



STATE OF VERMONT
Agency of Natural Resources

UNDERGROUND STORAGE TANK CLOSURE AND RELEASE ASSESSMENT GUIDANCE

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This procedure is hereby approved and adopted, in accordance with the Vermont Administrative Procedure Act (3 V.S.A. §835). This guidance document replaces a previous version adopted on 6/1/2020.

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I. Applicability and Purpose

The intent of this guidance document is not to provide an all-inclusive manual on underground storage (UST) closure and release assessments performed to determine if petroleum has been released from a UST or system components. It is a discussion of the factors to be considered during tank closure and provides requirements for petroleum release assessment activities. Following this guidance should help tank owners and their contractors comply with the UST closure and release assessment requirements found in Vermont's Environmental Protection Rules, Chapter 8 "UST Rules and Chapter 35" (<https://dec.vermont.gov/laws>) Investigation and Remediation of Contaminated Properties Rule (IRule). Subchapter 6 of the UST rules addresses the requirements for out-of-service, continued use, and closure standards for underground storage tank systems and should be reviewed prior to tank closure. The IRule applies when a petroleum release is discovered during closure of an UST and can also be used for planning when a release is suspected.

There are four categories of USTs:

- Category One: All USTs required to have a permit in accordance with the VTDEC Underground Storage Tank Rules.
- Category Two: All Farm or Residential motor fuel USTs that are greater than 1,100-gallon capacity.
- Category Three: All Commercial/Public buildings fuel oil USTs (any size) and any Farm or Residential fuel oil UST that are that are greater than 1,100-gallon capacity. Category Three USTs are used **exclusively** for space heating, domestic hot water, and/or humidification.
- Category Four: All Farm and Residential motor fuel and fuel oil USTs that are less than or equal to 1,100-gallon capacity. Category Four fuel oil USTs are used exclusively for space heating, domestic hot water, and/or humidification.

The following USTs require a Release Assessment at the time of UST Closure:

- All Category One, Two, and Three Petroleum UST systems.
- Any Category Four heating oil UST being removed with financial assistance from the VTDEC UST Program.
- Any Category Four UST where there is evidence of a release.

Only those Category Four USTs not included above and where there is no evidence of a petroleum release from the UST are not required to have a Release Assessment performed at the time of UST Closure.

Although the Agency only requires a closure and release assessment for those Category Four underground storage tank systems described above, banks or insurance companies may require that a release assessment be performed prior to any transfer of real estate where an underground storage tank is located.

Guidance in this document applies only to the closure of underground tanks used for the storage of petroleum products. If the tank stored any other regulated substance (sodium hypochlorite, chlorinated solvents, etc.), contact the Agency prior to planning a closure to discuss the proper methods of closing that tank. This guidance does not apply to petroleum aboveground storage tanks or any type of propane storage tank.

NOTE: This document only addresses closure of existing tank systems. Any new or replacement Category One underground storage tank must be permitted by the Waste Management and Prevention Division (WMPD) UST Program before the commencement of construction.

For information on applying for a permit and installing a new tank, please see the Vermont UST Rules or contact the UST Program at 802-828-1138. The Vermont UST Rules can be found on the UST Program web page at: <https://dec.vermont.gov/sites/dec/files/wmp/UST/UST-Rules.pdf>.

II. Step-by-Step Procedures to Permanently Close Underground Storage Tanks

A. Permitting and Planning Requirements

1. UST construction permit [§ 8-303(a)(1)]. If installation of a Category One UST is planned following closure of an existing UST, a UST construction permit must be obtained from the WMPD prior to replacement of the existing UST. Installations of replacement Category Two, Three, and Four USTs do not require a construction permit. Category Two and Three require registration with the UST Program.
2. Soil Management Plan (§ 35-804) or CAP (§ 35-606). If the UST is located at a property where contaminated soil or groundwater is likely to be encountered, e.g., it is a listed Hazardous Site or a release is suspected, then additional planning may be required to address proper management of the contaminated media.
3. Notice of Intent for General Permit. If dewatering will be required to facilitate UST removal/replacement and groundwater in the vicinity of the existing tanks is known (or suspected) to be contaminated with petroleum, a General Permit must be obtained for dewatering, treatment, and discharge of contaminated groundwater. A Notice of Intent (NOI) application must be filed with the Watershed Management Division's Wastewater Program and must satisfy a 14-day public comment requirement. A fee will be assessed by the Wastewater Program for the permit. Contact the Wastewater Program for information on General Permits, NOI applications, and the permit fee.

