ILHR 10

APPENDIX B

CLOSURE ASSESSMENTS FOR UNDERGROUND STORAGE TANKS

I. Introduction

A. Purpose of the Closure Assessment:

The purpose of the closure assessment is to determine if contamination exists around an underground storage tank system. The assessment is to be carried out during the closure of federally regulated underground storage tanks (USTs) and/or piping or before a change-in-service.

Use of the procedures specified in this appendix will be acceptable to DILHR as compliance with the site assessment requirements of s. ILHR 10.734.

If contamination is discovered during the closure assessment, additional sampling or cleanup may be required by the Department of Natural Resources (DNR).

This guideline contains a number of attachments. These documents are designed, primarily, to provide information to the contractors or environmental consultants hired by the tank owner.

Before the closure of chemical tank systems, the DNR District Hazardous Waste Specialist must be contacted to determine if any special procedures or precautions must be taken.

B. Responsibilities During UST Closure Assessment:

The responsibilities that must be carried out during a tank closure are summarized below. The remainder of this document provides additional detail on these responsibilities. Although a contractor or environmental consultant may complete a number of the responsibilities, the owner is ultimately responsible for the successful completion of the closure assessment.

1. Notify the local fire chief, fire inspector or other DILHR authorized agent at least 15 days prior to closing the UST or piping.

2. Close the tank system in accordance with Attachment 1.

3. Complete and submit a Tank Inventory Form, (SBD-7437) for each tank.

4. Complete the sampling, analysis, and documentation requirements for closure assessments (Section IV - VIII).

5. Report immediately any spills, leaks or contaminations from the tank or piping to the Division of Emergency Government Hotline (608) 266-3232 or to the DNR (Section VII).

6. Manage all tank residues including remaining product, accumulations of sludge, contaminated water, etc. in accordance with DNR and DILHR requirements. (A fact sheet on sludge management is included as Attachment 4. A fact sheet on the management of remaining petroleum product is included as Attachment 5.)

7. Send a copy of the closure assessment report to DILHR and a copy to the DNR (Section IX). Include a duplicate copy of the inventory form(s) SBD-7437 which was submitted at closure.

II. Applicability

Site assessments must be performed whenever they are required by ch. ILHR 10. Use of these closure assessment procedures will be acceptable to DILHR for performance of a site assessment.

III. Preassessment Steps

A. Notify the Local Authority That has Jurisdiction:

You must notify in writing the local DILHR authorized agent at least 30 days in advance of beginning the UST system closure/closure assessment. (A shorter notification period may be allowed by the local authorized agent.)

Note: Always check for local ordinances which may govern tank closures. DILHR's rules are minimum standards and local ordinances may be more restrictive. At the time of notification, you should check with the local authorized agent to determine if he or she is willing to serve as a "neutral third party" during the assessment.

B. Arrange for a Neutral Third Party:

It is extremely helpful if a local DILHR authorized agent or a staff member from the DNR acts as a neutral third party at the closure and closure assessment. Thirty days in advance of the closure, it should be determined if a neutral third party will observe the closure and complete a closure checklist (form SBD-8951). Copies of a closure checklist are available from DILHR.

C. Develop a Closure Assessment Plan:

The closure assessment must follow a written plan which addresses the items listed in Sections IV to VI. The plan must be available at the site during the assessment for reference and inspection by the fire chief or local authority having jurisdiction.

Note: The responsibility for developing and following the plans listed in 1 - 3 below belongs to the owner or to the contractor, consultant, or individual acting as the owner's agent. The plans do not have to be submitted as part of the closure assessment report.

1. A *Field Procedures Plan* which addresses each item from Sections IV through VI.

2. A *Tank Cleaning and Tank Waste Management Plan* including the following elements:

a. Methods to be used to inert/vent and clean the tank that comply with ch. ILHR 10.

b. A plan for managing oil, gasoline, sludge, accumulated water or other tank contents. This plan must be in compliance with DNR solid and hazardous waste rules. Guidelines for managing tank wastes are available from DILHR or DNR.

Note: Specifications for tank removal may be found in API Standard 1604, NFPA 327 or other equivalent standards may be used.

c. A plan for transporting tanks which are to be removed from the ground and description of the final disposal point of the tank.

Note: The plan should include methods for protecting the safety and health of employes as addressed in Section 1910 — OSHA regulations.

3. A *Contingency Plan for Managing Contaminated Soils and Contaminated Excavation Water.*

The contaminated soils and excavation water management plan must meet minimum requirements established by the DNR.

