

Low-Threat Underground Storage Tank (UST) Case Closure Policy (Policy) Frequently Asked Questions (Revised November 2018)

General Criteria

a) **Unauthorized release is located within the service area of a public water system**

Q Public water is available, but there are domestic wells nearby. Does this meet the Policy criteria?

A This meets the general criterion because new parcels being developed would have access to a public water supply. The groundwater contaminant plume would still need to meet the distance from the plume boundary to existing wells required by the appropriate class to meet the groundwater media-specific criteria.

Q How do I find a public water system for a site?

A Public water system information for most sites is provided on the Facility/Site Address page within the regulator portion of GeoTracker. However, public water system data may not be available for all cases. Public water system information may be obtained by asking responsible parties which entity sends them a water bill, contacting local water districts found in the Yellow Pages™ to determine service areas, and by performing appropriate Internet searches.

Q What is the definition of a “public water system”?

A The Policy defines a public water system as, “a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.”

b) **Unauthorized release consists only of petroleum**

Q Is waste oil considered petroleum?

A Waste oil USTs are petroleum USTs if they contain petroleum mixed with de minimis amounts of other regulated substances. An amount is de minimis if it does not significantly alter the detectability, effectiveness of corrective action, or toxicity of the petroleum. A release from a typical waste oil UST at a service station will be remediated by the same cleanup processes as applied to releases from other petroleum USTs. Therefore, it is appropriate to consider waste oil from a waste oil UST a petroleum product and use the LTCP in such a case.

Sites that have releases containing more than de minimis amounts of other regulated substances should be directed to a Site Cleanup program for remediation oversight.

Q When chlorinated solvents are present in soil and/or groundwater, but the release of petroleum constituents meets the Policy, can this site be closed under the Policy?

A The mere presence of chlorinated solvents does not automatically lead to the need for additional investigation or cleanup and does not preclude closure of the UST case under the Policy.

- If the regulatory agency determines that the concentrations of chlorinated solvents were not released from the UST system and were not released at the site, then the case could be closed under the Policy.
- If the regulatory agency determines that the concentrations of chlorinated solvents were not released from the UST system but released at the site, then a cleanup program (site cleanup) case should be opened.
- If the regulatory agency determines that the concentrations of chlorinated solvents released from the UST system are high enough to warrant additional investigation or cleanup, then the agency should not close the site and require additional investigation or cleanup.

c) Unauthorized (“primary”) release from the UST has been stopped

Q How is primary source defined?

A The UST, pipe, dispensers, or other appurtenant structure that released petroleum into the environment. The Policy does not apply to UST systems that have ongoing leaks. Ongoing leaks should be repaired in compliance with UST operating permits before case closure can be considered under the Policy. Primary source does not include the media (soil, soil gas, and groundwater) that is affected by the primary release. Those media would be considered either secondary source (see below) or residual source.

d) Free product has been removed to the maximum extent practicable

Q What is the definition of free product?

A Petroleum is a light non-aqueous phase liquid (LNAPL) that can exist in three conditions in the subsurface: 1) residual or immobile (LNAPL is immobilized by capillary forces and cannot move from pore to pore), 2) mobile (there is enough LNAPL to overcome capillary forces to move from pore to pore and low pressure zones such as a monitoring well) and 3) migrating (there is sufficient LNAPL to create a head causing the LNAPL body to expand laterally). For practical purposes, the term “free product” is primarily equivalent to migrating LNAPL. Ref: *Technical Justification for Groundwater Media-Specific Criteria*, page 2.

It is important to note that not all LNAPL is necessarily considered free product.

Q How is the “removal of free product to the maximum extent practicable” defined?

A Free product must be removed to point that its migration is stopped and the LNAPL extent is stable (or decreasing). The Policy does not require that free product be removed until it is no longer measurable. At a minimum, free product should be removed so that the LNAPL is stabilized and that the spread of the unauthorized release into previously uncontaminated zones is stopped.