B. Notification and Reporting Requirements

1. Tank Closure Notifications
 - a. [§ 8-604(a)]. Notify the Agency by phone (802-828-1138) or in writing at least 5 business days before the date scheduled for closure (this is required for all USTs except for Category Four tanks). Include in the notification the information for the environmental professional that will be conducting the release assessment. Obtain the tank closure forms from the UST Program's web site: (<https://dec.vermont.gov/sites/dec/files/wmp/UST/UST.Piping.Closure%20Form.pdf>).
 - b. Notify Dig Safe (as required by law) and the local municipal Public Works Department, if applicable, of the time and place of the tank closure so they have an opportunity to mark any buried utilities near the tank(s). For Dig Safe call 811 to avoid utility service disruption to an entire neighborhood, harm to you and those around you, as well as fines and repair costs.
2. Release Notification [10 V.S.A. § 6617, § 8-103(b) and § 35-102(b)]. The DEC must be notified of a release of two gallons or more of petroleum products upon discovery. During normal business hours, notification can be accomplished by contacting the WMPD at (802) 828-1138. Outside normal business hours, notification can be accomplished by contacting the Department of Public Safety's 24-hour hotline at (800) 641-5005. If conditions suggest a release has occurred (e.g. staining or strong vapors in the soils, free product or sheens on the groundwater, exceedances of the photoionization detector (PID) screening levels presented in Section F. 2. of this document, etc.), it must be reported immediately.

C. Residual Liquid and Waste Management [§ 8-604(b)]

All residual material must be properly removed from the tank and managed in accordance with applicable state and federal requirements, including the Vermont Hazardous Waste Management Rule. At a minimum, the following steps should be undertaken:

1. All liquid must be pumped from the system before removal from the ground.
2. If removal of piping is not necessary to adequately assess the site for contamination, it may be closed-in-place provided that:
 - a) all fuel is drained back into the tank,
 - b) the piping is purged with compressed air, and
 - c) all openings are permanently sealed.
3. All sludge must be removed from the tank, and the tank's interior must be cleaned. This may involve entering the tank through a manway built into the tank, or by cutting a hole in the tank. Applicable OSHA confined space entry rules must be followed, and all tank bottom waste and spent cleaning solutions must be handled as hazardous waste.
4. Prior to transporting, the exterior of the tank must be scraped to remove loose backfill. The tank interior must be rendered inert to ensure that it is not subject to reaching an explosive condition (vapor buildup to the Lower Explosive Limit, or LEL) and it must be properly placarded on the ends and sides. Transportation of the tank must be in accordance with applicable state and federal transportation rules.

D. Rendering Tanks Non-explosive [§ 8-604(c)]

Before removal, cutting open, or transporting, all tanks must be rendered non-explosive. The tank interior must be rendered inert to ensure that it is not subject to reaching an explosive condition (vapor buildup to the Lower Explosive Limit, or LEL). This may be accomplished by disconnecting all piping except the vent line and sealing all openings in the top of the tank. Then, keeping the vent line connected and open, the tank can be rendered non-explosive by either:

1. Inerting: inserting dry ice (solid carbon dioxide) into the tank in the amount of 1.5 pounds per 100 gallons of tank capacity. Once the dry ice has fully sublimated, the gaseous carbon dioxide should displace the oxygen from the tank's interior. Alternatively, nitrogen or another non-combustible gas may be introduced into the tank, but at low pressures (1.5 psi or less) to avoid buildup of static electricity. The tank is not considered inert until an oxygen meter registers less than 10% oxygen when measurements are taken 1 foot from the bottom of the tank, the middle of the tank's diameter and at the tank opening: or
2. Purging: ventilating the tank with air using an explosion-proof gas exhauster operated with compressed air. An educator may also be used with compressed air. The tank is not adequately purged until an explosivity meter registers less than 10% of the LEL when measurements are taken 1 foot from the bottom of the tank, the middle of the tank and at the top of the tank.

