

**STATE OF CALIFORNIA  
STATE WATER RESOURCES CONTROL BOARD**

**ORDER WQ 2004-0018-UST**

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In the Matter of the Petition of  
**ERNEST PANOSIAN**  
Review of Denial of  
Petroleum Underground Storage Tank Site Closure

5680 Hollister Avenue, Goleta, California.

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**BY THE BOARD:**

Ernest Panosian (Petitioner) seeks review of the decision of the Santa Barbara County (County) Local Oversight Program (LOP), which did not grant site closure based on the Central Coast Regional Water Quality Control Board's (CCRWQCB) refusal to concur with the case closure recommendation made by the County regarding Petitioner's case involving an unauthorized release from petroleum underground storage tanks (USTs) located at 5680 Hollister Avenue, Goleta, California. For the reasons set forth below, this order determines that Petitioner's case should be closed and no further action related to the former UST release(s) should be required.<sup>1</sup> This Order addresses residual petroleum hydrocarbons on Petitioner's site, regardless of their origin, and does not address effects of oxygenates that have encroached onto Petitioner's site from the upgradient releases.

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<sup>1</sup> The scope of this site closure is limited by a complicating factor. As will be explained in the Order, there is a more recent unauthorized release at an adjacent site (World Oil). MTBE emanating from the World Oil site has impacted groundwater that underlies Petitioner's site and while it is unlikely, Petitioner could be called upon to address the MTBE or any other constituents that may migrate in the future onto his site from the World Oil site (SWRCB WQ Order 86-2 (*Zoecon Corporation*)). It is our understanding that World Oil is currently in compliance with cleanup directives issued for the World Oil site.

## STATUTORY & REGULATORY BACKGROUND

Tank owners or operators or other responsible parties can petition the State Water Resources Control Board (SWRCB) for a review of their case if they feel the corrective action plan for their site has been satisfactorily implemented, but closure has not been granted (Health and Saf. Code, §25296.40, subdivision (a)(1)). The SWRCB has adopted regulations that govern the site closure petition process (See California Code of Regulations, Title 23, Chapter 18, Article 6).

Several statutory and regulatory provisions provide the SWRCB, Regional Water Quality Control Boards (RWQCBs), and local agencies with broad authority to require responsible parties to clean up a release from a petroleum UST (e.g., Health & Saf. Code, §25296.10; Wat. Code, §13304, subd. (a)). The SWRCB has promulgated regulations specifying corrective action requirements for petroleum UST cases (Cal. Code of 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).” (Cal. Code Regs., tit. 23, §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 (Cal. Code Regs, tit. 23, §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 exist: (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 (Cal. Code Regs., tit. 23, §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." (Cal. Code of Regs., tit. 23, §2725, subd. (a)).

SWRCB Resolution No. 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code §13304* also applies to petroleum UST cases. 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 (SWRCB 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 No. 92-49 does not require, however, that the requisite level of water quality be met at the time of site closure. Resolution 92-49 specifies compliance with cleanup goals and objectives within a reasonable time frame (*Id.* at section III.A). Therefore, 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 period (*Id.* at section III.A).

The CCRWQCB Basin Plan (Basin Plan) designates existing and potential beneficial uses of groundwater in the Goleta Hydrologic Subarea as municipal supply (MUN), industrial supply (IND), and agricultural supply (AGR) (CCRWQCB & SWRCB, Water Quality Control Plan, 1994 at p. II-1. The Basin Plan specifies a narrative taste and odor water quality objective as follows: "Ground waters shall not contain taste or odor-producing substances in concentrations that adversely affect beneficial uses." (*Id.* at p. III-14). In addition, the CCRWQCB Basin Plan specifies that ground waters designated as AGR "shall not contain concentrations of chemical constituents in amounts which affect the agricultural beneficial use" (*Id.* at p. III-5).