Removal of LNAPL from the subsurface is technically complicated, and removal of LNAPL to the maximum extent practicable is based on site-specific factors (such as soil properties, varying groundwater elevations, and varying lateral groundwater flow velocities among others) and includes a combination of objectives for the LNAPL removal (such as whether the LNAPL is a significant source of dissolved constituents to groundwater or volatile constituents to soil vapor, or whether there is a high likelihood that hydrogeologic conditions would change significantly in the future which may allow the mobile LNAPL to migrate) and technical limitations.

Q Is sheen considered free product?

A Sheen is not caused by migrating LNAPL which would be measurable; it is the result of mobile LNAPL moving into a relatively low-pressure zone of the monitoring well bore. Sheen is not measurable; thus, it is not considered free product.

e) Conceptual site model that assesses the nature, extent, and mobility of the release has been developed

Q What is an adequate conceptual site model (CSM)?

A The technical justification documents created to support the Policy state that the CSM should contain sufficient detail to make decisions at the site and be comprehensive enough to show compliance with all the Policy media-specific criteria, as well as all State and federal laws/regulations. The primary goal of a CSM is to provide sufficient site-specific information to evaluate the threat to human health, safety, and the environment, and if necessary, use the information to evaluate and select a feasible and cost-effective remedial technology to mitigate that threat. If there is not adequate data to select a remediation technology or approach, the CSM criterion has not been met.

Q Is it necessary to fully define the extent of all contaminants to meet the CSM criterion?

A One of the objectives of the CSM is to convey an understanding of the origin, nature, and lateral and vertical extent of contamination. Typically, defining a contamination plume would require defining the extent of contaminants to their respective water quality objectives (WQOs). However, professional judgment should be used to determine whether current plume definition is sufficient to evaluate the threat from the contaminants and to demonstrate that the Groundwater media-specific criteria have been met. For instance, in appropriate circumstances plume length could be inferred from existing data to determine whether it meets one of the 5 classes of groundwater plumes described in the Groundwater media-specific requirements.

Q Should vertical definition of a contaminant plume be required?

A An objective of the CSM is to convey an understanding of the lateral and vertical extent of contamination. Typical petroleum hydrocarbon constituents are lighter than water and relatively immiscible in water; thus, the hydrocarbons would tend to stay near the groundwater table and vertical definition would be not be necessary. However, hydrogeologic conditions at a given site such as vertical gradient or sub surface structure might be more conducive to vertical migration of the contaminants. Also, fuel oxygenates, such as MTBE and TBA, are much more miscible in groundwater allowing them to distribute more widely throughout the water-bearing interval. Therefore, professional judgment can be used for a site-specific evaluation of the case to determine whether vertical definition is appropriate.

Q The CSM is not located in one document and it is hard to capture all the information. Can I require a summary CSM?

A The supporting data and analysis used to develop the CSM are not required to be contained in a single report. The information may be contained in multiple reports submitted to the regulatory agency over a period of time. The goals of a CSM are to provide sufficient site-specific information to evaluate the threat to human health, safety, and the environment, and if necessary, to make a remediation decision. These goals can be accomplished without having all of the information in a single document.

f) Secondary source has been removed to the extent practicable

Q What is the definition of secondary source?

A "Secondary source" is defined as petroleum-impacted soil or groundwater located at or immediately beneath the point of release from the primary source. Residual contamination could remain that is not considered part of the secondary source. Residual contamination not considered "secondary source" should only be addressed in the context of meeting the media-specific criteria.

Q How is removal of the secondary source, "to the extent practicable" defined?

A "To the extent practicable" means implementing a cost-effective corrective action that removes or destroys-in-place the most readily recoverable fraction of source-area mass immediately beneath the point of release from the primary source. Unless site attributes prevent secondary source removal (e.g. lithological, physical, or infrastructural constraints exist where removal or relocation would be technically or economically infeasible), petroleum-release sites are required to undergo secondary source removal to the extent practicable. It is expected that most secondary mass removal efforts will be completed in one year or less. Following removal or destruction of the secondary source, additional removal or active remedial actions shall not be required by regulatory agencies unless:

- (1) necessary to abate a demonstrated threat to human health, or
- (2) the site does not otherwise meet the definition of low-threat as described in the Policy.