E. Tank Removal [§ 8-604(d)]

Tanks must be removed from the ground except where removal could compromise the integrity of a nearby structure or an adjacent fiberglass tank. The Agency will only approve in-place closure on a case-by-case basis. In such cases, the "Procedure for In-Place Closure of Underground Storage Tanks" (Section IV of this guidance) must be followed.

Any tank that does not meet the construction standards for new tanks contained in the UST rules must be rendered inoperable to prevent unauthorized re-use. Re-using removed tanks is not common, and a removed UST must meet the requirements of § 8-402(c) of the Vermont UST Rules prior to reuse. Vermont's Fire Prevention Code prohibits re-use of USTs for aboveground use.

F. Soils Management

Management of petroleum contaminated soil is a complex issue, and a thorough discussion is beyond the scope of this guidance document. The following guidelines provide a brief overview of the DEC soil assessment and management requirements:

1. **The management of contaminated soils encountered during a UST removal or replacement project must be pre-approved by the WMPD.** If tanks are being removed from an existing Hazardous Site, the Sites Management Section should be consulted about performing soil excavation during the planning phase for the UST closure.
2. The PID screening levels which generally trigger the need for further release assessment are 20 ppm for gasoline contaminated soils or 10 ppm for fuel oil or diesel fuel contaminated soils.
3. If subsurface contamination is encountered, it must be immediately reported to the Spill Program (see Section II. B. 2. above) so that a potential short-term remedial approach can be discussed. In general, excavation of contaminated soils for releases from retail motor fuel USTs will not be approved unless the impacted soils are located above the water table and the action can completely remove the contaminated soils, or the removal is necessary to accommodate replacement tanks.
4. Prerequisites for the excavation of contaminated soil include:
 - a. The full extent of contamination can be delineated,
 - b. The entirety of the contamination can be readily removed*,
 - c. An acceptable soil disposal plan is in place, and
 - d. Approval is granted for the soil removal by the Spill Program or Sites Management Section.

*Limited soil removal may be approved even if the full extent of contamination cannot be defined provided evidence suggests that the limited removal is expected to significantly lessen the risks to sensitive receptors. The excavation of a limited volume of contaminated soil may also be approved if the removal is required to accommodate the installation of replacement USTs.

If it is impractical to remove the full extent of contamination due to obstructions in the tank area or the presence of a shallow groundwater table, or the contamination is too extensive to delineate and remove effectively, all soils should be backfilled, and a subsurface investigation should be carried out under guidance of the Sites Management Section unless partial removal is approved when discussing the findings with the Spill Program or Sites Management Section during the UST closure.

5. If contaminated soils are excavated during tank closure, they must be segregated from uncontaminated soils.
6. Any excavated contaminated soil must be placed on, and covered with, polyethylene sheeting of at least a 6-mil thickness in such a manner so as to minimize vapor releases to the air, to minimize the transfer of contaminants to groundwater or surface water and to minimize any threat to public health or safety.
7. Management of petroleum contaminated soil that is not returned to the tank pit must follow § 35-803 under a WMPD approved Soil Management Plan (SMP) (§ 35-804) or CAP (§ 35-606) that should be approved by the WMPD prior to excavation. Contaminated soil management options include temporary stockpiling followed by offsite disposal or treatment via polyencapsulation (either on or offsite). An exception to the SMP and/or CAP requirement is provided for heating oil contaminated soils that are managed under Subchapter 5 of the I-Rule.
8. Excavated soil that is contaminated may be stockpiled temporarily offsite if there is insufficient space to do so onsite but written authorization must first be obtained from the Agency. When there is limited space onsite for temporary or longer-term stockpiling of any contaminated soil that require excavation, an offsite location should be approved by the Agency before the tank is removed to

reduce any potential delays in finding an offsite location during the UST removal. Approval of the offsite location must be obtained by submitting a completed “Management of Non-hazardous Contaminated Soil Request Form” to the WMPD for approval prior to transporting soils for offsite temporary storage or treatment. The form may be found at:

https://dec.vermont.gov/sites/dec/files/wmp/Sites/2020.Final_.Off_.site_.soil_.stockpile.form_.pdf.

