pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

TECHNICAL DOCUMENT

CLOSURE REQUIREMENTS
FOR UNDERGROUND STORAGE TANK SYSTEMS

Technical Guidance Number
263-4500-601

STORAGE TANK PROGRAM

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Environmental Cleanup and Brownfields

DOCUMENT NUMBER: 263-4500-601

TITLE: Closure Requirements for Underground Storage Tank Systems

EFFECTIVE DATE: July 8, 2017

AUTHORITY: The Storage Tank and Spill Prevention Act (Act 32 of 1989, as amended, P.L. 169). 25 Pa. Code, Sections 245.451-455.

POLICY: It is the policy of the Department of Environmental Protection (Department or DEP) to carry out the provisions of the Storage Tank and Spill Prevention Act.

PURPOSE: The purpose of the attached guidance is the establishment of minimum standards that must be met in order to comply with the closure requirements for regulated underground storage tanks. These procedures include closure notification, tank handling, waste management and disposal, site assessment, sampling requirements, analytical requirements, release reporting and record keeping.

APPLICABILITY: The attached guidance applies to the closure of all regulated underground storage tanks.

DISCLAIMER: The policies and procedures outlined in this guidance are intended to supplement existing requirements. Nothing in the policies or procedures shall affect regulatory requirements.

The policies and procedures herein are not an adjudication or a regulation. There is no intent on the part of the DEP to give the rules in these policies that weight or deference. This document establishes the framework within which the DEP will exercise its administrative discretion in the future. The DEP reserves the discretion to deviate from this policy statement if circumstances warrant.

PAGE LENGTH: 37 pages

DEFINITIONS: Definitions for pertinent terms used in the guidance may be found in the Storage Tank and Spill Prevention Act and/or Pa. Code § 245.1.

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I. INTRODUCTION

On August 5, 1989, the state Storage Tank and Spill Prevention Act (Act 32) became effective in Pennsylvania. This act provides authority for the DEP to develop regulations establishing the: 1) requirements for closure of underground storage tank (UST) systems by owners and operators to prevent future releases of regulated substances into the environment; 2) standards and procedures for removal and intended and completed closure of UST systems; 3) methods and procedures for the removal of USTs from service by the owner and operator; and 4) requirements for reporting by the owner or operator of intended and completed closure of any UST facilities.

The principal objectives of the UST closure requirements in Subchapter E are to identify and contain existing contamination and to prevent future releases from UST systems no longer in service. Copies of the storage tank regulations (25 Pa. Code Chapter 245) may be obtained at http://www.pacode.com. This guidance sets forth the procedures for complying with the closure requirements for regulated USTs.

The DEP also has authority under the state Solid Waste Management Act of July 7, 1980, to regulate the storage, collection, transportation, processing, treatment, and disposal of waste in Pennsylvania. There are separate regulations for the management of municipal, residual, and hazardous waste. The DEP has authorization from the U.S. Environmental Protection Agency (EPA) to manage hazardous waste under the federal Resource Conservation Recovery Act (RCRA) in Pennsylvania. On May 1, 1999, the DEP incorporated most of the federal hazardous waste regulations (40 CFR Parts 260-273) by reference. References to 25 Pa. Code Chapters 260a-270a in this document refer to portions of the Pennsylvania hazardous waste regulations that differ from the federal regulations under 40 CFR Parts 260-273.

The Pennsylvania hazardous waste regulations may be found in 25 Pa. Code Chapters 260a, 270a, and 298 at http://www.pacode.com.

The Pennsylvania Department of Labor and Industry (L&I) also has the responsibility for enforcing its permitting regulations for storage tanks containing flammable and combustible liquids. The primary intent of these regulations is to prevent fire and explosion hazards. Permits must be obtained to install, replace or relocate a tank, pump or drawing-off device. These regulations are contained in 34 Pa. Code Chapters 14 and 14a. Copies of L&I's regulations may be obtained by visiting the L&I web page at http://www.dli.pa.gov. The regulations apply throughout Pennsylvania with the exception of Philadelphia and Allegheny Counties, which administer their own programs. In Philadelphia, contact the City of Philadelphia, Licenses and Inspections, 1401 John F. Kennedy Boulevard, Concourse Level, Philadelphia, PA 19102, email license.issuance@phila.gov. In Allegheny County, contact the Office of the Fire Marshal, Allegheny County, 400 North Lexington Street, Pittsburgh, PA 15208, telephone 412-473-2552. For UST systems in the City of Pittsburgh, contact the Bureau of Fire Headquarters, 200 Ross Street, 5th Floor, Pittsburgh, PA 15219, telephone 412-255-2860.

The purpose of this document is to indicate what the DEP considers to be good practice for any person who is involved in the closure of regulated USTs. The DEP believes that adhering to this guidance will result in compliance with applicable federal and state laws and regulations.

This guidance is not intended to address every closure situation. While this document is intended to acquaint regulated persons with good practices, it may not address all actions that the

DEP may determine are necessary at an individual site. Different or supplemental actions may be required in any individual case to achieve compliance with the applicable laws and regulations. Discuss variations for site-specific conditions with the appropriate DEP regional office. The contact telephone numbers for each region can be found in DEP Booklet 2630-BK-DEP4699, "Site Assessment Sampling Requirements at Regulated Storage Tank System Closures."

This guidance focuses on the proper procedures for UST system closures, along with the observations and measurements necessary to determine if a storage tank site may be closed or is subject to corrective action. This guidance does not address the corrective action requirements in any detail. This guidance document revises the "Closure Requirements for Underground Storage Tank Systems," document issued by the DEP that had an effective date of December 15, 2012.

II. APPLICABILITY

This guidance applies to all regulated UST systems (including piping and/or ancillary equipment) when:

1. A regulated UST system is being permanently closed by removal, closure-in-place or completing a change-in-service.

2. A regulated UST system is being temporarily closed (Section V only).

3. A regulated UST system was permanently closed before December 22, 1988, and the DEP has reason to believe that the UST system poses a current or potential threat to human health and the environment.

4. A regulated UST system is being partially closed – these are closures of portions of regulated underground storage tank systems such as piping and/or dispensers, but do not include closure of other portions such as the tank.

III. METHODS OF CLOSURE

A. Temporary Closure

Placing a UST system out-of-service for a limited period of time. This method may be used when a UST system is emptied and is intended to return to operational service with a regulated substance after a limited period of time, not to exceed three years, unless the Department grants an extension.

B. Permanent Closure

1. Removal – Placing a UST system or portion thereof permanently out-of-service by removing it from the ground.

2. Closure-in-Place – Placing a UST system permanently out-of-service by filling the tank with an inert, solid, non-shrinking material. Foam is not an acceptable material unless approved by L&I. Note that local regulations or zoning

ordinances may prohibit closures-in-place or the use of certain types of materials for closures-in-place.

3. Change-in-Service – Placing a UST system out-of-service by changing the substance stored in the tank from a regulated substance to an unregulated substance or using the tank in a manner that results in the tank no longer being regulated.

IV. ELEMENTS OF CLOSURE

Closure may involve three specific types of activities:

A. Tank Handling Activities

Tank handling activities during closure may involve such tasks as hazard recognition and abatement; removal and handling of vapors, product, wastewaters, and accumulated sludges from the UST system; overseeing cleaning of the UST system; leaving the UST system in the ground and filling the UST with an inert, solid, non-shrinking material; removing the UST system from the ground; excavating soil from around the UST system; and initial, on-site staging of excavated soil and debris.

Tank handling activities must be conducted or directly supervised by a DEP-certified installer (which includes remover) who must be on-site during the tank handling activities. The certified installer must have certification in the appropriate category to conduct the activities. A searchable list of DEP-certified tank handling companies is available on the DEP's website, http://www.dep.pa.gov/, Businesses > Land > Storage Tanks.

B. Waste Management and Disposal Activities

Various wastes are generated during closure. It is the responsibility of the tank owner to ensure that these wastes are managed and disposed of in accordance with all applicable regulations and policy. (See Section VI.B.)

C. Site Assessment Activities

The purpose of a site assessment is to determine if contamination is present at a storage tank facility as a result of any leaks and/or spills which may have occurred during the operation of a storage tank system.

The DEP does not certify, nor recommend, specific individuals or companies to perform site assessments. It is highly recommended that the owner or operator acquire the services of qualified and experienced professionals in the environmental field to conduct the site assessment. Any person conducting the site assessment should be familiar with proper soil and water sampling and handling procedures. Because many site assessments result in the need for corrective action, it may be advantageous to hire professionals who are capable of proceeding with any necessary corrective action.