Q How does the Policy define "the most readily recoverable fraction of source-area mass" specific to the secondary source removal criteria?

A The most readily recoverable fraction of source-area mass is determined by the regulating agency. In some cases, site attributes prevent the removal of groundwater contamination (e.g. lithological, physical or infrastructural constraints exist where removal or relocation would be technically or economically infeasible). This may result in residual petroleum constituents to remain resulting in dissolved concentrations in groundwater above the water quality objectives (WQOs).

Q Do passive source removal strategies count towards secondary source removal criteria? For example, monitored natural attenuation, sulfate injection, oxygen release compound socks.

A The most feasible corrective action should be implemented to remove or destroy in-place the most readily recoverable fraction of source-area contaminant mass, as well as secondary source. This determination is made by the regulating agency and should be based on a thorough site-specific evaluation/comparison of the technical and economic feasibility of the most likely removal strategies. The Policy does not prescribe the specific removal strategies that may be used.

a) Nuisance as defined by Water Code section 13050 does not exist at the site

Q How is "nuisance" defined?

A Water Code section 13050 defines "nuisance" as anything that meets all of the following requirements:

- (1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.
- (2) Affects at the same time an entire community or neighborhood, or any

considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.

(3) Occurs during, or as a result of, the treatment or disposal of wastes.

Q Does the presence of contamination in an aquifer that supplies drinking water constitute a nuisance?

A The presence of contamination, in general, does not constitute a nuisance. It would only be considered a nuisance if it meets all of the requirements described above about the definition of a nuisance.

Media-Specific Criteria

a) Groundwater

Q What is considered a reasonable time-frame to reach WQOs under the Policy?

A The criteria of the policy were specifically developed to identify sites where WQOs will be reached within a reasonable time-frame. Unless there are unique site-specific conditions, compliance with the general and media-specific criteria are sufficient to determine that WQOs will be reached within a reasonable time-frame, although an evaluation of the time required to reach WQOs could be an element of the analysis to determine if a case meets Class 5 of the Groundwater media-specific criteria.

Q What is the definition of a stable or decreasing plume?

A A plume that is “stable or decreasing” is a contaminant mass that has expanded to its maximum extent (i.e., the distance from the point of release where attenuation exceeds migration). Therefore, it must only be demonstrated that the areal extent, primarily plume length, is not increasing over time. Localized fluctuations and increases in concentrations may occur; but to the extent they do not cause an increase to the areal extent of the plume, the plume would meet this definition.

Q How is plume length measured?

A The plume length is the distance between the source of the release (i.e., location of former USTs, piping, or dispenser island where a known release has occurred) to the calculated or extrapolated line where concentrations in groundwater are at WQOs. Typically, that measurement is made in the downgradient direction from the point of release.

For sites at which the gradient is variable or where the plume length is greater in a direction other than the predominant groundwater flow direction, it would be appropriate to use the furthest distance from the release point where the WQOs have been exceeded. However, the distance must still be measured only from the established point of release. It should be noted that professional judgment can be used to infer plume length once sufficient data have been collected.

Q How are WQOs determined?

A WQOs are defined in Regional Water Board Basin Plans and are specific to each region. WQOs are presented as specific numeric goals or narrative objectives.

Q How do we address those constituents of concern that are not listed in the Policy?

A The regulatory agency determines which petroleum constituents should be analyzed at a particular site to determine the extent of the release. However, the constituents listed in the Policy are adequate to assess risk at most petroleum UST sites. Unless there are unique site-specific conditions, a site is eligible for closure if the criteria in the Policy are met.

Q The Policy refers only to the distance to existing water supply wells or surface water bodies to define the characteristics of the five classes of sites used to determine whether a site meets the Groundwater media-specific criteria. Are there other sensitive receptors that can be considered?

A The exposure scenarios for impacted groundwater generally include inhalation (breathing), ingestion (drinking), and dermal contact (touching). Inhalation and dermal contact of soil are addressed by the other media-specific criteria. Typically, the exposure pathway for drinking or contacting impacted groundwater is from a well or surface water body. Therefore, barring any unique site characteristics, there is no need to consider other sensitive receptors for the five plume classes.

