Initial Certification for Underground and Aboveground Storage Tank Removal

Presented By
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Keystone Petroleum Equipment LTD

Module 1
Regulatory Requirements Related to Tank Closure

Required Forms & Other Paperwork

- DEP 30 Day Closure Notification Form*
- PA One Call
- DEP Amended Registration Form*
  - *DEP Registration Amendment*
- Labor and Industry Notification
- Closure Report*
- Notice of Contamination* & USTIF
- Pump and Plug
- Field Documentation

**** - 2018 Regulations Form Update***

DEP 30 Day Closure Notification

- Required for all regulated USTs:
  - Change in service from regulated to non-regulated tank
  - Major modification to a dispenser that requires excavation and removal/replacement of the dispenser
  - Line replacement
  - Partial system closure
- Only required for regulated ASTs over 21,000gal
- Needs to be submitted to the DEP Regional office 30 days before beginning any closure work
- A waiver of the 30 day period can be requested through the regional office on a case by case basis *(This is very region specific)*

30 Days means 30 Days

PA ONE CALL

www.paonecall.org

- Your company work site information
- Location including address, county, municipality and two nearest intersections
- Depth and area of excavation
- Duration of work
- Area should be marked in white
- 1-800-242-1776

PENNSYLVANIA ONE CALL SYSTEM, INC.

Dig Safely.

www.paonecall.org

CALL 1-800-242-1776

WORK LOCATION REQUEST FORM

TELEPHONE NUMBER: (_____) _____ EXT.: _____ CALLER: _____

COMPANY NAME: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

WORKSITE INFORMATION:

COUNTY: _____ MUNICIPALITY: _____ WARD: _____

STREET ADDRESS: _____ STREET NAME: _____

NEAREST INTERSECTION: _____

SECOND INTERSECTION: _____

SITE MARKED IN WHITE: ☐ Yes ☐ No

LOCATION INFORMATION: _____

_____

_____

SUBDIVISION: _____ TYPE OF WORK: _____

WORKING IN: ☐ STREET ☐ SIDEWALK ☐ PUBLIC PROPERTY ☐ PRIVATE PROPERTY

☐ OTHER (SPECIFY) _____

DEPTH: _____ EXTENT OF EXCAVATION: _____

METHOD OF EXCAVATION: _____ OWNER/WORK BEING DONE FOR: _____

DURATION OF JOB: _____ PERSON TO CONTACT: _____

PHONE: (_____) _____ EXT: _____ BEST TIME TO CALL: _____

FAX #: (_____) _____ EMAIL ADDRESS: _____

REMARKS: _____

_____

_____

NOTIFICATION TYPE:

☐ **CONSTRUCTION** (Not less than 3 nor more than 10 Business Days) **PROPOSED DIG DATE:** _____ **TIME:** _____

☐ **DESIGN** (Not less than 10 nor more than 90 Business Days)

TO BE COMPLETED AFTER PLACING ONE CALL

LAWFUL START DATES: _____ THROUGH _____

OTHER SERIAL NUMBERS REFERENCED: _____

FACILITY OWNER MEMBERS NOTIFIED: _____

_____

_____

SERIAL NUMBER ASSIGNED: _____ DATE/TIME: _____

THERE IS AN ANNUAL FEE

1/3/2007

PA ONE CALL
Web Ticket Entry

- PA One-Call requests can now be made online
- To participate in this system you must attend a two hour training session
- This system benefits regular users of the one-call system by cutting entry time from 10 minutes to 4 minutes
- Web tickets can be entered 24/7

DEP Amended Registration Form

- Ensure that all information is accurate
- Site/Tank owner, operator, and site contact information
- The date the tanks were permanently closed
- Must be signed by the certified tank remover on site during closure activities and the owner of the tank system
- Always submitted to DEP after completion of the closure
- DEP Registration Amendment: An abbreviated version which can be used to put a facility into temporary closure. Permanent closure must use the full form

Labor and Industry Notification

- A notification of closure can be submitted to L&I in writing after the tank removal
- Include facility address, owner information, permit #, and what tanks have been removed
- If the facility does not have, or does not know their L&I permit number, L&I may request additional information about the site

Closure Report Contents

- Facility and owner information
- Site/sampling map and sample results
- Description of cleaning and disposal methods
- Job Photos
- Waste manifests for product, rinsate, tank, components, contaminated and uncontaminated soil
- Excavation and closure methods
- Site Assessment
- Amended Registration Form
- Signatures

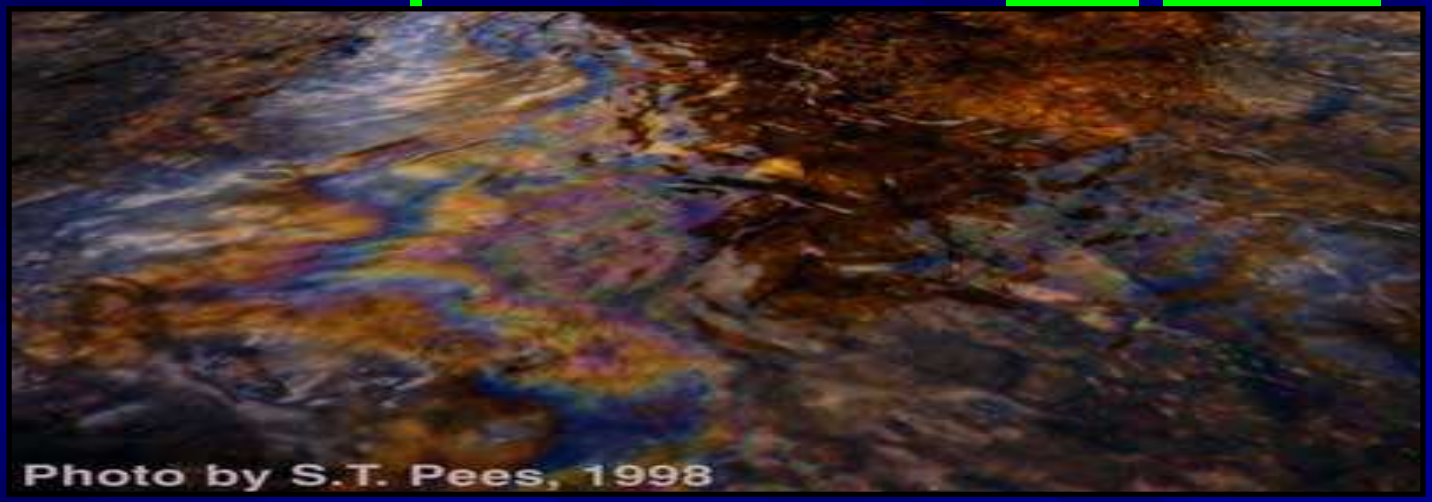
Using a 3rd Party to Complete Closure Reports

- If you are using a 3rd party environmental consulting firm to perform sampling and complete closure reports. DOUBLE CHECK THEIR WORK, IT'S YOUR CERTIFICATION ON THE LINE!!!!
- It is the certified individual's/company's responsibility to make sure the samples are properly collected and that the closure report contains all of the required information.

