pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

TECHNICAL DOCUMENT

CLOSURE REQUIREMENTS FOR ABOVEGROUND STORAGE TANK SYSTEMS

Technical Guidance Number
263-4200-001

STORAGE TANK PROGRAM

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Environmental Cleanup and Brownfields

DOCUMENT NUMBER: 263-4200-001

TITLE: Closure Requirements for Aboveground 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 245.561-562.

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 large aboveground 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 aboveground storage tanks with a storage capacity greater than 21,000 gallons.

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: 34 pages

DEFINITIONS: Definitions for pertinent terms used in the guidance may be found in the Storage Tank and Spill Prevention Act and/or 25 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) methods and procedures for the removal of aboveground storage tanks (ASTs) from service by the owner and operator, 2) requirements for reporting by the owner or operator of intended and completed closure of an AST. On October 10, 1997, Subchapter F in 25 Pa. Code Chapter 245 was adopted establishing closure and removal-from-service requirements for large ASTs and AST facilities to satisfy the requirements of Act 32.

The principal objectives of the AST closure requirements in Subchapter F are to identify and contain existing contamination and to prevent future releases from AST 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 large aboveground storage tanks (tank capacity greater than 21,000 gallons).

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 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 AST 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 ASTs. The DEP believes that adhering to this guidance will result in compliance with applicable 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. Variations in site-specific conditions should be discussed 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 AST 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 document does not address the corrective action requirements in any detail. This guidance document revises the "Closure Requirements for Aboveground Storage Tank Systems" document issued by the DEP that had an effective date of September 6, 2014.

II. APPLICABILITY

This guidance applies to all regulated AST systems (including regulated piping and/or ancillary equipment) with a capacity greater than 21,000 gallons when:

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

2. A regulated AST system is being temporarily removed from service (Section V only).

3. A regulated AST system was permanently closed before August 5, 1989, and the DEP has reason to believe that the AST poses a current or potential threat to human health and the environment.

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

This guidance may be used but is not required for small ASTs (tanks with a capacity of 21,000 gallons or less). Requirements for closure of small ASTs are contained in 25 Pa. Code § 245.614 (*relating to requirements for closure).*

III. METHODS OF CLOSURE

A. Temporary Removal-from-Service

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

B. Permanent Closure

1. Removal – Dismantling and removing an AST system or portion thereof from the site.

2. Closure-in-Place – Placing an AST system permanently out-of-service by rendering it inoperative, dismantling piping connections, venting the tank, marking/labeling the permanent closure date on the tank, securing it against unauthorized entry and leaving the tank at its current location on the site. Note that some local regulations or zoning ordinances may prohibit closure-in-place.

3. Change-in-Service – Placing an AST 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 AST system; overseeing or verifying cleaning of the storage tank system; dismantling an AST; removal of ancillary equipment and piping system; demolishing or excavating foundation and containment structure; ventilating and rendering an AST inoperative when the tank is closed and left on-site; and initial, on-site staging of 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 REMOVAL-FROM-SERVICE

A. When an AST system is temporarily removed from service (out-of-service), owners and operators must:

- Empty the tank system of regulated substances. An AST system is empty when 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 AST system, remain in the AST system;

- Cap, blind, or remove all piping entering or exiting the tank, excluding vents;

- Secure the tank against unauthorized entry;

- Protect the tank against flotation in areas subject to flooding or where excess water may accumulate in the containment area;

- Continue operation and maintenance of corrosion protection and maintain tank integrity;

- Within 30 days of placing an AST 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 AST 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 AST(s) has/have changed status from currently in-service 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. Temporary removal-from-service of an AST does not preclude the performance of regularly scheduled integrity inspections when required per 25 Pa. Code § 245.552 *(relating to in-service inspections)* and § 245.553 *(relating to out-of-service inspections).* Required inspections must be performed by a DEP-certified third-party inspector in accordance with projected inspection schedules, unless delayed inspections are requested and DEP approval is granted. Delayed inspections must be conducted prior to returning an AST system to operating status.

C. An AST system may remain temporarily out-of-service for up to five years, at which time the tank must be permanently closed or returned to operational service, unless the DEP grants an extension. AST systems that are current on required inspections per 25 Pa. Code § 245.552 and § 245.553 and meet all current technical and regulatory requirements may be returned to operating status.

VI. PERMANENT CLOSURE

A. Planning for Permanent Closure

A "Planning for Permanent Closure Checklist" (2630-FM-BECB0512) can be found on the DEP website. The checklist is intended to assist the owner and operator in the closure planning process.

