STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

ORDER: WQ 2009-0016-UST

In the Matter of the Petition of

MASS TRANSIT PROPERTIES LLC

For Review of Denial of Petroleum Underground Storage Tank Site Closure
at 295 North Olive Street, Ventura, California

BY THE BOARD:

Mass Transit Properties LLC (petitioner) seeks review of the Ventura County Resource Management Agency (County) Local Oversight Program (LOP) decision not to close petitioner's case involving an unauthorized release of petroleum at its site located at 295 North Olive Street, Ventura, California. For the reasons set forth below, the State Water Resources Control Board (State Water Board) determines that petitioner's case should be closed and no further action related to the release should be required.

I. STATUTORY AND REGULATORY BACKGROUND

Owners and operators of underground storage tanks (USTs) and other responsible parties may petition the State Water Board for a review of their case if they believe the Corrective Action Plan (CAP) for their site has been satisfactorily implemented but closure has not been granted. (Health & Saf. Code, § 25296.40, subd. (a)(1).) For cases under the jurisdiction of a regional water quality control board (regional water board) or a local agency implementing the LOP, the State Water Board may close the case or remand the case to the regulatory agency for action consistent with the State Water Board's decision. (Cal. Code Regs., tit. 23, § 2814.7, subd. (d)(1).)

Several statutory and regulatory provisions provide the State Water Board, regional water boards, and local agencies with broad authority to require responsible parties to clean up a release from a petroleum UST. (See e.g., Health & Saf. Code, § 25296.10; Wat. Code, § 13304, subd. (a).) The State Water Board has promulgated

regulations specifying corrective action requirements for petroleum UST cases. (Cal. Code Regs., tit. 23, §§ 2720-2728.) The regulations define corrective action as:

> …any activity necessary to investigate and analyze the effects of an unauthorized release, propose a cost-effective plan to adequately protect human health, safety and the environment and to restore or protect current and potential beneficial uses of water, and implement and evaluate the effectiveness of the activity(ies).
> (Id., § 2720.)

Corrective action consists of one or more of the following phases: (1) preliminary site investigation, (2) soil and water investigation, (3) corrective action plan implementation, and (4) verification monitoring. (Id., § 2722, subd. (a).)

The preliminary site assessment phase includes initial site investigation, initial abatement actions, initial site characterization and any interim remedial action. (Cal. Code Regs., tit. 23, § 2723, subd. (a).) Corrective action is complete at the conclusion of the preliminary site assessment phase, unless conditions warrant a soil and water investigation. A soil and water investigation is required if any of the following conditions exists: 1) there is evidence that surface water or groundwater has been or may be affected by the unauthorized release; 2) free product is found at the site where the unauthorized release occurred or in the surrounding area; 3) there is evidence that contaminated soils are, or may be in contact with surface water or groundwater; or 4) the regulatory agency requests an investigation based on the actual or potential effects of contaminated soil or groundwater on nearby surface water or groundwater resources, or based on the increased risk of fire or explosion. (Id., § 2724.) The purpose of a soil and water investigation is "to assess the nature and vertical and lateral extent of the unauthorized release and to determine a cost-effective method of cleanup." (Id., § 2725, subd. (a).)

State Water Board Resolution No. 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304* also applies to petroleum UST cases. State Water Board Resolution No. 92-49 directs that water affected by an unauthorized release attain either background water quality or the best water quality that is reasonable if background water quality cannot be restored. (State Water Board Resolution No. 92-49, Section III. G.) Any alternative level of water quality less stringent than background must be consistent with the maximum

benefit to the people of the state, not unreasonably affect current and anticipated beneficial use of affected water, and not result in water quality less than that prescribed in the water quality control plan for the basin within which the site is located. (*Ibid*.)

Resolution 92-49 does not require, however, that the requisite level of water quality be met at the time of site closure. Even if the requisite level of water quality has not yet been attained, a site may be closed if the level will be attained within a reasonable time frame. (State Water Board Resolution No. 92-49, Section III. A.)

