

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL
BOARD CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING SEPTEMBER 10, 2004

Prepared August 16, 2004

ITEM NUMBER: 9

SUBJECT: **Underground Tank Program and MTBE Priority Sites**

DISCUSSION:

New information is shown in italics

This is a continuing report (every other Regional Board meeting) on the status of Region 3 MTBE sites. Today's report includes an update regarding the Local Oversight Program transition in Santa Clara County.

Local Oversight Program (LOP) Transition from the Santa Clara Valley Water District (District) to the Santa Clara County Department of Environmental Health (DEH) continues, albeit slowly. The recent passage of AB 430 (Dutra) extends the Districts' LOP authority until June 30, 2005. The District and DEH will both have LOP authority as co-signatories under contract with the State Water Resources Control Board through fiscal year 2004-05.

The current plan is for DEH to train existing hazardous materials staff on new cases as they are discovered (possibly a few cases per month). After DEH recruitment and training of dedicated LOP staff, anticipated in November, DEH expects to increase the number of cases transferred from the District. DEH's goal is to complete the transfer of cases from the District by January 2005. District staff would remain available to assist with full caseload transition through the fiscal year.

Staff is 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. Staff uses this report to answer questions from previous Regional Board meetings, and to provide the Regional Board with any new information pertaining to the UST program.

Attached is an updated Regionwide MTBE Listing and High Priority Sites table. 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 parts per billion (ppb), which is a taste and odor threshold. The primary MCL, based on threat to public health, is 13 ppb.

The Regionwide MTBE Listing and High Priority Sites list, included as Attachment 1, contains the latest information provided by Santa Barbara County as of August 4, 2004. Beginning in late March 2002, Santa Barbara County obtained the ability to update information in the MTBE report by way of the Statewide GeoTracker database system.

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.

Background:

In 1995 the underground storage tank (UST) system was removed and service station ownership/operation was transferred from Chevron Products Company (Chevron) to an independent owner/operator who installed a new UST system.

Chevron is cleaning up a petroleum hydrocarbon discharge from the original UST system, including the fuel additive methyl tertiary-butyl ether (MTBE). The discharge threatens groundwater in two 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. Beginning in November 2000, Chevron began full operation of a groundwater extraction and high vacuum dual phase extraction system (high vac system). Throughout 2001 and 2003, both systems operated continuously, except for periodic system upgrade and system maintenance activities. Extracted, treated groundwater is stored in an onsite 15,000-gallon tank until trucked offsite for disposal.

In February 2002, the Executive Officer enrolled Chevron in Waste Discharge Requirements Order No. 01-134, National Pollutant Discharge Elimination System (NPDES) No. CAG993002, General Permit for Discharges of Highly Treated Groundwater to Surface Waters (General Permit). In March 2002, the CCSD and the Cambria Legal Defense Fund filed an appeal with the State Water Resources Control Board (State Board) against Chevron's General Permit enrollment.

On March 5, 2004, CCSD served the Regional Board and Chevron with a dismissal without prejudice of the lawsuit regarding enrollment in the NPDES permit. CCSD also filed a petition with the State Board on similar issues (File No. SWRCB/OCC A-1462). That

petition is still pending, although it is currently in abeyance at CCSD's request.

Alternative Water Supply Issues:

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 and the wellhead treatment system CCSD installed on their Santa Rosa Creek wells will enable their use in the event of an emergency.

Since the Last Staff Report:

On May 18, 2004, the Regional Board's Executive Officer rescinded Cleanup or Abatement Order (CAO) No. 00-28 as discussed during the May 14, 2004, Regional Board meeting. 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 (\$8.4 M) of a civil lawsuit explicitly resolves all of CCSD's claims against Chevron, including claims for an alternative water supply.

On June 16, 2004, The Regional Board's Executive Officer revised Monitoring and Reporting Program (MRP) No. 97-79. The revision incorporates newly installed wells into the monitoring program, changes reporting frequency from monthly to quarterly, and improves the reporting format. The July 20, 2004, Quarterly Groundwater Monitoring and Remediation Status Report generally indicates that petroleum hydrocarbon and fuel oxygenate concentrations in offsite wells were similar to those reported during the previous monitoring event. Petroleum hydrocarbon and fuel oxygenate compounds continue to remain below laboratory reporting limits in most offsite monitoring wells. An MtBE isoconcentration map, based on the June 2004 sampling, is shown on Attachment 2.