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

1. If the AST(s) are required to be registered and they are not, submit a "Storage Tanks Registration/Permitting Application Form," with appropriate fee per tank, to the Bureau of Environmental Cleanup and Brownfields, Division of Storage Tanks, P.O. Box 8762, Harrisburg, PA 17105-8762. On the form, complete information for <u>all</u> regulated storage tanks at the facility, including those to be permanently closed. Contact the regional office if you are unsure what the appropriate fees are. The annual registration fees for each large AST are:

    - AST (5,000 to 50,000 gallons capacity) - $125.00

    - AST (over 50,000 gallons capacity) - $300.00

2. Hire a DEP-certified installer who currently has the appropriate certification category to conduct tank handling activities.

    - AMR or AFR certification for manufactured AST system removals

    - AFR or AFMX certification for field-constructed AST system removals

    - AMEX, AMR or AFR certification for partial closure involving AST piping system removals

3. 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 dismantling, demolition and removal.

4. 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.

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

6. 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.

7. At least 30 days prior to initiating permanent closure of a regulated AST system, notify the DEP of the intent to permanently close the AST system, by completing and submitting the "Aboveground Storage Tank System Closure Notification Form" (2630-FM-BECB0513). 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.

8. Identify and comply with any local ordinances governing AST system closures.

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

B. Tank Handling/Waste Management and Disposal Activities

Where practicable, the DEP recommends that AST systems be removed from the site rather than closed-in-place. The DEP recognizes, however, that closure-in-place may be necessary in certain circumstances. Certified installers and tank owners and operators should refer to the following tank handling procedures when permanently closing an AST system:

- American Petroleum Institute Standard 2015, "Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks"

- American Petroleum Institute Standard 2610, "Design, Construction, Operation, Maintenance, and Inspection of Terminal & Tank Facilities" Section 12 – Removals and Decommissioning.

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, Containment Structure and Earthen Foundation Material Removal or Excavation

   If an AST system is being permanently closed by dismantling and removal from the site, the certified installer should initially excavate only that amount of soil, containment structure or earthen foundation material necessary to remove the tank and piping. Once the tank system is removed, 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 unless the activity involves removal or modification of a containment structure which contains other active tank systems.

   Excavated soils, containment structure and earthen foundation materials 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 AST systems will likely include residual and hazardous wastes. Wastes may include the tank itself, along with any associated containment structure, 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 either 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 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 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 an AST is regulated as a 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 an AST 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

ASTs may be cleaned at the closure site or moved to another location for cleaning; however, the DEP recommends that ASTs be cleaned prior to removal from the tank supports or foundation 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 ASTs are cleaned at the closure site, use extreme care to safely and properly purge the ASTs of explosive vapors prior to accessing the ASTs for cleaning. If the ASTs 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 site, provisions should be made to safely lift it off of the foundation if the tank is not disassembled prior to removal from the foundation. It is important that the equipment used to remove the AST has sufficient lifting capacity to safely remove the AST. Many large ASTs are disassembled or demolished during the course of removal. This is often accomplished with cutting equipment, and particular attention and caution must be exercised to prevent explosive conditions at the tank site.

6. Waste Transportation Requirements

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

a. Tank, Piping and Contents

Emptied and Cleaned – An AST 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 AST 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 not 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)). 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 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 aboveground 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 a valid 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 regulated piping and ancillary equipment (piping and dispensing systems connected thereto within

the emergency containment structure). 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 areas beneath AST piping (both subsurface and aboveground piping) should be carefully examined and confirmatory sampling must be performed for that piping which is inside of the emergency containment structure. The 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 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 an AST system may wish to close only a portion of the system. This "partial" closure of the AST 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). Note that Act 32 includes only piping and dispensing systems within the emergency containment structure in its definition of a regulated AST. The DEP recommends use of procedures in this document for piping, dispensers and the like, but does not require its use for unregulated portions of the storage tank system.

To complete the site assessment for a partial AST 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.

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

   If the AST system removal/closure involves excavation of the tank foundation, containment structure or underground piping, 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. When an excavation is not involved, the site assessment activities for an AST may be conducted during or after the tank is dismantled and removed or closed-in-place. The recommended site assessment procedures are as follows:

a. Tank System Removal – Excavate Soil/Backfill/Containment Structure

Begin by excavating only that amount of soil and backfill material necessary to remove the tank system from the site while observing for evidence of obvious contamination. Once the tank system is removed, 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, unless the activity involves removal of a containment structure which is providing containment or support for other existing tank systems.