The Basin Plan also contains the following narrative MUN water quality objective for organic chemicals: "Groundwaters shall not contain concentrations of organic chemicals in excess of the limiting concentrations set forth in California Code of Regulations, Title 22." (*Id.* at III-14). With regard to municipal water quality objectives (WQOs) for chemical constituents, the State Department of Health Services (DHS) has set maximum contaminant levels (MCLs) for

drinking water of 13 parts per billion (ppb) for methyl tertiary butyl ether (MTBE), 1 ppb for benzene, 150 ppb for toluene, 700 ppb for ethylbenzene, 1,750 ppb for xylene, and 0.5 ppb for 1,2-dichloroethane (EDC) (Cal. Code of Regs., tit. 22, §64444). EDC is a gasoline additive historically used as a lead scavenger in leaded gasoline. EDC concentrations detected in groundwater at the site are a remnant of leaded gasoline. The threshold odor concentration of commercial gasoline (measured as total petroleum hydrocarbon gasoline, or TPH<sub>g</sub>) in water is commonly accepted to be 5 ppb, with 10 ppb giving a strong odor. The secondary MCL for MTBE is 5 ppb.

The SWRCB's LOP provides for local agency oversight of the abatement of unauthorized releases from USTs. In implementing the LOP, the SWRCB is authorized to enter into contracts with local agencies to oversee site cleanup of unauthorized releases. (Health & Saf. Code, § 25297.1, subd. (b).) The County has a contract with the SWRCB and is participating in the LOP. The LOP contract requires the County, when proposing site closure, to submit a completed case closure summary to CCRWQCB staff for concurrence. While the contract only requires staff level concurrence, cases in the CCRWQCB jurisdiction where WQOs are exceeded are routinely submitted to the CCRWQCB for their concurrence as well.

## SITE BACKGROUND

The Petitioner's site is located at the corner of Hollister and Kinman Avenues in Goleta, California. The site is currently used as an automobile dealership. Highway 101 is located about 0.33 miles to the north, and the Pacific Ocean is located about 1.25 miles to the south. A retail gasoline outlet owned by World Oil is located immediately to the east across Kinman Avenue (see attached site map). Residential apartment units are located approximately 65 feet north of Petitioner's site, and light commercial businesses are located to the east and west. Three gasoline USTs (one-6,000 and two-4,000 gallon) and one 250-gallon waste oil UST were installed at the site in 1961. Atlantic Richfield operated the USTs from 1961-1973. Petitioner purchased the property in 1973 and leased it to an auto repair shop until 1978. Avis Rent-A-Car operated one of the USTs (6,000 gallon) from 1979-1988. The USTs and associated piping passed leak detection testing during Avis's operation of the UST. The remaining USTs have

reportedly not been used since 1973. Releases from two onsite locations are evident, one at the USTs and the other at the west end of the dispenser island.

In 1989, prior to removal of all USTs, a preliminary site assessment included 6 shallow borings (less than six feet deep), analysis of 20 soil samples, the installation of three temporary groundwater monitor wells at the tank pit location, and the collection and analyses of three groundwater samples. The analyses of the groundwater samples from the temporary monitor wells revealed maximum concentrations of dissolved phase benzene, toluene, ethylbenzene, xylenes (BTEX) and EDC of 11,000 ppb, 2,200 ppb, 170 ppb, 1,200 ppb, <5 ppb, respectively. Dissolved TPH<sub>g</sub> was detected at 41,000 ppb.

The USTs were removed in 1991 and an unreported quantity of contaminated soil was excavated and disposed. Soil samples were collected beneath each of the three gasoline USTs upon removal. BTEX and TPH<sub>g</sub> were not detected in soil beneath two of the gasoline USTs. Beneath the third gasoline UST, only toluene, xylene and TPH<sub>g</sub> were detected in soil, at 0.140 ppm, 2.54 ppm and 7.4 ppm, respectively. A second release appears to have been localized in soil at the west end of the former dispenser island. BTEX and TPH<sub>g</sub> were detected in soil from 2.5 to 5.5 feet below ground surface (bgs) at concentrations of 1.7 ppm, 7.5 ppm, < 0.66 ppm, 20 ppm and 2,500 ppm.

