

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

**STAFF REPORT FOR REGULAR MEETING OF FEBRUARY 4, 2010**

Prepared December 31, 2009

**ITEM NUMBER: 10**

**SUBJECT: Recommended Case Closures**

**Background:**

This staff report provides summaries for cleanup sites that Central Coast Water Board staff has recommended for closure, although the groundwater beneath these sites has not attained water quality goals for one or more constituents. Staff's closure recommendations are premised on the knowledge that: 1) the remaining constituent concentrations are sufficiently low so as to not pose a threat to surrounding existing beneficial uses of the water (e.g., supply wells, surface waters, etc.); 2) the constituent sources have been removed; 3) monitoring has indicated that the groundwater plumes are contracting in size and concentration; and 4) continued monitoring at these sites would not provide additional benefit for the staff resources invested. These sites are appropriate for closure, based on site-specific information provided below.

**Former Madonna Plaza Cleaners, 227 Madonna Road, San Luis Obispo  
San Luis Obispo County [Rich Chandler, (805) 542-4627]**

Central Coast Water Board staff recommends case closure, as partial soil remediation has been completed and groundwater concentrations are lower than Central Coast Water Board action levels.

The subject property, owned by Charles Pasquini, is located in the Madonna Plaza shopping center in the City of San Luis Obispo. A dry cleaning facility utilizing tetrachloroethene (PCE) operated at the site from approximately 1969 until 1989 in the location currently operated as a Kohl's department store. A Phase I environmental site assessment (ESA) performed in January 2001 indicated the potential for PCE impacts to the subsurface. A Phase II ESA investigation that included soil sampling and the installation of five groundwater monitoring wells, was performed in May through June 2001, and confirmed the presence of PCE in shallow soil and groundwater at the site. An additional soil and groundwater investigation that included the installation of six more groundwater monitoring wells was performed in May through April 2002. This investigation delineated the extent of soil and groundwater impacts. Groundwater monitoring was initiated in May 2001.

Approximately 4,500 cubic yards of PCE-impacted soil were excavated in May 2002; however, not all impacted soil could be removed due to the presence of building footings and roof supports. Water Board staff estimates that approximately 12,750 pounds or about 1,060 gallons of PCE were removed. Two more groundwater monitoring wells were installed at the site in July 2006, and also at that time, approximately 10,000 gallons of potassium permanganate were injected into the subsurface to further remediate impacted soil and groundwater *in situ*.

Currently, the highest concentration of PCE in soil at the site is 2.4 milligrams per kilogram (mg/kg), higher than the cleanup goal of 0.1 (mg/kg). The highest concentration of PCE in groundwater at the site during the most recent sampling event was 4.6 micrograms per liter (ug/L), lower than the Department of Public Health Maximum Contaminant Level of 5.0 ug/L for drinking water. The extent of the impacted groundwater has been defined and the waste plume is stable. The nearest water supply well is located 1,200 feet south of the site and has been impacted by PCE from sources other than the subject site. Department of Toxic Substances Control staff will be conducting an investigation in the 2010/2011 fiscal year for sources impacting this water supply well.

Central Coast Water Board staff recommend closure of this case based on the following:

1. The extent of the PCE release has been adequately characterized;
2. Wastes in soil and groundwater were remediated to the maximum extent possible given constraints presented by having an operating department store structure immediately overlying a portion of the polluted area;
3. The remaining soil pollution above the cleanup goal is limited in extent and contained within the lateral footprint of the building's foundation (e.g. beneath the concrete slab of the structure and asphalt parking lot);
4. The property owner has indicated that he is willing to sign a Covenant and Environmental Restriction on Property for the subject property to ensure proper handling of the site soils should future site actions require exposing residual pollution;
5. The nearest water supply well is located approximately 1,200 ft south of the site and has been impacted by PCE from other sources, and remaining groundwater contamination is unlikely to reach any other water supply wells;
6. The current fee titleholders of the subject property and adjacent properties have been notified of the proposed case closure and have no objections to case closure; and
7. Closure is consistent with Section III.G. State Board Resolution No. 92-49, allowing consideration of cost effective abatement measures for a site where attainment of reasonable objectives less stringent than background water quality does not unreasonably affect present or anticipated beneficial uses of groundwater.

The recommended case closure is consistent with closure of similar PCE cases by the Central Coast Water Board in the past. Unless the Water Board directs staff otherwise, the Executive Officer will issue a case closure letter, pending proper well abandonment and recordation of the Covenant and Environmental Restriction on the Property.

**Former Douglas Oil Station, 518 Avenue of the Flags, Buellton Santa Barbara County**  
**[John Mijares, (805) 549-3696]**

Central Coast Water Board staff and the Santa Barbara County Fire Prevention Division (FPD) staff recommend closure of this underground storage tank (UST) case where sample results indicate groundwater concentrations remain greater than Central Coast Water Board cleanup goals. Third Quarter 2009 groundwater data indicate benzene at 50 microgram per liter ( $\mu\text{g/L}$ ), toluene at 150  $\mu\text{g/L}$ , xylenes at 4,000  $\mu\text{g/L}$ , and Total Petroleum Hydrocarbons (TPH) at 17,000  $\mu\text{g/L}$  in one monitoring well (MW-11). These compounds were either not detected above laboratory reporting limits or were below cleanup goals in the other 10 monitoring wells at the site. Central Coast Water Board cleanup goals for benzene, toluene, xylenes and TPH are 1  $\mu\text{g/L}$ , 150  $\mu\text{g/L}$ , 1,750  $\mu\text{g/L}$  and 1,000  $\mu\text{g/L}$ , respectively.