Q What is the definition of a “surface water body”?

A There is no specific definition in the Policy for surface water body. Common surface water bodies can include, but are not limited to: rivers, streams, lakes, enclosed bays, recharge ponds, estuaries, and tributaries to these types of water bodies. These common surface water bodies are usually in connection with shallow groundwater and might become impacted by an adjacent UST release. Concrete or clay-lined structures such as canals, reservoirs, waste ponds, etc., should be more closely evaluated to determine if they are in connection with shallow groundwater. Lined surface impoundments might appear to be surface water bodies but may not be receptors if the liners effectively exclude shallow groundwater.

Q Can a land use restriction be required as a condition of closure?

A The willingness of a property owner to accept a land use restriction is one characteristic of Groundwater Class 3. However, a land use restriction is not mandatory. The need for a land use restriction in this scenario is at the discretion of the regulatory agency.

Q How can Class 5 be used to demonstrate that a site meets the Groundwater media-specific criteria?

A When a site does not meet all criterion in one of the first four groundwater classes described in the Policy, an analysis of site-specific conditions should be used to determine if the contaminant plume poses a low-threat and WQOs will be achieved within a reasonable time frame. A formal risk assessment could be used to demonstrate that the contaminant plume poses a low-threat under the Policy and WQOs will be achieved within a reasonable time frame.

Alternatively, an informal risk analysis by the regulatory agency would be sufficient if site-specific data demonstrate that the contaminant plume poses a low-threat under the Policy and WQOs will be achieved within a reasonable time frame. When the regulatory agency determines that site-specific data demonstrate that the contaminant plume poses a low-threat under the Policy and WQOs will be achieved within a reasonable time frame, then Groundwater Media-Specific Criteria in Class 5 have been met.

b) Petroleum Vapor Intrusion to Indoor Air

Q Does the exception to the media-specific criteria for petroleum vapor intrusion to indoor air for an active commercial petroleum fueling facility apply if there is potential off-site migration that could result in indoor air exposure?

A Exposures to petroleum vapors associated with historical fuel system releases are comparatively insignificant relative to exposures from small surface spills and fugitive vapor releases that typically occur at active fueling facilities. However, this exception is inappropriate in cases where release characteristics can be reasonably believed to pose an unacceptable health risk on-site or off-site.

Q What constitutes a bioattenuation zone?

A A bioattenuation zone is an area of soil with conditions that support biodegradation of petroleum hydrocarbon vapors that might be present beneath a site. Appendices 1 through 4 of the Policy illustrate four potential exposure scenarios and describe characteristics that would define a bioattenuation zone for each scenario.

Q What is unweathered LNAPL?

A Unweathered LNAPL is generally understood to mean petroleum that has not been subjected to significant volatilization, solubilization or metabolic degradation, and therefore has not lost a significant portion of its volatile or soluble constituents. Unweathered LNAPL is comparable to recently dispensed fuel.

Q Do the scenarios that include the presence of unweathered LNAPL mean free product for the purposes of evaluating the Vapor Intrusion to Indoor Air media-specific criteria?

A The setback scenarios (vapor intrusion scenarios 1 and 2) are valid for both the presence of free product (i.e., mobile/migrating LNAPL), as well as residual LNAPL.

Q What is the appropriate number of soil gas samples and sample probe locations to demonstrate the site meets the Vapor Intrusion to Indoor Air media-specific criteria using Scenario 4?

A The Policy does not specify the number of samples or sample probe locations. Professional judgment should be used to determine the adequate number of samples and locations to verify the vapor intrusion threat to each occupied building on-site or off-site. It may be appropriate to collect one round of sampling or it may be appropriate to collect multiple rounds of verification samples, one during the wet season and one during the dry season in any given year.

Q How should soil gas probes be installed and used to collect soil gas samples?