IV. Sample Collection Requirements

A. Who Can Collect Soil Samples?

Persons collecting soil samples must be certified by DILHR for such work or under the supervision of a certified person.

B. Reporting of Sampling Qualifications

Proof of certification of persons responsible for collecting soil samples should be included in the closure assessment report as a standard attachment.

Closure assessment reports based upon samples collected by uncertified individuals will not be accepted by the DNR.

C. Soil Sample Locations:

1. Collect samples in the native soil, not in the backfill material around the tank. Samples must be collected from all of the following locations:

a. At points where strong odors or soil discolorations indicate the presence of contamination.

b. In native soil one to 3 feet beneath the bottom of each end of each tank in the excavation.

c. In the native soil one to 3 feet beneath the surface underneath each island on the supply side.

d. In native soil one to 3 feet beneath the surface every 20 feet, or segment thereof, along piping runs. In meeting this requirement, samples should preferentially be taken under swing joints, flex connectors, or pipe elbows.

Note: A minimum of 2 samples along the piping are required — one at the island and one along the piping run.

e. If a remote fill pipe is present, in native soil 5 feet beneath the fill opening.

f. When tanks are to be closed in place, soil sampling must still be performed. This may be accomplished by:

(1) Soil borings through the use of a drill rig. The borings must be located as close as possible (less than 3 feet) from each end of each tank. Soil borings along piping runs and pump islands must be located immediately adjacent to these structures. The borings must be completed, documented and abandoned in compliance with the requirements of ch. NR 141.

(2) If the tank(s) can be safely entered, and holes can be cut in the bottom, the soil beneath the tank(s) may be sampled through the holes. The holes must be located near each end of each tank.

Note: Although the closure of tanks in place may be allowed under certain circumstances in accordance with s. ILHR 10.732, a closure assessment is more difficult. The closure in place may also present problems if a remediation is necessary, in future property sales or in future construction.

g. If the water table is found within the tank or piping excavation, soil samples should be collected at the side walls of the excavation at the locations described in IV. C. 1. a. to e. above.

Water which is removed from the excavation must be sampled and disposed of properly.

2. If no closure assessment is being completed because of obvious contamination, this fact must be noted on the Tank Inventory Form (SBD-7437). Unless this is done, the owner may be identified as being in violation of the requirement to conduct an assessment at the time of tank closure.

If a closure assessment is not completed because of the identification of obvious contamination, all notifications and responsibilities, except for the submittal of the closure assessment, must be completed promptly.

D. Variances to Sampling Requirements:

If free product, soils with petroleum product odor or other conditions make it obvious that a site investigation and corrective action will be needed at a site, a closure assessment with soil sampling need not be completed. The contamination, however, must be immediately reported and a work plan for addressing the contamination developed and submitted to the DNR.

E. Field Instruments:

Field instruments including photoionization detectors, flame ionization detectors and portable gas chromatographs may be used for field screening of soil samples and to choose samples to be tested at a laboratory, thus potentially reducing the number of samples which must be laboratory analyzed. Field instruments must be used in accordance with DNR approved field instrument techniques (See Attachment 2).

If field instruments are used to screen soil samples, the Field Procedures Plan must describe all field screening procedures. Sample locations must be at least those specified in IV. C. When using field instruments, the following number of samples must still be sent to a laboratory:

Total Number of Samples Field Tested	Minimum Number of Samples to Laboratory
2-3	2 highest
4-7	3 highest
8 or more	5 highest

Even if no field samples show "detects," the minimum number of samples must still be sent to the laboratory for analysis.

V. Sample Collection Techniques

Soil samples must be collected using techniques for sample collection which are approved by the DNR. The most current versions of these methods are included as Attachment 3.

VI. Analytical Parameters and Methods

A. Parameters:

All soil samples sent to a laboratory must be analyzed for the parameters specified in Attachment 6. The results must be reported in parts per million on a dry weight basis.

B. Methods:

Soil analysis must be conducted by a laboratory certified under ch.NR 149 for purgeable organics. All analytical methods must be approved by the DNR.

VII. Documentation Requirements for USTs

Closure assessments must be properly documented to show that the requirements of the state code and federal rules are met or exceeded. The following are minimum documentation requirements:

A. Site Background Information:

A narrative describing the following site background information must be included:

1. Site owner and UST system owner/operator;

2. Environmental consultant;

3. Excavation contractor;

4. Description of past and present property use;

5. Number of tanks on site currently and any previously removed;

6. Results of previous geotechnical investigations;

7. Information on system leaks or repairs;

8. Site address and township and range descriptions to the quarter/quarter section; and

9. Third party present at closure and closure assessment (if any).

B. Site Location Map:

A map describing the location of the site relative to nearby towns, streets or major highways. Blow-ups of USGS topographic maps, highway maps, or plat maps with the site location clearly marked are acceptable as a site location map.