V. TEMPORARY CLOSURE

A. When a UST system is temporarily closed, owners and operators must:

- Continue operation and maintenance of any release detection until the UST system is empty. A UST system is required to be emptied within 30 days of being placed temporarily out-of-service. A UST system is empty when the lines are drained, and all materials have been removed using commonly employed practices so that no more than one inch (2.5 centimeters) of residue, or 0.3 percent by weight of the total capacity of the UST system, remain in the UST system;

- Continue operation and maintenance of corrosion protection;

- Continue having Facility Operations Inspections of the UST system according to the scheduled due dates;

- Within 30 days of placing a UST system temporarily out-of-service, submit an amended "Storage Tanks Registration/Permitting Application Form" (2630-PM-BECB0514) or "Storage Tank Registration Amendment Form" (2630-FM-BECB0607), along with documentation that the UST system is empty, to the Bureau of Environmental Cleanup and Brownfields, Division of Storage Tanks, P.O. Box 8762, Harrisburg, PA 17105-8762, indicating that the UST(s) has/have changed status from currently in-use to temporarily out-of-service;

- Where there is an indication of a release of regulated substances, initiate and complete an investigation as soon as practicable, but no later than seven calendar days, after the indication of a release, in accordance with 25 Pa. Code § 245.304 (*relating to investigation of suspected releases*); and

- Notify the appropriate DEP regional office as soon as practicable, but no later than 24 hours, after the confirmation of a reportable release, in accordance with 25 Pa. Code § 245.305 (*relating to reporting releases*), and immediately initiate corrective action. The appropriate release reporting telephone number(s) for each region can be found in DEP Booklet 2630-BK-DEP4699.

B. When a UST system is temporarily closed for three months or more, owners and operators must also:

- Leave vent lines open and functioning; and

- Cap and secure all other lines, pumps, manways and ancillary equipment.

C. When a UST system is temporarily closed for more than 12 months, owners and operators must:

- Permanently close the UST system if it does not meet either performance standards for new USTs or the upgrade requirements for existing USTs, unless the DEP approves an extension of the 12-month temporary closure period. Owners

and operators must complete a site assessment in accordance with Section VI.C. of this document before requesting such an extension. Extension requests must be submitted in writing to the appropriate DEP regional office.

- UST systems that meet performance standards for new USTs or the upgrade requirements for existing USTs must be permanently closed within 3 years of being placed temporarily out-of-service unless the Department grants an extension.

VI. PERMANENT CLOSURE

A. Planning for Permanent Closure

A "Planning for Permanent Closure Checklist" (2630-FM-BECB0126) can be found on the DEP website. This checklist is intended to assist the owner and operator in the closure planning process.

When the owner and operator intend to permanently close a UST system, the following pre-closure planning steps should be taken:

1. If the UST(s) are required to be registered and they are not, submit a "Storage Tanks Registration/Permitting Application Form," registering the tank(s) to be closed as temporarily out-of-service. On the form, complete information for all regulated storage tanks at the facility, including those to be permanently closed. An invoice for registration fees will then be generated by the DEP.

2. Contact the Underground Storage Tank Indemnification Fund (USTIF) to ensure that the Facility has current coverage under USTIF by calling 717-787-0763 or 1-800-595-9887.

3. Hire a DEP-certified installer who has UMR certification to conduct tank handling activities.

4. Ensure that the certified installer and any subcontractors have:

   a. A Site-Specific Health and Safety Plan which includes:

      (1) Familiarity with and adherence to all applicable Occupational Health and Safety Administration (OSHA) and National Institute for Occupational Safety and Health (NIOSH) regulations and recommendations.

      A complete discussion of OSHA and NIOSH requirements that may be applicable to closure activities is beyond the scope of this guidance; however, the following closure procedures may be relevant:

      - OSHA 2226 – Excavations

- OSHA, 29 CFR Part 1926, Occupational Safety and Health Standards – Excavations
- OSHA, 29 CFR Part 1910, Occupational Safety and Health Standards
- The NIOSH "Criteria for a Recommended Standard*** Working in Confined Space" may be used as guidance for conducting safe closure procedures at some hazardous substance tanks.

(2) Locating underground utilities prior to excavation or drilling. Prior to beginning any excavation or drilling activities, the person conducting the closure should be familiar with the location of buried utilities as well as other tanks and piping that may be present at the facility. The Underground Utility Line Protection Law (Act 172 of 1986) requires that anyone planning excavations or borings call Pennsylvania ONE-CALL at 1-800-242-1776 at least three, but not more than ten business days, prior to conducting excavation or drilling activities. Once notified, if there are public utilities in the area of the planned excavation or drilling activity, the utilities will mark their lines.

(3) Procedures or provisions to avoid contact with overhead utility lines by heavy equipment.

(4) Restricting site access from vehicular or pedestrian traffic by utilizing fencing, similar barriers, security patrols or warning signs.

(5) Monitoring for and mitigating flammable vapors.

(6) Elimination of ignition sources by not smoking and utilizing hand tools (shovels, wrenches, hammers) made of spark-proof materials such as beryllium, explosion-proof power tools and intrinsically safe flashlights.

(7) The availability of a fire extinguisher at the job site capable of extinguishing all types of fires.

(8) The provision for the wearing of appropriate personal protective equipment and clothing that does not readily conduct static electricity.

(9) Procedures for addressing emergency situations such as fire or explosion, injury, exposure to hazardous substances and environmental incidents. Include a map showing directions to the nearest hospital as well as emergency telephone numbers.

b. Made provisions for Tank Cleaning and Waste Handling that include:

(1) A plan for containing small spills from disconnecting piping.

(2) A method for purging or inerting the tank and maintaining vapors at safe levels.

(3) A method for cleaning the tank if performed on-site.

(4) A plan for the handling of tank liquids and sludges.

(5) A process to excavate, identify and properly stockpile uncontaminated and contaminated soil and debris.

(6) A plan for tank system removal.

5. Make sure that any person conducting the Waste Management and Disposal activities has:

a. If the tank is to be cleaned off-site, a plan for transporting the tank to a permitted processing, treatment, storage or disposal facility, and complying with PennDOT regulations.

b. A plan for the management and disposal of tank liquids and sludges.

c. A plan for transportation of the cleaned tank after removal and the disposition of the tank.

d. A plan to remediate and/or dispose of contaminated soil and debris.

6. Determine who is going to conduct the site assessment.

7. Make sure that any person conducting the site assessment has a Site Assessment Plan which includes:

a. Visual assessment procedures.

b. Field test and field instrument procedures.

c. Sample collection procedures and sample preservation methods, including chain-of-custody procedures and documentation.

d. Decontamination procedures to be used on sampling and drilling equipment.

8. At least 30 days prior to initiating permanent closure of a regulated UST system, notify the DEP of the intent to permanently close the UST system by completing and submitting the "Underground Storage Tank System Closure Notification Form" (2630-FM-BECB0127). A copy of this form must also be sent to L&I,

Flammable and Combustible Liquids Section, or to the appropriate agency in Philadelphia or Allegheny County, if the tank is governed by their flammable and combustible liquid regulations.

9. Identify and comply with any local ordinances governing UST system closures.

10. Submit a completed "Storage Tanks Registration/Permitting Application Form," signed by the DEP-certified installer who permanently closed the UST system(s), to the DEP within 30 days after completion of permanent closure of the UST(s).

B. Tank Handling/Waste Management and Disposal Activities

Where practicable, the DEP recommends that UST systems be removed from the ground rather than closed-in-place. The DEP recognizes, however, that closure-in-place may be necessary where a UST system is under a permanent structure and removal would damage that structure. Certified installers and tank owners and operators should refer to the following tank handling procedures when permanently closing a UST system:

- American Petroleum Institute Recommended Practice 1604, "Removal and Disposal of Used Underground Petroleum Storage Tanks"

- American Petroleum Institute Publication 2015, "Cleaning Petroleum Storage Tanks"

These publications are available from the American Petroleum Institute (API), 1220 L Street, Northwest, Washington, DC 20005, by telephone at 202-682-8000 or on the web at http://www.api.org.

In addition to the API publications, certified installers and tank owners and operators should be aware of the following:

1. Soil Excavation

If a UST system is being permanently closed by removal from the ground, the certified installer should initially excavate only that amount of soil and backfill material necessary to remove the tank and piping. Once the tank system is removed from the ground, removal of any soil beyond three feet from the tank and piping in any direction will be considered remedial activity and will not require the use of a certified installer.

Excavated soils must be segregated (i.e. obviously contaminated, not suspected to be contaminated). This may be accomplished by visual observation and by field screening the soils and other earthen materials as they are excavated through the use of field instruments such as photoionization detectors, flame ionization detectors, portable gas chromatographs and other appropriate field measurement procedures. Segregation of soils and other earthen materials during excavation will facilitate laboratory testing, treatment and disposal. **Note: Where soil has been segregated into presumably contaminated and uncontaminated piles, the soil which is presumably uncontaminated must be sampled prior to reuse**

on-site in order to confirm that it is uncontaminated. See Section VI.C.1.b.(5), "Soil Pile Sampling." It is also recommended that excavated soils be segregated from concrete, asphalt material and other debris. See Section VI.B.3. "On-Site Storage of Contaminated Soil."

2. Classification of Wastes

The wastes associated with the permanent closure of UST systems will likely include residual and hazardous wastes. Wastes may include the tank itself, along with any associated piping, unusable product, sludges and sediments, condensation water, wastewater associated with cleaning the tank, and contaminated soil or earthen materials removed or excavated.