From 1989-1995, Petitioner drilled a total of 21 soil borings and installed a total of 10 monitor wells. The wells established a west-northwest general direction of groundwater flow in the shallow aquifer. In June 1991, Petitioner installed the first four monitor wells with screened intervals from 12-35 feet bgs. Monitor well MW-1 is located adjacent to the dispenser island, MW-2 and MW-3 are located at and adjacent to the former UST pit, and MW-4 in the vicinity of the associated piping. Initial groundwater sample analyses indicated weathered gasoline in groundwater at the locations of all four wells. Maximum concentrations of BTEX and EDC were 730 ppb, 3 ppb, 57 ppb, 200 ppb, 50 ppb, respectively, and dissolved TPH<sub>g</sub> was 2,100 ppb.

In September 1991, the County directed Petitioner to further define the lateral extent of groundwater contamination. In response, monitor well MW-5 was installed 90 feet in the downgradient direction from the former UST area in January 1992. Results of the initial groundwater analysis from this well showed BTEX and EDC detections at 75 ppb, 6 ppb, 47 ppb, 300 ppb, 10 ppb, respectively, and TPH<sub>g</sub> at 1,400 ppb. In April 1992, the County directed delineation of affected groundwater north, south and west of the former dispenser island area. In

response, monitor wells MW-6, MW-7 and MW-8 were installed in the downgradient/crossgradient direction of the former UST area in July 1992. Analyses of groundwater samples from MW-6 indicated BTEX were not detected (all <0.5 ppb), EDC was 11 ppb, and TPH<sub>g</sub> was 70 ppb. BTEX and EDC at 2 ppb, <0.5 ppb, <0.5 ppb, 1 ppb, 1 ppb, respectively, and TPH<sub>g</sub> at 100 ppb were detected in the sample from well MW-7 and 5 ppb, <0.5 ppb, 22 ppb, 13 ppb, 9 ppb, respectively, and TPH<sub>g</sub> at 700 ppb in the sample from MW-8.

In March 1993, the County concurred with Petitioner that downgradient delineation of affected groundwater was complete, but directed additional wells north and south of the former dispenser island area, and allowed a reduction in sampling frequency from quarterly to semi-annually in the non-perimeter wells (MW-1, MW-2 and MW-5). In June 1993, Petitioner installed well MW-9 north of the dispenser island area. Analysis of the initial groundwater sample collected from well MW-9 indicated concentrations of BTEX and EDC at <0.5 ppb, <0.5 ppb, 1 ppb, 5 ppb, 3 ppb and TPH<sub>g</sub> at 270 ppb. Petitioner prepared a workplan in November 1994 to install well MW-10 south of the dispenser island. Petitioner proposed to the County that well MW-10 be used to delineate the southern extent of contamination associated with the property. The County approved the workplan and accepted wells MW-9 and MW-10 as perimeter delineation points in their workplan approval letter. In March 1995, Petitioner installed well MW-10 south of the former dispenser island area. Groundwater sample analysis indicated BTEX and EDC at <0.5 ppb, and TPH<sub>g</sub> at <50 ppb in MW-10.

In April 1997, the County allowed a reduction in groundwater sampling frequency from quarterly to semi-annually in all monitor wells. Petitioner began to analyze groundwater samples for MTBE in April 1997. MTBE was initially detected in wells MW-2, MW-3, MW-7, MW-9 and MW-10 at 450 ppb, 3,900 ppb, 4 ppb, 1 ppb and 54 ppb, respectively. A subsequent forensic study conducted by the Petitioner concluded that MTBE on Petitioner's site originated from the upgradient World Oil facility. In a letter dated February 15, 2002, the County acknowledged that all of the MTBE was from the upgradient World Oil site and unrelated to Petitioner's site. Subsequently, petitioner ceased MTBE analysis. Other gasoline constituents in addition to MTBE may have migrated from the World Oil facility in the westerly direction onto Petitioner's site.