The Los Angeles Regional Water Quality Control Board's Water Quality Control Plan (Basin Plan) designates existing and potential beneficial uses of groundwater in the Lower Ventura River Hydrologic Unit as municipal and domestic supply (MUN), agricultural supply (AGR), industrial process supply (PROC), and industrial service supply (IND). (Basin Plan (1994) at p. 2-16.) The Basin Plan specifies a narrative taste and odor water quality objective (WQO) for groundwater with an MUN beneficial use designation as follows: "Waters shall not contain taste- or odor-producing substances in concentrations that … cause nuisance or adversely affect beneficial uses." (*Id*. at p. 3-16.) With regard to commercial diesel fuel, the threshold odor concentration measured as total petroleum hydrocarbon diesel (TPH-d) in water is commonly accepted to be 100 parts per billion (ppb). (State Water Board, Water Quality Criteria (2d ed. 1963) p. 230.) TPH-d is the only constituent in concentrations that exceed water quality objectives.

II. FACTUAL BACKGROUND

A. Site Setting

Petitioner's site is a motor freight transportation terminal located at an elevation of 32 feet mean sea level on the Ventura River delta. The area is urbanized. Land use to the immediate north is residential with commercial and industrial use elsewhere. The Pacific Ocean is about 3,000 feet to the south, the active channel of the Ventura River is about 1,000 feet to the west, and the Ventura Oil Field[1] is about 8,500 feet to the north. According to the State's Geotracker database, there are no active water wells within 20,000 feet of the site.

[1] The oil field was discovered in 1919. Its base of fresh water is 250-750 feet deep (California Oil & Gas Fields, Vol. II. California Department of Conservation. 1992). Oil production storage facilities and oil field sumps are concentrated on the Ventura River flood plain.

UST Case History

In January 2004, petitioner removed one 2,500-gallon diesel UST and associated piping and dispenser. Analyses of soil samples from the UST excavation indicated that a release of diesel fuel had occurred.[2] In September 2004, four soil borings (B1 through B4) were advanced to 25 to 30 feet below ground surface (bgs) to assess the extent of affected soil and groundwater. Data gained from this work confirmed that a release from the UST system had occurred and that liquid-phase diesel was present in the subsurface.

On January 9 and 10, 2006, the area of the former UST was excavated to a depth of about 18 feet bgs. The final dimensions of the excavation measured about 36 feet east to west and about 21 feet north to south (about 500 cubic yards). Three soil samples were collected from the bottom of the excavation and eight samples from the excavation sidewalls at depths ranging from six to 18 feet bgs. One sidewall sample from a depth of 13 feet had a reported TPH-d concentration of 78 parts per million (ppm). The three samples from the bottom of the excavation had reported TPH-d concentrations of 46 ppm, 273 ppm, and 6,540 ppm (sample DHE-B2).[3] All samples were non-detect for fuel oxygenates, benzene, toluene, ethylbenzene, and xylene (BTEX).

Prior to backfilling the excavation, about 450 pounds of an oxygen-releasing compound were placed in the bottom of the excavation. On January 23, 2006, three groundwater monitor wells were constructed at the site. Soil samples from well boring MW-1, drilled through the UST excavation backfill about ten feet from the location of soil sample DHE-B2 were collected at 21, 25, and 30 feet bgs and had reported TPH-d concentrations of 33 ppm, 26 ppm, and 10 ppm, respectively. Monitoring wells MW-2 and MW-3 were located 25 feet south and 20 feet southwest, respectively, of the UST excavation. Both wells were located downgradient of the UST excavation. Soil samples obtained from these two well borings at 5 feet, 15 feet, 20 feet, 25 feet, and 30 feet bgs had reported TPH-d concentrations ranging from less than 1 ppm to 3 ppm.[4] The wells were completed to 30 feet bgs with 20-foot screens.

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[2] Two soil samples from beneath the UST at a depth of about 13 feet had reported TPH-d concentrations of 140 ppm and 13,000 ppm. One sample from beneath the dispenser at a depth of about three feet had reported concentrations of 2,200 ppm.

[3] Soil sample DHE-B2 was collected at 18 feet bgs near the east wall of the excavation.

[4] The mean concentration of these 10 soil samples is 1.9 ppm. The near uniform distribution of diesel range hydrocarbons in the soil column suggests these are background concentrations and not associated with the UST release.

Groundwater samples from site wells were obtained and analyzed four times in 2006, twice in 2007 and once in 2008. At various times, concentrations of TPH-d exceeding basin plan WQOs were detected. Concentrations up to 800 ppb have been reported.

CONTENTIONS

Petitioner contends that the approved CAP was successfully implemented and that any remaining residual diesel fuel present in the soil at 15 to 18 feet bgs does not represent a threat to public health and safety, the environment, or current and foreseeable beneficial uses.