A classification of these wastes as residual or hazardous should be made based on the following:

a. Tank, Piping and Contents

Emptied and Cleaned - A storage tank is considered "empty" when no more than one inch (2.5 centimeters) or 0.3 percent by weight of its total capacity (whichever is less) of residue remains in the tank. A tank and piping is considered "cleaned" when all remaining residue has been removed using applicable industry standards to clean that portion of the storage tank system. A tank and associated piping that has been emptied and cleaned and is recycled as scrap metal is specifically excluded from being a hazardous waste under RCRA, 40 CFR § 261.4(a)(13) (*relating to excluded scrap metal*) or 40 CFR § 261.6(a)(3)(ii) (*relating to requirements for recyclable materials*). If used directly in the manufacturing of steel or another product, it would not be considered a waste in Pennsylvania; however, if the tank or piping is first processed, it is considered a residual waste. An emptied and cleaned tank or associated piping that will not be recycled or reused, but is destined for disposal in a landfill, is regulated as a residual waste.

Emptied but not Cleaned - A petroleum storage tank, which meets the above definition of "empty," but has not been cleaned, may be excluded as a hazardous waste under 40 CFR § 261.7(a)(1) (*relating to residues of hazardous waste in empty containers*). If excluded as a hazardous waste, the tank and contents are a residual waste. Most petroleum storage tanks, with the exception of those containing gasoline residues, fall into the category of petroleum-contaminated media and debris and are excluded as hazardous waste and regulated as a residual waste.

In the case of a tank which stored a hazardous substance, including petroleum products that fail the test for any characteristic or that would otherwise be hazardous (see 40 CFR Part 261 Subpart B (*relating to criteria for identifying the characteristics of hazardous waste and for listing of hazardous waste*)), the tank contents are <u>not</u> subject to regulation as a hazardous waste until the waste exits the tank in which it was

generated, or remains in the tank for a period of more than 90 days after the tank ceased to be operated as a storage tank (see 40 CFR 261.4(c)).

Not Empty - A petroleum or hazardous substance storage tank and its contents are not subject to regulation as a hazardous waste for a period of 90 days after closure or until the waste exits the storage tank, whichever comes first (40 CFR 261.4(c)). The classification of the contents upon exit from the tank or after 90 days has elapsed is dependent on the results of a hazardous waste determination provided the contents are not usable product. When it has not been determined if a material is a hazardous waste, the material must be managed as a hazardous waste until a determination is made which indicates it is not a hazardous waste (25 Pa. Code § 261a.3(b)).

b. Unusable product, sludges and sediments, tank bottoms and wastewater - These wastes from inside the storage tank are hazardous if they meet any of the hazardous waste criteria in 40 CFR Part 261 Subpart B. If the tank contained gasoline, it should be assumed that the wastes are hazardous. If the wastes are determined to be non-hazardous, they are subject to regulation as residual waste.

c. Contaminated Soil - Contaminated soil associated with a UST is regulated as hazardous waste if it meets the hazardous waste criteria in 40 CFR Part 261 Subpart B. Soils contaminated with products that appear on the hazardous waste lists of commercial chemical products are subject to regulation as hazardous waste. Contaminated media and debris from a UST should be managed as hazardous waste until a determination is made that it is non-hazardous (25 Pa. Code § 261a. 3(b)). Petroleum-contaminated media and debris, including soil, may be excluded from the definition of hazardous waste provided they meet certain criteria in 40 CFR Part 261 Subpart B and are subject to the corrective action requirements in 40 CFR Part 280 (*relating to technical standards and corrective action requirements for owners and operators of underground storage tanks*). Non-hazardous media and debris should be managed as residual waste.

d. Recovered or reclaimed product - Any virgin product recovered directly from the tank, if used, is considered a product and is not regulated as a waste. In addition, material reclaimed from tank bottoms may not be regulated as hazardous if it is reclaimed in accordance with 40 CFR 261.2(c)(2)(ii). This would apply to a tank that contained a fuel and the material reclaimed from the tank bottom is used as a fuel.

3. On-site Storage of Contaminated Soil

Contaminated soils removed from the excavation during a tank removal that are residual waste must be stored in accordance with applicable sections of 25 Pa. Code §§ 299.101-299.154 *(relating to standards for storage of residual waste*). In addition to the general requirements set forth in the residual waste management

regulations, 25 Pa. Code § 245.308(d) (*relating to on-site storage of contaminated soil*) requires that contaminated soil piles be completely and securely covered for the duration of the storage period with an impermeable material of sufficient strength, thickness, anchoring or weighting to prevent tearing or lifting of the cover, infiltration of precipitation or surface water run-on, and exposure of the soil to the atmosphere. In addition to the nuisance control requirements set forth in 25 Pa. Code § 299.115(b), 25 Pa. Code § 245.308(d) also requires that appropriate steps be taken to deter public access to the storage area. This may include fencing, similar barriers, security patrols or warning signs.

Where excavated contaminated soil is stored on-site, 25 Pa. Code § 245.308(c) requires that the excavated soil be disposed of, or active treatment of the excavated soil be initiated, within 90 days from the first day of storage, unless extended in writing by the DEP. Extension requests must be submitted in writing to the appropriate DEP regional office. The DEP may require immediate removal of contaminated soil if the soil is not being properly stored or managed or if the DEP determines that storage poses a threat to human health, safety or the environment. 25 Pa. Code § 245.308(e).

Contaminated soils that are hazardous waste must be stored in accordance with 25 Pa. Code § 262a.34 (*relating to accumulation time*). Hazardous waste cannot be stored for more than 90 days without a permit from the DEP's Bureau of Waste Management. Extensions under 25 Pa. Code § 245.308(c) do not apply to hazardous waste.

4. Tank Cleaning

USTs may be cleaned at the closure site or moved to another location for cleaning; however, the DEP recommends that USTs be cleaned prior to removal from the excavation to eliminate the potential for releases. In either case, the tank owner is considered the generator of the wastes. If the wastes are hazardous, the owner must obtain a provisional generator I.D. number from the DEP's Division of Reporting and Fee Collection, Bureau of Waste Management, by calling 717-783-9258. If the USTs are cleaned at the closure site, use extreme care to safely and properly purge the USTs of explosive vapors prior to accessing the USTs for cleaning. If the USTs are to be moved to another location for cleaning, see the waste transportation requirements in Section VI.B.6., below.

5. Tank Removal

When a tank is to be removed from the ground, provisions should be made to safely lift it out of the excavation. One of the major dangers in tank removals is when the lifting chain is not properly attached to the tank and the chain snaps back under tension. The lifting chain should be attached to an existing lifting lug on the tank or a lifting plug (a threaded plug with an attached lifting lug) screwed into a center tank opening. It is also important that the equipment used to remove the tank has sufficient lifting capacity to safely remove the tank. For example, a small backhoe could be damaged or tipped over while attempting to remove a large tank.

6. Waste Transportation Requirements

The wastes associated with the permanent closure of UST systems must be transported as follows:

a. Tank, Piping and Contents

Emptied and Cleaned - A UST and associated piping that is emptied and cleaned on-site may be considered scrap metal. If it is to be recycled or reused, it is not subject to hazardous or residual waste management transportation regulations. If it is destined for disposal in a landfill, it is subject to the residual waste transportation requirements of 25 Pa. Code §§ 299.201-299.220 (*relating to standards for collecting and transporting of residual waste*).

Emptied but not Cleaned - A petroleum product UST which is empty (contains no more than one inch (2.5 centimeters) or 0.3 percent by weight of its total capacity, whichever is less), but has not been cleaned, is exempt from the DEP's hazardous waste transportation requirements. Residual waste transportation requirements as provided by 25 Pa. Code §§ 299.201-299.220 apply.

In the case of a tank which stored a substance, including a petroleum product, that exhibits any characteristic of a hazardous waste (40 CFR 261 Subpart B), the tank contents are <u>not</u> subject to regulation as a hazardous waste until the waste exits the tank in which it was generated, or remains in the tank for a period of more than 90 days after the tank ceased to be operated as a storage tank (40 CFR 261(c)). Until 90 days has elapsed, the residual waste transportation requirements apply if the tank is to be transported. After 90 days, the hazardous waste transportation regulations apply.

Not Empty - Any regulated storage tank containing more than one inch (2.5 centimeters) or more than 0.3 percent by weight of residue of its total capacity (whichever is less) may be transported according to the residual waste regulations for a period of up to 90 days. After 90 days, the hazardous waste regulations apply unless the residue contained in the tank is determined to be non-hazardous.

The Pennsylvania Department of Transportation (PennDOT) does have two additional requirements which tend to override the DEP's regulations for transporting tanks that have not been thoroughly emptied and cleaned. These requirements are:

- *If a tank stored a flammable liquid such as gasoline, it must be totally emptied, cleaned and purged on-site before being transported over the highway. If such a tank is empty and not cleaned, the tank must be transported in a DOT-approved*

container. Since the transport of an underground storage tank inside another DOT-approved tank is impractical, the impact of this requirement is that tanks which contained flammable liquids must be emptied, cleaned and purged on-site prior to transporting them.