C. Site Layout/Plot Plan:

The site layout/plot plan must be to scale and provide the locations of tanks, piping, dispensers, utilities, buildings, numbered field and laboratory sampling points and other relevant data clearly marked. Standard scale shall be 1″ = 10 ′.

D. Tabulated Field and Laboratory Data:

All field screening data and laboratory results shall be presented in tabular form and correspond to the numbering on the site layout/plot plan. The field data submitted must also include the depths at which samples were taken and all of the information required in Attachment 2.

Copies of the laboratory analysis reports and chain of custody forms must also be submitted.

E. Narrative/Observations:

A narrative must be provided noting any presence of free product, soil staining, odors, soil types, depth of excavation, tank and piping conditions, possible leak locations, presence of free standing water in the excavation and other relevant observations.

F. Procedures:

Procedures for the following activities shall be reported:

1. Soil sampling techniques including sample collection and preservation methods, and sampling tool cleaning methods.

2. Field instrument methods including headspace techniques.

G. Photographs:

Photographs if submitted, must be either color photocopies, originals, or reprints of originals. Black and white photocopies of photographs are not acceptable for documenting site conditions.

H. Documentation of Tank, Waste Product, and Sludge Disposal:

The closure assessment report must document the reuse, recycling or disposal of the tank and piping and the transportation, storage and disposal of any residues removed from the tank and piping including product, water and sludge accumulations. Minimum documentation shall include:

1. Tank cleaning methods;

2. Names and addresses of firms or individuals removing or cleaning tanks and final destination of tank and waste products removed;

3. Types and quantities of materials collected during cleaning;

4. Methods and firms used to store, transport and dispose of tank waste residues;

5. Waste characterization data;

6. Copies of hazardous waste manifest and EPA generator identification numbers; and

7. Disposal or treatment of contaminated soil and backfill.

I. Copies of Tank Inventory Forms (SBD-7437) For All Tanks Being Closed

J. Other:

Other information requested by DNR or DILHR.

VIII. Release Reporting

If a release is detected during the tank closure, change-in-service or the laboratory analysis of soil samples, the owner/operator must *immediately* report the release. The local DNR District Office should be contacted first. If the

District Office can not be reached, the Division of Emergency Government Hotline should be called, (608)266-3232.

The necessary actions after reporting will vary depending on several factors including the degree of contamination, the depth to groundwater, and the nature of surrounding land use.

IX. Reporting of Tank Closures

The closure of an UST site must be reported to the Division of Safety and Buildings Division through the use of a Tank Inventory Form (SBD-7437). This form is to be completed and submitted to the address shown on the form, by the owner/operator immediately after closure. The submitted form will be used to update the Division's UST inventory.

Copies of the full closure assessment report must be submitted to both DILHR and DNR. A copy of the Tank Inventory Form that listed the tank closure must be submitted with the site assessment. DILHR's copy must be sent to:

Bureau of Petroleum Inspection and Fire Protection, P.O. Box 7969 Madison, Wisconsin 53707

DNR's copy, if contamination was previously reported, is to be sent to the local District Office. If a determination of contamination has not been made, the report is to be sent to:

Bureau of Solid and Hazardous Waste Management, Environmental Response and Repair Section, P.O. Box 7921, Madison, Wisconsin 53707

The DNR will review the closure assessments on a site-by-site basis. Based upon the soil sampling results and site characteristics, the DNR will determine if further investigation or corrective action is needed. The DNR will request additional information if the minimum documentation requirements identified in this guideline are not met.

NOTICE

Section 144.76 (2) (a), Stats., requires any person who possesses or controls a hazardous substance or who causes the discharge of a hazardous substance to immediately notify the DNR of the discharge.

Petroleum products and their constituents are hazardous substances. DNR must be immediately notified of all releases of petroleum products including leaking USTs, leaking piping and distribution systems and overfills.

Failure to notify the DNR of a discharge may have serious consequences including forfeitures of not less than $10 or more than $5000 for each violation (each day of continued violation is a separate offense) and ineligibility for reimbursement under the Petroleum Remedial Action Fund (PECFA) in accordance with s. 101.143, Stats.