A For Scenario 4, the Policy does not address the manner in which probes should be installed or how samples should be collected, other than to specify samples shall be collected from at least 5 feet below ground surface or 5 feet below the bottom of an existing building foundation, whichever is applicable. The methods used are at the discretion of the regulatory agency. This includes verifying the quality of laboratory data for the analysis of the soil gas samples. The regulatory agency should also ensure that soil gas samples collected be analyzed for the constituents mentioned in the Policy (benzene, ethylbenzene, naphthalene, and oxygen content).

Q Can the vapor intrusion threat be evaluated based on potential future site conditions?

- A The low-threat vapor intrusion criteria described in the Policy apply to sites where the release originated and impacted or potentially impacted adjacent parcels when:
- 1) existing buildings are occupied or may be reasonably expected to be occupied in the future, or
 - 2) buildings for human occupancy are reasonably expected to be constructed in the future.

Evaluating the threat based on any use other than existing is up to the discretion of the regulatory agency. Professional judgment should be employed to determine the likelihood and timeframe for changes to site use, as well as the relative threat due to the potential changes.

Q If soil, groundwater, or soil gas data cannot be used to demonstrate the site meets one of the four possible vapor intrusion scenarios, can a regulator develop a site-specific risk assessment and satisfy the Policy criteria?

- A Yes. If there is sufficient site-specific information to evaluate existing and potential sources, pathways, and receptors related to the petroleum release and it can be determined that there is not a significant impact to human health, then the site-specific risk assessment developed by a regulator can be used to demonstrate the Vapor Intrusion to Indoor Air media-specific criteria have been met. The site-specific risk assessment should not add additional screening criteria or requirements.

Q How is it determined whether mitigation measures or institutional or engineering controls are adequate to control exposure such that petroleum vapors will have no significant risk or adversely affect human health?

- A Mitigation measures or the use of institutional or engineering controls is at the discretion of the regulatory agency and local building permit department. The regulatory agency should expect the responsible party to demonstrate the adequacy of a control to the regulatory agency and local building permit department. This would also apply to the application of mitigation measures or other controls with respect to the Direct Contact and Outdoor Air Exposure media-specific criteria.

c) Direct Contact and Outdoor Air Exposure

Q What if the area of impacted soil where a particular exposure occurs is greater than 25 meters by 25 meters?

- A For a typical gas station release, we would not generally expect the impacted soil in the upper 10 feet to exceed the 25 m by 25 m area. If the impacted soil does exceed this area, a site-specific evaluation would need to be conducted.

Q What are the appropriate depths at which soil samples should be collected to demonstrate the site meets the Direct Contact and Outdoor Air Exposure media-specific criteria?

- A The Policy includes screening levels for samples collected in the 0 to 5 feet below ground surface (bgs) depth interval and the 5 to 10 feet bgs depth interval. It is up to the discretion of the regulatory agency to determine the specific depth(s) within those ranges that are representative of site conditions. The depths should be chosen based on knowledge of the operation and location of the unauthorized release from the UST system at the site.

- Q If one soil sample out of several samples collected contains constituents that exceed the values in Table 1, does the site fail the criteria?**
- A Soil samples exceeding the screening values in Policy Table 1 do not meet direct contact and outdoor air exposure Criteria 3(a). However, under criteria 3(b), the agency can perform a risk evaluation to demonstrate that the residual soil impacts do not pose a risk to human health from a direct contact and outdoor exposure scenario. It may also be appropriate to direct additional remediation to mitigate the elevated concentrations.
- Q Concentrations in soil do not meet Table 1 of the Policy and the case file does not include a report that assesses the direct contact and outdoor air exposure risk for the site. Can a regulator develop a site-specific risk assessment and satisfy the Policy criteria?**
- A Yes, if there is sufficient site-specific information to evaluate existing and potential sources, pathways, and receptors related to the petroleum release and it can be determined that there is not a significant impact to human health, then a site-specific risk assessment can be used to demonstrate the Direct Contact and Outdoor Air Exposure media-specific criteria have been met.
- Q The California LUFT Manual recommends collecting soil samples to analyze for metals, volatile organic compounds, and semi-volatile organic compounds, in addition to polycyclic aromatic hydrocarbons (PAHs). Is it acceptable to direct the collection of samples to analyze for these compounds?**
- A It is recommended the guidance provided in the LUFT Manual be followed; however, it is at the discretion of the regulatory agency to determine the potential contaminants of concern. Analysis for the full suite of chemicals listed in the LUFT Manual would be valuable to determine whether the site meets General Criteria b. (unauthorized release consist only of petroleum). The collection of samples to analyze for all potential or known constituents of concern would also be crucial to meeting General Criteria e. (CSM). However, PAHs were determined to be the primary risk driver amongst potential waste oil constituents; therefore, achieving the Direct Contact and Outdoor Air Exposure media-specific criteria is based on the magnitude of PAHs in shallow soil.