Results of shallow groundwater samples from the northern bank of Santa Rosa Creek indicate detections of 53 µg/l TPHg and 0.9 µg/l toluene (slightly above the detection limit) in creek bank samples NSGW-1 and NSGW-6,

respectively. Petroleum hydrocarbon or fuel oxygenate compounds were not detected above laboratory reporting levels in the other five creek bank sampling locations.

During June 2004, approximately 77,900 gallons of groundwater were extracted using the high-vacuum dual phase extraction and the groundwater extraction systems and were transported offsite for disposal. During this month approximately 0.07 and 0.12 pounds of dissolved-phase MtBE and tertiary butyl alcohol were removed from the subsurface.

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

In February of 2002 Regional Board staff was notified by California Water Service Company (CWSC) of a supply well (Well Station 1-04) in the Salinas area showing a detection of the fuel oxygenate MTBE at 3.9 parts per billion (ppb). A review of the well construction log indicated a proper sanitary seal was installed at the time of construction (6/16/1948) to a depth of approximately 250 feet. The well draws water from depths of 250 feet to 438 feet in three perforated sections. A review of known leaking underground tank cases in close proximity to the well showed no active cases with high concentrations of MTBE to indicate a suspected source. The investigation was expanded to include permitted operating underground tanks (without reported leaks) and identified a gasoline distributor (with 100,000 gallons of fuel products storage) close to the wells. A previous investigation by the distributor revealed no evidence of leaks or spills at the site. The distributor was directed and completed another site investigation last fall, and no evidence of a fuel release was found in underlying groundwater.

CWSC notified Board staff in November 2002 another supply well (Well Station 13-02, approximately ¼ mile from Well Station 1-04) showed a detection of MBTE at 3.5 ppb. Staff continued the investigation and has directed three other permitted underground tank facilities (service stations further from both wells) to perform groundwater investigations.

Staff is also coordinating with the State Water Resources Control Board's implementation of enhanced leak detection testing for all underground tank facilities within 1000 feet of water supply wells. Facilities failing the enhanced leak detection tests will be considered for additional groundwater investigation as an MTBE source.

Staff met with representatives of the CWSC and the Monterey County Environmental Health Department (MCEHD) on June 10, 2003, to discuss the status of the investigation and the next appropriate steps. At this meeting, the CWSC reported Well Station 1-04 had increases in MTBE, to a maximum concentration of 120 parts per billion of MTBE in January 2003. The well was placed out of service and properly abandoned to prevent possible trans-aquifer migration of contaminants. Well Station 13-02 has also had an increase in MTBE, with data from April 2003 indicating 39.9 ppb. The CWSC is using wellhead treatment to allow continued use of this well. The MCEHD has committed to inspecting all nearby permitted underground and aboveground tank facilities to ensure compliance.

Staff also participated (via conference call) in a meeting with the California Water Service Company and the California Department of Health Services (DHS) on October 7, 2003, to discuss the CWSC's request for Grant funds from DHS to relocate water supply wells. Staff provided an update on the on-going investigation to identify the source of MTBE detected in the supply wells.

CWSC has confirmed gasoline has not been stored at their water supply well locations. Well Station No. 1-04 has not had any fuel stored at its location, and Well Station No 13-02 has only had diesel fuel stored in an aboveground vault. No leak has been observed at the vault. The standby power fuel storage is not considered a likely source of the MTBE (diesel should not contain MTBE). Staff has visited the wellheads and no obvious sources of MTBE are apparent. The Monterey County Health Department has been inspecting permitted fuel storage site facilities in the

vicinity of the supply wells and no operational violations have been found.

Staff has been in contact with the three active service stations and a car wash near the affected supply wells and directed them to investigate possible fuel leaks at their facilities, (Shell, Beacon, Amerigas, and ACME Carwash). Work plans from the facilities have been approved with Shell being the first to report results. Shell has reported elevated concentrations of MTBE, at 7,700 ug/l in groundwater and 1,100 mg/kg in soil. Shell is performing vertical and lateral delineation investigative work to determine the extent of the release and to determine if this is a source of the contaminant in the supply wells.

Samples from the Beacon station revealed no significant release of MTBE, all concentrations in groundwater samples were less than the Maximum Contaminant Level, with a maximum of 3.0 parts per billion detected at the 57 foot depth. A work plan for investigation of other gasoline constituents found at the site has been approved by Regional Board staff, and the investigation is proceeding. Preliminary data from development of four on-site monitoring wells shows MTBE in shallow groundwater at 100 ppb. While the MTBE is greater than the secondary MCL of 5 ppb, the total mass appears insufficient to have caused the degradation associated with water supply wells. Further investigative work will define the extent of the Beacon MTBE contribution. Beacon and Shell are coordinating investigations to better define the shallow groundwater configuration (depth, gradient, and contaminant concentrations) under and between the two service stations.