- *If a tank stored a combustible liquid (petroleum products other than gasoline), the tank must be leak-tight. This means that the remaining residue cannot leak out through holes, fittings, etc.*

For additional information pertaining to PennDOT requirements, contact the Pennsylvania State Police, Commercial Vehicle Safety Section, 717-346-7347.

b. Unusable Product, Sludges and Sediments, Tank Bottoms and Wastewater

These wastes, if hazardous wastes, must be transported under manifest by a licensed hazardous waste transporter, upon removal from inside the storage tank. The transporter must comply with 25 Pa. Code, Chapter 263a.

If the wastes are not hazardous wastes, they must be transported as residual wastes in accordance with 25 Pa. Code §§ 299.201-299.220.

c. Contaminated Soil

Petroleum-contaminated soil that is a residual waste must be transported in accordance with 25 Pa. Code §§ 299.201-299.220.

Petroleum-contaminated soil that is determined to be hazardous waste and soils contaminated with products that appear on the hazardous waste lists of commercial chemical products are subject to regulation as hazardous waste and must be transported under manifest by a licensed hazardous waste transporter. The transporter must comply with 25 Pa. Code, Chapter 263a.

d. Recovered or Reclaimed Product

This is considered a product, and no licensed hazardous waste transporter is required. PennDOT regulations still apply.

7. Waste Disposal/Treatment Options

a. Empty Product Tank and Piping

Once properly emptied and cleaned, a storage tank and piping may be recycled. If they are not recycled, these wastes, if hazardous wastes, must be taken to a permitted reclamation facility or permitted hazardous waste

treatment, storage or disposal facility. If non-hazardous, the wastes can be disposed of at a facility permitted to accept the wastes.

b. Unusable Product, Sludges and Sediments, Tank Bottoms and Wastewater

These wastes, if determined to be hazardous, must be taken to a permitted reclamation facility or permitted hazardous waste treatment, storage or disposal facility. These materials may not be hazardous waste if they were originally a fuel and they are reclaimed as a fuel, as defined in 40 CFR § 261.2(c)(2)(ii).

If non-hazardous, the solids can be disposed of at a facility permitted to accept the wastes. Tank bottoms and wastewater can be treated at a facility which is designated to treat tank bottoms and wastewater and has an issued NPDES permit and waste management permit or permit-by-rule which specifies the discharge of treated tank bottoms and wastewater. The product can be separated and recovered with the remaining wastes subjected to additional treatment processes prior to discharge.

It may also be possible to discharge non-hazardous liquids to a permitted sanitary sewer system; however, prior written authorization must be obtained from the receiving sewer authority.

c. Contaminated Soil

Contaminated soil shall be used, treated or disposed of in accordance with the DEP's regulations and policies.

Venting or low-temperature stripping of contaminated soils may not be conducted without the express prior consent of Philadelphia Air Management Services (Philadelphia County), the Allegheny County Health Department (Allegheny County) or the DEP's Bureau of Air Quality (elsewhere in the Commonwealth). In general, such approval will not be granted without the provision of control measures, which are subject to prior review.

Contaminated soil that has been determined to be residual waste may be disposed of at any facility permitted to accept this type of waste under 25 Pa. Code, Chapter 287. Complete Form FC-1 "Notification of Intent to Dispose of Soil Contaminated by Virgin Petroleum Fuel" (2540-PM-BWM0244). Other options include, but are not limited to, low-temperature stripping and bioremediation. The DEP encourages alternatives to landfill disposal; however, prior review is required.

Contaminated soil that has been determined to be hazardous waste must be taken to a permitted reclamation facility or permitted hazardous waste treatment, storage or disposal facility.

8. Release Reporting

An owner or operator must immediately initiate corrective action after a release is confirmed, and notify the appropriate DEP regional office as soon as practicable, but no later than 24 hours after the confirmation of a reportable release, in accordance with 25 Pa. Code § 245.305(a). See DEP Booklet 2630-BK-DEP4699 for the appropriate release reporting telephone numbers. Also, see the Storage Tank Cleanup Program fact sheet "Corrective Action Process Regulations – Release Reporting" (2620-FS-DEP1838A and 2620-FS-DEP1838B). Within 15 days of the telephone notification, the owner or operator must submit a written "Notification of Reportable Release/Notification of Contamination" (2630-FM-BECB0082) form to the appropriate DEP regional office.

In addition, certified installers must report to the DEP a release of regulated substance or confirmed or suspected contamination from regulated tanks observed while performing tank handling activities within 48 hours, using the "Notification of Reportable Release/Notification of Contamination" form. This reporting is required by 25 Pa. Code § 245.132(a)(4) (*relating to standards of performance*).

C. Site Assessment

The purpose of a site assessment is to determine if contamination is present as a result of any leaks and/or spills which may have occurred during the operation of a storage tank system. It is important to remember that the storage tank system includes all underground piping, ancillary equipment, and containment structures. Subsurface piping should be exposed and the trench in which it was laid carefully examined for signs of obvious contamination wherever access to the piping is possible. The storage tank system closure is not complete until a site assessment has been performed.

Note: Any time obvious contamination is observed, the reporting requirements in 25 Pa. Code § 245.305 and Section VI.C. 2., below, must be followed.

Obvious contamination includes, but is not limited to:

- Product-stained or product-saturated soil or backfill,
- Ponded product in the excavation,
- Free product or sheen on the water in the excavation.

Localized contamination is defined as contamination that does not extend more than three feet beyond the tank system in any direction, and does not contaminate water in the excavation to levels which exceed action levels found in 25 Pa. Code, Chapter 250 and DEP Booklet 2630-BK-DEP4699.

Extensive contamination is defined as contamination which extends more than three feet beyond the tank system in any direction, or impacts water in the excavation to levels which exceed action levels found in 25 Pa. Code, Chapter 250 and DEP Booklet 2630-BK-DEP4699.

In certain instances, the owner of a UST system may wish to close only a portion of the system. This "partial" closure of the UST system is a permanent closure and requires a site assessment of the portion(s) of the system that is/are to be closed (e.g. product piping, dispensers, remote fills).

To complete the site assessment for a partial UST system closure, perform the site assessment for the part(s) of the system being closed according to the following sections for closure-by-removal or closure-in-place, depending on the option that is chosen.

Note that closure operations which pull or lift piping out of the ground without excavation are considered closure-in-place for purposes of site assessment, as they do not allow a thorough inspection and visual evaluation of the conditions in the vicinity of the piping.

In cases where the tank is located over a concrete pad, the decision to sample beneath the pad or at the edges of the pad and the specific locations at which to take confirmatory samples is affected by factors such as the areal extent, condition, and thickness of the pad, and whether there is any slope or surface irregularities to the pad that could influence the direction of liquid flow through or off of the pad. Because of the variability of conditions that may be encountered, the appropriate DEP regional office should be contacted for specific requirements when tanks on concrete pads are encountered during removal or closure-in-place. Where tanks are located in bedrock, without immediate access to soil or groundwater, contact the appropriate DEP regional office for specific guidance.

1. Tank System Removal, Closure-in-Place, or Change-in-Service

   The site assessment will be performed during the removal-from-service activities; therefore, the person conducting the site assessment must be present during the excavation of any material necessary to remove the tank system. The recommended site assessment procedures are as follows:

   a. <u>Tank System Removal – Excavate Soil/Backfill</u>

      Begin by excavating only that amount of soil and backfill material necessary to remove the tank system from the ground while observing for evidence of obvious contamination. Once the tank system is removed from the ground, removal of any soil more than three feet beyond the tank system, in any direction, will be considered remedial activity and will not require the use of a certified installer.

      Obviously contaminated soils must be segregated from soils not suspected to be contaminated during excavation. This may be accomplished by visual observation and by field screening the soils as they are excavated using field instruments such as photoionization detectors, flame ionization detectors, portable gas chromatographs and other appropriate field measurement procedures. The document "Field Measurements: Dependable Data When You Need It," (EPA/530/UST 90/003) prepared

for the U.S. Environmental Protection Agency, September 1990, describes a number of analytical field procedures.

Segregation of soils during excavation will facilitate laboratory testing, treatment and disposal. Excavated soils should be segregated from concrete, asphalt material and other debris. Soils should be stored in accordance with Section VI.B.3.

If obvious contamination is observed, the owner or operator must proceed in accordance with Section VI.C.2.a., below.

Also, if obvious contamination is observed and the obviously contaminated soils are not segregated from soils which are not suspected to be contaminated, the excavated soils may not be placed back into the excavation without treatment and/or testing. If the obviously contaminated soils are segregated from soils not suspected to be contaminated, the "presumed uncontaminated" soil pile must be sampled in accordance with Section VI.C.1.b.(5), below, before being placed back into the excavation or reused on-site.