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. EPA Publication "Field Measurements: Dependable Data When You Need It," (EPA/530/UST 90/003), 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 or Closure-in-Place (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**, at least one foot below underground product piping, two feet below product dispensers, remote fills or containment structures and aboveground product lines for ASTs, and three feet below the tank.

Where bedrock and backfill or the containment structure interface, samples of the backfill or the containment structure may be collected if it consists of soil or soil-like material. Sampling pea gravel is not appropriate. Where tanks are located in or on 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 the water is pumped out and it does not recharge within 24 hours. If the water does not recharge within 24 hours, only 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 (*where applicable/regulated*) for each AST system when conducting a complete closure of both the AST and the piping systems:

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

(2) Product Dispensers and Transfer Pump/Loading Rack(s): One sample below each product dispenser, including dispensers which distribute multiple products and transfer pump/loading rack(s) at

least two feet below the surface directly under each dispenser and transfer pump/loading rack.

(3) Product Piping: One sample from within the piping trench below any underground product piping, directly below each swing joint, connector and pipe elbow. If the product piping runs above the ground surface, sample soil immediately below piping junctures/joints and control valves. In cases where there is no swing joint, connector, pipe elbow or control valve, at least 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 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 piping run was present. At multiple tank facilities, sampling for a single AST removal may terminate where the piping connects to intra-facility piping serving other tanks or where the piping exits the emergency containment of the tank system being removed.

Where product piping is going to be closed-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 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 the total length of product piping in Section III of the Closure Report Form. 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.

Tanks: Soil samples must be collected following the specific directions below unless other sampling arrangements are presented to the DEP and agreed upon.

The DEP may exclude or limit a site assessment and confirmatory sampling for an AST if all of the following are verified and documented:

- The tank system has both secondary and emergency containment meeting containment requirements and permeability standards ($1x10^{-7}$ cm/sec and $1x10^{-6}$ cm/sec

respectively) at § 245.542(a),(b),(c) and (d)(1) (*relating to containment requirements for aboveground storage tank systems),* which has been in place and properly maintained since the initial installation and operation of the tank system and up to the time of tank system permanent closure.

- The tank system has been monitored for leaks according to 245.543 (*relating to leak detection requirements*) and there has been no indication of release of regulated substance during the operational life of the tank system.

- A release does not occur during tank system closure.

- No obvious contamination is observed during tank system closure.

Confirmatory samples for ASTs must be collected as follows:

- For ASTs less than 25 feet in diameter (including horizontal tanks) a minimum of one sample beneath the center of the tank at a depth of three to five feet under the tank bottom and at least three samples in a triangular pattern along the tank perimeter at approximate equidistance between samples at a depth of at least three feet beneath the tank bottom perimeter. Samples along the tank perimeter should be adjacent to the tank vent(s) and piping entering/exiting the tank as practicable. All samples should be in soil representative of the general area.

- For ASTs 25 feet to 60 feet in diameter a minimum of one sample at an approximate center location at least five feet beneath the tank bottom and a minimum of five samples along the tank perimeter at approximate equidistance between samples at a depth of at least three feet beneath the tank bottom perimeter. Samples along the tank perimeter should be adjacent to the tank vent(s) and piping entering/exiting the tank as practicable. All samples should be in soil representative of the general area.

- For ASTs over 60 to 90 feet in diameter a minimum of one sample at the approximate center of the tank and two samples on opposite sides of the center tank sample, at approximately equidistance between the center and the sides of the tank at a depth of at least five feet beneath the tank bottom. And, six samples along the tank perimeter at approximate equidistance between samples at a depth of at least three feet beneath the tank bottom perimeter. Samples

along the tank perimeter should be adjacent to the tank vent(s) and piping entering/exiting the tank as practicable. All samples should be in soil representative of the general area.

- For ASTs greater than 90 feet in diameter, determine the stratigraphy beneath and adjacent to the tank and consult with the appropriate DEP regional office.

(4) 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 "standards 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).

c. Confirmatory Sampling Protocol/Tank System Change-in-Service (See Table 1)

Follow the procedures established or referred to in this section and Section VI.C.1.b., above, unless alternate procedures have been presented to the appropriate DEP regional office and agreed upon by both parties. The DEP may exclude or limit confirmatory soil sampling for ASTs with both secondary and emergency containment meeting containment requirements and permeability standards (1x10-7 cm/sec and 1x10-6 cm/sec, respectively) at § 245.542 (a), (b), (c) and (d)(1) when there is no evidence of previous release or signs that the containment structure may have been breached (See Section VI.C.1.b.(4)).

