

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

STAFF REPORT FOR REGULAR MEETING OF JULY 12, 2012
Prepared June 21, 2012

ITEM NUMBER: 10

SUBJECT: Recommended Case Closures

Background:

This staff report provides summaries of recommended case closures for three Underground Storage Tank (UST) sites. For each of these sites, soil and/or groundwater beneath the sites has not attained water quality or soil cleanup goals for one or more constituents. Central Coast Water Board staff's closure recommendation is 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 the site-specific information provided below for each of these cases.

Underground Storage Tank Case Closures

Shell Service Station, 1 Hacienda Drive, Scotts Valley, Santa Cruz County
[Wei Liu 805/542-4648]

Central Coast Water Board staff recommends closure of this UST case based on results of the recent groundwater monitoring, which confirm current groundwater quality conditions and the effectiveness of previous remedial actions. Results of the third quarter 2011 groundwater monitoring indicate that concentrations of total petroleum hydrocarbon as diesel (TPH-d) and methyl tertiary butyl ether (MTBE) remain at 1,200 micrograms per liter ($\mu\text{g/L}$) in well S-1 and 5.1 $\mu\text{g/L}$ in well S-15, respectively. Other petroleum hydrocarbon constituents, including total petroleum hydrocarbons as gasoline and as motor oil, benzene, and other oxygenate fuel additives were either not detected or were below their respective cleanup goals or action levels. The Central Coast Water Board's cleanup goals for TPH-d and MTBE are 1,000 $\mu\text{g/L}$ and 5 $\mu\text{g/L}$, respectively.

The site is an active Shell-branded service station located at 1 Hacienda Drive in Scotts Valley. Site facilities include a service station and convenience store along the western boundary, and four product dispensers connected to two USTs on the eastern portion of the property. The two existing gasoline USTs were installed in 2005 as replacements for three 10,000-gallon USTs in the same location. Free product and contamination were initially discovered beneath the site during the upgrade in 1985. Subsequent investigations showed up to 11,000 $\mu\text{g/L}$ TPH as gasoline, 1,200 $\mu\text{g/L}$ TPH-d, 1,200 $\mu\text{g/L}$ benzene, 27,000 $\mu\text{g/L}$ MTBE and 19,000 $\mu\text{g/L}$ tertiary butyl alcohol (TBA). Consultants performed several remedial activities between 1985 and 2005, including free product removal, soil excavation and groundwater pumping and treatment. The various remediation activities removed approximately 280 pounds of free product/petroleum

hydrocarbon contaminants, 500 cubic yards of contaminated soils, and more than 146,131 gallons of contaminated groundwater from the site. Approximately 150 gallons of petroleum hydrocarbon mass were removed from groundwater beneath the site during the groundwater extraction activities. During post-remediation confirmation monitoring, hydrocarbon concentrations have declined to below or near their respective cleanup goals and concentrations slightly exceeding the cleanup goals are limited to a small area on-site as shown in Attachment 1.

Central Coast Water Board staff has required groundwater monitoring at the site since 1987. Based on the available groundwater monitoring data, there has been a significant reduction in the contaminant concentrations since 2003. Residual TPH-d and MTBE concentrations have been below or near the cleanup goals in all monitoring wells since July 2009, except for TPH-d in well S-1 and MTBE in well S-15. However, the residual TPH-d and MTBE appear to be limited to very small areas, and are both stable. Residual concentrations continue to decline for both compounds. Therefore, staff considers the subject site a candidate for low-risk closure and recommends closing this case.

The nearest surface water body is the Glenwood Creek located approximately 175 feet southeast of the site. The groundwater flow direction around the site is primarily to the southeast with groundwater depths ranging from approximately 10 to 23 feet below ground surface. The closest water well is reportedly located approximately 2,750 feet west of the site. The residual TPH-d and MTBE plumes are not expected to impact the surface water body or the water well because of their respective distances from the site, low residual contaminant concentration, and the highly localized extent of the contamination.

