petroleum hydrocarbon discharge, including the fuel additive methyl tertiary-butyl ether (MTBE), from the original UST system. The discharge threatened groundwater in Cambria Community Service District (CCSD) Wells Nos. 1 and 3, which provide supplemental water to the community of Cambria.

As part of interim corrective action beginning in May 2000, Chevron continuously pumped MTBE-contaminated water from four onsite wells. Currently, there are 15 shallow groundwater extraction wells. Beginning in November 2000, Chevron began full operation of a groundwater extraction and high-vacuum dual phase extraction system. Both systems operate continuously, except for periodic system upgrade, mechanical breakdowns, and system maintenance activities. Extracted and treated groundwater is stored in an onsite 15,000-gallon tank until being trucked offsite for disposal at the Santa Maria Wastewater Treatment Plant.

During the November 2001 technical work group meeting (with Regional Board staff, CCSD representatives, and Chevron representatives), the CCSD indicated the new temporary high school well was connected to the municipal drinking water supply. The CCSD's high school well is needed as an alternative water supply. Additionally, the wellhead treatment system CCSD installed on their Santa Rosa Creek wells will enable their use in the event of an emergency.

On May 18, 2004, the Regional Board's Executive Officer rescinded Cleanup or Abatement Order (CAO) No. 00-28. The CAO required Chevron to provide CCSD with alternative water supply due to loss of CCSD's Well Nos. 1 and 3. The settlement agreement between CCSD and Chevron explicitly resolves all of CCSD's claims against Chevron, including claims for an alternative water supply.

Since the Last Staff Report:

*Chevron's Second Quarter 2007 Groundwater Monitoring and Remediation Status Report indicates the following:*

- The monitoring wells within the plume boundaries continue to exhibit MTBE concentrations exceeding the cleanup goal of 5 micrograms per liter ( $\mu\text{g/L}$ ); however, current concentrations have decreased significantly compared to historical maximum values. The second quarter 2007 maximum MTBE concentration was 4,600  $\mu\text{g/L}$  in piezometer well P-11. A maximum concentration of 5,300  $\mu\text{g/L}$  tertiary butyl alcohol (TBA) was also detected in well P-11. The shallow-zone MTBE isoconcentration map is shown on Attachment 2.*
- MTBE was not detected in monitoring wells historically known to be located beyond the plume boundaries.*
- Neither petroleum hydrocarbons nor fuel oxygenates were detected in any of the samples collected from shallow groundwater samples from the northern bank of Santa Rosa Creek (three sampling stations) during this quarter.*
- Neither petroleum hydrocarbons nor fuel oxygenates were detected in any of the samples collected from Santa Rosa Creek (three sampling stations) during this quarter.*
- The high-vacuum dual phase extraction (HVDPE) system operated intermittently during the reporting quarter due to ongoing repairs, troubleshooting, maintenance, and low influent vapor concentrations. The HVDPE system has extracted and treated approximately 4,900 pounds of vapor phase TPHg and 190 pounds of vapor phase MTBE between January 26, 2001 and June 27, 2007.*
- The groundwater extraction and treatment system has been operating during the reporting quarter. The groundwater extraction and treatment system and the HVDPE system extracted and treated approximately 203,000 gallons of groundwater during the reporting quarter, which were hauled to, and disposed at the City of Santa Maria wastewater plant.*

**California Water Service Company Supply Wells, Pajaro Street and Bridge Street, Salinas, Monterey County [John Goni 805/542-4628]**

In February of 2002, Water Board staff was notified by California Water Service Company (CWSC) of a supply well (Well Station 1-04) in the Salinas area showing detectable levels of the fuel oxygenate MTBE at 3.9 parts per billion (ppb).

CWSC notified Board staff in November 2002 that another supply well (Well Station 13-02, approximately ¼ mile from Well Station 1-04) contained MTBE at 3.5 ppb.

Central Coast Water Board staff has coordinated with other agencies to discover the source of MTBE. A review of the State Water Resources Control Board's implementation of enhanced leak detection testing requirements for all underground tank facilities within 1000 feet of water supply wells did not identify any new potential sources of MTBE. The Monterey County Environmental Health Department (MCEHD) agreed to increase inspections of all nearby permitted underground and aboveground tank facilities to ensure compliance; no operational violations were found.