Shell has completed two additional investigations at and near its facility. The first investigation was completed the week of February 2 and consisted of borings on and adjacent to the site. The second investigation was performed the week of March 8 and consisted of borings further away (northerly) from the site and on-site. Information from the first investigation shows the presence of MTBE at depth, (3.0 ug/l at 140 feet below

ground surface), but is inconclusive in terms of finding the source affecting the water supply zone. Information from the second investigation is still pending and may provide more definitive information. Shell continues to extract contaminated groundwater from the site as an interim remedial action, with 18,300 gallons extracted as of March 25, 2004. The MTBE concentration in on-site shallow groundwater has been reduced from 7,700 ug/l on September 8, 2003, to 1,200 ug/l on March 25, 2004. The extracted groundwater is hauled and disposed at a Shell refinery in Martinez

The ACME Carwash investigation is complete and revealed a MTBE (and other gasoline constituents) release has not occurred at this site. ACME Carwash is no longer considered a source of MTBE.

The investigation at the Amerigas Station is pending.

Staff has directed two additional responsible nearby parties of leaking underground tank cases with MTBE releases to perform vertical delineations into the water supply aquifers. The leak cases are an ARCO station at 145 Kern Street, and Rossi's Tire & Auto Service at 81 North Sanborn Road.

Staff met with the representatives of CWSC on April 21, 2004, in Salinas to discuss case status and possible investigative measures. As a result of the meeting, CWSC is forwarding recently completed well assessment information to Regional Board staff (to help staff evaluate potential up-gradient contaminant sources), and is evaluating performing depth discrete sampling of their affected supply well(s) to pinpoint the aquifer(s) most affected by MTBE. *CWSC has declined to perform depth discrete sampling. Staff is evaluating other options.*

As suggested by Regional Board member Russ Jeffries at the June 9, 2004 Regional Board meeting, staff investigated a former packing plant near the California Water Service Company (CWSC) supply wells on Bridge Street. Monterey County, Department of Health, reports two former facilities with

underground tanks near the currently used well, one of which was a packing operation. Details are as follows:

1. *Ready Pack, 179 Sherwood, Salinas, did have one 500 gallon underground storage tank. The tank was removed and the case closed by Monterey County May 13, 1991. The excavation was reportedly clean.*
2. *Osheda Farm, 176 Sherwood, Salinas, had a 300 gallon underground storage tank. The tank was removed and the case closed by Monterey County in 1988. The excavation was reportedly clean.*

Staff believes Ready Pack is the facility Board member Jeffries was referring to on June 9. Staff believes (because of the small tank size and the dates of tank closures preceding significant use of MTBE as an oxygenate) these two cases are not likely candidates for the MTBE contamination of the CWSC supply wells.

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

Petroleum hydrocarbon and gasoline additives including BTEX, 1,2-DCA and MTBE have been detected in ground water beneath and downgradient from four gasoline service stations located at the intersection of Mount Hermon Road and Scotts Valley Drive. The site, consisting of four service stations, has been a Regional Board lead groundwater investigation and cleanup case since 1989. Since staff has written status reports for this site for each Board meeting since October 2001, this report only provides the updated information (in italic).

CORRECTIVE ACTIONS

The following site corrective actions are being performed:

Tosco: Expanded soil vapor extraction and air-sparging; due to very low vapor concentrations, soil vapor extraction

has been operated on an intermittent basis. Air sparging is ongoing.

Equiva: Soil vapor extraction is ongoing; ground water extraction system operation began in September 2000. Because the extraction well has been frequently dry, the system was converted to dual phase (vapor/groundwater) extraction in early 2001. The groundwater extraction system ended in the middle of 2002.

BP: Two of the existing wells were included in the interim groundwater-pumping program. Since hydrocarbon removal rate became low due to reduced contaminant concentrations, pumping at the former BP site has been discontinued.

In addition, the supply water pumped from the Manana Woods well was treated with the existing air-stripper and (a larger) carbon unit until October 2003. A new wellhead treatment facility with larger capacity to treat MTBE and benzene contamination was designed to replace the existing system and was installed in October 2003. The new wellhead treatment system was started on October 30, 2003 and has operated continuously since that time. The old treatment plant was taken off line on December 17, 2003.