If obvious contamination is not observed, proceed with the confirmatory sampling protocol in Section VI.C.1.b.

Also, if obvious contamination is not observed, the soil pile from the excavation does not have to be sampled if the soil is being reused on-site; however, if confirmatory sampling reveals contamination in soil or water exceeding the DEP's action levels, found in 25 Pa. Code, Chapter 250 and DEP Booklet 2630-BK-DEP4699, the DEP will require sampling of the soil pile.

While it is advisable to leave the excavation open until the sample analysis results are known, safety considerations may warrant that the excavation be backfilled once the samples are obtained. In such a case, however, where sample results show levels of contamination exceeding the DEP's action levels, the requirements of the corrective action process regulations found in 25 Pa. Code, Chapter 245, Subchapter D must be followed.

b. Confirmatory Sampling Protocol/Tank System Removal (See Table 1)

This protocol applies only where there is no obvious contamination, or where there is localized contamination. Where extensive contamination has been established, a site characterization must be performed to determine the magnitude and extent of the contamination.

All confirmatory samples must be **discrete samples collected in the native soil**, one foot below the product piping and two feet below product dispensers, tanks and remote fills.

Where bedrock and backfill interface, samples of the backfill may be collected if the backfill consists of soil or soil-like material. Sampling pea gravel is not appropriate. Where tanks are located in bedrock, without immediate access to soil or groundwater, contact the appropriate DEP regional office for specific guidance. Where water is encountered, both soil and water samples must be collected unless water in the excavation is pumped out and does not recharge within 24 hours. If the water does not recharge within 24 hours, only post-excavation soil samples are required to be collected for site assessment purposes. Soil samples should be taken just above the soil/water interface. If confirmatory sampling protocol alterations are necessary, contact the appropriate DEP regional office for additional guidance.

Samples shall be collected from the following locations for each UST system when conducting a complete closure of both the UST and the piping systems:

(1) Remote Fills: If a remote fill is present, one sample below the fill opening.

(2) Product Dispensers: One sample below each product dispenser, including dispensers which distribute multiple products.

(3) Product Piping: One sample from within the piping trench below the product piping, directly below each swing joint, connector and pipe elbow, if one exists. In cases where there is no swing joint, connector or pipe elbow, one sample must still be taken. The exact location of the sample should be chosen by the person conducting the site assessment at a location which, in their judgment is most likely to indicate any release of regulated substance. If product piping to different tanks lies within two feet of each other and carried the same product (e.g. gasoline), the piping runs may be sampled as if only one product piping run was present.

The location of the samples along the piping run must be shown on the sampling plot plan. Photographs showing the exposed piping trench should be included with the closure records.

Closure operations which involve pulling or lifting the piping out of an unexposed or unexcavated trench are considered closure-in-place as they do not allow a thorough inspection and evaluation of the soil conditions in the vicinity of the product piping. See Section VI.C.1.c.(2)(b).

(4) Tanks: Where water is not encountered in the tank excavation, soil samples must be collected as follows, unless an alternative sampling plan is presented to the DEP and agreed upon:

- For tank capacities up to and including 1,000 gallons, one sample below the bottom of the tank directly below the fill connection and one sample below the bottom of the tank directly below the product piping connection. In cases involving the removal of more than one tank from a single excavation, soil samples are to be collected for each individual tank.

- For tank capacities of 1,001 up to and including 20,000 gallons, one sample below the bottom of the tank directly below the fill connection, one sample below the bottom of the tank directly below the product piping connection, and one sample below the bottom center line of the tank away from the fill and product piping connection sampling locations. In cases involving the removal of more than one tank from a single excavation, soil samples are to be collected for each individual tank.

- For tank capacities over 20,000 gallons, additional samples may be required. Contact the appropriate DEP regional office for further guidance.

In cases where more than two feet of soil have been removed from below the tank to remove localized contamination, take samples from the surface of the bottom of the excavation immediately following tank removal.

Due to the nature of tank handling activities during closure, it is possible to impact the water of a tank excavation during removal. Therefore, it is recommended that the water in an excavation be purged and allowed to recharge before sampling for site assessment purposes. Any water that will be removed from the excavation shall be controlled or contained and handled in accordance with all federal, state and local regulations. If water is purged and it does not recharge into the excavation within 24 hours, soil sampling should be conducted as if no water was encountered. If the excavation does recharge, water samples should be collected as follows. If water is encountered in the tank excavation and it is decided not to purge the water, water samples must be collected in addition to soil samples.

- For tank capacities up to and including 1,000 gallons, one water sample from the water surface in the excavation and one soil sample from each long wall (total of two soil samples) just above the soil/water interface. In cases involving the removal of more than one tank (assuming each tank is 1,000 gallons or less in size) from a single excavation, the excavation may be sampled as if it contained only one tank. For example, if a single

excavation was opened to remove three 1,000 gallon tanks, the sampling requirement would continue to be one water sample from the water surface in the excavation and two soil samples, one from each long wall of the excavation taken just above the soil/water interface.

- For tank capacities of 1,001 up to and including 20,000 gallons, two water samples from the water surface in the excavation and one soil sample from each long wall (total of two soil samples) just above the soil/water interface. In cases involving the removal of more than one tank (assuming at least one is 1,001 up to and including 20,000 gallons in size), from a single excavation, in which a single, continuous body of water covers the bottom of the excavation, the excavation may be sampled as if it contained only one tank.

- For tank capacities over 20,000 gallons, additional samples may be required. Contact the appropriate DEP regional office.

(5) Soil Pile Sampling: In cases where obvious contamination was observed (either localized or extensive) and soil was segregated into "presumably contaminated" and "presumably uncontaminated" piles:

(a) For analysis of all substances other than volatile organic compounds (VOCs), one composite sample per 100 cubic yards of "presumably uncontaminated" soil must be collected and analyzed prior to reuse of the soil on-site. Each composite sample should consist of four subsamples of the soil pile, collected at a minimum depth of 12 inches into the soil pile. Composite sampling is not suitable for analysis of VOCs.

(b) For analysis of VOCs, use field screening to determine which of the four subsamples is most likely to contain the highest concentration of VOCs. One discrete sample shall be taken from the same location in the soil pile as the subsample with the highest concentration of VOCs.

(c) For up to 100 cubic yards, one discrete sample for each 50 cubic yards, or fraction thereof, of the "presumably contaminated" soil must be collected and analyzed prior to reuse of the soil on-site. One discrete sample for each additional 100 cubic yards of soil must also be taken. The samples are to be taken from the most obviously contaminated areas based upon visual observation and field screening. Sampling may be conducted prior to or

following any treatment. Treatment and disposal options for contaminated soil are discussed in Section VI.B.7.c.

It is important to understand that soil which exhibits contaminant levels below the DEP's action levels in 25 Pa. Code, Chapter 250 and DEP Booklet 2630-BK-DEP4699 is not necessarily considered "clean fill." This soil, which frequently contains some level of contamination, can be spread on the site or placed back in the excavation provided the action levels for reuse of soil on-site values in DEP Booklet 2630-BK-DEP4699 are met. **In addition, there must be no free liquids left in the soil based on visual inspection, and the soil should not create any odor nuisance.** If off-site use of the soil is desired, the owner of the soil should contact the appropriate DEP regional office Waste Management staff and consult the DEP Bureau of Waste Management Technical Guidance Document entitled "Management of Fill" (258-2182-773).

