

STATE OF CALIFORNIA  
REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING DECEMBER 4-5, 2008

ITEM NUMBER: 9

SUBJECT: Underground Storage Tank Program & MTBE Cases

DISCUSSION

Underground Storage Tank Program & MTBE Cases

*New information for this report in italics*

Central Coast Water Board staff oversees cleanup activities on numerous petroleum underground storage tank (UST) cases involving methyl tertiary-butyl ether (MTBE). Central Coast Water Board staff provides updates on four high profile MTBE cleanup cases below. Staff has also attached a list of sites with MTBE in groundwater providing an overall perspective of the region-wide impact of these releases. The attachment shows maximum MTBE concentrations reported in the second and third quarters of 2008.

For the Board's information, staff has attached a letter (Attachment 1) recently sent by the UST Cleanup Fund (Fund) to some Fund participants. In summary, the Fund has about 4,200 active claims in four different priority classes. The Fund is projecting they we will have to suspend new and amended claims for approximately 37 percent (616 of the 1,663) of the active Priority Class "C" Claims.

The Fund began mailing suspension letters to the affected Priority Class "C" claimants during the week of October 23, 2008. Approximately 60 of the affected claims are in the Central Coast Region. The Fund's action will delay reimbursement to affected parties for several months at a minimum. Staff is continually working with all responsible parties to ensure that cleanups are as efficient and cost-effective as possible.

Attachment 1: October 23 2008 Delay in Fund Reimbursement letter from Underground Storage Tank Cleanup Fund staff

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 Central Coast Water Board lead groundwater investigation and cleanup case since December 1993. In 1995, Chevron Products Company commissioned the removal of a UST system and transferred ownership of the service station to an independent owner/operator who installed a new UST system.

Chevron is cleaning up a petroleum hydrocarbon discharge, including MTBE, from the original UST system. The discharge threatened groundwater in Cambria Community Service District (CCSD) Wells No. 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 groundwater extraction and high vacuum dual phase extraction systems. 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. Currently, Chevron transports treated groundwater to the Santa Maria Wastewater Treatment Plant for disposal.

Since the Last Staff Report:

- *Monitoring wells within the plume boundaries continue to exhibit MTBE and tertiary butyl alcohol (TBA) concentrations exceeding the cleanup goals of 5 micrograms per liter ( $\mu\text{g/L}$ ) and 12  $\mu\text{g/L}$ , respectively. However, current concentrations have decreased significantly compared to historical maximum values. Results of the third quarter 2008 monitoring indicated a maximum MTBE concentration of 720  $\mu\text{g/L}$  in MW-30 and a maximum TBA concentration of 180  $\mu\text{g/L}$  in well MW-7. Shallow-zone MTBE and TBA isoconcentration maps are shown on Attachments 1 and 2, respectively.*
- *Monitoring wells historically known to be located beyond the plume boundaries continue to be free of detectable concentrations of MTBE.*
- *In July 2008, Central Coast Water Board staff directed Chevron to suspend monitoring of Santa Rosa Creek starting with the third quarter of 2008 since concentrations of petroleum hydrocarbons and fuel oxygenates in Santa Rosa Creek, have been below reporting limits or below water quality objectives since August 2001. In addition, Central Coast Water Board staff suspended groundwater monitoring from three sentinel sampling locations (NSGW-A through NSGW-C) on the north bank of Santa Rosa Creek since concentrations of petroleum hydrocarbons and fuel oxygenates have been below reporting limits since September 2004.*
- *The Groundwater Extraction and Treatment system and the High Vacuum Dual Phase Extraction system extracted and treated approximately 70,000 gallons of groundwater during the reporting quarter, which were disposed at the City of Santa Maria wastewater plant. The treatment systems have cumulatively removed and treated approximately 10 million gallons of water, and have removed approximately 5,000 pounds of petroleum hydrocarbons and 189 pounds of MTBE.*
- *On September 26, 2008, Central Coast Water Board staff issued a Notice of Applicability to enroll Chevron under the General WDR Waiver, Resolution No. R3-2008-0010 to infiltrate treated and aerated groundwater to enhance the in-situ biodegradation of petroleum hydrocarbons and fuel oxygenates at the site. Central Coast Water Board staff will pass on progress and results of this study in future reports.*