In a joint effort, Tosco, Equiva, and BP Oil (Responsible Parties or RP's) also submitted a workplan in October 2001 to completely delineate the MTBE plume extent in the downgradient area of the service stations and the Manana Woods well, and select and implement another more effective, permanent remedial alternative to control and cleanup the downgradient plume. Staff concurred with the proposed downgradient plume delineation and the RP's are implementing it.

In addition to the above, groundwater monitoring wells associated with the Camp Evers site and the treatment systems at Tosco and Equiva sites are monitored on a quarterly basis, and the wellhead treatment system is monitored on a weekly basis. MTBE

concentrations have generally decreased in the source area (e.g., from the maximum of 86,000 to 200 ppb in Equiva well, MW-4) as of the fourth quarter of 2002. However, in the downgradient plume area around CEMW-6 and newly installed well nest (CEMW-13 through CEMW-16) MTBE concentrations decreased first in mid-2000, and had increased (e.g., from 5,630 to 13,000 ppb in cooperative well CEMW-6 as of the fourth quarter of 2002) before the downgradient plume remediation system began operation. However, MTBE concentrations in the downgradient plume area decreased significantly since the downgradient plume remediation system operation began (see below).

DOWNGRADIANT PLUME DELINEATION AND CLEANUP

The RP's implemented the approved workplan for delineation and remediation of the downgradient plume, which includes installation of seven groundwater monitoring well nests, a groundwater extraction well and a treatment system compound. Fieldwork for well installation started in late April 2002 and was completed in October 2002. Initial sampling results showed most new wells containing non-detectable MTBE and benzene concentrations, with one sample from well CEMW-19 detected MTBE at 8.8 ppb and three samples from wells CEMW-17 and CEMW-21 contained benzene at concentrations ranging from 1.3 to 3.0 ppb.

All new wells have been sampled since the first quarter 2003 monitoring event. MTBE was not detected in any of the new downgradient monitoring wells except the deep wells CEMW-19B and CEMW-17B. MTBE concentrations in CEMW-19B showed an increase from the initial 8.8 ppb in September 2002, to 220 ppb in March 2003, and then decreased to below 120 ppb during the subsequent quarters (*84 ppb in January 2004*). MTBE was detected at 2.3 ppb in CEMW-17B, which is the *third* time MTBE was detected in this well. Other oxygenates were not detected in any of the new well clusters sampled during the *first* quarter 2004 monitoring event, except that TBA was

detected at *11* ppb in well CEMW-19B, which slightly increased from the previous quarter (*8.4* ppb). Low levels of benzene (from *3.2 ppb to 12 ppb*) were detected in *two (reduced from previous quarters' five)* wells, which are located upgradient (CEMW-17B) or cross-gradient (CEMW-21B) from the Manana Woods Well. Based on the above results, it appears that the downgradient extent of petroleum hydrocarbon impacted groundwater is defined by non-detection or relatively low concentrations of chemicals of concern in the newly installed, downgradient well clusters, CEMW-17 through CEMW 23.

In addition, in October 2002 the Responsible Parties applied for coverage under Order No. 01-134, General NPDES Permit for discharge of highly treated groundwater from the downgradient plume remediation system to surface waters. Staff discussed the proposed enrollment of the RP's under the General Permit at the Regional Board's November 1, 2002 meeting. The Executive Officer enrolled the RP's under the General Permit on November 7, 2002 on condition that the initial batch of water generated from the system is trucked off-site. The RP's started operation of their downgradient plume remediation treatment system in November 2002 and the RP's initiated continuous operation of the treatment system on December 12, 2002. Weekly monitoring of the discharge is now being performed.

From November 26, 2002 to *March 31, 2004*, the downgradient remediation system has removed approximately *9,387,375* gallons of water, *258.7* pounds (lbs) of TPH, *5.7* lbs of benzene, *56.6* lbs MTBE, and *10.1* lbs of TBA from the impacted downgradient area. MTBE concentrations in the downgradient plume area have shown relatively significant decreases. For example, MTBE concentrations in wells CEMW-6 and CEMW16 were reduced from 13,000 ppb to *2,800* ppb and from 3,500 ppb to *110* ppb during October 2002 and *January 2004*, respectively. These results suggest that the downgradient remediation system continues to be effective in removing petroleum hydrocarbons in the downgradient plume area.

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 Regional Board lead groundwater investigation and cleanup case since June 1999.

The approved corrective action plan consisting of a permanent dual-phase (soil vapor and groundwater) treatment system has been operating since July 5, 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).

Three additional vapor extraction wells were installed 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.