Closure Report Requirements When obvious contamination is NOT observed and the sample results are clean

- The tank owner must keep the closure report for at least **3** years (recommended as long as possible)
- Certified individuals/companies are required to keep all inspection and tank handling documentation for at least 10 years
- Don’t forget: Even if the closure is ‘clean’ you still need to submit the amended registration form to the PADEP
- The full closure report can be submitted to PA DEP for review at the contactor’s or customer’s discretion (recommende)

Closure Report Requirements
When obvious contamination is observed or the sample results are not clean

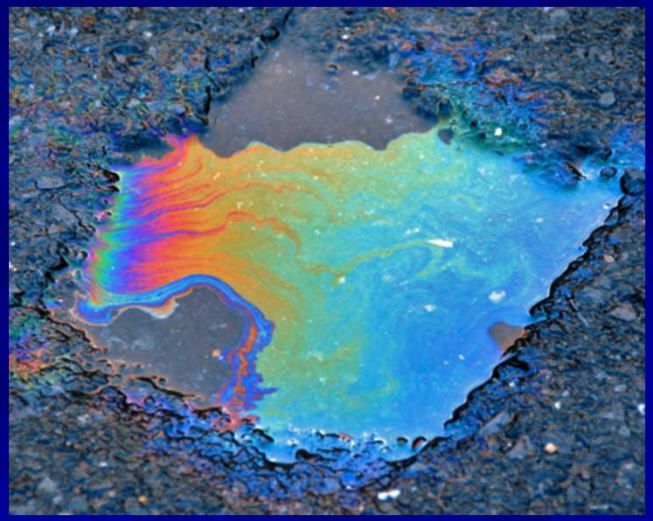


- Along with the appropriate contamination notifications, the entire closure report must be submitted to DEP
- The owner must still retain a copy for 3 years and the certified individual/company must retain a copy for 10 years

Reporting Releases & Contamination

- All PADEP certified individuals are required to report contamination to the appropriate regional office if encountered while performing a regulated activity
- Reportable Events:
  - A release of a regulated substance
  - Suspected or confirmed contamination of soil, surface or groundwater from regulated substances
  - A regulated substance observed in a containment structure or facility.

UMR Reportable Event Examples



- Obvious and/or suspected contamination includes the following:
  - Product stained or product saturated soil or backfill
  - Ponded product in the excavation
  - Free product or sheen on the water in the excavation
  - Hole in the piping or tank
  - Sample results above PADEP action levels

Notice of Contamination

What you must do:

- Written notification from the certified individual must be submitted within 48 hours of confirmation of the contamination (Notification of Contamination Form)

What else you should do:

- Inform the owner and make him aware that he also has responsibilities for making a 24 hour verbal notice and 15 day written notice to the PADEP
- Inform the owner that he should make notification to USTIF of the release; failure to notify USTIF within 60 days of the discovery of the release can result in USTIF denying the claim

When do I report?

Owner & Operators

- Any spill to soil or a waterway is reportable, this includes storm sewers
- A spill to an impervious surface in quantities greater than 25 gallons
- A spill to an impervious surface in quantities less than 25 gallons if you don't meet all 3:
  - Have control of over the release
  - The release is completely contained
  - The total volume of the release is recovered and removed within 24 hours of the release
- A release to a containment sump higher than the bottom of the first penetration
- After a failed or inconclusive investigation of a suspected release

If you make a notification of release to the PADEP you should also notify USTIF

§ 245.304. Investigation and reporting of suspected releases.

(a) The owner or operator of a storage tank system or storage tank facility shall initiate and complete an investigation of a suspected release of a regulated substance as soon as practicable, but no later than 7 days after the indication of a suspected release. An indication of a suspected release includes one or more of the following conditions:

(1) The presence of a regulated substance or an unusual level of vapors from a regulated substance outside of storage tank system components designed to routinely contain or convey product, at or near a storage tank facility.

(2) Evidence of a regulated substance or vapors in soils, basements, sewer lines, utility lines, surface water or groundwater in the surrounding area.

(3) Unusual operating conditions, indicative of a release, such as the erratic behavior of product dispensing equipment.

(4) The sudden or unexpected loss of a regulated substance from a storage tank system or the unexplained presence of water in a storage tank system.

(5) Test, sampling or monitoring results, including the sounding of an alarm, from a release detection method which indicate a release.

(6) The discovery of holes in or damage to a storage tank system during activities such as inspection, repair or removal from service.

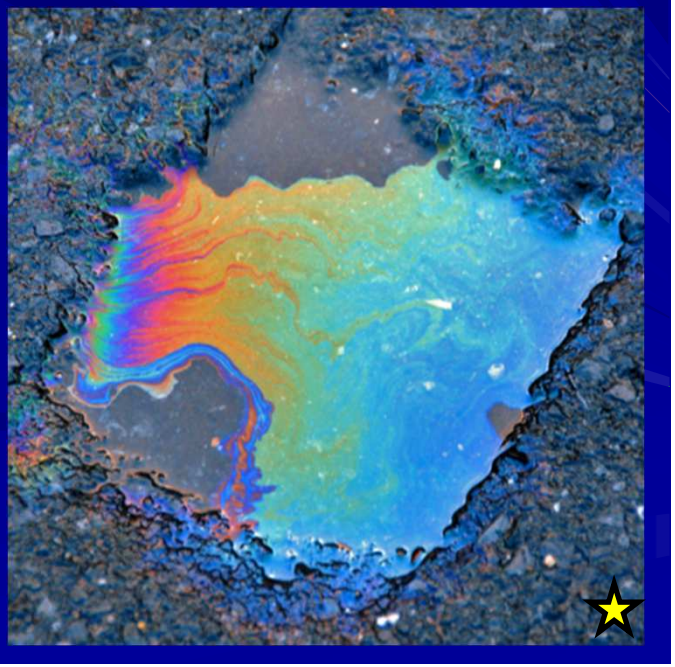
(7) Other events, conditions or results which may indicate a release.

When do I report?

installers & inspectors

- A release (any release regardless of gallons or where it occurred)
- Suspected or confirmed contamination
- A regulated substance observed in a containment structure or facility (make sure your sumps are clean and dry)
- Certified individual performing testing must report a failed test (sump, overfill, spill prevention testing)

A reputable certified company should also remind the owner to call USTIF



HOW DO I REPORT?

Notice of Release

(Owners & operators)

- Verbal notification to the PADEP (and any affected utilities) within 24 hours by owner/operator
- Written notification by owner/operator filed within 15 days to the appropriate regional office and local municipality (Notification of Reportable Release Form)

NOTICE OF CONTAMINATION

(INSTALLERS & INSPECTORS)

- **If a certified individual is performing a regulated activity at a facility they are required to report**
- **A certified individual must submit a written notification within 48 hours (Notification of Contamination Form)**
- **Make sure to clean your sumps/spill buckets prior to inspection (A certified inspector must make a notification of contamination if we see water/fuel in a sump)**

Notification of Contamination Form
Certified Individuals
Notification of Reportable Release
Owners and Operators

- They are the same form!!!
- Facility specific information

  Name, Address, DEP ID #, Municipality, Site Contact (operator), and phone #
- Owner Information:

  Name, Address, Phone Number
- Spill Information:

  Product, Quantity, Date of Event

  Have any remedial actions been taken???