Use of this form is encouraged, though not required, when contaminated soil is being temporarily stockpiled onsite until final disposal can be coordinated, or for longer term onsite treatment by polyencapsulation. Use of the form in these cases, will help ensure siting criteria are met and the soil is managed as required while the soil remains on the site of generation. Once waste characterization has been completed, the WMPD must preapprove shipment of the soil for disposal even when the form has not been used for onsite temporary stockpiling.

9. Soil samples must be collected following contaminated soil excavation for both PID screening and confirmatory laboratory analysis to document levels of residual soil contamination or to demonstrate effective contaminated soil removal. Refer to Section III. D. of this guidance for specific information on sampling and analyses requirements.

If PID readings taken from excavated soil are all below the screening levels specified in Section II. F. 1. and there is no evidence of a release, the soil can be backfilled following collection of a soil sample from the bottom of the excavation for VOCs by EPA Method 8021 (Vermont Petroleum List). Additional analyses are required for samples collected when the tank was used to store waste oil (see Section III. D.)

For the complete requirements for managing petroleum contaminated soil, consult the Investigation and Remediation of Contaminated Properties Rule (I-Rule), effective July 6, 2019. The I-Rule can be found at: https://dec.vermont.gov/sites/dec/files/wmp/Sites/0706.IRULE_.pdf

If proper procedures are followed, the costs to remove petroleum contaminated soil are generally eligible for reimbursement from the Petroleum Cleanup Fund, though certain limitations apply. For more information refer to the document entitled “Procedures for Reimbursement from the Vermont Petroleum Cleanup Fund” (http://www.dec.vermont.gov/sites/dec/files/documents/PCFReimb_11_Rev.pdf).

G. Closure Reporting and Release Assessment Required (§ 8-605)

The owner of a Category One, Two, or Three tank is required to submit a UST Closure and Release Assessment report in accordance with Section III of these guidelines and § 8-605. Category Four USTs require a UST Closure and Release Assessment when the tank is being removed with financial assistance from the VTDEC UST Program, or when evidence of contamination is discovered during closure. Although not all Category Four tank removals require a UST Closure and Release Assessment, it is highly recommended that one be conducted, and a UST closure report is submitted which documents any contamination found.

The UST Closure and Release Assessment report must be submitted to the UST Program to update information both in the local land records, and in the State's notification and permit records database.

It is the responsibility of the tank owner to gather and report all necessary information to adequately describe the site conditions within thirty (30) days of closure (under normal circumstances), or upon the request by the Agency within 72 hours of closure when a release appears to pose a significant threat to human health

and/or the environment. The UST Closure and Release Assessment report shall contain, at a minimum, the following:

1. A completed and signed UST tank closure form.
2. A site sketch map that contains the following:
 - a) street names,
 - b) property boundaries,
 - c) UST system component locations,
 - d) field screening and laboratory analytical sample locations,
 - e) adjacent properties, buildings, storm drains, sewers, water lines, monitoring wells, water supply wells within 500 feet of the site location,
 - f) adjacent surface waters, sensitive environmental areas (wetlands, etc.), recreation areas, etc.
 - g) the site map must be as accurate and precise as possible. A scale of 1 inch = 50 feet is recommended but should not be smaller than 1 inch = 100 feet. (Water supply wells within 300 feet of the tank site should be included on the map; an arrow pointing toward a well and its measured distance from the tank area may be used if the well is far enough away that it will not fit on the map area.)
3. Laboratory analytical results (if applicable); tabulated and compared to Vermont Soil Standards. Laboratory analytical reports must also be included.
4. A written narrative describing the site conditions that were observed at the time of tank closure. The report narrative should contain the information specified in Section III of this guidance document.

III. Guidelines for Performing a Release Assessment During a Petroleum UST Closure

At the time of UST closure, a release assessment must be conducted by an environmental professional as defined in the I-Rule. A release assessment should evaluate the degree and extent of petroleum contamination to the extent practicable during UST closure. If a release condition is identified, the assessment report must identify threats to public health and the environment.