In September 1986, three 10,000 gallon steel USTs located to the south of the dispenser islands were removed from the site. Inspectors noted no holes, but observed extreme overflow impacts present at the south end of the excavation. The responsible party removed and disposed of 54 tons of soil from the area of the former USTs, between September and October 1986.

In 2001 the site was brought to FPD's attention by a new property owner and was enrolled into the Leaking Underground Fuel Tank program. Site assessment and remediation activities have included soil borings, monitoring wells, and groundwater treatment. The consultant has estimated the pre-remediation adsorbed phase (soil) impacts to be 7100 lbs of TPH and  $3.0 \times 10^{-3}$  lbs of BTEX (benzene, toluene, ethylbenzene and xylene), and the dissolved phase (groundwater) impacts to be 6.2 lbs of TPH and 1.76 lbs of BTEX. In April 2004, remediation was initiated at the site using *in situ* chemical oxidation (ISCO) by injecting hydrogen peroxide solution into nine injection wells to treat petroleum hydrocarbon impacted soil and groundwater beneath, and hydraulically downgradient of the site. Between 2005 and 2007 approximately 42,600 gallons of hydrogen peroxide solution were injected beneath and immediately downgradient of the former UST area. Based upon results of both confirmation soil borings and post-remediation groundwater sampling, this remediation approach appears to have been effective, with the exception of one 460 square foot area that has residual groundwater impacts. This residual impact area is surrounded by eight other monitoring wells with concentrations that are either below laboratory reporting limits or below the action levels for all contaminants of concern. The post-remediation adsorbed phase (soil) impacts are estimated at  $4.8 \times 10^{-4}$  lbs of TPH and  $4.6 \times 10^{-4}$  lbs of BTEX; and the dissolved phase impacts (groundwater) are estimated at 1.02 lbs of TPH and 0.25 lbs of BTEX. As shown in Attachment 1, the groundwater impacted area is located underneath the asphalt-paved Second Street.

Groundwater contamination, notably benzene, toluene, xylenes and TPH persist in well MW-11 (See Attachment 1) above drinking water standards. The groundwater impacts are located in a shallow water zone that has varied in depth from 18-36 feet below ground surface (bgs). The gradient in this zone has been to the SSW. The impacted well is 45 feet from the former UST pit and the plume is well delineated, stable, and surrounded in close proximity (thirty feet or less) by five sentry wells. Groundwater concentrations in each of the sentry wells are below detection limits or action levels for each of the constituents of concern. The plume has not moved beyond this area.

The site lies within the Buellton Uplands Groundwater Basin. The "Water Quality Control Plan, Central Coast Region" (Basin Plan) designates groundwater beneficial uses in this Basin to be domestic and municipal supply, agricultural supply, and industrial supply. The nearest water supply is located approximately 1541 feet to the WSW. This well is constructed with the perforations between 650 – 1000 feet bgs. Zaca Creek, located approximately ¼ mile southeast of the site is the surface water closest to the site. FPD staff does not consider the residual hydrocarbons found in well MW-11 a threat to the water supply well located 1541 feet away or to Zaca Creek.

Based on the very limited areal extent and low concentrations of hydrocarbons, we also do not consider there to be significant risk from the residual impacts at this site. Therefore, Central Coast Water Board staff and Santa Barbara County FPD staff recommend closure of this case based on the following:

1. The primary source of petroleum hydrocarbons (USTs) was removed and a portion of the secondary source (impacted soil) was excavated and disposed offsite in 1986;

2. Post-remediation soil sampling and modeling results indicate that residual benzene concentration in soil is below the Environmental Screening Level for residential land use;
3. The contaminated soil and contaminated groundwater have been largely treated via *in situ* chemical oxidation using Fenton's reagent and hydrogen peroxide;
4. The consultant has estimated a mass reduction of 84.5% of BTEX and 99.99% for TPH in soil. A comparison between 1<sup>st</sup> Quarter 2004 and 3<sup>rd</sup> Quarter 2009 GWM data results in a contaminant mass reduction of 85.7% for BTEX and 83.5% for TPH.
5. The extent of the residual groundwater contaminant plume is very limited, underneath the asphalt-paved Second Street, and is unlikely to impact either surface water or existing municipal water supply wells;
6. Natural attenuation processes are expected to eventually reduce concentrations of benzene, toluene, xylenes and TPH to below the groundwater cleanup goals in a reasonable time; and
7. Case closure is consistent with State Board Resolution No. 92-49, Section III.G., which allows consideration of cost effective abatement measures where attainment of reasonable objectives, less stringent than background water quality, does not unreasonably affect present or anticipated beneficial uses of groundwater, and will not result in water quality less than that prescribed by the Basin Plan.

On October 28, 2009, the FPD notified the current fee title holders on the proposed case of closure pursuant to Water Code Section 13307.1 and the California Health and Safety Code, Section 25296.20. We have not received any objections to the proposed closure.

The recommended case closure is consistent with closure of similar low-risk petroleum hydrocarbon cases by the Central Coast Water Board in the past. Unless the Water Board directs staff otherwise, the Executive Officer will issue a case closure letter pursuant to California Underground Storage Tank Regulations

Attachment 1 – Contaminant Plume Map August 2009