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

1. The contaminant source and mass were removed between 1985 and 2005;
2. The extent of the residual TPH-d plume has been fully delineated. The plume is localized in small areas in the vicinities of wells S-1 and S-15, and the detected maximum TPH-d and MTBE concentrations of 1,200 µg/L and 5.1 µg/L are slightly above the cleanup goals of 1,000 µg/L and 5 µg/L, respectively;
3. Groundwater data indicate that on-site remediation and natural attenuation have significantly reduced concentrations of contaminants in groundwater. Central Coast Water Board staff expects the remaining TPH-d and MTBE will continue to attenuate naturally; and
4. 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.

Residual contamination still exists on-site and off-site that could pose an unacceptable risk under certain site redevelopment activities such as site grading, excavation, or de-watering. The Central Coast Water Board, Santa Cruz County Environmental Health Agency, and the appropriate local Planning and Building departments must be notified prior to any changes in land use, grading activities, soil excavation, or groundwater dewatering. This notification must include a statement that residual soil and groundwater contamination underlie the property and nearby properties, and a description of the mitigation actions necessary (if any) to ensure that any possibly contaminated soils or groundwater brought to the surface by these activities are managed appropriately. Future site disturbance could require worker health and safety protection, and restrictions on the disposal

of soil and groundwater. The Santa Cruz County Environmental Health Agency may require additional site assessment if the property is redeveloped. Additional actions required by the EHS may include, but are not limited to, a case review, further remedial action, soil gas analysis, and a human health risk assessment.

Based on the above, there is no longer a threat to groundwater quality and no further groundwater investigation or cleanup is necessary. Santa Cruz County Environmental Health Agency staff agrees with this determination. Water Board staff notified the responsible party and other interested parties of this proposed case closure. We have not received any comments on the proposed closure of this case. Unless the Water Board directs staff otherwise and pending proper monitoring well destruction, the Executive Officer will issue a case closure letter pursuant to California Underground Storage Tank Regulations.

Attachment 1 – Estimated Extent of Residual TPH-d and MTBE in Groundwater (Post-Remediation)

PCO LLC Property Site, 250 Geyer Road, Scotts Valley, Santa Cruz County
[Wei Liu 805/542-4648]

Central Coast Water Board staff recommends closure of this UST case where groundwater sample results indicate only total petroleum hydrocarbons as diesel (TPH-d) contamination remains in one groundwater monitoring well at concentrations slightly above the Central Coast Water Board's cleanup goal. The third quarter 2011 groundwater monitoring results show TPH-d at 2,000 micrograms per liter ($\mu\text{g/L}$) in one on-site monitoring well, MW-2 (see Attachment 2). The Water Board's cleanup goal for TPH-d is 1,000 $\mu\text{g/L}$. Other petroleum hydrocarbon constituents, including total petroleum hydrocarbons as gasoline and as motor oil, benzene, and other oxygenate fuel additives were either not detected or are below their respective cleanup goals or action levels.

The site includes a former maintenance shop building and a car port. The current property owner is the Land Trust of Santa Cruz County, and the responsible party is PCO LLC. In April 2007, one 9,500-gallon UST and associated petroleum hydrocarbon-contaminated soils were removed from the site. Based on an April 2007 UST removal report, the UST east of the shop building never leaked and no detectable concentrations of petroleum hydrocarbons were found in any soil samples collected from the bottom of the tank pit and within the piping trenches. Subsequent groundwater investigations in early 2008 showed a maximum of 17,000 $\mu\text{g/L}$ TPH-d in groundwater west of the former shop building. Consultants also discovered three previously unknown USTs located at the southwest corner of the former maintenance shop building. Consultants removed the three USTs and 200 cubic yards of hydrocarbon-impacted soils in May 2008.

Central Coast Water Board staff required groundwater monitoring at the site starting in October 2008. In May 2009, the responsible party submitted a Corrective Action Plan (CAP), with monitored natural attenuation as the selected remedial alternative for the subject site. Central Coast Water Board staff approved the CAP in June 2009. During the course of the natural attenuation confirmation monitoring, hydrocarbon concentrations have declined to below or near their respective cleanup goals and concentrations slightly exceeding the cleanup goals are limited to a small area on-site.