  Is the release confirmed or suspected?

  How did the release occur and is it contained?

PA Underground Storage Tank Indemnification Fund (USTIF)

- PA mandated pollution liability insurance fund, falls under the PA Department of Insurance
- Covers owners of regulated underground storage tanks
  - Owners pay into the fund based on the type of product stored
- Opt-in program for HO tanks >3,000 gallons
- Also covers certified individuals (UMR, UMX, IUM, etc..)
  - UMR pays based on activities completed; Tank removal fee of $15.00 per tank
- PA mandated pollution liability insurance fund, falls under the PA Department of Insurance
- Two - $5,000 deductibles (3rd party liability & corrective action)
- $1.5 million coverage per occurance

Spills and the 3 P's

The easiest way to deal with a spill is not to have one

- **Preparation:** Spill kits, training, knowing notifications, safety plans/meetings
- **Procedures:** Contain spill, make appropriate notifications, secure area
- **Prevention:** Take your time, think things out, if it seems risky, don't do it!

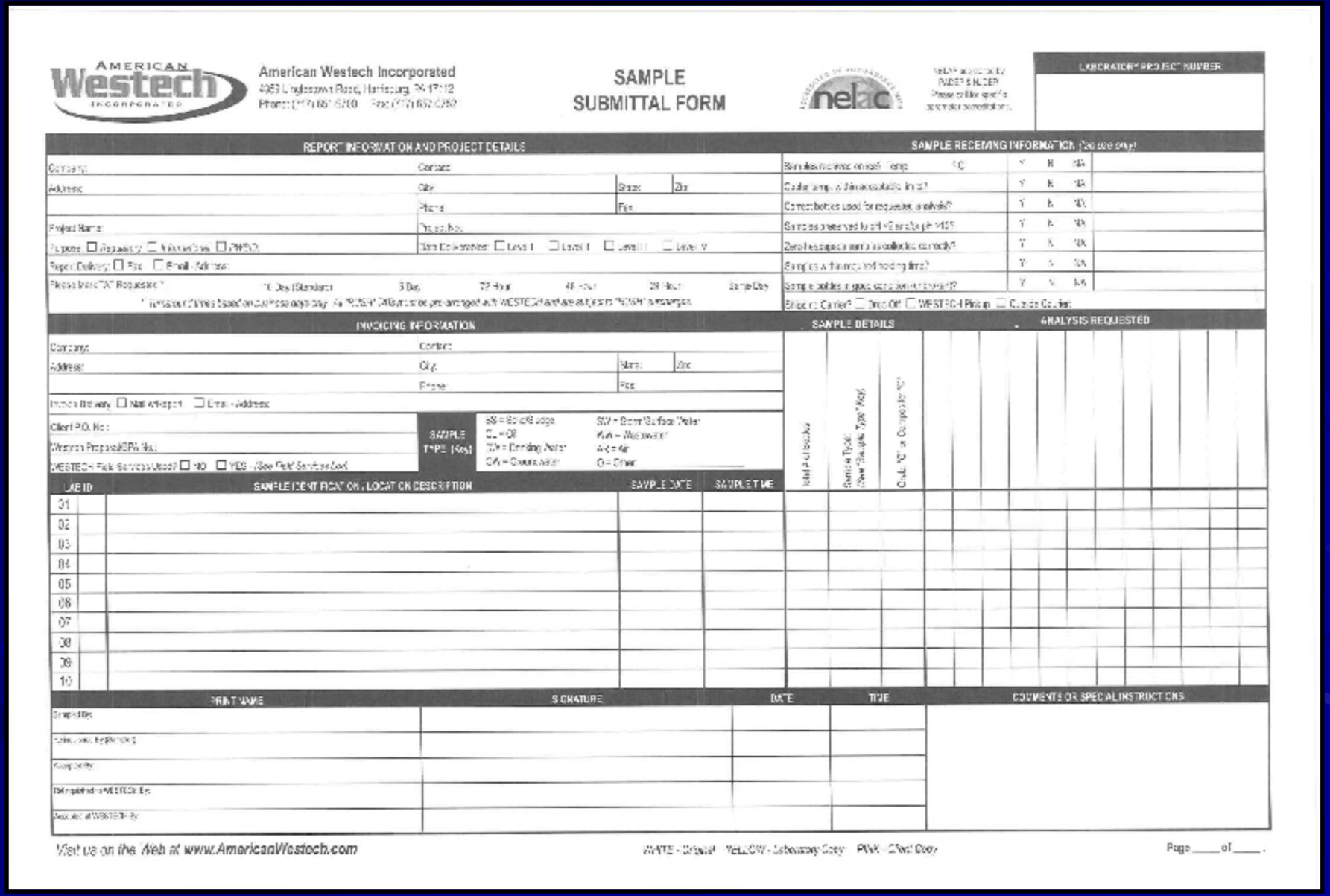
Pump and Plug Reimbursement Grant

- USTs only; permanent and temporary closures
- Only for owners with 6 or less regulated USTs
- Provides up to $2,500/tank
- Eligible activities are:
  1. *Pumping out of product*
  2. *Proper disposal of product*
  3. *Tank Cleaning*
  4. *Fill pipe grouting (temporary closure only)*
- Application can only be submitted after all work has been completed and it must be notarized
- This is between the State and the owner
- PADEP is now only awarding if the any portion of the system is non-compliant

Field Documentation

- Sampling Chain of Custody
- Sampling location diagram
- Waste Manifest
- Photos

Sampling Chain of Custody



AMERICAN Westech INCORPORATED

American Westech Incorporated
4963 Linglestown Road, Harrisburg, PA 17112
Phone: (717) 657-9200 Fax: (717) 657-9292

SAMPLE SUBMITTAL FORM

nelac

LABORATORY PROJECT NUMBER

REPORT INFORMATION AND PROJECT DETAILS

Company: Contact:
Address: City: State: Zip:
Phone: Fax:
Project Name: Project No.:
Purpose: ☐ Regulatory ☐ Voluntary Data ☐ PWSID:
Report Delivery: ☐ Fax ☐ E-mail - Address: Data Deliverables: ☐ Level I ☐ Level II ☐ Level III ☐ Level IV
Please check "X" Requested * 10 Day (Standard) 5 Day 72 Hour 48 Hour 24 Hour Same Day

* Turnaround times based on business days. All "RUSH" TATs must be pre-arranged with WESTECH and are subject to "RUSH" surcharges.