Attachment 2: Shallow Zone Groundwater MTBE Isoconcentrations

Attachment 3: Shallow Zone Groundwater TBA Isoconcentrations

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

In February 2002, California Water Service Company (CWSC) in Salinas notified Central Coast Water Board staff that monitoring indicated MTBE in two domestic supply wells in the Salinas area. Central Coast Water Board staff's review of known leaking underground tank cases near the wells found no active cases with high concentrations of MTBE in the area. Further investigation revealed a gasoline distributor (with 100,000 gallons of fuel product storage) close to the well, but a subsequent site investigation showed no evidence of a fuel release to underlying groundwater. Staff continued their investigation and directed other permitted underground tank facilities without previously reported leaks to perform groundwater investigations. These investigations failed to find a release of MTBE of significant size to account for the contaminant in the supply wells.

In an effort to expand the investigation, Central Coast Water Board staff assisted the Monterey County Water Resources Agency (Agency) in applying to the State Water Resources Control Board (State Water Board) for Cleanup and Abatement Account money to fund additional groundwater sampling. The State Water Board approved the allocation of cleanup and abatement funds to perform additional investigation and recently approved the contract between the Central Coast Water Board and the Agency. On December 13, 2007, the Agency hosted a well site visit and informational meeting for prospective consultants. Approximately 25 representatives of potential responsible parties and 14 consulting firms attended. As a result of the informational meeting, the Agency received and evaluated seven conceptual proposals for the investigation. The Agency mailed a scope of work for performing the investigation on February 29, 2008, using ideas from the seven conceptual proposals. The Agency received final bids on April 3, 2008 and finished their review and selection process on April 24. The Agency executed a contract with Todd Engineers (Todd) in May. Todd has completed the first phase of the investigation which included assembling background information, confirming the time line of MTBE occurrences in the Salinas area water supply wells, determining the mass of MTBE intercepted by the wells, and identifying potential sources of MTBE and potential conduit wells using hydrogeologic and environmental information.

**Since the Last Staff Report:**

*Todd Engineers is proceeding with the next phase of the investigation which includes monitoring shallow groundwater at the affected water supply wells and using specialized isotope groundwater testing for tracing groundwater to a MTBE source or sources. Todd has designed the monitoring wells, proposed their locations adjacent to the affected water supply wells, and arranged access agreements with the property owner (CWSC). Todd will use shallow wells to determine if the shallow groundwater zone is a source of MTBE, and if the water supply wells could be affected by contaminants in the shallow zone. If the shallow zone is affecting the wells, an isotope sampling program developed by Todd will be used for coordinated testing of shallow zone groundwater adjacent to the affected water supply wells and known leaking underground tank cases in the area. Common shallow groundwater characteristics identified by the isotope testing will "fingerprint" each groundwater source area. Any common shallow groundwater fingerprints found between the water supply wells and leaking tank cases will indicate areas for further investigation as possible sources of MTBE. Todd plans well installation and isotope sampling for early 2009.*

**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-dichloroethane (1,2-DCA) and MTBE, were first detected in groundwater beneath the Tosco, Shell, BP, and Chevron service stations located at the intersection of Mount Hermon Road and Scotts Valley Drive in the mid-1990s. 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 has 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 onsite remediation has been discontinued at all four sites.

