

Draft Underground Storage Tank Low-Threat Site Closure Policy
9/7/10

Whereas:

1. Water Code section 13140 provides that the State Water Resources Control Board (State Water Board) shall formulate and adopt state policy for water quality control.
2. The State Water Board is authorized to administer the petroleum Underground Storage Tank (UST) Cleanup Program, which was enacted by the Legislature in 1984 to protect health, safety and the environment, and the petroleum UST Cleanup Fund (Cleanup Fund), which was enacted by the Legislature in 1989 to assist UST owners and operators in meeting federal financial responsibility requirements and to provide reimbursement to those owners and operators for the high cost of cleaning up unauthorized releases of petroleum caused by leaking USTs.
3. The State Water Board has received extensive input on improvements to the UST Cleanup Program and Cleanup Fund Program from numerous sources over the years, including:
 - a. Lawrence Livermore National Laboratory report (1995)
 - b. SB1764 report (1996)
 - c. Cleanup Fund public workshop (2009)
 - d. UST Cleanup Program Task Force report (2010)
 - e. Cleanup Fund Task Force report (2010)
 - f. Cleanup Fund audit (2010)
4. The State Water Board provided direction to improve the administration of the UST Cleanup Program and the Cleanup Fund Program through Resolution 2009-0042 and Resolution 2009-0081.
5. In Resolution 2009-0042, the State Water Board stated that the issues identified in the resolution are of an ongoing nature and the State Water Board will take further appropriate action to improve the UST Cleanup Program and the Cleanup Fund Program. A state policy for water quality control that establishes criteria for closure of UST cases that present a low threat to human health, safety, and the environment will facilitate the appropriate closure of UST cases and improve both the UST Cleanup Program and the Cleanup Fund Program.
6. Several statutory and regulatory provisions provide the State Water Board, Regional Water Quality Control Boards, 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 State Water Board has promulgated regulations specifying corrective action requirements for petroleum UST cases, and these regulations are contained in Article 11 of Chapter 16 of Title 23 of the California Code of Regulations.
7. Closure of a UST case pursuant to Health and Safety Code section 25296.10 is appropriate where the corrective action ensures the protection of human health, safety, and the environment, is compliant with applicable corrective action regulations, and where the corrective action is consistent with: 1) Chapter 6.7 of the Health and Safety Code and implementing regulations; 2) Any applicable waste discharge requirements or other order issued pursuant to Division 7 of the Water Code; 3) All applicable state policies for water quality control; and 4) All applicable water quality control plans.
8. State Water Board Resolution 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304* is a state policy for water quality control and applies to petroleum UST cases.

9. State Water Board Resolution 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. 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. Resolution No. 92-49 does not require that the requisite level of water quality be met at the time of case closure; it specifies compliance with cleanup goals and objectives within a reasonable time frame.
10. The State Water Board has adopted numerous orders closing UST cases after applying relevant statutes and regulations referenced above and State Water Board Resolution 92-49. In these orders, several factors were considered, such as: (1) whether remaining petroleum constituents would migrate beyond a limited spatial extent, (2) the presence and location of drinking water wells in the area, (3) the likelihood that the impacted groundwater will be used in the foreseeable future; and (4) the protective nature of standard well-construction practices.
11. California has some of the most stringent UST leak prevention requirements in the country. The State Water Board is committed to the prevention of unauthorized releases for the protection of beneficial uses of water. New unauthorized releases from USTs should be rare and when they occur, they should be cleaned up quickly. It should be an exceptional case that takes more than five years to investigate a release, complete corrective action and close the case.
12. Fifty percent of the over 9,000 UST cleanup cases have been open for more than 15 years.
13. Petroleum fuels as free product are less dense than water and will float on groundwater preventing the migration of free product to deeper aquifers. It also has been well-documented in the literature and through experience at individual UST release sites that petroleum fuels naturally attenuate in the environment, largely through biological degradation. This natural attenuation slows and limits the migration of dissolved petroleum plumes in groundwater.
14. Residual petroleum at varying amounts has been left in the subsurface at most of the 35,000 UST cases that have been closed over the past 25 years. After source removal, natural attenuation can be relied upon to effectively remediate remaining residual soil and groundwater impacts at many sites.
15. Sites where residual petroleum hydrocarbons remain localized and human exposure pathways are eliminated pose little threat to human health, safety or the environment.
16. There is a significant financial burden to the Cleanup Fund as well as a financial and time burden to UST owners in keeping UST cleanup cases open when there is little or no environmental benefit associated with continued investigation, remediation, or monitoring.
17. Limited resources should be focused on UST cleanup cases where there is a threat to human health, safety and the environment. In particular, UST sites that have impacted a drinking water well should receive priority regulatory attention so that safe drinking water can be provided as early as possible and alternative supplies can be developed for the longer term, if necessary.
18. It has been understood for decades that societal activities tend to adversely impact shallow groundwater. In recognition of this, well standards were developed by the Department of Water Resources and adopted by local agencies as well ordinances. Such ordinances require drinking water wells to have sanitary seals to help prevent shallow impacted groundwater from entering well screens. Separation between drinking water wells and sources of impacts allows time for natural attenuation processes to occur.