The following guidelines have been developed to address the issues involving the assessment of petroleum contamination discovered during UST closure.

A. Minimum Requirements for Personnel Conducting Release Assessments

The individual or entity conducting the release assessment must be an environmental professional as defined in the I-Rule. Release assessments conducted inadequately or by unqualified personnel will be returned, and further assessment will be required.

Federal OSHA requirements in 29 CFR 1910.120 mandate that any employee working in a hazardous environment, including petroleum contamination must have proper training. This training is the employer's responsibility and is required to conduct UST closure release assessments.

B. Site Characteristics and Contaminant Investigation Results

One of the most important steps in the release assessment process involves looking for contaminants where they are most likely to be encountered. Some of the most common areas to find contamination from a UST system include but are not limited to the following: around the fill pipe, along and below the piping trench,

underneath the dispensers, and within the tank excavation itself. The release assessment shall include the following:

1. Any unusual site conditions,
2. Any unusual conditions observed downgradient of the tank site,
3. Leak detection records as appropriate,
4. Inventory records (including water pump outs) if relevant,
5. Other unusual operating conditions as described in § 8-103(b)(4),
6. Any complaints or reports from neighbors or employees,
7. On-site weather conditions during the tank closure and release assessment,
8. A brief analysis of surrounding land uses,
9. Identification of any particularly vulnerable buildings such as hospitals, nursing homes, schools, day care centers, along with their respective populations,
10. A description of the site geology and hydrology based on observations during tank closure, which may include some, if not all, of the following:
 - a. Soil technical data using the unified Soil Classification System (SCS) or AASTHO (American Association of State Transportation and Highway Officials) classification (type, thickness, texture),
 - b. Hydrogeology (depth to water table, presumed groundwater flow direction, etc.),
 - c. Strata (different layers of sand, gravel, silts, clays, etc. should be identified),
 - d. Bedrock (**if encountered** - description, location, characteristics, etc.).
11. The degree and extent of any petroleum contamination should be identified within the area of disturbance created by the UST closure activity. This generally will include extensive field measurements with a PID or equivalent. Field readings are expected to be collected throughout the entire excavation, taken at multiple depths as well as throughout the area laterally. It is strongly suggested that a soil test pit is advanced within the tank excavation to a depth several feet below the bottom of the tank to evaluate the extent of release impacts to soil and potentially groundwater. If appropriate, the following information must also be included:
 - a. Test pit and boring log data (description, methods and results),
 - b. Depths to bedrock and groundwater (if encountered),
 - c. Field observations (odor, seeps in banks, sheens on surface water, vapors in basements etc.),
 - d. Sampling of nearby/onsite public or private water supplies and analytical results,
 - e. Free product thickness (if any).

C. Preliminary Sensitive Receptor Analysis

The release assessment must include an analysis of possible sensitive receptors of petroleum contamination. A sensitive receptor means any natural or human-constructed feature that could be adversely affected by petroleum vapors or liquid product. Examples include public health, public and private water supplies, indoor air and enclosed spaces such as basements, sewers (and other utilities), groundwater, surface waters, wetlands, and sensitive ecological areas. This preliminary assessment should identify area sensitive receptors and highlight those that may be at risk from the identified contamination. A more thorough and complete analysis of all potential sensitive receptors may be required as part of additional site investigation conducted in accordance with either Subchapter 3 or Subchapter 5 of the I-Rule. The DEC carefully considers sensitive receptors and contaminant information when determining what level of additional investigation and remedial activity is warranted.

This preliminary analysis will include PID screening of indoor air of buildings and subsurface utilities and inspections of surface waters and wetlands for any evidence of contamination, e.g., sheens or petroleum odors from seeps or disturbed sediments when warranted by site conditions.

D. Sampling, Analytical Methods and Results

When samples are collected for laboratory analysis, the following documentation must be provided:

1. Environmental media sampled, and analytical test performed on that sample.
2. Sampling method. The DEC requires discrete samples and will not accept the results of composite soil samples analyzed for volatile organic compounds (VOCs).
3. Results, if available. If results are not included in the report, indicate when they are expected to be submitted.