The nearest surface water is Bean Creek located approximately 1,000 feet to the south. The groundwater flow direction around the site is primarily to the northeast with groundwater depths ranging from approximately 10 to 18 feet below ground surface. The closest water supply well is a private well located approximately 500 feet to the southeast (upgradient) of the site. The residual TPH-d plume is not expected to impact Bean Creek or the water supply well because of their respective distances and locations relative to the site, low residual contaminant concentration, and the localized extent of the contamination.

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

1. The contaminant source and mass have been removed;
2. The extent of the residual TPH-d plume has been fully delineated. The plume is localized in a small area in the vicinity of well MW-2, and the detected maximum TPH-d concentration of 2,000 µg/L is slightly above the cleanup goal of 1,000 µg/L;
3. Groundwater data indicate that on-site excavation and natural attenuation were effective and have significantly reduced concentrations of pollutants in groundwater. Central Coast Water Board staff expect the remaining TPH-d will continue to attenuate naturally; and
4. 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.

Residual contamination still exists on-site that could pose an unacceptable risk under certain site redevelopment activities such as site grading, excavation, or de-watering. The Central Coast Water Board, Santa Cruz County Environmental Health Agency, and the appropriate local Planning and Building departments must be notified prior to any changes in land use, grading activities, soil excavation, or groundwater dewatering. This notification must include a statement that residual soil and groundwater contamination underlie the property and nearby properties, and a description of the mitigation actions necessary (if any) to ensure that any possibly contaminated soils or groundwater brought to the surface by these activities are managed appropriately. Future site disturbance could require worker health and safety protection, and restrictions on the disposal of soil and groundwater. The Santa Cruz County Environmental Health Agency may require additional site assessment if the property is redeveloped. Additional actions required by the EHS may include, but are not limited to, a case review, further remedial action, soil gas analysis, and a human health risk assessment.

Based on the above, there is no longer a threat to groundwater quality and no further groundwater investigation or cleanup is necessary. Santa Cruz County Environmental Health Agency staff agrees with this determination. Water Board staff notified the responsible party and other interested parties of this proposed case closure. We have not received any comments on the proposed closure of this case. Unless the Water Board directs staff otherwise and pending proper monitoring well destruction, the Executive Officer will issue a case closure letter pursuant to California Underground Storage Tank Regulations.

Attachment 2 – Estimated Extent of Residual TPH-d in Groundwater (Post-Remediation)

Former Miller Trust Property; 2210-2222 Main Street, Cambria, San Luis Obispo County
[Corey Walsh 805/542-4781]

Central Coast Water Board staff recommends closure of this UST case where groundwater sample results indicate total petroleum hydrocarbons reported as gasoline (TPH-g) and benzene remain at concentrations greater than Central Coast Water Board cleanup goals. The cleanup goals for TPH-g and benzene are 1,000 micrograms per liter ($\mu\text{g/L}$) and 1 $\mu\text{g/L}$, respectively. Groundwater samples collected from one off-site monitoring well (MW-11) showed TPH-g at 2,400 micrograms per liter ($\mu\text{g/L}$) and benzene at 30 $\mu\text{g/L}$. Other common contaminants associated with gasoline and fuel oxygenates are below cleanup goals, are below laboratory detection limits, or are believed to be associated with an adjacent UST investigation and cleanup case (Chevron station at 2194 Main St.). Historic groundwater analytical results show the primary constituents of concern for the site were total petroleum hydrocarbons reported as gasoline, benzene, toluene, ethylbenzene, and xylenes (collectively BTEX). Attachment 3, *Site Sketch* shows groundwater flow direction, monitoring wells, and the adjacent site.

The subject site was reportedly a gasoline service station, which operated from the late 1920's through the late 1970s. The site is located on the southeast corner of Main Street and Burton Drive in Cambria. Currently two commercial buildings with an associated parking lot are located on the property. Contractors first discovered the release of petroleum hydrocarbons in 1998 during a preliminary site assessment investigation. Three USTs are believed to have been closed in-place during the late 1970s. Based on site characterization, these tanks do not pose a threat to water quality.