Groundwater sampling in March 2004 showed maximum BTEX, EDC and TPH<sub>g</sub> concentrations of 150 ppb, 2ppb, 93 ppb, 28 ppb, 5 ppb and 2,900 ppb in the vicinity of the

former UST pit from MW-2 and MW-3. Concentrations of BTEX and EDC in MW-6, which is located approximately 120 feet downgradient of the former UST pit, are all <0.5 ppb, and TPH<sub>g</sub> was 320 ppb. Except for TPH<sub>g</sub>, WQOs for all other Constituents of Concern are met 120 feet downgradient of the former UST pit.

There is an active drinking water supply well that is located approximately 500 feet east of the site and is upgradient from the groundwater impacted by the release from Petitioner's USTs. This well has a 50-foot annular seal and is screened from 245-310 feet bgs in the main aquifer below the regional aquitard.

## CLOSURE DENIAL

In July 2000, Petitioner requested no further action (i.e. site closure) from the County on the basis that the dissolved-phase petroleum hydrocarbons in groundwater are adequately defined, do not need active remediation and represent a low-risk to the public. In a response dated July 2001, the County denied the closure request. Petitioner appealed for site closure to the SWRCB on March 2, 2002. A SWRCB Workshop item recommending closure was prepared for the July 2, 2002 Workshop. However the Petitioner asked that the item be withdrawn from the Workshop. SWRCB, CCRWQCB and County staff worked cooperatively to resolve the petition informally. As a result of several meetings and discussions, County and the CCRWQCB staff agreed that the case should be taken to the CCRWQCB with a recommendation for closure. Subsequently, CCRWQCB staff prepared a staff report to recommend closure during their regular CCRWQCB meeting held on September 10, 2004. During that meeting, the CCRWQCB unanimously objected to the recommendation for closure on the basis that beneficial uses would not be protected if the site is closed at current residual petroleum concentrations.

## HYDROGEOLOGIC SETTING

The site lies approximately 30 feet above mean sea level in the southern portion of the North-Central Goleta Basin.<sup>2</sup>

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<sup>2</sup> Geology and Ground Water Resources of the South-Coast Basins of Santa Barbara County, Water Supply Paper 1108, U.S. Geological Survey, 1951.

The Goleta Water District maintains 11 municipal water wells in the City. The closest municipal well is located approximately 3,800 feet southeast of the site.

The North-Central Goleta Basin was adjudicated in 1989 through a ruling known as the "Wright Judgement."<sup>3</sup> Since that time, the basin has not been fully utilized for municipal drinking water purposes as most of the City's current drinking water is supplied from Lake Cachuma, which receives State Water Project water.

Native soil underlying Petitioner's site consists predominantly of sand, silt, and silty clay to the maximum depth investigated of 35 feet bgs. Sand was initially encountered in borings, which became increasingly silty and clayey with depth. A low permeable silty clayey stratum was encountered from about 15 to 22 feet bgs. Another low permeable stratum appears to begin at about 35 feet bgs and extends to about 130 feet bgs based on the log of the nearby domestic well.

Shallow groundwater, encountered at 15 to 20 feet bgs, flows toward the west-northwest with a hydraulic gradient of about 0.03 ft/ft at the site. Over the past 13 years, the hydraulic head increased approximately 5 feet.

In the vicinity of the site, shallow groundwater is hydraulically separated from deeper, artesian groundwater present at depths of about 130 to 170 feet by a regional aquitard. As reported by the Santa Barbara County Public Works Department:

*“Near-surface low permeability sediments cause the southern portion of the North-Central and West basins to be under confined conditions and provide a barrier to contamination from potential surface sources of water quality degradation such as agricultural return flow or infiltration of brackish water in the overlying Goleta Slough. High TDS perched water is present in shallow aquifers above the confining layers. This water is not in*