In an effort to expand the investigation, Central Coast Water Board staff assisted the Monterey County Water Resources Agency in applying to the State Water Resources Control Board for Cleanup and Abatement Account money to fund additional groundwater sampling. The Central Coast Water Board adopted Resolution Number R3-2005-0118 supporting the Monterey County Water Resources Agency's application for Cleanup and Abatement Account (CAA) funds on October 21, 2005. At that time, State Board staff indicated that all other potential funding sources must be exhausted before receiving CAA funds, and that the California Department of Health Services (DHS) has money in the Drinking Water Treatment and Research Fund specifically for water purveyors to investigate drinking water sources impacted by MTBE releases.

The CWSC informed Water Board staff on July 24, 2006, that they do not have the staff resources necessary to pursue the DHS funding. On September 5, 2006, State Board staff advised that it would be appropriate for the Monterey County Water Resources Agency to resubmit their application. The Monterey County Water Resources Agency resubmitted their application on October 2, 2006.

At its January 18, 2007 meeting, the State Water Board approved the allocation of cleanup and abatement funds to perform additional sampling. *The State Water Board approved a contract between the Central Coast Water Board and Monterey County Water Resources Agency in June, 2007. Central Coast Water Board staff is working with the Monterey County Water Resources Agency and the Monterey County Health Department to solicit proposals from consultants for investigating the source of the contamination. The agencies are preparing a comprehensive history and data summary to ensure the investigation is not another data gathering exercise but is successful in finding the probable source of MTBE. We expect to make a formal presentation to prospective investigators/bidders in late October or early November, and will be encouraging innovative approaches to the investigation.*

*Central Coast Water Board staff continues to require leaking underground tank cases in the area of the water supply wells to vigorously cleanup fuel releases associated with their sites*

**Camp Evers Combined Site (Four Gasoline Service Stations) Mount Hermon Road and Scotts Valley Drive, Scotts Valley, Santa Cruz County [Wei Liu 805/ 542-4648]**

Petroleum hydrocarbons including benzene, 1,2-DCA and MTBE have been detected in groundwater beneath the Tosco, Shell, BP, and Chevron service stations located at the intersection of Mount Hermon Road and Scotts Valley Drive. An expanded site plan is shown on Attachment 3.

Previous onsite corrective actions at the Tosco, Shell, and BP sites included soil vapor extraction, air sparging, dual phase extraction, and/or groundwater extraction to remediate the MTBE plume. Chevron continued remediation of the benzene plume. The onsite corrective actions have successfully removed MTBE and other gasoline constituents from groundwater directly beneath the four service station sites; and the responsible parties have discontinued onsite remediation at all four sites.

The MTBE plume mass appears to have "detached" from the original plume, and migrated to a downgradient, offsite location beneath the King's Village Shopping Center with a maximum concentration of 38,300 micrograms per liter ( $\mu\text{g/L}$ ) detected in well CEMW-6 in May 1999. In addition, the Manana Woods water supply well was impacted by benzene and MTBE and extracted water is being treated using a wellhead treatment facility to remove the contaminants.

The responsible parties installed a permanent groundwater pumping and treatment system at the King's Village Shopping Center in November 2002, to remediate and hydraulically control the detached plume. Treated groundwater is discharged by way of the storm sewer system to surface water (ultimately Bean Creek) under the General NPDES Permit for highly treated groundwater.

*Second Quarter 2007 groundwater samples collected on May 7 through May 9, 2007, indicate maximum MTBE concentrations of 16 µg/L in onsite monitoring well Tosco RW-1, and 62 µg/L in off-site monitoring well CEMW-9. A maximum concentration of 1,900 µg/L TBA was detected in offsite monitoring well CEMW-6. MTBE concentrations in downgradient offsite well CEMW-6, which historically had the highest MTBE concentrations, have been reduced from a maximum of 38,300 µg/L in May 1999 to 2.7 µg/L in May 2007. In addition, MTBE concentrations in downgradient offsite well CEMW-16, were reduced from 4,710 µg/L in January 2001 to 2.3 µg/L currently. Wells CEMW-6, CEMW-9, and CEMW-16 are located upgradient of groundwater extraction well CEEW-1. (Attachment 3) These results suggest that the downgradient remediation system is effective in removing the contaminants.*

*The downgradient, offsite remediation system has removed approximately 23.1 million gallons of water, 340.4 pounds (lbs) of TPH, 11.4 lbs of benzene, 66.7 lbs of MTBE, and 28 lbs of TBA since November 26, 2002.*

**Quik Stop Market No. 78, 5505 Soquel Drive, Soquel, Santa Cruz County [Tom Sayles 805-542-4640]**

Quik Stop Market No. 78 (Quik Stop) is an operating gasoline service station located on the corner of Soquel Drive and Hardin Way in Soquel. The site has been a Water Board lead groundwater investigation and cleanup case since June 1999.