Figure 1
SITE ASSESSMENT
Tank System Removal

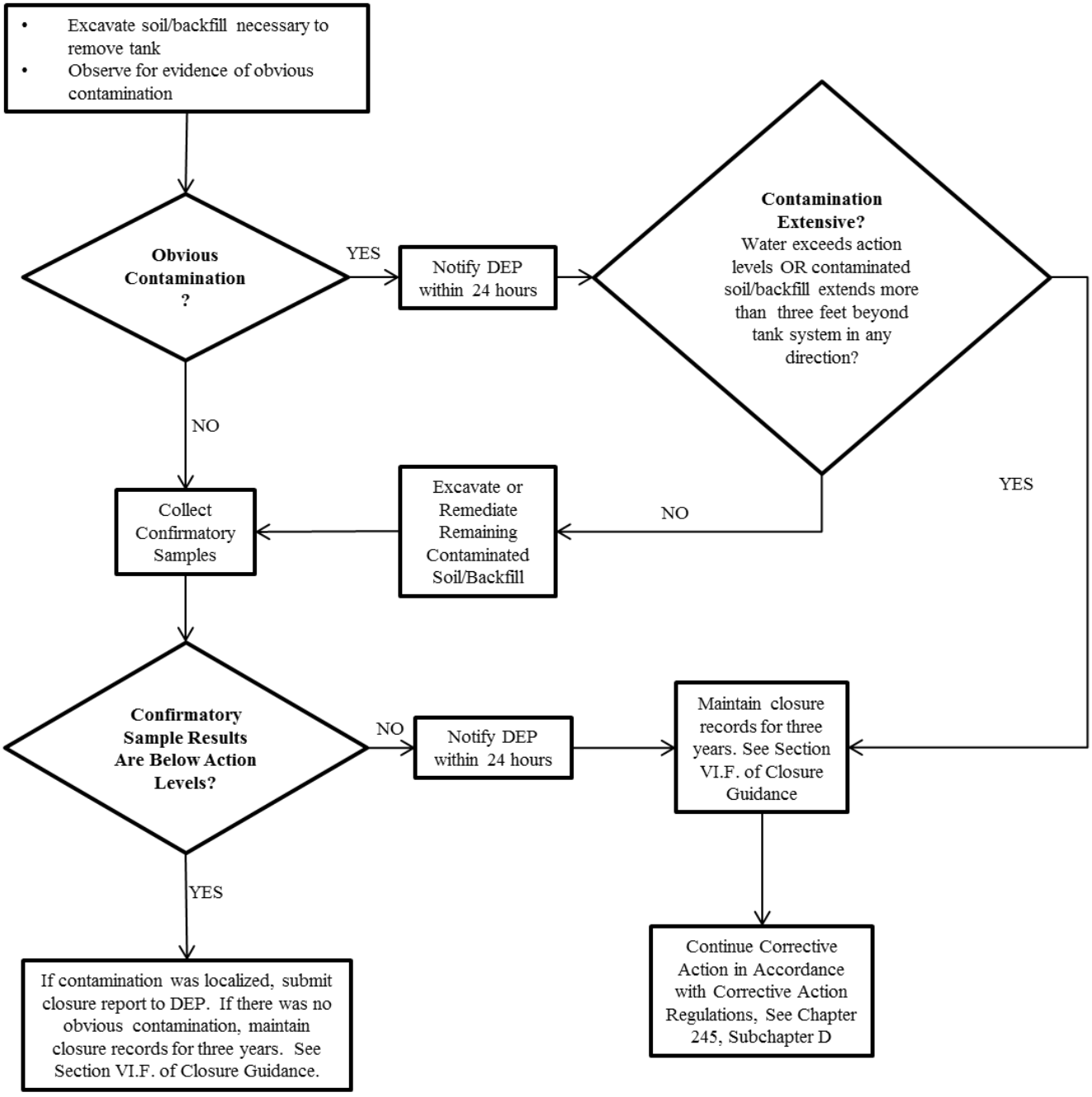

Table 1
CONFIRMATORY SAMPLING PROTOCOL
STORAGE TANK SYSTEM REMOVAL
Number of Samples

NO WATER ENCOUNTERED					
	TANKS*		**PRODUCT DISPENSERS**	**PRODUCT PIPING**	**REMOTE FILL(IF PRESENT)**
	<= 1000 GAL	**1001-20000 GAL**			
SOIL**	**2**	**3**	**1**	**1*****	**1**
COMMENTS	Take Samples 2 Ft. Below Bottom of Tank-See Section VI.C.1.b.(3) For Specific Locations		Take 1 Sample Per Dispenser, 2 Ft. Below Surface Directly Under Dispenser	Take 1 Ft. Below Line	Take 2 Ft. Below Fill Opening
WATER ENCOUNTERED					
	TANKS*		**PRODUCT DISPENSERS**	**PRODUCT PIPING**	**REMOTE FILL(IF PRESENT)**
	<= 1000 GAL	**1001-20000 GAL**			
SOIL**	**2**	**2**	**1**	**1*****	**1**
WATER	**1**	**2**	*****	*****	*****
COMMENTS	Take Soil Samples Just Above Soil/Water Interface Along Each Long Wall Of Excavation-Take Water Samples From Water Surface In Excavation		Take 1 Sample Per Dispenser, 2 Ft. Below Surface Directly Under Dispenser	Take 1 Ft. Below Line	Take 2 Ft. Below Fill Opening

* For tanks in excess of 20,000 gallons, contact the appropriate DEP Regional Office.

** Where obvious contamination is observed, sampling of segregated soil piles must be conducted in accordance with Section VI.C.1.b.(5).

*** If product piping is closed-in-place, see Section VI.C.1.c.(1)(c).

**** Assumes water is not encountered.

c. Confirmatory Sampling Protocol/ Tank System Closure-in-Place or Change-in-Service (See Figure 2)

The DEP does not recommend closure of tanks in-place; however, there may be certain instances where structural considerations or access problems prevent tank system removal. Note that local regulations may prohibit closure-in-place.

The recommended site assessment procedures for tank systems that are closed-in-place or closed by a change-in-service are as follows:

(1) Physically determine whether water will be encountered in the sampling process (i.e. between the ground surface and two feet below the bottom elevation of the tank).

In the process of determining depth to water, performing soil borings or obtaining soil or water samples, observe the soil or water for evidence of obvious contamination (i.e. product stained or product saturated soil, sheen or free product in the water sample). If obvious contamination is observed, the owner or operator and the certified tank handler must proceed in accordance with Section VI.C.2.a., below. In this circumstance, the requirements of the corrective action process regulations found in 25 Pa. Code, Chapter 245, Subchapter D must be followed. If obvious contamination is observed, sampling is not necessary to complete the tank closure; however, it may be desirable to take samples for the purpose of beginning a site characterization. See Section VI.F. for options on submission and maintenance of closure site assessment records. It is highly recommended that the owner or operator acquire the services of a qualified and experienced professional in the environmental field to conduct the site assessment. The person conducting the site assessment should be familiar with proper soil and water sample collection.

(a) Where water is encountered, both soil and water samples must be collected. Soil samples are to be taken just above the soil/water interface. Samples are to be collected in accordance with Section (4) below.

Note: Where water is encountered between the ground surface and bottom elevation of the tank, sampling through the bottom of the tank should not be conducted. In this instance, tank sampling should be performed by conducting perimeter soil borings as in Section (4)(c)(ii), below. Perimeter soil borings are also necessary when performing a change-in-service, regardless of water conditions.

(b) If water is not encountered, samples must be collected in the native soil, one foot below the product delivery line and

two feet below product dispensers, tanks and remote fills. Where bedrock and backfill interface, samples of the backfill may be collected if the backfill consists of soil or a soil-like material. Sampling pea gravel is not appropriate. Where tanks are located in bedrock, without immediate access to soil or groundwater, contact the appropriate DEP regional office for specific guidance. Samples are to be collected in accordance with Section (4), below.

(2) Except where noted, samples must be collected from all of the following locations for each tank system (See Table 2):

(a) Remote Fills: one sample below the fill opening.

(b) Product Dispensers: one sample below each product dispenser, including dispensers which distribute multiple products.

(c) Product Piping: Where product piping is going to be left in-place, pulled or lifted from the ground such that the trench in which it was installed cannot be thoroughly inspected and evaluated visually, the piping is to be considered as closed-in-place and the sampling protocol is as follows:

One sample every 20 linear feet below each product piping run or portion thereof (one sample minimum) up to a maximum of five samples for 81-100 feet of piping. Where the product piping run is less than 20 feet in length, one sample is still required. Sampling locations should be evenly spaced. Indicate total length of product piping in Section III of the Closure Report Form. If product piping runs to different tanks lie within two feet of each other and carried the same product (e.g., gasoline), the piping runs may be sampled as if only one product delivery line was present. If an individual product piping run consists of more than 100 linear feet or if it is inaccessible because of a building or some other obstacle, prepare a site-specific sampling plan and contact the appropriate DEP regional office for site-specific guidance.

(d) Tanks:

i. Where soils under the tank are accessible, samples are to be collected as follows:

- For tank capacities up to and including 1,000 gallons, one sample below the bottom of the tank directly below the fill connection

and one sample below the bottom of the tank directly below the product piping connection.

- For tank capacities of 1,001 up to and including 20,000 gallons, one sample below the bottom of the tank directly below the fill connection, one sample below the bottom of the tank directly below the product piping connection, and one sample below the bottom center line of the tank away from the fill and product piping connection sampling locations.

- For tank capacities over 20,000 gallons, additional samples may be required. Contact the appropriate DEP regional office.

ii. Where access to soils under the tank is restricted or where water is encountered between the ground surface and bottom elevation of the tank, samples are to be collected by conducting perimeter soil borings. The borings are to be located as close to the tank as possible, preferably within native soil, or within the backfill if the backfill consists of soil or soil-like material (sampling pea gravel is not appropriate), at a distance no greater than five feet from the perimeter of the tank, as follows:

- For tank capacities up to and including 3,000 gallons, one boring along each of the four sides of the tank.

- For tank capacities of 3,001 up to and including 20,000 gallons, two borings along each long wall and one boring along each end wall of the tank.

- For tank capacities over 20,000 gallons, additional borings may be required. Contact the appropriate DEP regional office.

(3) When closing a tank in-place, do not fill the tank with an inert, solid, non-shrinking material until the analytical results are received and it has been determined that corrective action will not be necessary.