SAMPLE RECEIVING INFORMATION (To use only)

Samples received on ice? temp. °C	Y	N	N/A
Custody seals on shipping container?	Y	N	N/A
Correct bottles used for requested analysis?	Y	N	N/A
Samples preserved properly? pH < 2 or as specified?	Y	N	N/A
Total residual chlorine samples collected correctly?	Y	N	N/A
Samples received within holding time?	Y	N	N/A
Sample labels match COC and bottles?	Y	N	N/A

Shipped Via: ☐ Fed Ex ☐ UPS ☐ WESTECH Pick-up ☐ Client's Courier

INVOICING INFORMATION

Company: Contact:
Address: City: State: Zip:
Phone: Fax:
Invoice Delivery: ☐ Mail w/ Report ☐ E-mail - Address:
Client P.O. No.:
Western Project/QPN No.:
WESTECH Field Services Used? ☐ NO ☐ YES (See Field Services Quote)

SAMPLE TYPE (Key): SW = Storm/Surface Water; GW = Groundwater; WW = Wastewater; A = Air; O = Other

SAMPLE DETAILS / ANALYSIS REQUESTED

LAB ID	SAMPLE IDENTIFICATION / LOCATION DESCRIPTION	SAMPLE DATE	SAMPLE TIME	Matrix (Solid/Liquid)	Sample Type (See "Sample Type" Key)	Circle "C" for Composite
01						
02						
03						
04						
05						
06						
07						
08						
09						
10						

PRINT NAME	SIGNATURE	DATE	TIME	COMMENTS OR SPECIAL INSTRUCTIONS
Sampled By:				
Relinquished By:				
Received By:				
Relinquished By:				
Received at WESTECH By:				

Visit us on the Web at www.AmericanWestech.com

WHITE - Original YELLOW - Laboratory Copy PINK - Client Copy

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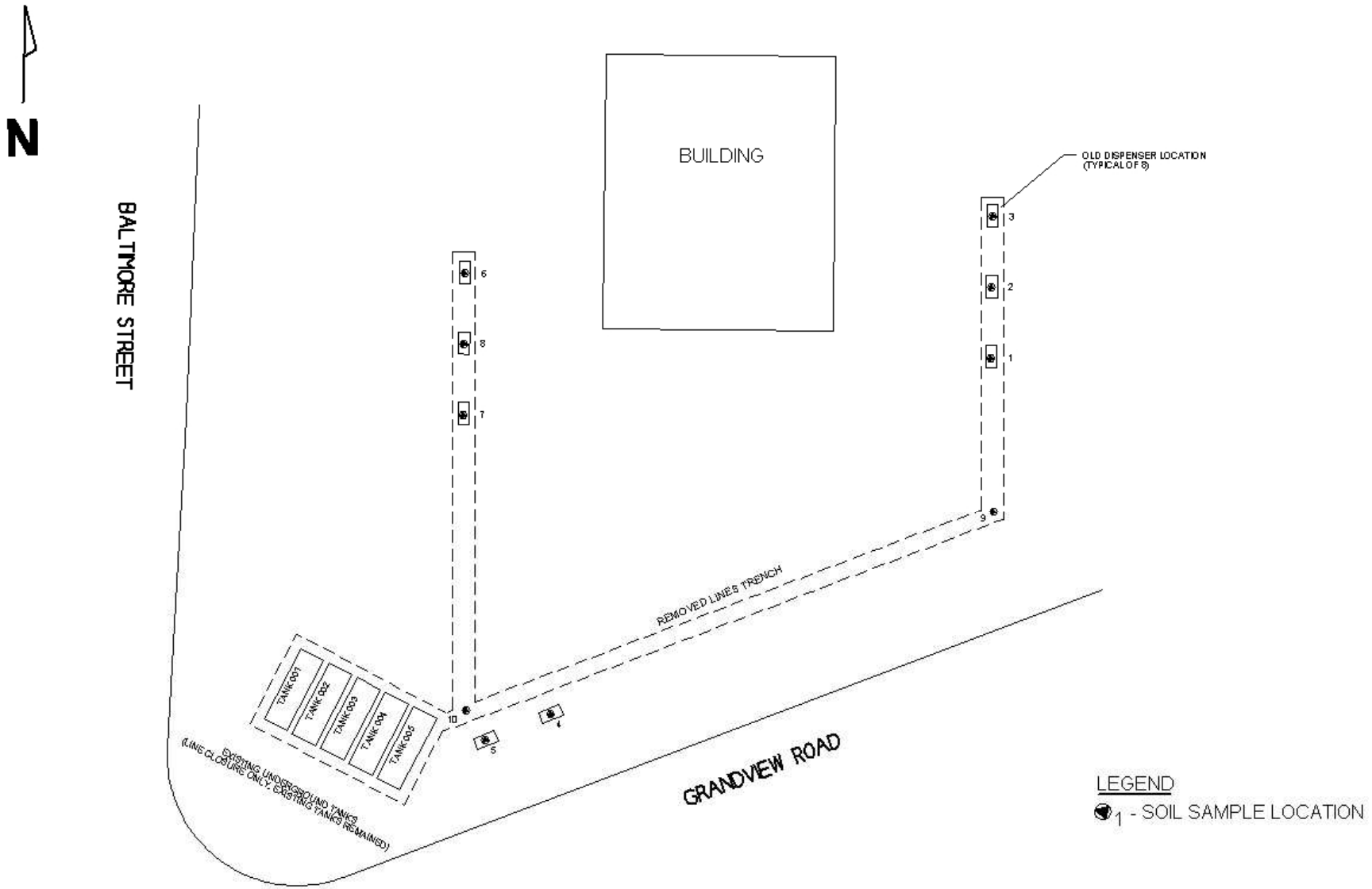