The responsible party and site property owner (Ms. Doris Johnson-Nielson) commissioned several phases of soil and groundwater investigation and cleanup. Remedial efforts have included a number of 15-day dual-phase extraction events during July 2000; between May 2001 and October 2001; during April 2003, and again during May 2004. These activities removed soil vapors and approximately 20,400 gallons of impacted groundwater. The estimated contaminant mass removed is approximately 22,798 pounds of volatile petroleum hydrocarbons. In addition, *in-situ* chemical oxidation was used to remediate groundwater with the injection of ORC slurry to groundwater in ten direct-push borings during April 2004.

The depth to groundwater currently ranges from approximately 8 to 25 feet below ground surface measured across shallow, intermediate and deep groundwater zones associated with the site. The horizontal groundwater flow gradient is toward the south-southeast at approximately 0.09 feet per foot.

No active State of California Department of Public Health (CDPH) regulated municipal water supply wells are located within a one-half mile radius of the site. However, two inactive municipal water supply wells, designated Santa Rosa (SR) No. 1 and SR No. 3, are maintained by the Cambria Community Service District, and are located along Santa Rosa Creek. Wells SR No. 1 and SR No. 3 are located approximately 800 feet southwest and 600 feet east-northeast of the site, respectively. The nearest domestic water supply wells are the Junge-D well and the Junge-I irrigation well, which are located up-gradient approximately 1,300 feet northeast of the site. Both of these domestic wells are located across and south of Santa Rosa Creek from the site. Santa Rosa Creek is approximately 650 feet south of site. The residual petroleum hydrocarbons remaining are unlikely to affect any of these water wells or surface waters considering groundwater flow direction, area geology, well distances, screen depth, and low remaining

contaminant concentrations. Central Coast Water Board staff expects these residual levels of contamination to degrade naturally over time.

Our recommendation for case closure is based on the following:

1. The extent of the release has been adequately characterized,
2. The contaminant source was removed from the site, to the extent practical,
3. The remaining pollution above the cleanup goal is limited to TPH-g and benzene,
4. The groundwater plume is declining in size and concentration,
5. TPH concentrations have been reduced from a maximum of 55,000 to 2,400 µg/L,
6. Benzene concentrations have been reduced from a maximum of 4,700 to 30 µg/L,
7. Monitoring data indicate favorable conditions for natural attenuation of petroleum hydrocarbons and concentrations are expected to continue to decrease with time,
8. The nearest water well SR No. 3 is located approximately 600 feet east-northeast of the site. The nearest active municipal well water well SR No. 4 (High School well) is located approximately 3,900 feet northeast of the site. It is extremely unlikely that remaining contamination will reach either of these wells,
9. 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,
10. The UST Cleanup Fund has completed Five-Year Reviews (6/23/2010 & 10/24/11) of the subject site and has recommended that the case be considered for closure, and
11. 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.

Residual contamination still exists on-site and off-site that could pose an unacceptable risk under certain site redevelopment activities such as site grading, excavation, or de-watering. The Central Coast Water Board, San Luis Obispo County Environmental Health Services (EHS), and the appropriate local Planning and Building departments must be notified prior to any changes in land use, grading activities, soil excavation, or groundwater dewatering. This notification must include a statement that residual soil and groundwater contamination underlie the property and nearby properties, and a description of the mitigation actions necessary (if any) to ensure that any possibly contaminated soils or groundwater brought to the surface by these activities are managed appropriately. Future site disturbance could require worker health and safety protection, and restrictions on the disposal of soil and groundwater. San Luis Obispo County EHS may require additional site assessment if the property is redeveloped. Additional actions required by the EHS may include, but are not limited to, a case review, further remedial action, soil gas analysis, and a human health risk assessment.

Central Coast Water Board staff notified the site property owner (Ms. Doris Johnson-Nielson), neighboring property owners, Cambria Community Service District, and other interested parties that we intend to recommend this UST case for closure. We have not received any comments or objections to the planned closure of this case. The San Luis Obispo County Environmental Health Services (EHS) agrees with our proposed closure of the case. Unless the Water Board directs staff otherwise and pending proper monitoring well destruction, the Executive Officer will issue a case closure letter pursuant to California Underground Storage Tank Regulations.

Attachment 3: *Site Sketch*