ATTACHMENT 1
CLOSURE OF UNDERGROUND STORAGE TANKS

I. Notification: You must notify your local fire department 15 days prior to closing a tank(s).

II. Closure Requirements: Tank closures must follow the requirements of either A. or B. below:

Note: Although the closure of tanks in place is allowed under certain circumstances in accordance with s. ILHR 10.732, a closure assessment is more difficult. The closure in place may also present problems if a remediation is necessary, in future property sales or in future construction.

A. Closure by Removal and Scrapping

1. Obtain a qualified company with certified employes to close the tank system.

2. Remove all flammable or combustible liquids, including any tank wastes or sludge, from the tank and all connecting lines. Piping is to be drained back to the tank and any product collected. Piping that is left in place shall be capped or plugged.

3. Render the tank vapor free by filling with an inert gas such as nitrogen or carbon dioxide, to prevent potential ignition. An educator-type air mover or diffused blower may also be used.

4. Clean the tank and properly store, transport and dispose of the waste, which may be hazardous.

5. Secure written documentation of the destination of the hazardous waste and a receipt for the scrapped tank.

6. Leakage that is detected by visual observation, smell, field instruments or laboratory analysis must be reported to the DNR District Office or by calling the Division of Emergency Government Hotline, (608) 266-3232.

7. Tanks that are transported to a remote area for disposal shall have openings capped or plugged while in transit. Provide a 1/8" vent hole.

8. Conduct a closure assessment if required by Federal EPA Rules or DILHR or DNR rules.

9. File a Tank Inventory Form (SBD-7437) documenting the closure of each tank. Mail the forms to: Division of Safety and Buildings, P.O. Box 7969, Madison, Wisconsin 53707

B. Closure in Place by Filling with an Inert Material

1. Obtain a qualified company with certified employes to close the tank system.

2. Remove all flammable or combustible liquids, including any tank wastes or sludge, from the tank and all connecting lines. Piping is to be drained back to the tank and any product collected.

3. Render the tank vapor free by filling with an inert gas such as nitrogen or carbon dioxide, to prevent potential ignition. An educator-type air mover or diffused blower may also be used.

4. Excavate to the top of the tank.

5. Remove drop tube, fill pipe, gauge pipe, and other fixtures. The vent line is to remain in place until the tank is purged.

6. Clean the tank and properly store, transport and dispose of the waste, which may be hazardous.

7. Secure written documentation of the destination of the waste.

8. Leakage which is detected by visual observation, smell, field instruments or laboratory analysis must be reported to the DNR District Office or by calling the Division of Emergency Government Hotline, (608) 266-3232.

9. All piping left in place shall be capped or plugged.

10. Fill the tank completely with an inert solid material (sand, cyclone boiler slag or pea gravel is recommended). A tank can be opened up or filled through existing tank openings. It is important to fill the tank completely.

11. Remove the vent pipe and cap, and plug or seal all tank openings.

ATTACHMENT 2
CLOSURE OF UNDERGROUND STORAGE TANKS

Field instruments including photoionization detectors (PIDs), flame ionization detectors (FIDs) and gas chromatographs may be used to field screen soil and groundwater samples using headspace techniques outlined in this attachment. Other types of field instruments may not be used to screen soil samples in the field without prior approval of the DNR.

Note: The term "headspace sample" is used within this attachment to refer to samples collected for headspace analysis. Samples collected for laboratory analysis must be collected in glass or inert synthetic containers obtained from or approved by the certified laboratory which will analyze the samples.

A. General Requirements

1. A field instrument shall only be used by operators thoroughly familiar with the operation of the instrument. Operators shall, through training or education, be familiar with each of the following aspects of instrument use:

a. Principles of instrument operation;

b. Interferences;

c. Instrument sensitivity and linear range for petroleum constituents;

d. Calibration procedures;

e. General maintenance including filter cleaning;

f. Flame lighting techniques (for FIDs); and

g. Battery maintenance.

2. The calibration of field instruments shall be checked at least once per operating day using methods approved by the manufacturer. FIDs shall be checked using methane or other appropriate commercial gases. PIDs shall be checked using an appropriate field standard such as benzene or isobutylene.

3. All samples shall be analyzed in a manner consistent with written procedures which substantially conform to this guidance.

4. If a headspace sample is found through headspace analysis to be contaminated and laboratory analysis is needed to confirm the analysis, the sample sent to the laboratory shall be a split sample from the same sampling point where the headspace sample was collected. Split samples shall be collected and immediately preserved at the same time the headspace sample is collected. Headspace samples shall not be submitted to the laboratory for analysis.