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

(1) Determine the depth of the water table at the site in the general area of the tank(s) undergoing change-in-service. If bedrock is located above the water table, sampling the water table is not required. If the water table is accessible within 20 feet depth under the affected tank(s), water sampling is required. Well access to the water table should be accomplished from outside the emergency containment structure, if practicable, to avoid establishing a pathway within the containment area should a release occur during closure activities or in the future.

Figure 1

SITE ASSESSMENT

Tank System Removal/Closure

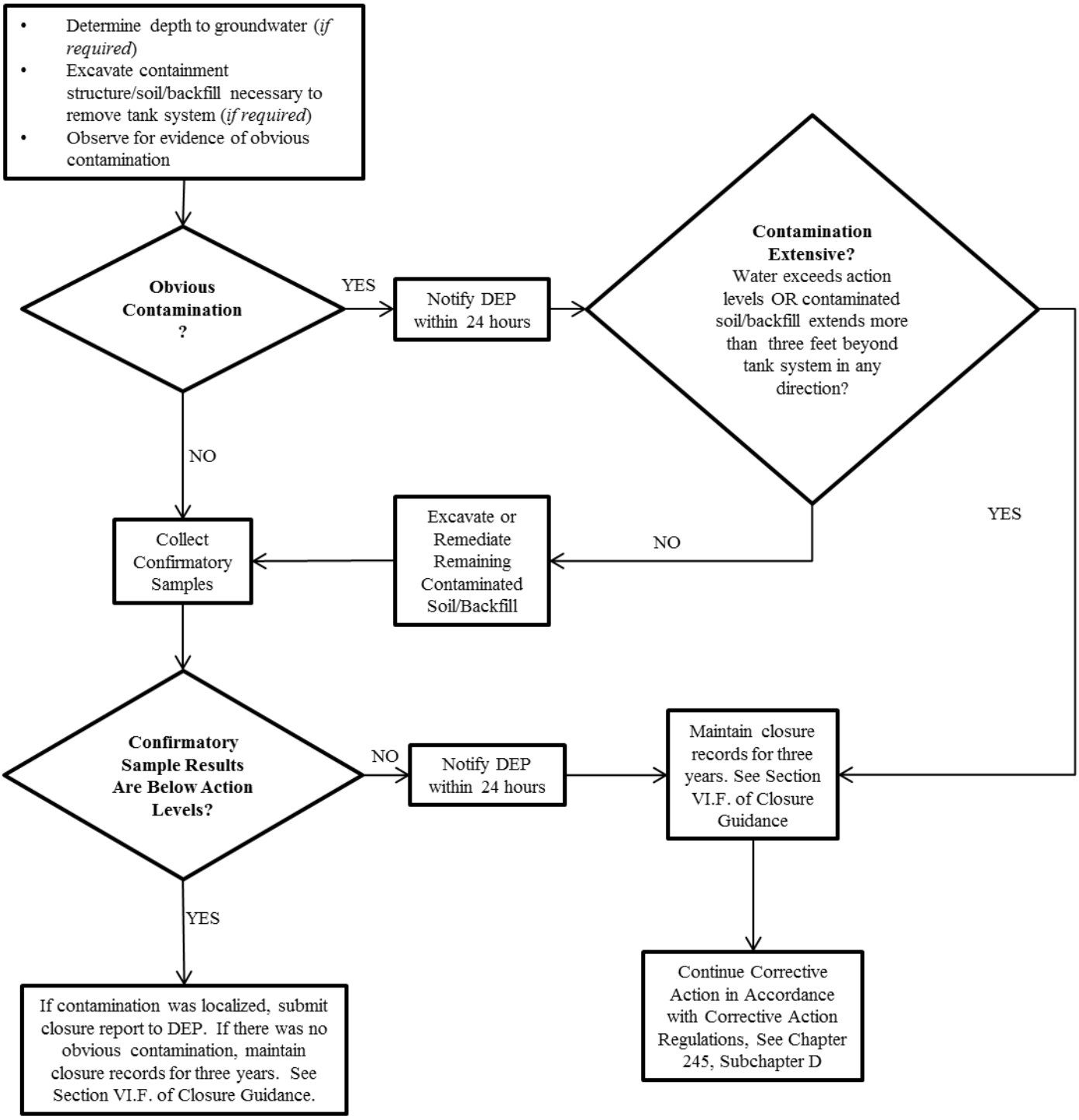

Table 1

CONFIRMATORY SAMPLING PROTOCOL
STORAGE TANK SYSTEM REMOVAL/CLOSURE-IN-PLACE/CHANGE-IN-SERVICE
Number of Samples

	TANK DIAMETERS		TRANSFER PUMP/DISPENSER & LOADING RACK(s)	UNDERGROUND PRODUCT PIPING	ABOVEGROUND PRODUCT PIPING
	Less than 25 Feet	**25 Feet to 60 Feet**			
# SAMPLES	**4**	**6**	**1**	**1**	**1**
COMMENTS	Three samples along tank perimeter at 3 Ft. depth and one sample under tank bottom centered at 3 to 5 Ft. depth. Perimeter samples should be as close to vents and piping entering/exiting tank as practicable.	Five samples along tank perimeter at 3 Ft. depth and one sample under tank bottom centered at least 5 Ft. beneath tank bottom. Perimeter samples should be as close to vents and piping entering/exiting tank as practicable.	At least one Sample directly under each Dispenser/Transfer Pump/Loading Rack at depth of 2 Ft. below surface	One sample at each pipe swing-joint, connecter or elbow at least 1 Ft. below line. When no joint, connector or elbow; sample each 20 Ft. At least one sample must be taken.	One sample at each pipe juncture/joint and control valve. If none exist, at least one sample is still required.

	TANK DIAMETERS		TRANSFER PUMP/DISPENSER & LOADING RACK(s)	UNDERGROUND PRODUCT PIPING	ABOVEGROUND PRODUCT PIPING
	Over 60 Feet to 90 Feet	**Greater Than 90 Feet**			
# SAMPLES	**9**	To be determined	**1**	**1**	**1**
COMMENTS	Six samples along tank perimeter at 3 Ft. depth and three samples under tank bottom, one centered and two between center and tank perimeter, all at least 5 Ft. beneath tank bottom. Perimeter samples should be as close to vents and piping entering/exiting tank as practicable.	Determine stratigraphy beneath and adjacent to tank, determine depth of water table and consult with the DEP regional office to determine number and location of samples.	At least one sample directly under each Dispenser/Transfer Pump/Loading Rack at depth of 2 Ft. below surface.	One sample at each pipe swing-joint, connecter or elbow at least 1 Ft. below line. When no joint, connector or elbow; sample each 20 Ft. At least one sample must be taken.	One sample at each pipe juncture/joint and control valve. If none exist, at least one sample is still required.

Notes:

- If a release of regulated substance is discovered based on visual or field screening observations, the responsible party 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 § 234.305(a)(4), and immediately initiate corrective action. See Appendix A for the appropriate release reporting telephone numbers.