Second Quarter 2004 groundwater samples were collected on June 3, 2004. A maximum MTBE concentration of 4,200 micrograms per liter ($\mu\text{g/l}$) was detected in onsite monitoring well RW-2. The highest concentrations of TPH-G, benzene, and MTBE are near the fuel tank complex, consistent with past quarters and appear to be declining. Quik Stop proposes to discontinue sampling Nobel Creek on a monthly basis during the summer months due to a lack of water in the creek. Monthly creek sampling will resume once the rainy season begins.

Groundwater extraction pumps continue to operate in RW-2 and RW-3. As of June 3, 2004, approximately 349,000 gallons of water had been extracted from the site.

Staff continues to work with Quik Stop and local agencies on this cleanup project to protect and restore the groundwater quality of the Soquel/Aptos area.

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

The station ceased distribution of fuel in May 2001, and the UST system was later removed. An auto repair business and a surf shop currently occupy the site. *The property was sold October 29, 2002.*

Active cleanup of soil and groundwater began in 1997 through the summer of 2000 with operation of an on-site soil vapor extraction and air sparging system. The on-site system was restarted in January 2003 and shut-down in April 2003 due to nuisance complaints. *Operation of the system was re-evaluated and recommendations made to remove the system and on-site cleanup wells due to reduced hydrocarbon influent concentrations and system upgrade costs.*

The off-site remediation system is an integrated air-sparging and groundwater circulation system. The system has operated since April 2002 and originally consisted of five air-sparging wells, a circulation well, and one vapor extraction well. The first phase of the expansion took place in August 2002, with addition of six air-sparging wells and a second groundwater circulation well. A second system expansion was completed in March 2004. This expansion included four additional air-sparging wells, and four groundwater circulation/ extraction wells. An Off-Site Remedial Action Expansion Report was submitted March 29, 2004.

In a recent law suit, Los Osos Community Services District (District) sued ChevronTexaco Corporation for product liability associated with the MTBE released at the site. *The District continues to negotiate a settlement with ChevronTexaco that may include funds to construct a wellhead treatment system.*

In an agreement between the District and ChevronTexaco, a complete round of groundwater sampling was conducted (March

1, 2004) on all Multi-Level monitoring wells. The groundwater data were submitted on July 19, 2004 in-place of the first semi-annual 2004 groundwater monitoring event. These results detected up to 1,100 micrograms per liter ($\mu\text{g/L}$) total petroleum hydrocarbons as gasoline (TPH-g), 120 $\mu\text{g/L}$ benzene, 1,300 $\mu\text{g/L}$ MTBE, and 220 $\mu\text{g/L}$ tertiary-butyl alcohol (TBA). The groundwater data show that concentrations of dissolved petroleum hydrocarbons continue to decline within the area of influence of the off-site remediation system.

Groundwater has been observed in three distinct water-bearing zones (A, B & C-Zones) with a strong downward gradient from A to B and from B to C. Depth to water in the A-Zone ranges from approximately 26 to 35 feet below ground surface and the flow direction is generally north-northeast at a gradient of 0.02 to 0.04 ft/ft.

Activities scheduled during the second semi-annual monitoring period of 2004 include: continued operation of off-site cleanup system; review of monthly municipal monitoring results; second semi-annual 2004 groundwater monitoring pursuant to Monitoring and Reporting Program No. 95-87 (Revised March 8, 2004) with report due January 20, 2005; and regulatory review of proposed monitoring well destruction and on-site cleanup system removal.

The municipal water wells owned by Southern California Water Company (Los Olivos No. 3 well) and the District (10th Street well) located near the site continue to be sampled monthly for MTBE. Water production from Los Olivos No. 3 and 10th Street wells continue to be reduced to approximately 80% and 20% of capacity, respectively. Monitoring results for Los Olivos No. 3 well continue to be $<0.5 \mu\text{g/L}$ for MTBE, and have been since June 2003, and were not detected when last sampled on June 8, 2004. Sample results for the 10th Street well, last collected July 6, 2004, continue to remain below detection limits ($<0.5 \mu\text{g/L}$) for MTBE and ($<5.0 \mu\text{g/L}$) for TBA. The secondary maximum contaminant level (MCL) for MTBE is 5 $\mu\text{g/L}$, and the DHS Drinking Water Action Level for TBA is 12 $\mu\text{g/L}$.

ATTACHMENTS:

1. Regionwide MTBE Listing and High Priority Sites
2. MTBE Plume Map, Cambria Chevron

S:\UST\UST Program\MTBE Board Items\MTBE ITEM 091004 doc