Figure 2

SITE ASSESSMENT

Tank System Closure-in-Place or Change-in-Service

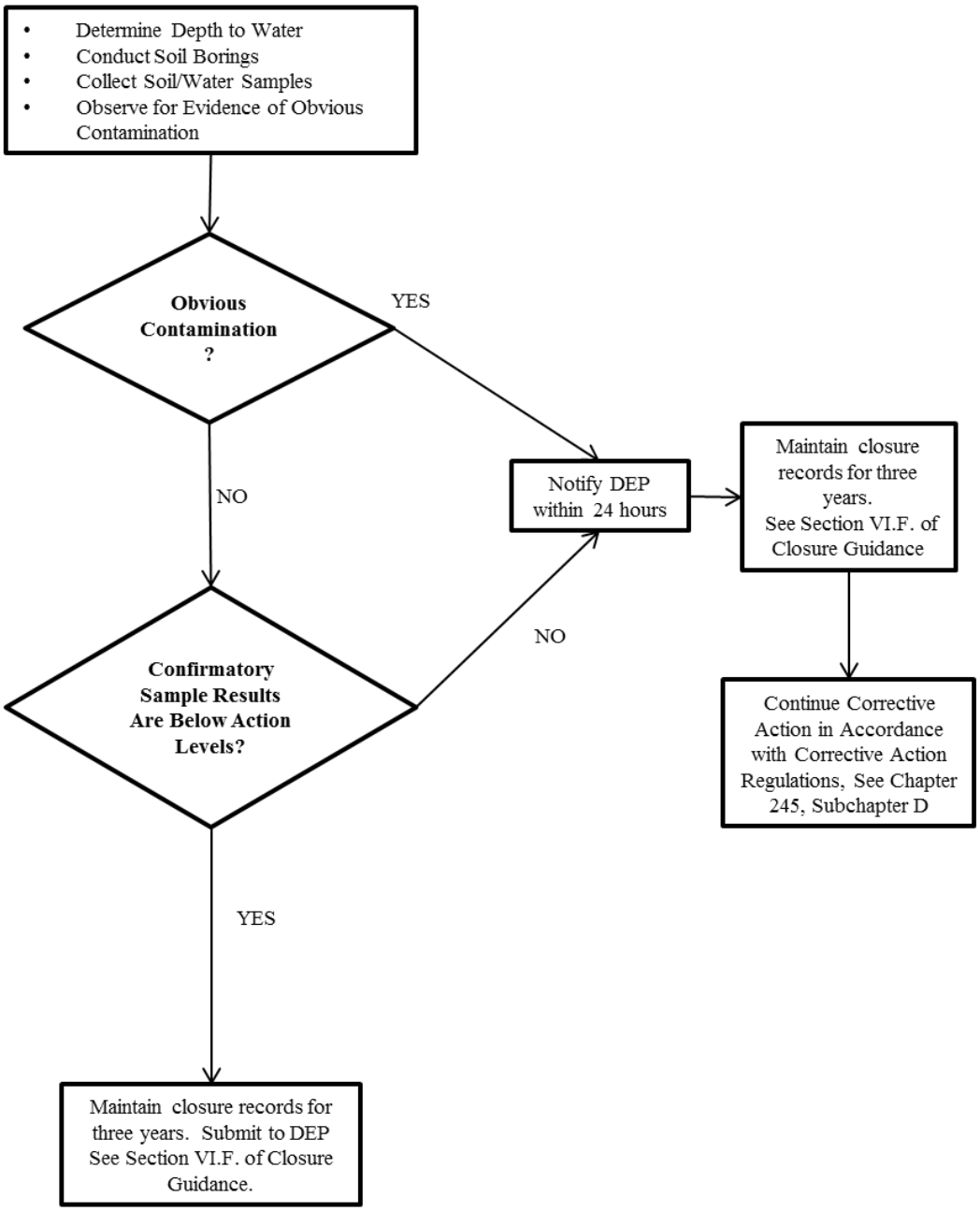

Table 2
CONFIRMATORY SAMPLING PROTOCOL
CLOSURE-IN-PLACE OR CHANGE-IN-SERVICE
Number of Samples

SOIL UNDER TANK ACCESSIBLE - NO WATER ENCOUNTERED					
	TANKS*		**PRODUCT DISPENSERS**	**PRODUCT PIPING**	**REMOTE FILL (IF PRESENT)**
	<= 1000 GAL	**1001-20000 GAL**			
SOIL	**2**	**3**	**1**	**1****	**1**
COMMENTS	Take Samples 2 Ft. Below Bottom of Tank-See Section VI.C.1.c.(2)(c) for Specific Locations		Take 1 Sample Per Dispenser, 2 Ft. Below Surface Directly Under Dispenser	Take 1 Ft. Below Line	Take 2 Ft. Below Fill Opening
SOIL UNDER TANK ACCESSIBLE - WATER ENCOUNTERED WITHIN 2 FEET OF TANK BOTTOM					
	TANKS*		**PRODUCT DISPENSER**	**PRODUCT PIPING**	**REMOTE FILL (IF PRESENT)**
	<= 1000 GAL	**1001-20000 GAL**			
SOIL	**2**	**3**	**1**	**1****	**1**
WATER	**2**	**3**	*******	*******	*******
COMMENTS	Take Soil Samples Just Above Soil/Water Interface-Take Water Samples From Water Surface-See Section VI.C.1.c.(2)(c) for Specific Locations		Take 1 Sample Per Dispenser, 2 Ft. Below Surface Directly Under Dispenser	Take 1 Ft. Below Line	Take 2 Ft. Below Fill Opening
SOIL UNDER TANK NOT ACCESSIBLE OR WATER ENCOUNTERED BETWEEN TANK BOTTOM AND GROUND SURFACE (Using Perimeter Borings)					
	TANKS*		**PRODUCT DISPENSER**	**PRODUCT PIPING**	**REMOTE FILL (IF PRESENT)**
	<3000 GAL	**3001-20000 gal**			
SOIL	**4**	**6**	**1**	**1****	**1**
WATER	**4**	**6**	*******	*******	*******
COMMENTS	Take One Soil Sample And One Water Sample (If Water Encountered) Per Boring-If Water Encountered, Take Soil Samples Just Above Soil/Water Interface and Take Water Samples From Water Surface-See Section VI.C.1.c.(2)(c) for Specific Locations		Take 1 Sample Per Dispenser, 2 Ft. Below Surface Directly Under Dispenser	Take 1 Ft. Below Line	Take 2 Ft. Below Fill Opening

* For tanks in excess of 20,000 gallons, contact the appropriate DEP regional office.

** If piping is also closed-in-place, see Section VI.C.2.c.(2)(b).

*** Assumes water is not encountered.

2. Classifying, Reporting, and Addressing Contamination

Page one of the "Underground Storage Tank System Closure Report Form" lists five potential site assessment outcomes. The site assessment categories are:

- Obvious, Extensive Contamination (see Section a.(1), below)
- Obvious, Localized Contamination – Sample Results Greater than Action Levels (see Section a.(2)(a), below)
- Obvious, Localized Contamination – All Sample Results Less than or Equal to Action Levels (see Section a.(2)(b), below)
- No Obvious Contamination – Sample Results Greater than Action Levels (see Section b.(1), below)
- No Obvious Contamination – All Sample Results Less than or Equal to Action Levels (see Section b.(2), below)

The DEP has established action levels for soil and water necessary to interpret the results from confirmatory sampling at closure of petroleum USTs. Because only limited sampling occurs during the site assessment, the most conservative medium-specific concentrations (MSC) are used as action levels. The most current action levels are provided in Tables 3 and 4 in DEP Booklet 2630-BK-DEP4699. Action levels established by the DEP are determined as follows:

- No Water Encountered During Closure Site Assessment

  Residential Unsaturated Soil Action Levels are the more stringent of the residential direct contact value or the highest residential soil to groundwater value. Non-residential values are the more stringent of the non-residential subsurface soil direct contact value or the highest non-residential soil to groundwater value.

  Residential Action Levels for Reuse of Soil On-site are the same as the Unsaturated Soil Action levels. Non-residential Action Levels for Reuse of Soil On-site are the more stringent of the non-residential surface soil direct contact value or the highest non-residential soil to groundwater value.

- Water Encountered During Closure Site Assessment

  Residential Saturated Soil Action Levels are the more stringent of the: 1) residential direct contact value; or 2) the larger of the residential generic soil to groundwater value divided by 10 or the 100 times groundwater MSC value for residential use. Non-residential Soil Action Levels are the more stringent of the: 1) non-residential subsurface soil direct contact

value, or 2) the larger of the non-residential generic soil to groundwater value divided by 10 or the 100 times the groundwater MSC value for non-residential use.

Unsaturated Soil Action Levels are the same as those for sites where water is not encountered.

Water Action Levels are the residential MSCs for used aquifers with total dissolved solids less than or equal to 2,500 mg/l.

Residential Action Levels for Reuse of Soil On-site are the same as the residential Saturated Soil Action Levels. Non-residential Action Levels for Reuse of Soil On-site are the more stringent of the: 1) non-residential surface soil direct contact value, or 2) the larger of the non-residential generic soil to groundwater value divided by 10 or the 100 times the groundwater MSC value for non-residential use.