Water Board staff approved a corrective action plan consisting of a permanent dual-phase (soil vapor and groundwater) treatment system in July 2002. The treated groundwater is discharged to the sanitary sewer under a County of Santa Cruz Permit (No. 00002829) and the catalytic oxidizer treatment system operates under a Monterey Bay Unified Pollution Control District air permit (No. 11054).

The responsible party installed three additional vapor extraction wells in December 2003, in the vicinity of MW-3, to enhance cleanup system effectiveness. In addition, MW-3 was overdrilled and converted into a 4-inch diameter well to enhance groundwater extraction efficiency. The highest concentration of MTBE was 230,000 µg/L in monitoring well MW-4 (near the source area) on March 2, 2000.

*The responsible party collected Second Quarter 2007 groundwater samples on June 7, 2007. The samples showed a maximum concentration of 10 µg/L MTBE in offsite monitoring well MW-6 and a maximum concentration of 1,800 µg/L tert-butyl alcohol (TBA) in onsite extraction well RW-2. The MTBE (Attachment 4) and TBA concentration contour maps show the highest concentrations to be near the fuel tank complex which is consistent with past quarters, and a comparison with past concentration contour maps shows that the plume continues to decrease in size. Quik Stop is sampling Nobel Creek on a quarterly basis at four downgradient locations. MTBE and TBA were not detected in any creek samples collected on June 7, 2007.*

*Groundwater extraction pumps continue to operate in extraction wells RW-2, RW-3, and MW-4R and cleanup is ongoing.*

**Los Osos Valley Garage Former Bear Valley Chevron, 1099 Los Osos Valley Road, Los Osos, San Luis Obispo County, [Corey Walsh 805/542-4781]**

Golden State Water Company (Los Olivos No. 3) and the Los Osos Community Services District (10th Street) municipal water wells are located near this site. Los Olivos No. 3 continues to be sampled monthly, while the 10th Street well is sampled once every three years according to California Department of Health Services requirements.

The responsible party shut down the offsite groundwater remediation system in June 2005, and conducted post-treatment verification monitoring in January 2006, July 2006, and April 2007. The April 2007 sampling event included sampling of thirty six (36) key multi-level monitoring well chambers, and sample results indicated maximum contaminant levels of 290 micrograms per liter ( $\mu\text{g/L}$ ) total petroleum hydrocarbons as gasoline (TPH-g), 4.2  $\mu\text{g/L}$  benzene, 22  $\mu\text{g/L}$  methyl tertiary-butyl ether (MTBE), 72  $\mu\text{g/L}$  tertiary-butyl alcohol (TBA), and 0.6  $\mu\text{g/L}$  1,2-Dichloroethane (1,2-DCA). *These results indicate groundwater pollution remains at concentrations greater than Central Coast Water Board cleanup goals for MTBE, TBA, benzene, and 1,2-DCA. The groundwater cleanup goals for MTBE, TBA, benzene, and 1,2-DCA are 5 micrograms per liter ( $\mu\text{g/L}$ ), 12  $\mu\text{g/L}$ , 1  $\mu\text{g/L}$ , and 0.5  $\mu\text{g/L}$ , respectively.*

Water production from the Los Olivos No. 3 and 10th Street wells continues to run at normal production rates. *Monitoring results for the Los Olivos No. 3 well continue to be less than 0.5  $\mu\text{g/L}$  for MTBE (last sampled August 15, 2007); MTBE has not been detected since June 2003. Sample results for the 10th Street well (last sampled February 7, 2006) continue to remain below detection limits (less than 0.2  $\mu\text{g/L}$ ) for MTBE and (less than 2.0  $\mu\text{g/L}$ ) for TBA.*

Total petroleum hydrocarbons as gasoline, benzene, MTBE, and 1,2-DCA concentrations appear stable and to be attenuating to below or near cleanup goals; TBA concentrations, however, have increased *in one well chamber (ML-5-C3). Water Board staff has evaluated the groundwater monitoring data and is requiring additional verification monitoring of key multi-level monitoring well chambers be conducted in October 2007.*

## ATTACHMENTS

1. Region wide MTBE Listing and High Priority Sites
2. MTBE Plume Map, Cambria Chevron
3. Expanded Site Plan; Camp Evers Scotts Valley
4. MTBE Plume Map, Quik Stop, Soquel