KEYSTONE
PETROLEUM EQUIPMENT LTD
981 Trindle Road West
Mechanicsburg, PA 17055

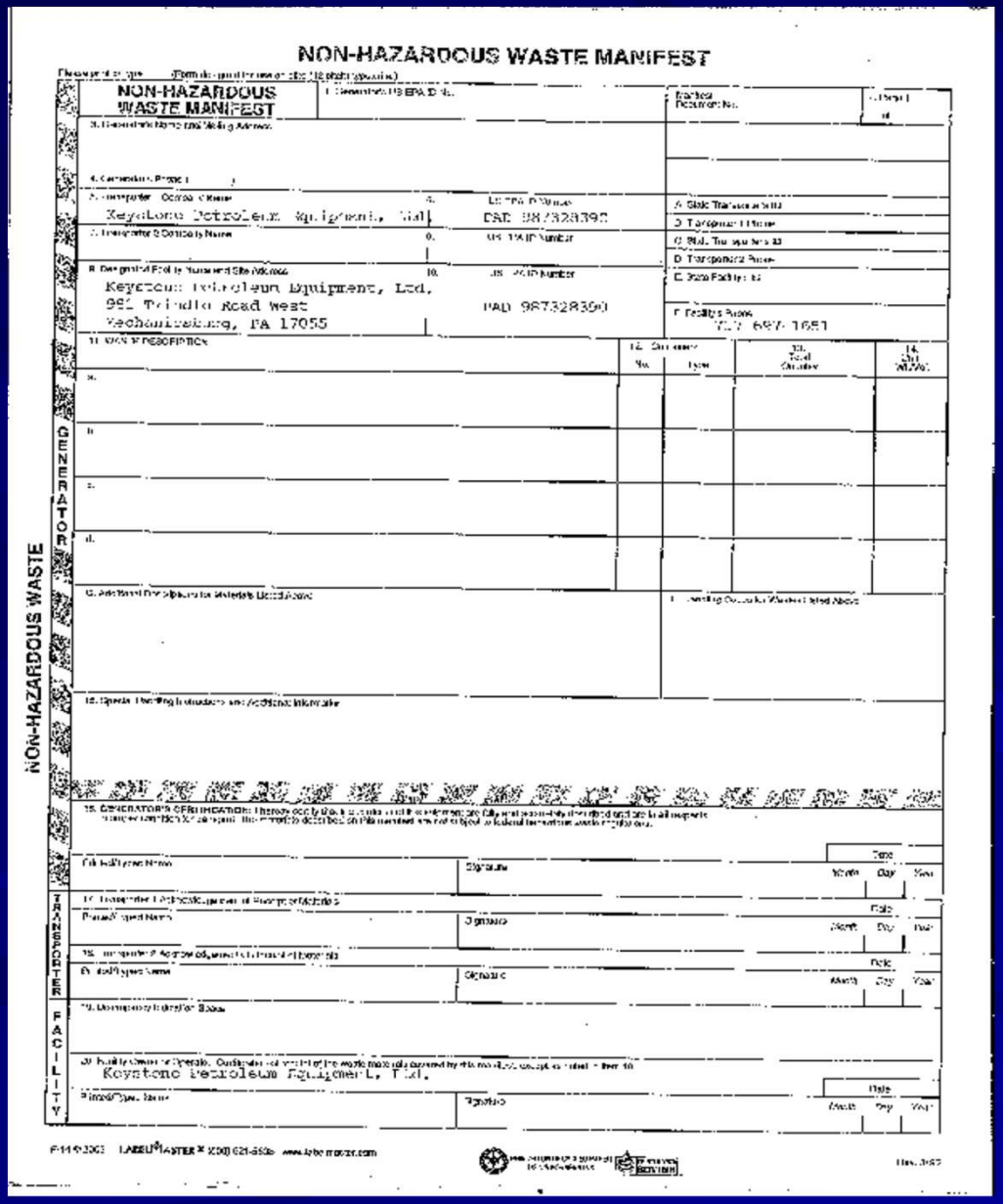
DESCRIPTION:
67-31862 - HANOVER EXXON 30
1340 BALTIMORE ST
HANOVER BOROUGH/YORK COUNTY

PURPOSE:
LINE CLOSURE

DWG. BY:	CHK. BY:	DWG. NO.:	DWG. STYLE:
doug@kpeltd.com		1	A
DATE: 7/29/09	CONSTRUCTION RELEASE DATE:		

REVISION HISTORY

Waste Manifest



NON-HAZARDOUS WASTE MANIFEST

NON-HAZARDOUS WASTE MANIFEST

Keystone Petroleum Equipment, Ltd.
961 Toledo Road West
Mechanicsburg, PA 17055
PAD 98732839O

GENERATOR

TRANSPORTER

FACILITY

NON-HAZARDOUS WASTE

- Tanks and components
- Removed Product
- Rinsate

Highlights From Module 1

- Submit a closure notification to DEP 30 days prior to the initiation of removal activities for all USTs and ASTs over 21,000 gal. (notification for small ASTs is not necessary but recommended)
- All official DEP documents must be retained by the certified individual/company for 10 years
- Always call before you dig and mark the area to be excavated in white
- When contamination is encountered a certified individual has 48 hours to send a written notice of contamination to the DEP regional office
- Obvious contamination or a suspected release must be reported within 24 hours of discovery

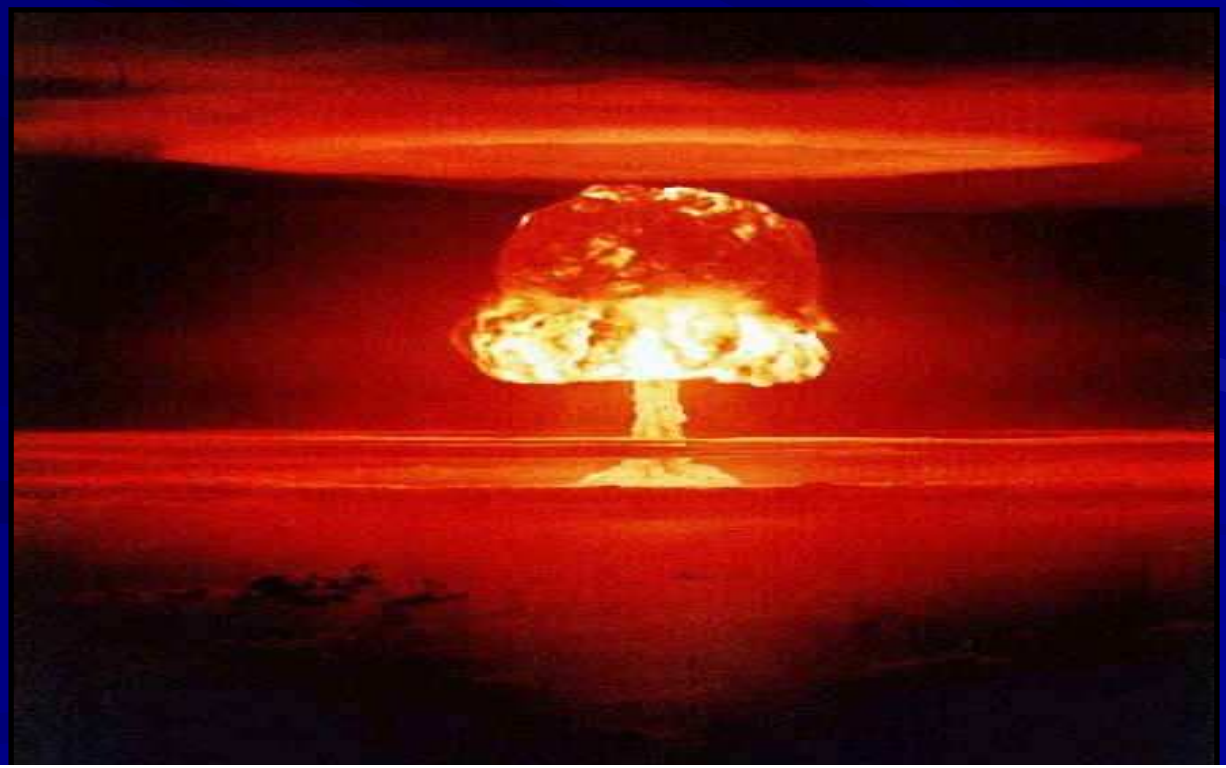
Module 2
Health and Safety Issues Involved with Tank Closure

Health and Safety

- Causes of Accidents
- Hazards and hazard information
- Training
- Safety Equipment
- Safety Meetings, Inspections, and Checklists
- Planning for a safe job

What Causes Accidents?