5. PIDs must have a lamp energy of 10.6 electrovolts or greater.

B. Headspace Sample Containers and Analytical Preparation

1. All headspace sample containers (with the exception of new polyethylene bags) must be thoroughly cleaned using water/detergent solutions, methanol, or other appropriate solvents. Following washing, sample containers shall undergo multiple rinses using distilled water.

2. Headspace sample containers shall be constructed of glass or inert synthetics. Bottles and caps may be reused if tested in advance for Volitile Organic Compound (VOC) carryover. New one-quart plastic bags may also be used. (See E below.)

3. Headspace samples shall be collected in accordance with soil sampling requirements specified in Attachment 3.

4. Headspace sample containers are to be filled ½ to ¾ full. All headspace sample containers used at an UST site shall be the same size and shall be filled to the same volume. A headspace fill-line shall be marked on all containers.

5. Polyethylene bags which are used as headspace sample containers must be resealable freezer bags. A consistent sample/headspace ratio must be maintained. This can be achieved through the use of three-way valves (Imperial Eastman, Inc., No. 108-HD or equivalent) attached to the bags and sealed with Buna-N gaskets and lamp nuts. (See Figure below.) Once sealed, all bags shall be inflated to the same volume using a bicycle pump. Valves and connective tubing must be purged to prevent carryover from previous samples or replaced.

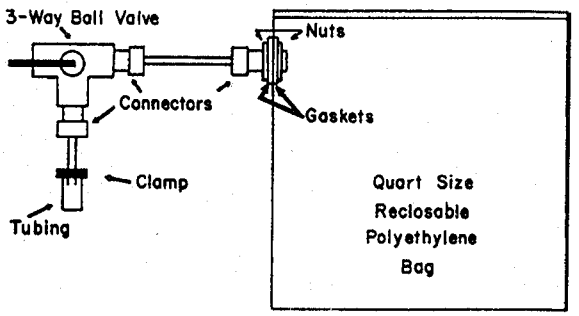

Figure source: Robbins, Gary A., R.D. Bristol and V.D. Roe. 1989. A Field Screening Method for Gasoline Contamination Using a Polyethylene Bag Sampling Stytem. Ground Water Monitoring Review. v. 9 no. 4, pp. 87 - 97.

6. Headspace sample containers shall be closed or covered immediately. Sample containers shall be covered with heavy gauge aluminum foil or a tight fitting cap or collar equipped with a tight fitting capped septum. Tight fitting caps or collars may be used only if the field instrument is capable of drawing a sample under tension for a long enough period to take a stable reading.

C. Headspace Sample Analysis

1. Once collected and sealed, headspace samples shall be agitated for at least 30 seconds to break soil clods and release vapors. Headspace samples in containers sealed with aluminum foil shall first be capped to allow agitation without damage to the foil seal. Seals shall be left in place during warming and shall not be pierced until the headspace is analyzed.

2. Headspace samples must be allowed to equilibrate prior to analysis. Minimum equilibration time shall conform to the specifications in the Table below.

Minimum Sample Headspace Equilibration Time

Ambient Outside Air Temperature at Time of Sample Collection	Minimum Amount of Time Sample Must Equilibrate at 70° F or Greater Temperature*
40°F	40 min.
41 - 55°F	20 min.
56 - 69°F	10 min.
70°F	5 min.

* Headspace samples shall be warmed out of direct sunlight by bringing them into a heated environment. At temperatures less than 55°F, headspace sample equilibration time can be reduced to 10 minutes through the use of a 70°F water bath.

3. Following equilibration, the sample headspace shall be analyzed promptly. The highest instrument reading shall be recorded. Time averaged readings may also be recorded, but they are not a substitute for the highest instrument reading. Meter "quenching" shall be recorded if experienced. Care shall be taken to insert the instrument tip through a single small hole in the foil seal (if used) and to measure headspace at one-half the distance between the foil seal and the sample surface.

Note: The DNR interprets FID responses to be petroleum related unless there is independent confirmation that the gas is not petroleum derived.

D. Documentation

If field instruments are used in conjunction with an UST closure assessment, the following minimum documentation standards must be adhered to:

1. Record all relevant ambient conditions. At a minimum, record:

a. Ambient outside temperature;

b. Temperature where samples are held during equilibration; and

c. Weather conditions (e.g., light rain, windy).

2. Record all relevant instrument conditions including:

a. Instrument make and model;

b. Date of last factory calibration;

c. Field calibration gas used and concentration;

d. Date and time of last field calibration;

e. Lamp energy in electrovolts (for PIDs);

f. Instrument gain setting;,

g. Erratic instrument readings; and

h. Cleaning or repairs performed in the field.