The County contends that additional remediation is required to be protective of groundwater. In an October 31, 2007 response to the State Water Board regarding the petition, the County states that although a significant remedial effort has been completed, "in an effort to be further protective of groundwater quality at the site, it is [the County's] opinion that additional remediation is required to mitigate the residual TPH-d in the area of sample DHE-B2." (As previously noted, sample DHE-B2 (6,540 ppm TPH-d) is near the sidewall of the UST excavation approximately 18 feet bgs.) In a follow-up letter received on November 7, 2007, the County states that resampling of this area may be conducted to determine actual soil conditions. If the analytical results indicate residual TPH-d concentrations on the order of magnitude of 500 mg/kg or below, the County would reconsider case closure eligibility. [5]

DISCUSSION

The groundwater underlying the site is designated as having MUN beneficial use. For purposes of this analysis, WQOs that protect a MUN beneficial use are applied. As explained below, the facts in the record support the finding that the petitioner has successfully implemented the CAP and that additional soil and groundwater investigation is unnecessary. Residual petroleum hydrocarbons in direct contact with shallow groundwater at the petitioner's site do not pose a threat to human health and safety, or the environment, and do not adversely affect current or anticipated

[5] The Los Angeles Regional Water Quality Control Board's closure criterion is 100 ppm for TPH-d. *UST Closure Criteria* (Draft), Table 4-1: Maximum Soil Screening Levels (mg/kg) for TPH, BTEX and MTBE Above Drinking Water Aquifers (April 2004, rev Sept 2006).

beneficial uses of water. In addition, the level of site cleanup is consistent with the maximum benefit to the people of the state and will meet the requisite level of water quality in the Basin Plan within a reasonable time.

The primary source of the release, the UST, was removed and a substantial volume of affected soil surrounding the UST was removed. Only one of eleven confirmation soil samples from the sidewalls and bottom of the excavation tested greater than the County's Recommended Cleanup Level of 500 ppm and downgradient monitoring wells have reported TPH-d concentrations of 1 to 3 ppm. The only means to ensure immediate, complete removal of lingering, residual, detectable concentrations of petroleum in the deltaic sediments would be to excavate an estimated additional 500 cubic yards of soil to a depth of about 20 feet bgs. If complete removal of detectable petroleum constituents becomes the standard for UST corrective action, however, the statewide technical and economic implications will be enormous. Disposal of soils from comparable areas of excavation throughout the state would greatly affect limited landfill space. In light of the minimal benefit to be gained, and the precedent that would be set by requiring additional excavation at this site, it is not feasible to eliminate all TPH-d to attain background water quality in this limited area.

First, it is highly unlikely that TPH-d in site groundwater will migrate substantially beyond its current limited spatial extent. Although the longer chain hydrocarbons comprising TPH-d biodegrade more slowly than certain petroleum constituents, such as benzene, they are more recalcitrant and much less mobile (i.e., less volatile, less soluble, and highly absorbent). For example, sample DHE-B2 at 18 feet bgs had reported TPH-d levels of 6540 ppm, but soil and groundwater samples collected five and ten feet from this sample have reported non-detect for diesel fuel five times and low concentrations twice, (110 ppb and 160 ppb).

In addition, no evidence suggests that groundwater at, or downgradient of petitioner's site, is being used presently or has any likelihood of being used in the future for domestic or municipal supply. The limited area where groundwater exceeds MUN beneficial use WQOs is located in a commercial/industrial area. It is not anticipated that a water supply well will be installed at the site or near the UST excavation area during the period that MUN WQOs are exceeded.[6] Even if a water supply well were installed, standard well construction practices would prevent the shallow affected groundwater

[6] The Lower Ventura River Basin aquifer is in direct hydraulic connection with the Pacific Ocean- any groundwater pumping from this aquifer could induce seawater intrusion.

from having any adverse effect on deeper aquifers. Department of Water Resources well construction standards for wells in the Lower Ventura River Basin require that a sanitary well seal be placed across the total thickness of the basin's aquifer (estimated to be about 170 feet in the vicinity of the site) to prevent the flow of undesirable, inferior quality groundwater from impacting the beneficial uses of groundwater in the underlying Mound Basin.[7]