Low-Threat Case Closure

- Q The Policy requires regulatory agencies to notify responsible parties that they are eligible for case closure. Who else is required to be notified of a proposed case closure and provided a 60-day period to comment?**
- A It would be appropriate to notify any known or suspected interested parties not covered by the Policy noticing requirements. At a minimum, the regulatory agencies shall notify: municipal and county water districts; water replenishment districts; special act districts with groundwater management authority; and agencies with authority to issue building permits for land affected by the petroleum release. Regulatory agencies shall also notify owners and occupants of the property impacted by the petroleum release, and owners and occupants of all parcels adjacent to the impacted property.

Additional information related to Public Participation Tools for Water Board Cleanup Sites is located at: http://waternet/opp/docs/pp_tools.pdf

Q How do I find the addresses for those required by the Policy to be notified of the proposed case closure?

A There are several methods to obtain the addresses for those required to be notified. Some examples may include:

- Ask the responsible party and or consultant.
- Use parcel services companies such as ParcelQuest,™ LandVision,™ or Zillow.™
- Contact the county assessor's office.

Q How do occupants get notified?

A Send the appropriate number of notification letters addressed to "Occupant" to the adjacent parcel addresses.

Q For those cases that do not meet the required criteria of the Policy, but merit closure under [Resolution No. 92-49](#) can we use a different notification process than what is required in the Policy?

A For consistency, noticing requirements established in the Policy should be followed when noticing case closures using the Resolution No. 92-49.

Q The Policy seems to say that the regulatory agency must close a case within 30 days from the end of the comment period. What does the Policy require?

A The Policy requires all of the following: the regulatory agency issue a uniform closure letter no more than 30 days after the end of the public comment period, the completion of well destruction, and the completion of waste removal.

General Questions

Q When did the Policy take effect?

A The Policy was adopted by State Water Board [Resolution No. 2012-0016](#) on May 1, 2012, and became effective on August 17, 2012. Resolution No. 2012-0016 and [Resolution No. 2012-0062](#) direct certain actions, including that Regional Water Boards and local agencies review all cases in the petroleum UST Cleanup Program using the framework provided in the Policy

Q Where can I obtain additional information and documents related to Policy?

A Information and documents related to and including the Policy, may be accessed using the following link:
http://www.waterboards.ca.gov/water_issues/programs/ust/lt_cls_ply.shtml

Q What process should be used to close a low-threat case that does not meet the Policy criteria?

A Use [Resolution No. 92-49](#) and relevant State Water Board Orders.

Q Does the Policy apply to military facilities?

A Yes. The Policy applies to all petroleum UST sites subject to Chapter 6.7 of Division 20 of the Health and Safety Code and Chapter 16 of Division 3 of Title 23 of the California Code of Regulations.

Q What about other petroleum release scenarios?

A While the Policy does not specifically address other petroleum release scenarios (i.e. pipelines or aboveground storage tanks), if a particular site with a different petroleum release scenario exhibits attributes similar to those that the Policy addresses, the criteria for closure evaluation of these non-UST petroleum release sites should be similar to those in the Policy.

- Q It seems that similar words are used interchangeably throughout the Policy. Do the terms “land,” “property” and “parcels” mean the same thing? Do the terms “impacted” and “affected” mean the same as well?**
- A Yes, the terms described above have very similar meanings throughout the Policy.**