The requirements for addressing each of the site assessment categories can be found in Sections a., and b., below.

Regardless of site assessment outcome, the DEP may require initiation of corrective action in accordance with 25 Pa. Code, Chapter 245, Subchapter D, and/or request additional action to address potentially affected or diminished water supplies in accordance with 25 Pa. Code §§ 245.306 and 245.307 to address public health threats.

a. Obvious Contamination

If obvious contamination is observed, the owner or operator must notify the appropriate DEP regional office within 24 hours, and the certified tank handler must submit a "Notification of Reportable Release/Notification of Contamination" form within 48 hours, in accordance with 25 Pa. Code § 245.132(a)(4). See DEP Booklet 2630-BK-DEP4699 for release reporting telephone numbers. Interim remedial actions must be immediately initiated in accordance with 25 Pa. Code § 245.306, and the requirements of the corrective action process regulations in 25 Pa. Code, Chapter 245, Subchapter D must be followed.

(1) Obvious, Extensive Contamination

If obvious, extensive contamination is observed, site characterization and corrective action will be required. In this circumstance, the requirements of the corrective action process regulations found in 25 Pa. Code, Chapter 245, Subchapter D must be followed.

Records of the closure site assessment must be maintained in accordance with Section VI.F. A copy of the closure report must be submitted as part of the site characterization report to satisfy the

requirements of 25 Pa. Code § 245.310(a)(8) of the corrective action process regulations.

(2) Obvious, Localized Contamination

(a) Sample Results Greater than Action Levels: If obvious contamination is not observed after excavation, but the result from any sample reveals a concentration that exceeds the action levels, corrective action must continue in accordance with the corrective action process regulations. Records of the closure site assessment must be maintained in accordance with Section VI.F. A copy of the closure report must be submitted as part of the site characterization report to satisfy the requirements of 25 Pa. Code § 245.310(a)(8) of the corrective action process regulations.

(b) All Sample Results Less than or Equal to Action Levels: Submit the "Underground Storage Tank System Closure Report Form" (2630-FM-BECB0159) or other report satisfying the requirements of 25 Pa. Code § 245.310(b) within 180 days of reporting the release.

b. No Obvious Contamination

(1) Sample Results Greater than Action Levels: If obvious contamination is not observed, but the result for any sample reveals a concentration that exceeds the action levels, the owner and operator must notify the appropriate DEP regional office as soon as practicable, but no later than 24 hours after the confirmation of a reportable release, in accordance with 25 Pa. Code § 245.305 (relating to reporting releases). The appropriate release reporting telephone number(s) for each region can be found in DEP Booklet 2630-BK-DEP4699. The requirements of the corrective action process regulations in 25 Pa. Code, Chapter 245, Subchapter D, must be followed. Records of the closure site assessment must be maintained in accordance with Section VI.F. A copy of the closure report must be submitted as part of the site characterization report to satisfy the requirements of 25 Pa. Code § 245.310(a)(8) of the corrective action process regulations.

(2) All Sample Results Less than or Equal to Action Levels: Records of the closure site assessment must be maintained in accordance with Section VI.F.

D. Sampling Requirements

Samples collected to comply with the site assessment requirements shall also comply with the following requirements:

1. EPA Method 5035 must be applied whenever soil samples are collected for volatile analyses. The method provides two different sample collection and preservation procedures based on the level of contamination present in the soil sample. Procedures are supplied for collecting and preparing soil samples containing low and high concentrations of VOCs. Based on the lowest cleanup level, however, the low level concentration procedures will not apply except in the case of analyses of 1,2-Dibromoethane. Low-level concentrations of contaminants are defined in the method as soils containing 0.5 to 200 ug/kg of contaminants. Samples that are expected to have a concentration greater than 200 ug/kg should be sampled using the high-level concentration procedures. For samples with low concentration of VOCs, there are two options for the collection and preservation of the sample:

   - Place soil into a soil sample vial which contains a preservative compound.

   - Collect the soil in an apparatus which is airtight and affords little to no headspace (such as the En Core™ sampler) in order to eliminate loss of contaminants due to volatilization. Soil from this type of sampler must be transferred to a soil sample vial containing a preservative as soon as possible, or analyzed within 48 hours, to prevent loss of contaminants due to biodegradation.

   For samples with high concentration of VOCs there are three options for the collection and preservation of the sample:

   - Place soil into a soil sample vial which contains a preservative compound.

   - Collect the soil in an apparatus which is airtight and affords little to no headspace (such as the En Core™ sampler) in order to eliminate loss of contaminants due to volatilization. Soil from this type of sampler must be transferred to a soil sample vial containing a preservative as soon as possible, or analyzed within 48 hours, to prevent loss of contaminants due to biodegradation.

   - Collect sample without preservation; however, the sample container must be filled as much as possible in order to minimize headspace. Sampling without preservation procedures should only be done when it is not possible to sample with preservatives in the sample container, or when a soil collection device which is airtight and affords little to no headspace (such as the En Core™ sampler) cannot be used. The DEP does not recommend the use of this option and will require adequate justification of its use before accepting the analytical data.

Documentation of which option(s) was/were used in sample collection must accompany the analytical results.

2. Because of the volatile nature of many products, perform collection and handling of samples in such a way as to disturb the samples as little as possible. With the exception of uncontaminated soil pile sampling for non-VOC substances, samples must be discrete samples which are representative of the conditions at one location and not composite samples. Samples should be collected promptly and water samples should be as free of sediment as possible.

3. If the excavation, piping trench or tank can be entered in accordance with applicable OSHA regulations, samples may be collected using a hand auger or trowel for non-volatile analytes or with an appropriate sampling device for volatile analytes.

4. If the excavation or piping trench cannot be entered safely for sampling, samples may be collected using a hand auger extension or from a backhoe bucket. Samples should be collected as rapidly as is physically possible to reduce the loss of volatile analytes.

5. If the samples are to be collected by drilling, split spoon or thin-walled samplers are required. Grab samples collected from drill cuttings are not acceptable. The DEP recommends that drilling and sample collection be conducted in accordance with applicable American Society of Testing and Materials (ASTM) standard methods or other comparable methods. For information, contact the ASTM, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2859, telephone 877-909-2786. Ask for Publication Volume 04.08.

6. All soil samples must be taken from freshly exposed soil.

7. All soil sampling tools should be thoroughly cleaned before use at each sampling point using water/detergent, methanol or other appropriate solvents. All rinsates must be collected and properly disposed. Dedicated or disposable sampling tools may also be used.

8. Perform sample collection and handling in accordance with protocol established for the analytical methodology to be used. See Table 1 in DEP Booklet 2630-BK-DEP4699 for information regarding the containers, preservatives, and holding times that are specified in the analytical methods used in the Pennsylvania DEP Storage Tank Program.

9. Sample containers should be clearly labeled and promptly sealed and placed on ice for transport to the laboratory. Reusable ice packs (“blue ice”) are not acceptable unless samples have been pre-chilled. Samples should be shipped to the laboratory as soon as possible. Do not allow samples to be held beyond the maximum holding time. Follow and document proper chain-of-custody procedures. Laboratories must document that samples meet all applicable preservation requirements.

10. Do not conduct field screening of soil samples with field instrumentation on the portion of the soil sample to be submitted to a laboratory for analysis. Place soil samples for laboratory analysis in a sample container immediately after collection. A portion of this sample can be retained in a separate clean container for the field screening procedure.

11. Store all samples at 4°C until analysis. Sample storage should be in an area free of organic solvent vapors and direct or intense light.

E. Analytical Requirements

All test parameters for the product stored listed in Table 2 in DEP Booklet 2630-BK-DEP4699 need to be analyzed. In addition, Table 2 specifies the analytical requirements for soil and water samples collected during the site assessment to determine whether a storage tank site may be closed pursuant to this guidance document or is subject to the corrective action process regulations. Other recognized methods may be used if approved by the appropriate DEP regional office.

F. Submission and Maintenance of Closure Site Assessment Records

Regulations governing the closure of USTs state that the results of the storage tank system site assessment must be maintained for at least three years after completion of permanent closure or change-in-service. Records may be maintained in one of the following ways:

(a) By the owners and operators who took the UST system out of service;

(b) By the current owners and operators of the UST system site; or

(c) By mailing these records to the DEP if they cannot be maintained at the closed facility.

At least one option must be chosen. If option (c) is chosen, the site assessment records and closure report should be sent to the appropriate DEP regional office. The DEP has developed an "Underground Storage Tank System Closure Report Form" (2630-FM-BECB0159). The Closure Report Form can be found on the DEP's website at http://www.dep.pa.gov, Businesses > Land > Storage Tanks. A completed Closure Report Form will satisfy the site assessment records requirement. **In addition, an amended "Storage Tanks Registration/Permitting Application Form" (2630-FM-BECB0514) must be submitted to the Division of Storage Tanks indicating that the UST(s) has/have changed status to permanently closed.**