Whenever contaminated soils are encountered, soil samples must be collected for both PID screening and confirmatory laboratory analysis to document remaining levels of soil contamination or to demonstrate effective contaminated soil removal. When contaminated soil is either backfilled or the removal of a limited volume of contaminated soil is approved by WMPD, discrete samples for laboratory analysis must be collected from soils exhibiting the highest PID readings. When a PID is being used to screen soil samples for VOCs, the same aliquot of soil that is agitated and screened CANNOT be reused for laboratory analysis. In cases where soil excavation is conducted as a remedial measure, laboratory samples are required to confirm that all the contamination has been removed, and that no further investigation (such as groundwater monitoring wells) is needed. If groundwater is encountered, it should be noted whether there is the presence of sheen, product globules or other evidence of contamination and consideration should be given for collecting a grab sample for laboratory analysis. For kerosene, #2 fuel oil and gasoline, laboratory analysis for VOCs by gas chromatograph / mass spectrometry methodology (e.g., EPA Method 8021 (Vermont Petroleum List)).

Confirmatory laboratory soil samples are required from the excavation of any UST that contained heavy fuel oil or used oil even if there is no visual or olfactory evidence of a release. For #4 and #6 fuel oils, laboratory analysis for VOCs by gas chromatograph / mass spectrometry methodology (e.g., EPA Method 8021 (Vermont Petroleum List)). For used oil, in addition to the full VOC list (EPA Method 8260), laboratory analysis for RCRA 8 total metals, PCBs, Cyanides, and semi volatile organic compounds (SVOCs) by gas chromatograph / mass spectrometry methodology (e.g., EPA Method 8270) must be performed on a minimum of two (2) samples per UST excavation.

The UST program understands that analytical results are on occasion not available within 30 days of the tank closure. Unless extreme circumstances warrant expedited analysis and reporting procedures, it is acceptable for laboratory results to be sent in after the UST closure form and release assessment report are submitted to the UST program. In this case it should be stated in the UST Closure and Release Assessment Report that laboratory results will be provided when available.

E. Conclusions and Recommendations

If a release of hazardous material to the environment was identified during tank closure, the release assessment report must include conclusions and recommendations including, but not limited to the following:

1. What was the most likely source of the release?
2. What risk does the contamination pose to human health and the environment?
3. What further work is needed to better characterize the contamination?
4. The most likely source of the release: spills and overfills, piping leaks, tank failure or any other factor that may have contributed to release. The UST program is tracking the frequency of UST system releases, and which components of the system fail most often. It is helpful to have a consultant's professional opinion on what caused the release.

The most important conclusion and recommendation is whether the site needs further investigation and/or remedial action. If so, explain which further steps are warranted and why. Any affected or threatened receptors must be clearly identified.

F. Quality Assurance/Quality Control

All monitoring equipment, which is used during the tank closure and release assessment, should be appropriate for that type of use and must be properly maintained and calibrated. For gasoline, kerosene, diesel fuel, and #2 fuel oil, the DEC requires the use of a PID or equivalent for screening soil contamination levels. Other instruments or measurement methods must have prior approval from the DEC. PID measurements are useful, but by themselves are insufficient for assessments where USTs contained heavy fuel oils and/or waste oil. For waste oil and heavy fuel oils, laboratory analysis of representative and discrete soil samples is always necessary, since PIDs often will not respond predictably to these contaminants.

One of the most important requirements of a release assessment is the quality control/quality assurance program. This ensures that accurate and reliable information is collected so that a proper assessment of the site can be made. All field measurement instruments must be properly calibrated prior to each day's use. A log should be kept to document calibrations performed. This information must be provided upon DEC request to validate field measurements and report conclusions. Any samples collected for laboratory analysis must follow state or federal protocols. The sampling and analysis methods, plans, and protocols must be provided upon DEC request. All sampling for laboratory analysis must have proper QA/QC samples, including field or trip blanks and duplicate samples.

IV. Procedure for In-Place Closure of Underground Storage Tanks and Performing a Release Assessment

In-place closure of an underground tank must be preapproved by the UST Program. In cases where a tank is to be closed in-place, excavation to access the top of the tank is still necessary. Closing a tank in-place can be more complicated (both physically and in terms of cost) than removing a tank from the ground since extra steps are involved, and additional worker safety requirements must be followed. Also, the provisions of Section III. "Guidelines for Performing a Release Assessment During a Petroleum UST Closure" still generally apply subject to the additional guidance below. For example, confirmatory soil sampling for laboratory analysis must still adhere to the guidance above.