3. Record all field results including:

a. Headspace results as "instrument units as (calibration gas)." Example: 151 instrument units as benzene. DO NOT RECORD RESULTS AS CONCENTRATIONS UNLESS INSTRUMENT READINGS HAVE BEEN CALIBRATED AGAINST PREPARED SOIL/PETROLEUM PRODUCT CALIBRATION CURVES;

b. Relative sample moisture content. Example: Saturated, wet, moist, damp, or dry;

c. Record any noticeable petroleum product odor for any sample; and

d. Record instrument "quenching" caused by highly contaminated soils.

ATTACHMENT 3
SOIL SAMPLING REQUIREMENTS

Soil samples collected to comply with closure assessment requirements shall comply with the following requirements.

A. General Requirements

1. Soil samples must be collected in a manner which causes the least disturbance to the sample.

2. Composite samples are not to be collected for purposes of complying with the closure assessment requirements.

3. All soil samples shall be properly labeled with the sample number and collection date.

B. Soil Sampling Methods

1. If the UST system is closed by removal of the tank system from the ground, the following sample collection method must be used:

a. If the excavation, pipe trench or other sampling location can be entered in accordance with applicable OSHA regulations, samples may be collected using a hand auger or trowel.

b. If the excavation, pipe trench or other sampling location cannot be entered safely for sampling, a sample must be collected from the excavation using a hand auger extension or from a backhoe bucket.

2. If the UST system is closed in place, soil samples shall be collected through one of the following techniques:

a. If the tank is entered for cleaning and samples are collected through holes cut in the tank, they shall be collected using a hand-held soil auger or trowel.

b. If the samples are to be collected by drilling, then split spoon (barrel, tube) samplers or thin-walled (Shelby) samplers must be used when conditions permit. Grab samples from drill cuttings cannot be used unless undisturbed samples are impossible to collect.

3. Whenever hand-held tools are used to collect samples, the first 3 to 4 inches of soil must be scraped away immediately before sampling so that the sample is collected from a previously unexposed soil area.

4. All soil sampling tools must be thoroughly cleaned between all sampling points using water/detergent solutions, methanol, or other appropriate solvents.

C. Sample Containers for Laboratory Analysis

1. Samples shall be collected in glass or inert synthetic containers obtained from or approved by the certified laboratory which will analyze the samples. Polyethylene bags are not to be used for laboratory samples.

2. All sample containers shall have Teflonj or equivalent lined caps.

3. Sample containers shall be filled to the top such that no headspace remains.

4. The use of "wide mouth" vials is highly recommended.

D. Sample Handling

1. Seal and label samples prior to collection or immediately following collection.

2. Chill samples immediately using adequate quantities of ice, "blue ice," or equivalent.

Closure assessment documentation requires analytical laboratories to report sample temperatures. Improper storage resulting in sample warming could result in rejection of report results.

3. Follow chain of custody procedures.

4. Ship samples to analytical laboratory as soon as possible. Do not allow samples to be held so long that the maximum holding time is violated.

5. Unless otherwise specified, the maximum holding time for soil samples collected for total petroleum hydrocarbons (TPH) analysis is 14 days.

NOTE: HEADSPACE ANALYSIS USING FIELD INSTRUMENTS SHOULD NOT BE PERFORMED ON SAMPLES COLLECTED FOR LAB ANALYSIS. DUPLICATE SAMPLES SHOULD BE COLLECTED FOR HEADSPACE AND ANALYSIS.

ATTACHMENT 4
PETROLEUM TANK AND SLUDGE MANAGEMENT FACTSHEET

Many owners of underground storage tanks (USTs) are in the process of removing or upgrading their tanks to come into compliance with Environmental Protection Agency (EPA) regulations. Tank owners are responsible for properly managing any waste and product that remain in tanks which are being upgraded or removed.

The Department of Industry, Labor and Human Relations (DILHR) regulates petroleum products. See "Management of Petroleum Products at Tank Closure" for product handling guidance. DILHR considers tank contents less than 2 inches above the water line or the tank bottom to be wastes. These wastes are regulated by the DNR as either sludge or wastewater.

Tank sludge is a *solid waste* regulated under ch. 144, Stats. Depending on the products stored in tanks, it may also be *hazardous waste.* The state has the authority to impose civil or criminal penalties against tank owners, tank excavators, tank transporters, and tank salvagers who improperly dispose of tank sludge. The tank owner is responsible for classifying tank waste and making sure that it is properly handled and disposed of in compliance with the regulations. Wastewater is regulated by DNR in accordance with chs. 144 and 147, Stats.