19. It is also understood that natural conditions may make groundwater an unlikely source of water supply. These conditions include, but are not limited to, elevated total dissolved solids and insufficient sustained yield.
20. Public disclosure of information regarding UST releases is a necessary and important part of our regulatory mandate. Posting of current and accurate information to the State Water Board's internet-based GeoTracker database is imperative. This information is and will continue to be relied upon during cleanup and after case closure for real estate transactions, zoning changes and other matters that affect the site and surrounding properties.

Therefore be it resolved:

1. This policy establishes closure criteria for certain types of sites with unauthorized releases of petroleum from USTs that present a low threat to human health, safety, and the environment. In the absence of unique site-specific conditions, cases that meet these criteria do not pose a threat to human health, safety or the environment and are appropriate for UST case closure pursuant to Health and Safety Code section 25296.10.
2. These criteria do not attempt to describe the conditions at all low-threat sites in the State. Regulatory agencies may issue a closure letter for a case that does not meet these criteria.
3. Unless unique site-specific conditions warrant otherwise, cases that meet all of the following criteria do not require further corrective action and shall be issued a uniform closure letter consistent with Health and Safety Code Section 25296.10:
 - a. The unauthorized release consists only of petroleum;
 - b. The unauthorized release from the UST has been stopped;
 - c. The unauthorized release does not occur in fractured bedrock, but has occurred in unconsolidated geologic materials such as clay, silt, sand, gravel, or any combination thereof;
 - d. Soil or groundwater affected by the unauthorized release have been investigated to determine conformance with applicable criteria in this policy including an identification of water supply wells, surface water bodies, and human and other biological receptors that may be impacted by the unauthorized release at the site;
 - e. Free product has been removed to the extent practicable;
 - f. If groundwater is affected by the unauthorized release, the current extent of the affected groundwater which exceeds the maximum contaminant level (MCL) for the constituents in Table 2 must be stable or decreasing and must be no closer than 250 feet from the nearest drinking water well and either:
 - i. Does not exceed 250 feet from the source of the release; or
 - ii. Does not exceed 1000 feet from the source of the release and the dissolved concentration in groundwater of each of the constituents in Table 1 is less than 1 ppm in the source area.

The extent of groundwater affected by the unauthorized release may be determined by extrapolation of data.

- g. The site and the groundwater affected by the unauthorized release are within the service area of a public water system;
- h. Sites where any occupied building or any future occupied building that may be built overlying the unauthorized release shall meet one of the following:
 - i. The thickness and required soil column characteristics described in Table 1 for all affected media; or
 - ii. Measured petroleum soil vapor concentrations below or adjacent to the building or potential building are less than applicable screening levels; or
 - iii. Criteria acceptable to the regulatory agency.

Table 1: Required Soil Column Characteristics for Sites with Occupied Buildings

Unauthorized Release		Soil Located Between Contaminant Source and Building Foundation	
Affected Media	Characteristics	Minimum Thickness	Required Soil Column Characteristics
Groundwater, dissolved contamination	≤1,000 ug/L dissolved phase benzene or ≤10,000 ug/L dissolved phase TPH	5 feet	TPHg in soil ≤100 mg/kg or ≥ 4% oxygen in soil gas
Groundwater, dissolved contamination	>1,000 ug/L dissolved phase benzene or >10,000 ug/L dissolved phase TPH	10 feet	TPHg in soil ≤100 mg/kg or ≥ 4% oxygen in soil gas
Free product	Measurable free product	30 feet	TPHg in soil ≤100 mg/kg or ≥ 4% oxygen in soil gas
Soil	Petroleum present in soil	5 feet	TPHg in soil ≤100 mg/kg or ≥ 4% oxygen in soil gas

- i. Soil with petroleum constituents that is located in an area where direct human contact may occur shall meet one of the following:
 - i. Concentrations of petroleum constituents in soil are less than or equal to those listed in table 2.
 - ii. Contact is mitigated in a manner acceptable to the regulatory agency.

**Table 2
Criteria for Direct Contact with Soil:**

Depth (feet)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	Naphthalene (mg/kg)
0 to 3	3.4	4,800	33	6,400	220	160	32
3 to 10	160	110,000	4,000	24,000	31,000	38,000	4,400

Definitions

- a. Petroleum – crude oil, or any fraction thereof, which is liquid at standard conditions of temperature and pressure, which means 60 degrees Fahrenheit and 14.7 pounds per square inch absolute, including the following substances: motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents and used oils, including any additives contained in the formulation of the substances.
- b. Water supply well – A well that supplies water for beneficial use including but not limited to public supply, domestic supply, and irrigation wells. This does not include monitoring or cathodic protection wells.