- Improper training
- Taking shortcuts / Cutting corners
- Complacency
- Distractions / Loss of focus



Hazards

- Confined Space / Asphyxiation
- Chemical Exposure
- Trauma / Blunt Force
- Fire
- Weather
- Tripping

Tripping

- Tripping is always a leading cause of jobsite injury
- Cords, slippery surfaces, poor house keeping *(PUT AWAY TOOLS NOT BEING USED),* debris, doorways

Safety Training and Documentation

- All workers should have general nationally recognized training (ie OSHA 40hr)
- General training requires an annual 8 hour refresher course
- Workers should also be trained in safety issues specific to the job
- Emergency response and safety plans should be reviewed and on site
- Confined space entry permit
- Material Safety Data Sheets (MSDS) should be available for each potentially hazardous substance involved with the job

Safety Equipment

- Harness, Helmet, Respirator, Air Filter, Explosive Gas Meter, Splash Suit, Eye Protection, Steel Toe Boots
- Communication Devices; radios, cell phones, landline
- All relevant safety contact information should be readily available

Safety Equipment

- The atmosphere of any removal should continuously be monitored for the presence of hazardous vapors
- An explosive gas meter should be able to warn you about

1. Explosive Environment
2. Oxygen Concentration Should be between 19.5%- 23.5%

Safety Walkaround-Inspection Checklist

Jobsite Location _____ **Ticket/Serial No.** _____
Date of Inspection _____
Time of Inspection _____
Supervisor/Foreman Name(s) _____
_____

Specific Job Hazards/Conditions
- ☐ _____
- ☐ _____
- ☐ _____
- ☐
- ☐ _____

Existing Utilities
- ☐ Support adequate
- ☐ Loose materials
- ☐ Utilities identified and protected
- ☐ White paint/flags
- ☐ Lawful dig ticket in hand

Weather
- ☐ Overnight freezing
- ☐ Rain

Personal Protective Equipment
- ☐ Reflectorized vests in vehicular areas
- ☐ Hard hats, steel-toe shoes, etc. being used as specified

General Observations and Conditions
- ☐ Weather _____
- ☐ Traffic _____
- ☐ Terrain _____
- ☐ Other _____
  _____

Comments/Notes:
_____
_____
_____
_____
_____

(Back of page to list local emergency contact information)

Elements of an Effective Jobsite & Safety Plan

- Training and Meetings
- Emergency Response
- Site Access
- Security
- Municipal and Community Concerns
- Site Specific Conditions
- Weather Impact and Control
- Subcontractors

Elements of an Effective Jobsite Safety Plan

- Excavation
- Confined Space
- Personal Protective Equipment (fall protection)
- Hazardous Materials & Fire Prevention
- Tools, Heavy Equipment, Ladders, Welding Equipment
- Electrical Hazards
- Drugs, Alcohol, & Firearms
- Incident Management Procedures

Training and Safety Meetings

- Do all employees have appropriate safety training for all activities they will be performing on the job site?
- Time and location of the initial safety meeting
- Where and when do daily safety meetings occur? On site? At the Shop?

Emergency Response

- Contacts: Fire Department, Hazmat Team, & Medical Response (911 or other)
- Expected Response Times
- Location of closest hospital or medical facility
- On Site First Aid and Rescue Procedures

Site Access

- Who will be accessing the site during different phases of a job?
- How can people, vehicles, and large equipment SAFELY access a site? (Backfill delivery / removal; cranes, product delivery)
- How does site access interfere with traffic?
- Is the job interfering with sidewalks and pedestrian traffic?
- Traffic plan?

Security

- Keeping individuals that don't belong on the site away from the site
- Using proper barricades and warning signs
- What measures need to be taken to prevent vandalism and trespassing ?

Municipal and Community Concerns

- Pre-project meetings
- Specific municipal standards, regulations, and inspections
- Minimizing noise, dust, and traffic congestion
- Sanitation plan and good house keeping. Keep things Clean!!!

Site Specific Conditions

- Poor drainage
- Flooding
- Unstable soils
- Previously contaminated site
- Above and underground utilites
- Limited space
- Steep slopes

Weather Impacts and Control

- What weather patterns are associated with the season that the project is occurring?
- What measures are taken to mitigate the impacts of weather? Silt fences, snow plows, water displacement, and lightning hazard.

Subcontractors

- Who are they?
- Do they have appropriate general and site specific safety training?
- Are they working unsupervised?

Excavation

- Excavation equipment and storage (who is running it?) (method to be used?)
- Excavation area; Utilities? Soil Stability? Blasting?

Confined Space

- Procedures and PPE
- Rescue Procedures
- What phase will this occur and who is doing the entry? Are they trained?
- Permits?

Personal Protective Equipment

- General PPE for daily activities
- PPE for specific more hazardous activities
- Equipment is in good operating condition and properly fits the worker

Hazardous Materials & Fire Prevention

- MSDS's should be available for all hazardous substance that are on a job site and these substances should be discussed at safety meetings
- Fire extinguishers should be at every petroleum related construction job site
- Fire protective clothing may be required PPE for some activities
- The safety plan should have steps used to mitigate chemical expose and fire hazards

Tools, Heavy Equipment, Ladders, & Welding Equipments

- What tools and equipment will be used and how they will be used safely?
- Heavy equipment to be used (storage, operation, and entry/exit)
- Gas cylinder storage and security

Lock Out Tag Out Procedures

- Never use equipment/tools that are not in proper operating condition
- If you feel anything is broken or not safe to use tag & lock the component/device and inform your supervisor
- Never use a tool or equipment that is tagged

Electrical Hazards

- Who will be handling the electrical aspects of a job? Are they licensed?
- Keep wires (live or dead) out of the way traffic areas
- Always secure the electrical panels
- Don’t work on anything unless the power is killed!

Drugs, Alcohol, and Firearms

- Keep them off the jobsite!
- Keep in compliance with CDL, customer, and company requirements

Incident Management

- Know who is in charge
- What calls to make
- Procedures that are in place
- Discuss incident management at safety meeting

What does the customer require in your safety plan?

Highlights from Module 2

- Keep training up to date
- **All** workers need nationally recognized safety training and job specific safety training
- A person can work with an oxygen range of 19.5% to 23.5% without a respirator
- Do not work without the appropriate safety equipment
- Always protect your feet

Video

General Safe Work Practices

Module 3
Temporary Closure

Temporarily Out of Service T.O.S.