An owner or operator who permits improper disposal may become *ineligible* for reimbursement under the state's Petroleum Storage Remedial Action Fund Act (PECFA), s. 101.143, Stats.

I. Wastewater Handling

Wastewater may be generated from either removal of tank condensate or from tank washing. It must be disposed of legally. Some tank excavation services include wastewater disposal. In sewered areas, you may contact the municipal wastewater treatment plant for disposal approval. In unsewered areas, you may contact a licensed septage hauler to transport wastewater to a wastewater treatment plant. Septage haulers may not transport flammable liquids. Identify an acceptable method to dispose of wastewater prior to excavating tanks.

II. Sludge Handling

Tank sludge is solid waste. Tank owners are responsible for determining if it is also hazardous waste, and, if so, characterizing and managing it in accordance with all state and federal regulations. This is a technical procedure which should be handled by an experienced hazardous waste contractor. If there is a possibility that at any time the tank contents were not clean fuels, additional analysis is required to identify residual wastes (PCBs, solvents, etc.). Complete analysis must be performed for waste oil tank sludges.

A. Tank sludge which has been classified as nonhazardous may be:

1. Removed by a waste oil service for recycling; or

2. Disposed of in a licensed sanitary landfill with a clay liner if the sludge does not contain free liquids as determined by the paint filter test (EPA SW-846 methods, update II). Free liquids may be absorbed by adding clean absorbent materials such as sawdust or vermiculite.

B. Tank sludge which has been classified as hazardous must be:

1. Transported to a licensed treatment, storage or disposal facility by a licensed hazardous waste transportation service; or

2. Manifested for transportation using a EPA identification (ID) number.

Note: ID numbers can be obtained by completing an EPA notification form (8700-12, rev. 10-88). This form can be obtained from DNR and must be submitted to: EPA Region V, Attn: EPA ID Number, P.O. Box A-3587, Chicago, Illinois 60690.

The EPA ID number should be requested six weeks prior to tank excavation. ID numbers can not be obtained from DNR.

C. Sludge which is being held on site should be handled as follows:

Sludge may be held on site while laboratory analysis is being completed or it may be transported immediately by a licensed transporter. Liquid tank sludge may be manifested as ignitible waste. Some tank excavation companies offer sludge analysis and sludge disposal services.

1. Consult the laboratory prior to sampling to determine proper sampling procedures and sample containers.

2. Carefully transfer the sludge from the tank to a metal drum. Seal the drum, affix the date and label it "Petroleum Tank Sludge."

3. To avoid contaminating nonhazardous sludge with hazardous sludge from other tanks, do not mix sludges from different tanks. Each sample jar and each sludge drum must be identified by matching numbers or descriptions.

4. Handle sludge with care. Anyone transferring sludge must have proper training and wear protective clothing and gloves.

5. Avoid spills. Spilling sludge may contaminate an otherwise clean tank excavation site. You must immediately report any spill to DNR and clean up the spill.

6. Maintain the drums containing sludge in good condition and in a secure location while waiting for laboratory results. Report the location of sludge drums in the tank closure assessment report which is provided to DILHR and DNR.

III. Tank Handling

1. Clean tanks on site. It is illegal to transport tanks containing residues of hazardous waste without a variance or emergency waiver from the DNR District office. Uncleaned tanks present an explosive risk to the public. Interstate carriers must obtain U.S. Department of Transportation approval to carry uncleaned tanks which have held hazardous materials.

2. Before removing sludge, cleaning tanks, and transporting tanks, fill the tanks with inert gases or properly vent them. OSHA confined space entry regulations apply.

3. Properly cleaned tanks may be recycled for scrap metal. DNR does not regulate scrap metal recycling.

IV. Additional Information Available

Tank Excavation Services:

Bureau of Petroleum Inspection & Fire Protection
Department of Industry, Labor and
Human Relations
P.O. Box 7969
Madison, Wisconsin 53707

Hazardous Waste Management Services:

Bureau of Solid & Hazardous Waste Management
Department of Natural Resources
P.O. Box 7921
Madison, Wisconsin 53707

Certified Laboratories:

Office of Technical Services
Department of Natural Resources
P.O. Box 7921
Madison, Wisconsin 53707

Additional FACTSHEETS Available from DNR:

"What is Hazardous Waste?"
"EPA Identification Number"
"Notification of Hazardous Waste Activity"

DNR factsheets and forms to obtain EPA identification numbers can also be obtained from DNR District Offices.