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<sup>3</sup> Santa Barbara County Water Agency, Water Resources of Santa Barbara County, July 2000, p. 23: “Available storage of the North/Central Basin is estimated to be 18,000 AF. Safe yield of this basin is estimated to be 3,600 AFY. Historically, this basin was in a state of severe overdraft. This state of overdraft resulted in lengthy legal proceedings and a long-term moratorium on new water connections to the Goleta Water District (GWD). The Wright Judgement in 1989 served to adjudicate the water resources of this basin and assigned quantities of the basin Safe yield to various parties, including the GWD. The judgement also ordered the GWD to bring the North/Central Basin into a state of hydrologic balance by 1998. The GWD has achieved compliance with this order through the importation of State Water Project water and the development of other supplemental supplies. These supplemental supplies have offset the court-mandated reduction in pumpage from the basin. Given that the basin has been adjudicated and pumpage is controlled by the Court, overdraft is not foreseeable in the North-Central Basin”.



*general use. Water quality in the North-Central Basin is sufficient for many agricultural uses but might require treatment for domestic uses.”<sup>4</sup>*

## CONCEPTUAL MODEL OF THE RELEASE

Based on analysis of monitor well data and boring logs, the following conceptual model for the release is presented: As gasoline was released and moved down through sandy sediments, it encountered a relatively low permeable silty clayey stratum present at a depth of approximately 15 feet to about 22 feet bgs. Gasoline spread laterally along this fine-grained unit sorbing into it. Soil data indicate that the bulk of residual gasoline mass remaining at the site is contained in this unit, that the volatile components of the gasoline are nearly depleted, and that the remaining gasoline is considerably aged and weathered.

A shallow water-bearing zone occurs below the fine-grained unit, to a depth of about 35 feet bgs, and consists of interbedded sand and silt. Monitor wells constructed at the site were completed with 20-foot screened intervals to depths of 32 to 35 feet bgs. As the hydraulic head increased from approximately 20 feet to 15 feet over the last 13 years, groundwater came into intimate contact with the adsorbed phase petroleum hydrocarbons via the well screens that extended into and through the fine-grained unit. Concentration trends in groundwater samples indicate that biodegradation is active.

## CONTENTIONS AND FINDINGS

**Contention:** The Petitioner contends that site closure above MCLs is protective of existing and potential beneficial uses. The CCRWQCB is concerned that beneficial uses will not be protected if the site is closed at current concentrations. Although toluene, ethylbenzene and xylene concentrations have already reached WQOs, concentrations of benzene (150 ppb) and EDC (5 ppb) exceed their respective WQOs.

**Response:** The CCRWQCB staff’s recommendation for closure as outlined in their August 17, 2004 staff report is based on the following:

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<sup>4</sup> Santa Barbara County Groundwater Report, Santa Barbara County Water Resources Department, Water Agency Division, 2000, p. 19.

- (1) Concentrations of petroleum hydrocarbons have decreased in the last 13 years of monitoring,
- (2) The spatial extent of residual benzene in shallow groundwater is limited and does not pose a threat to potential receptors,
- (3) Low concentrations of EDC (less than 6 ppb) do not pose a significant water quality concern considering site conditions, limited nearby wells, and contamination extent,
- (4) Residual petroleum hydrocarbons in shallow groundwater are unlikely to impact the private, domestic water well located approximately 500 feet away,
- (5) Residual petroleum hydrocarbons dissolved in shallow groundwater and adsorbed to soil are localized and limited in extent and will continue to attenuate naturally over time,
- (6) It is highly unlikely that the shallow affected groundwater will be used directly as a source of drinking water,
- (7) In the unlikely event that a domestic supply well were to be installed at the subject site, the deep production aquifer would be protected by a clay aquitard and the well's sanitary seal,
- (8) Case closure is consistent with SWRCB Resolution No. 92-49, wherein the affected water will not affect current and anticipated beneficial uses.

These findings were consistent with the County's approval of site closure. We agree with the County and CCRWQCB staff's technical determinations and conclusions, and disagree with the CCRWQCB's conclusion that beneficial uses will not be protected if the site is closed at current residual petroleum concentrations. SWRCB Resolution No. 92-49 does not require that WQOs be met at the time of closure or even within a few quarters subsequent to closure. Rather, Resolution 92-49 directs compliance with cleanup goals and objectives within a reasonable time period.