- The DEP may exclude or limit sampling for ASTs with secondary and emergency containment meeting requirements and permeability standards at 25 Pa. Code §§ 245.542(a),(b),(c) and (d)(1) (see VI.C.1.b.(3)).
- For change-in-service tanks, the DEP may waive or limit requirements for confirmatory soil sampling under the tank bottom when the tank is tested for tightness, determined to be tight and tank perimeter samples and water table samples (if required) do not indicate a release of any regulated substance stored in the tank.
- If water is encountered during tank closure or site assessment, water samples must be taken and the appropriate DEP regional office shall be contacted for any additional guidance.

(2) Physically determine whether water will be encountered in the sampling process (i.e. between the ground surface and five feet below the tank foundation or tank bottom).

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 VI.C.1.b., above.

(b) If water is not encountered, samples must be collected in soil representative of the general area following the Confirmatory Sampling Protocol/Tank System Removal or Closure-in-Place requirements established in Section VI.C.1.b., above. Where bedrock and backfill or containment structure interface, samples of the backfill or containment structure may be collected if it 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.

(3) The DEP may waive or limit soil sampling requirements under the tank bottom if the tank is tested for tightness within 30 days prior to the change-in-service, is determined to be tight and no other evidence of a release of regulated substance is known or discovered during the closure process.

2. Classifying, Reporting, and Addressing Contamination

Page one of the "Aboveground 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 Do Not Meet Action Levels (see Section a.(2)(a), below)
- Obvious, Localized Contamination – Sample Results Meet Action Levels (see Section a.(2)(b), below)
- No Obvious Contamination – Sample Results Do Not Meet Action Levels (see Section b.(1) below)
- No Obvious Contamination – Sample Results Meet 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 ASTs. 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 the 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) Sample Results Less than or Equal to Action Levels: Submit the "Aboveground Storage Tank System Closure Report Form" (2630-FM-BECB0514) 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 used 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 ASTs state that the results of the tank system site assessment and closure report 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 AST system out of service;

(b) By the current owners and operators of the AST 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 "Aboveground Storage Tank System Closure Report Form" (2630-FM-BECB0514). 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 AST(s) has/have changed status to permanently closed.**