Note: This factsheet is a summary of regulations. It may not be used as a substitute for the statutes and codes administered by the Departments of Natural Resources; Industry, Labor and Human Relations; Transportation; or the federal government. Consult the regulations and statutes for specific information. A tank owner, tank excavator, tank transporter and tank salvager may all be liable for improper sludge transportation and disposal.

ATTACHMENT 5
MANAGEMENT OF PETROLEUM PRODUCTS AT TIME OF TANK CLOSURE

The closure of a petroleum product storage tank system will result in the necessity to manage the petroleum product remaining in the tank at closure. Petroleum product in this instance means products regulated by DILHR under ch. ILHR 48, the Petroleum Products Administrative Code.

Petroleum products which meet the standards of ch. ILHR 48 or will be blended to meet the standards fall within the jurisdiction of the Petroleum Inspection Program. Wastewater, product-water interfaces, petroleum directly above the product-water interface, and sludges fall within the scope of the DNR. The DNR factsheet titled "Petroleum Tank and Sludge Management Factsheet" should be referred to for guidance on waste management, (see Attachment 4.)

The following requirements have been established by the Petroleum Inspection Program for the handling and use of petroleum products generated at tank system closures. The requirements which have been established reflect the DNR's authority under ch. 168, Stats., and ch. ILHR 48.

1. To the extent practical, given the timing of the tank closure, as much product as possible should be used prior to tank closure.

2. Product for use or transfer to other facilities may be pumped off to a maximum depth of 2 inches above the water level in the tank or 2 inches above the tank bottom, whichever is higher.

3. Below the 2-inch level, all liquids and solids are considered a waste and are regulated by the DNR.

4. The removal and transfer of any product destined for use or return to a terminal or refinery must be transported by a tank vehicle which complies with the "Standards for Tank Vehicles for Flammable and Combustible Liquids."

5. Product which is removed from the tank above the 2-inch level may be:

a. Returned to a terminal slop tank, if a terminal will accept it; or

b. Returned to a refinery, if the company will accept it.

6. If the desire is to use the product taken from the tank system, it may be accomplished in the following ways:

a. Gasoline may be transferred to another facility for storage and use. Storage must meet the standards established in the ch. ILHR 10, Flammable and Combustible Liquids Code and the EPA rules;

b. Terminals or refineries may purchase gasolines and blend them with new gasoline at their facility. The gasoline purchased must be treated as "interface" and the blend rate must not exceed ½ of one percent;

c. Oils removed during tank closure must be downgraded to #2 fuel oil. Products classified as kerosene, #1 diesel, #2 diesel, #1 fuel oil or #2 fuel oil may be blended with new #2 fuel oil, not to exceed 50 percent, and used or sold for heating purposes;

d. Products heavier than #2 fuel oil may be blended with an equal or heavier stock, not to exceed 50 percent, and sold for or used for heating purposes; or

e. Oils may also be sold without blending for nonsensitive burner and heating use if the purchasers have established themselves as a qualified buyer/user with the DILHR District Petroleum Inspection Office.

7. When product quantities of 500 gallons or more are involved, the DILHR District Petroleum Inspection Office must be contacted. Based upon the contact, the petroleum inspection staff will determine the disposition of the product. The staff may:

a. Sample and test the product to determine compliance with ch. ILHR 48, and then provide directions for disposition;

b. Allow transfer of the product to another station or facility for use or sale; or

c. Classify the product as falling outside of the scope of ch. ILHR 48. (If the material tested falls outside the scope, the product may be determined to be a waste and within the jurisdiction of the DNR.)

ATTACHMENT 6
CLOSURE ASSESSMENT ANALYTICAL REQUIREMENTS

All samples collected for purposes of complying with Section IV of "Closure Assessments for Underground Storage Tanks" must be analyzed for total petroleum hydrocarbons (TPH) using procedures specified in the "California Leaking Underground Fuel Tank Manual."

In addition to sample results, the documentation must include the following items:

1. Sample condition upon receipt by the laboratory including sample temperature;

2. Date of analysis;

3. Description of the laboratory's sample storage technique including methods used to keep samples cold;

4. Analytical method detection limits;

5. Sample results reported in parts per million on a dry/weight basis for the petroleum product used as a quantitation standard. For example: "TPH as Gasoline" or "TPH as #2 Fuel Oil"; and

6. For "unknown" petroleum products or samples whose chromatograph results don't match the petroleum product stored in the tank, explain the decision criteria used to determine the appropriate standard.

Note: The DNR reviews the analytical requirements for soil and groundwater sample analysis in the UST program. The review is expected to result in a revised analytical method for TPH and revisions of the parameters and methods used during investigations of confirmed petroleum releases.