With no further regulatory action, residual detectable concentrations of benzene, EDC and TPH<sub>g</sub> present in shallow groundwater and adsorbed to shallow soils are (and will remain) limited to the immediate vicinity of the site and will continue to attenuate naturally over time with no further corrective action.<sup>5</sup> Given the demonstrated, ongoing natural attenuation of residual BTEX and EDC to date, it is likely that MCLs will be met for benzene, EDC and the

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<sup>5</sup> We note that the CCRWQCB is objecting to site closure because WQOs are exceeded for benzene and EDC. Since the taste and odor threshold is exceeded for TPH<sub>g</sub>, we consider TPH<sub>g</sub> as well as benzene and EDC under our analysis under SWRCB Resolution No. 92-49.

narrative taste and odor objective will be met for TPH<sub>g</sub> within years to decades. Concentrations of toluene, ethylbenzene and xylenes are currently below MCLs. Concentrations of TPH<sub>g</sub> in shallow groundwater in immediate contact with (albeit limited) residual TPH<sub>g</sub> adsorbed to soils may remain above 5 ppb (the commonly accepted odor threshold for water) for a longer period of time than individual petroleum hydrocarbon constituents such as benzene. However, considering the absence of active wells close to Petitioner's site, the local hydrogeologic considerations, and standard well construction practices that mandate surface sanitary seals to preclude introduction of shallow groundwater such as that encountered at Petitioner's site, the limited, isolated scenario will not unreasonably affect existing or anticipated future beneficial uses.

To remove all traces of residual petroleum constituents at Petitioner's site in the short-term would require additional excavation of soil at the site to depths of up to 25 feet. Excavation of approximately 10,000 cubic yards of soil would eliminate most if not all of the residual petroleum hydrocarbons at the site. However, as discussed in this order, there would be little benefit to current or anticipated beneficial uses of groundwater that is not meeting WQOs for benzene, EDC and TPH<sub>g</sub>. In addition, if complete removal of detectable traces of petroleum constituents becomes the standard for UST corrective actions, the statewide technical and economic implications will be enormous. For example, disposal of soils from comparable areas of excavation throughout the state would greatly impact already limited landfill space. In light of the minimal, if any, benefit of attaining further reductions in concentrations of benzene, EDC and TPH<sub>g</sub> at this site, the precedent that would be set by requiring additional excavation and the fact that beneficial uses are not threatened, attaining background water quality at Petitioner's site is not feasible. It is impossible to determine the precise level of water quality that will be attained given the limited residual benzene, EDC and TPH<sub>g</sub> that remains at the site, but in light

of all the factors discussed above, a level of water quality will be attained that is consistent with the maximum benefit to the people of the State.<sup>6</sup>

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 SWRCB Resolution No. 92-49, a site may be closed if the Basin Plan water quality goals and objectives will be met within a reasonable time frame.

In this particular case, as discussed above, benzene, EDC and TPH<sub>g</sub> in the shallow groundwater in immediate contact with the limited residual petroleum hydrocarbon constituents adsorbed to soils will likely remain above, and not meet, the CCRWQCB Basin Plan objectives for a significant period of time. This time period could be anywhere from years to decades for benzene and EDC to degrade below MCLs for that limited volume of groundwater in immediate contact with longer chain, immobile residual petroleum constituents adsorbed to soils.

Nonetheless, during this time, the residual concentrations in excess of CCRWQCB Basin Plan objectives will not pose a threat to current or future beneficial uses. It is not likely that BTEX and EDC will migrate beyond the current limited spatial extent (120 feet downgradient of the former UST pit). It is also highly unlikely that this shallow groundwater zone will be used as a source of drinking water. Thus, the period of time that it will take for water quality in this limited area to meet all CCRWQCB Basin Plan goals and objectives is a reasonable time frame. Closure of the site, given the facts in this particular case, is appropriate.