- Makes facilities that are not being used safer for the environment
- Useful for facilities awaiting sale or saving for permanent closure

Requirements for Temporary Closure

- Tanks must be emptied (less than 1” of substance)
- Lines must be emptied and capped or blinded
- Secure tank against unauthorized entry
- Submit a registration amendment to DEP along with proof of product disposal

Temporary Closure Results

- USTs in temporary closure are exempt from all release detection, sump/overfill/spill prevention testing
- USTs in temporary closure are not exempt from facility inspections & corrosion protection
- AST inspections should be performed during temporary closure unless a written request asking for the inspection to be delayed until the facility is returned to service is approved by DEP
- Annual registration and insurance fees must still be paid
- Tank must be vented

Temporary Closure Time Limits

- At the end of a temporary closure time limit the tank must be permanently closed or returned to service operating fully compliant
- A noncompliant UST has a 12 month (1 year) temporary closure time period
- A compliant UST has a 36 month (3 year) temporary closure time period
- Owner may request, in writing, an extension of the TOS period
- Time limits can be shortened at the discretion of DEP

Temporary Closure – AST Specific

- Out of service inspections are still required while in TOS
- AST's in TOS are exempt from in-service inspections and monitoring standards
- ASTs can remain in temporary closure for 5 years
- Time limits can be shortened at the discretion of DEP
- Owner may request, in writing, an extension of the TOS period

Highlights from Module 3

- A tank must contain less than 1” of substance to be considered empty
- ASTs in temporary closure do need to be inspected unless a written request is approved by DEP
- Noncompliant TOS USTs have 1 year for action
- Compliant TOS USTs have 3 years for action
- ASTs in TOS have 5 years for action

Module 4
Site Layout and Tank Components Related to the Tank Closure Preparation

Preparation for Tank Closure

- Site Specific Safety Plan
- Who is the certified tank remover? One is required on site during all closure activities
- A plan for containing small spills from disconnecting piping
- A method for purging or inerting the tank and maintaining at safe levels
- A method for cleaning the tank if performed on site.
- A plan for the handling of tank liquids and sludge's
- A process to excavate, identify and properly stockpile uncontaminated and contaminated soil and debris
- A plan for tank system dismantling, demolition and removal

Site Layout and Preparation

- Mark areas to be excavated in white for PA one Call
- Identify aboveground utilities as well!

Site Layout and Preparation

- Always Identify two storage areas
  1. Area for stockpiling of soil / backfill
  2. Area to temporarily store tanks and piping after they are removed

Site Layout

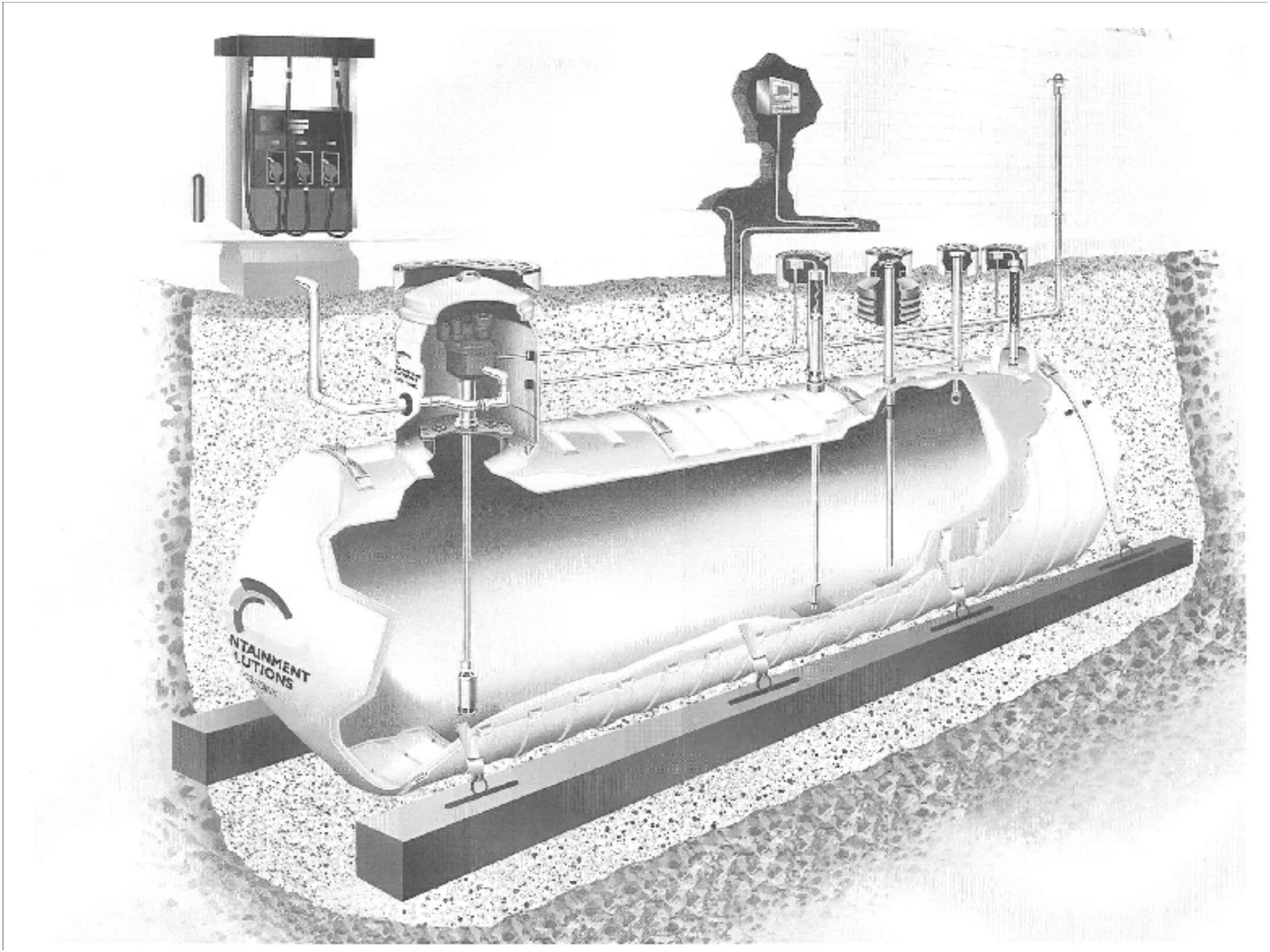
- Determine the potential for encountering contamination and prepare appropriately
- Determine the probability of water being in the excavation
- How can this be accomplished?

Required Information

- **Tank System Information**: Number of Tanks, Age, Capacity, Length, Diameter, Construction Material
- **Site Information**: Soil Types, Water Table, Contamination History (if any), Storm Drains, and all Utilities
- **Contacts**: Tank owner, other contractors, Fire Company, HAZMAT Team, Disposal Facilities, Fill Provider
- This information should be in the job/safety plan

Tank Components

- **Openings:** Vent, Fill, Submersible Pump, Suction Stub, ATG Probe, Vapor Recovery Dry Break, Extra Riser, Interstitial, Manway
- **Equipment:** Risers, Ball Float, Drop Tube, Fill Adaptor, Spill Bucket, Sumps, Manifold Line, Vents, Dry Break, Vent Piping (stage II), Product Piping, Anodes, Impressed Current Wires/Test Stations, Sensors, Leak Detectors, Dispensers, Hoses, Vacuum Pumps


NTAINMENT
LUTIONS

Other Removal Considerations

- Canopy, Conduit, Deadmen, Bottom hold-down-pad, Straps, Monitoring Wells, Footers
- Waste hauling and disposal
- LOCAL PERMITS
- Check with state and local regulations regarding abandoning any component on site
- Salvage

Highlights from Module 4

- Learn all relevant aspects of a site's history prior to removal
- Be prepared for contamination
- A certified individual is required to be onsite during all closure activities
- Site wells can tell a contractor:
  1. Depth to groundwater
  2. Possibility of encountering contamination
- Dispose of all tank components, waste, and soils properly and KEEP THE MANIFESTS!!!