In light of the evidence discussed above, closure of the site will not unreasonably affect present and anticipated beneficial use of water. While it is impossible to determine the precise level of water quality that will be attained given the residual petroleum constituents that remain at the site, in light of all the factors discussed earlier, approval of an alternative level of quality for this isolated area is consistent with the maximum benefit to the people of the state.[8]

The final step in determining whether cleanup to a level of water quality less stringent than background is appropriate for this site requires a determination that the alternative level of water quality will not result in water quality less than that prescribed in the relevant Basin Plan. Pursuant to State Water Board Resolution No. 92-49, a site may be closed if the Basin Plan requirements will be met within a reasonable time frame. The determination as to what constitutes a reasonable time frame must be based on an evaluation of all relevant factors, including but not limited to the extent and gravity of any threat to public health and the environment during the period required to meet basin plan objectives.

Concentrations of TPH-d in shallow groundwater in immediate contact with the limited residual petroleum constituents adsorbed to soil will likely remain above the 100 ppb odor threshold in a localized volume of surrounding groundwater for a significant period of time. This period will likely be a few decades or more. Such a limited, isolated scenario however, will not unreasonably affect existing or anticipated

[7] *Well Standards – Ventura County,* Department of Water Resources, Bull. 74-9, (1968). Additionally, the two groundwater basins are hydraulically isolated from each other.

[8] In approving an alternative level of water quality less stringent than background, the State Water Board has also considered the factors in California Code of Regulations, title 23, section 2550.4 subdivision (d). As discussed earlier, the adverse effects on the shallow groundwater will be minimal and localized and there will be no adverse effects on groundwater in the deeper aquifer given the physical and chemical characteristics of petroleum constituents; the hydrogeological characteristics of the site and surrounding land; and the quantity of the groundwater and direction of the groundwater flow. In addition, the potential for adverse effects on current and potential future beneficial uses of groundwater is low in light of the proximity of groundwater supply wells (there are no groundwater supply wells within close proximity to the site and all supply wells are screened to exclude the zone of lower quality groundwater); the current and potential future uses of groundwater in the area; the existing quality of groundwater; the potential for health risks caused by human exposure; the potential damage to wildlife,crops,vegetation, and physical structures; and the persistence and permanence of potential effects.

beneficial uses. As previously noted, the site is located in a largely commercial/industrial area and the closest active well is located approximately 20,000 feet from the site. In addition, there is no indication that any water supply wells will be constructed in the area in the foreseeable future and even if they were, well construction standards require a sanitary seal be placed across the total thickness of the basin's aquifer.

While it may take a significant period of time for water quality in this limited area to meet water quality objectives, this extended period of time is reasonable as it is not anticipated that the shallow groundwater in this area will be utilized during the period of impairment. Further, in the unlikely event that groundwater is used, well construction standards will prevent any cross-contamination to the deeper water-bearing zone. Closure is appropriate given the facts in this particular case.

IV. SUMMARY AND CONCLUSIONS

1. Petitioner's site is currently a commercial freight-hauling terminal.
2. Available data indicate that there are no fuel oxygenates originating at this site.
3. As reflected in soil samples collected in 2006, concentrations of petroleum hydrocarbons have degraded, and will continue to degrade, due to natural attenuation, and do not pose a threat to human health, safety and the environment.
4. No active water supply wells have been identified within 20,000 feet of the site, and the nearest surface water is 1,000 feet away.
5. The level of water quality to be attained is consistent with the maximum benefit to the people of the state.
6. The remaining TPH-d in soil and shallow groundwater will not unreasonably affect existing or anticipated beneficial uses.
7. The water affected by the release will attain the relevant water quality objectives contained in the basin plan within a reasonable time.
8. Therefore, no further corrective action is necessary.
9. The above conclusions are based on the site-specific information relative to this case.

V. ORDER

IT IS THEREFORE ORDERED that petitioner's case be closed and no further action related to the UST be required. The Deputy Director of the Division of Water Quality is directed to issue petitioner a closure letter consistent with Health and Safety Code, section 25296.10, subd. (g).

CERTIFICATION

The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on December, 1, 2009.

AYE:	Chairman Charles R. Hoppin Vice Chair Frances Spivy-Weber Board Member Tam M. Doduc Board Member Arthur G. Baggett, Jr. Board Member Walter G. Pettit
NAY:	None
ABSENT:	None
ABSTAIN:	None

Jeanine Townsend

Jeanine Townsend
Clerk to the Board