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<sup>6</sup> In approving an alternative level of water quality less stringent than background, the SWRCB has also considered the factors contained in California Code of Regulations, title 23, section 2550.4, subdivision (d). As discussed earlier, the adverse effect on shallow groundwater will be minimal, and there will be no adverse effect on the groundwater contained in deeper aquifers, 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 beneficial uses of groundwater is low, in light of the proximity of groundwater supply wells; 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. Finally, a level of water quality less stringent than background is unlikely to have any impact on surface water quality, in light of the volume and physical and chemical characteristics of petroleum constituents; the hydrogeological characteristics of the site and surrounding land; the quantity and quality of groundwater and the direction of groundwater flow; the patterns of precipitation in the region, and the proximity of residual petroleum to surface waters.

## CONCLUSIONS

1. Residual soil impacts have been reasonably characterized and are not likely to pose a threat to public health and safety with the current land use. Should the current land use change, any impacts from remaining affected soil may, depending on the new land use, need to be addressed. A note to this effect will be added to the Geotracker database, which can be accessed on-line by the public.
2. Groundwater beneath Petitioner's site presently meets Basin Plan numeric water quality objectives for toluene, ethylbenzene and xylenes. The majority of the monitor wells exhibit benzene concentrations below WQOs, and residual benzene and EDC remaining at the site are attenuating to WQOs. The highest concentrations of benzene and EDC are 150 ppb and 5 ppb, respectively, at the former UST pit area and WQOs for benzene and EDC are met 120 feet downgradient of the former UST pit area.
3. The nearest active water supply well is located 500 feet away. Shallow groundwater immediately underlying Petitioner's site is moving in a direction away from the well. Shallow groundwater is hydraulically separated from deeper, confined groundwater production zones.
4. There is no MTBE originating from Petitioner's site. MTBE detected at the site is from the upgradient World Oil site. This Order addresses residual petroleum hydrocarbons on Petitioner's site, regardless of their origin, and does not address effects of oxygenates that have encroached onto Petitioner's site from the upgradient releases.
5. No further corrective action is necessary for the releases from dispensers and USTs that were formerly located on the site.
6. The level of site cleanup, which included removal of the USTs, over-excavation and disposal of soil in 1991 and natural attenuation for the past 13 years, is consistent with the maximum benefit to the people of the State.
7. Detectable concentrations of benzene, EDC and TPH<sub>g</sub> in shallow groundwater will likely remain above WQOs for years to decades.
8. Achieving WQOs for all constituents from the Petitioner's former USTs in a short period of time would require extensive excavation of the site, which would be costly.
9. The determination as to what constitutes a reasonable period of time to attain water quality objectives and goals must be based on 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. Although the time required to attain objectives with respect to the 5 ppb odor threshold for TPH<sub>g</sub> in this case may be more lengthy than that for benzene and EDC, it is a reasonable period of time considering the facts of this particular case. It is unlikely that BTEX and EDC petroleum constituents will migrate beyond the current limited spatial extent (120 feet downgradient of the former UST pit), and that this particular commercial/residential area will be used directly as a source of drinking water in the foreseeable future.

10. The above conclusions are based on the site-specific information relative to this particular case.
11. Site closure is based on the condition that the Petitioner be required to provide reasonable access to the neighboring World Oil site for any necessary corrective action.

V. ORDER

IT IS THEREFORE ORDERED that Petitioner's case be closed, and no further action is required for the release from USTs formerly located on Petitioner's site. The Chief of the SWRCB's Division of Water Quality is directed to issue Petitioner a closure letter consistent with Health and Safety Code section 25296.10, subdivision (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 November 18, 2004.

AYE: Arthur G. Baggett, Jr.  
Peter S. Silva  
Richard Katz  
Gary M. Carlton  
Nancy H. Sutley

NO: None.

ABSENT: None.

ABSTAIN: None.

  
Debbie Irvin  
Clerk to the Board