The DEC will allow in-place closure to be utilized under certain conditions. However, the in-place closure process does not release tank owners from the responsibility for conducting a release assessment and dealing appropriately with any observed contamination. If contamination is found the State may require the responsible party to retain an environmental professional to conduct further investigation.

It may be prudent to discuss the plan for conducting a release assessment with the WMPD prior to initiating closure-in-place activities. The conditions that necessitate in-place closure may also have a significant impact on the approach to performing a release assessment and/or additional site investigation. In some instances, it may be favorable to conduct the release assessment through soil excavation or advancing soil borings in the vicinity of the closed-in-place tank in lieu of coring or drilling through the tank bottom.

If borings beneath the bottom of the UST can be advanced and demonstrate significant contaminant reduction with depth (or more ideally confirm conditions at or near groundwater), soil excavation or boring advancement in the vicinity of the UST may not be necessary depending on the contaminant concentrations. Whichever release assessment method is used must demonstrate whether impacts reach the groundwater table.

The following guidelines have been prepared to assist in meeting the in-place closure requirements:

1. The tank owner shall comply with sections II (B) [Notification]; (C) [Residual liquid and waste management]; and (D) [Non-explosive].
2. After the tank has been properly cleaned, holes will be drilled through the tank sidewalls, end-walls, and bottom so that soil samples can be collected without excavating around the tank. This method is usually suitable only in cases where excavation beside the tank is impractical. The environmental professional conducting the release assessment is responsible for complying with all applicable health and safety rules, including confined space entry procedures.
3. Additional assessment and subsurface soil sampling can be performed by excavating adjacent to the UST to at least two feet below the base of the tank if doing so is likely to provide further confirmation of degree and extent of contamination from the tank.
4. If coring through the tank walls or excavation next to the tank is infeasible, the UST Program may authorize another method of assessing the potential for a release including but not limited to soil borings.
5. Once the tank's interior is clean and samples have been collected, the tank can be filled with an inert material (such as sand or concrete slurry) until all voids are filled.
6. If piping is to be removed it should be disposed of appropriately. If piping will remain in the ground, it must be drained, purged, and permanently sealed as described in Section II(C)(2) on page 2; and
7. The provisions of section II (H) [Closure reporting and release assessment] and (B) [release reporting] apply to tanks closed in-place.

V. Guidelines for Performing a Release Assessment During Replacement of UST System Components

During repair/replacement of UST system components such as secondary containment sumps or spill containment devices (i.e. spill buckets), if evidence of a release is discovered the condition must be immediately reported per 10 V.S.A. § 6617, § 8-103(b) and § 35-102(b) (see Section II. B. 2. above) and a limited assessment performed as directed by the Spill Program or Site Management Section.

If there is evidence of a release found during replacement or repair of a UST system component:

1. Upon WMPD approval to exhume contaminated soil, determine if all contaminated material can be removed to less than 20 ppm by PID for gasoline or less than 10 ppm for diesel or fuel oil. Temporarily place soil in containers or on and covered by 6-mil polyethylene sheeting during this

work until a determination is made regarding final disposition for the soil based upon waste characterization.

2. If all impacted soil cannot be removed down to acceptable PID levels through the exposed area in the ground surface due to access limitations, all excavated soils should be backfilled into the excavation.
3. If contaminated soil and/or groundwater is encountered, prior to backfilling with excavated soil or clean backfill a discrete soil sample should be collected from the area of highest residual contamination (as determined by PID screening results of soil samples) in the excavation. A second discrete soil sample should be collected from the deepest soil depth assessed if this is not also the location of highest residual contamination. Soil samples collected should be analyzed for VOCs by EPA Method 8021 (Vermont Petroleum List).

Any soil temporarily containerized or stockpiled on and covered by 6-mil polyethylene sheeting during the above work should either be backfilled into the excavation or shipped for disposal based on this guidance after receiving written approval from the WMPD.