A monitoring event in the late 1990s showed that an MTBE plume mass had detached from the original plume and migrated to a downgradient offsite location beneath the nearby King's Village Shopping Center. The historic maximum MTBE concentration, recorded in May 1999, was 38,300 micrograms per liter ( $\mu\text{g/L}$ ). In addition, both benzene and MTBE have been detected in the adjacent Manana Woods water supply well and this well was fitted with a wellhead treatment system to remove these 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 to the City of Scotts Valley sanitary sewer.

**Since the Last Staff Report:**

*Second Quarter 2008 groundwater sample results indicate maximum MTBE concentrations of 68  $\mu\text{g/L}$  in onsite monitoring well (Tosco's) RW-2, and 180  $\mu\text{g/L}$  in offsite monitoring well CEMW-9, located upgradient of groundwater extraction well CEEW-1 (see Attachment 4 for well locations). Results showed a maximum concentration of 1,300  $\mu\text{g/L}$  TBA in downgradient offsite monitoring well CEMW-6. TBA is a typical breakdown product of MTBE and its presence indicates the further degradation of MTBE. The treatment system has reduced MTBE concentrations in well CEMW-6, which historically had the highest MTBE concentrations, from a maximum of 38,300  $\mu\text{g/L}$  in May 1999 to non-detect ( $< 1.0 \mu\text{g/L}$ ) in May 2008. In addition, MTBE concentrations in downgradient offsite well CEMW-16, which is near the groundwater pumping and treatment system, have fallen from 4,710  $\mu\text{g/L}$  in January 2001 to 3.3  $\mu\text{g/L}$  in May 2008. Wells CEMW-6 and CEMW-16 are located upgradient of groundwater extraction well CEEW-1.*

*The downgradient offsite remediation system has removed more than 23.7 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.*

Attachment 4: Well Location Map

**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 Central Coast Water Board-lead groundwater investigation and cleanup case since June 1999.

A permanent dual-phase (soil vapor and groundwater) treatment system has been operating at the site since July 5, 2002. Treated groundwater is discharged to the sanitary sewer under a County of Santa Cruz Permit (No. 00002829) and a catalytic oxidizer treatment system operates under a Monterey Bay Unified Air Pollution Control District permit (No. 11054).

Quik Stop installed three additional vapor extraction wells in December 2003 to enhance cleanup system effectiveness. In addition, Quik Stop converted one on-site monitoring well into a 4-inch diameter well to enhance groundwater extraction efficiency. The highest historic concentration of MTBE was 230,000  $\mu\text{g/L}$  in monitoring well MW-4 (near the source area) on March 2, 2000.

#### Since the Last Staff Report:

*Third Quarter 2008 monitoring samples showed a maximum concentration of 260  $\mu\text{g/L}$  MTBE in onsite monitoring well MW-4R. Samples also showed a maximum concentration of 1,630  $\mu\text{g/L}$  TBA in onsite extraction well RW-2. The MTBE and TBA concentrations are highest near the fuel tank complex, which is consistent with past quarters. Quik Stop samples Nobel Creek at four downgradient locations. Quik Stop sampled the creek on September 5, 2008. All creek samples were below detection limits for MTBE and TBA.*

*Groundwater extraction pumps continue to operate in extraction wells RW-2, RW-3, and MW-4R and cleanup is ongoing. (Monitoring and remediation wells are shown in Attachment 5.)*

*The remediation system has removed approximately 863,088 gallons of water, 929.83 pounds of MTBE, and 259.61 pounds of TBA since system start up in April 2001.*

Attachment 5: Site Map

#### Regionwide MTBE List

*The Regionwide MTBE Listing and High Priority Sites list is included as Attachment 6. The list shows site names and addresses as well as the priority listing (Rank A, B, or C) based on State Board MTBE guidelines. Central Coast Water Board staff has required accelerated cleanup at some higher priority Rank A sites. We require interim cleanup action 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 ( $\mu\text{g/L}$ ), which is a taste and odor threshold. The primary MCL, based on threat to public health, is 13  $\mu\text{g/L}$ .*

Attachment 6: Region Wide MTBE Listing and High Priority Sites