Module 5
General Procedures for the Permanent Closure of Tanks

Pre-Excavation

- Drain all lines back into the tank

  A small amount of water can be used to flush the piping
- Use Explosion Proof or Air Driven Pumps to remove product, water, and residue from the tanks
- Air compressors should always be checked for leaks/defects before use and they should be intrinsically safe or bonded/grounded to the tank
- Keep vacuum trucks at a safe distance and up wind

Excavating to the Tank Top

- Attempt to separate asphalt/concrete from backfill
- Remove all components connected to the tanks except for the vent
- The drop tube may also remain if it is being used to inert the tank
- Plug All openings, with exception to those being used to inert or purge

Excavating to Tank Top

Tank Exposed

Highlights from Module 5

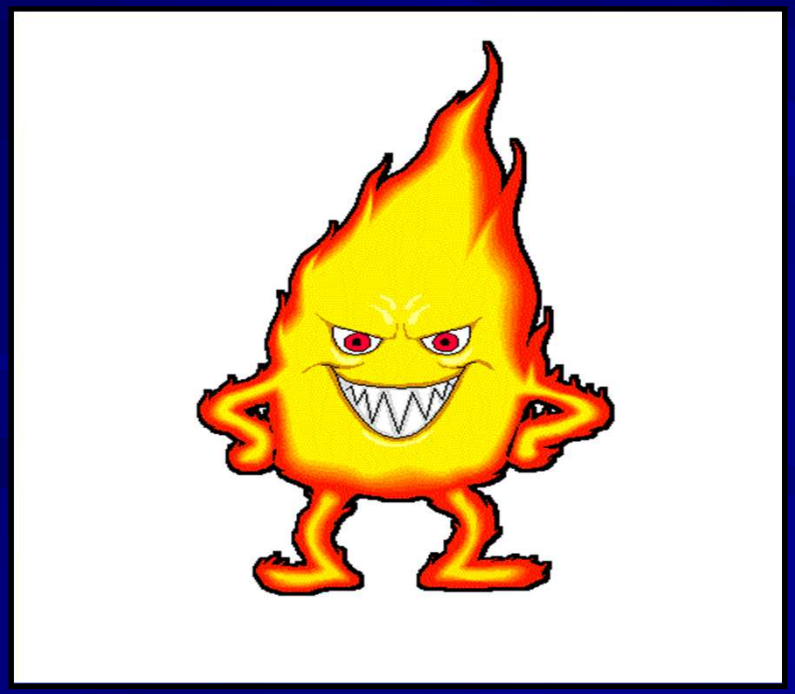
- Drain all lines back into the tank before removing remaining sludge/product
- Use air driven pump to remove the fuel
- Air compressors should always be checked for leaks and defects before use
- Air compressors should be intrinsically safe or grounded/bonded to the tank
- Attempt to keep asphalt/concrete separated from backfill

Module 6
Purging and Inerting of Tanks

The Fire Triangle

3 fire components:

1. Fuel Source
2. Oxygen
3. Ignition Source



Purging and Inerting

- **Purging:** Removal of flammable vapors from a tank to deprive the source of fuel
- **Inerting:** Displacement of oxygen so it is deprived from a potential fire source
- Both cause the displacement of flammable vapors and **must be vented 12' above grade and 3' above adjacent rooflines**

Purging and Inerting

- During the purging and inerting process never allow internal tank pressure to exceed 5psi or a level set by the manufacturer. Some fiberglass tanks have a 3psi limit
- Always obey venting rules!!! 12’ above grade and 3’ above rooflines!

Purging and Inerting

- **Out of the three sides of the fire triangle, contractors should always try to limit ignition sources on job sites**
- No smoking signs should be posted everywhere!
- Pumps, power tools and air compressors should always be checked for defects before use
- Tools should be grounded to the tank, intrinsically safe, or operated outside of the vapor hazard zone

Purging and Inerting

- Always check the tank atmosphere before, during and after purging or inerting the tank with an explosive/combustible gas meter. (Oxygen meter for inerting only)
- All meters must have LEL readings

Eductor-Type Air Mover Purging

- **Eductor-Type air mover:** Clean air in through vent while vapors go out through the drop tube and eductor extention on the fill riser

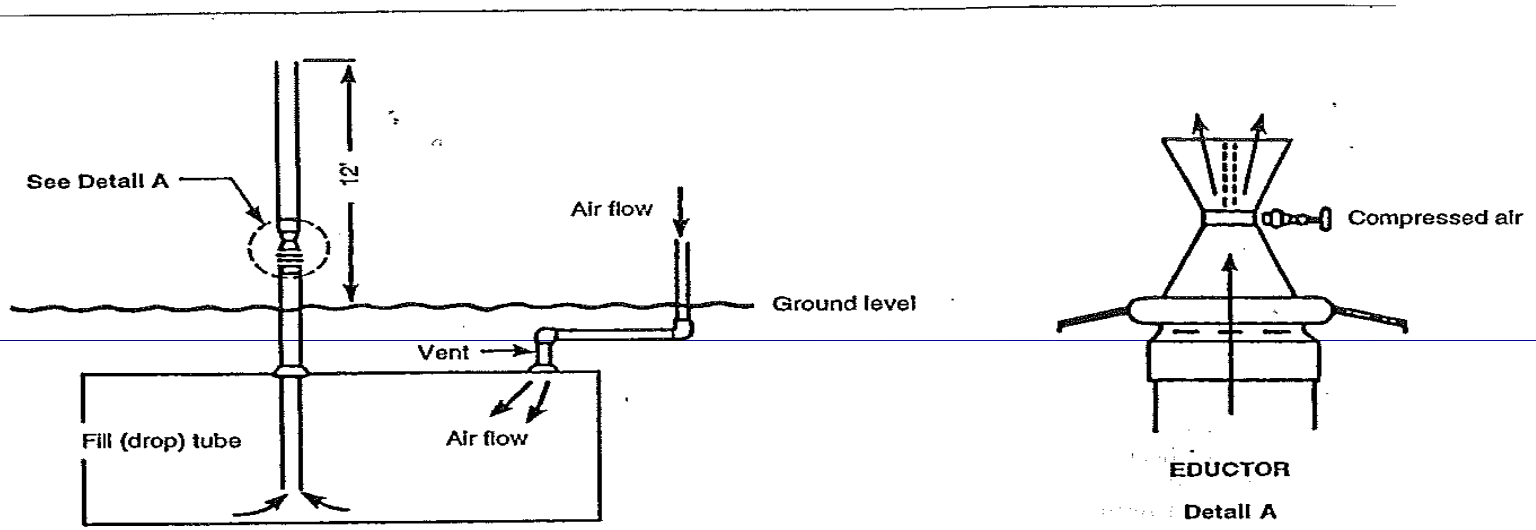
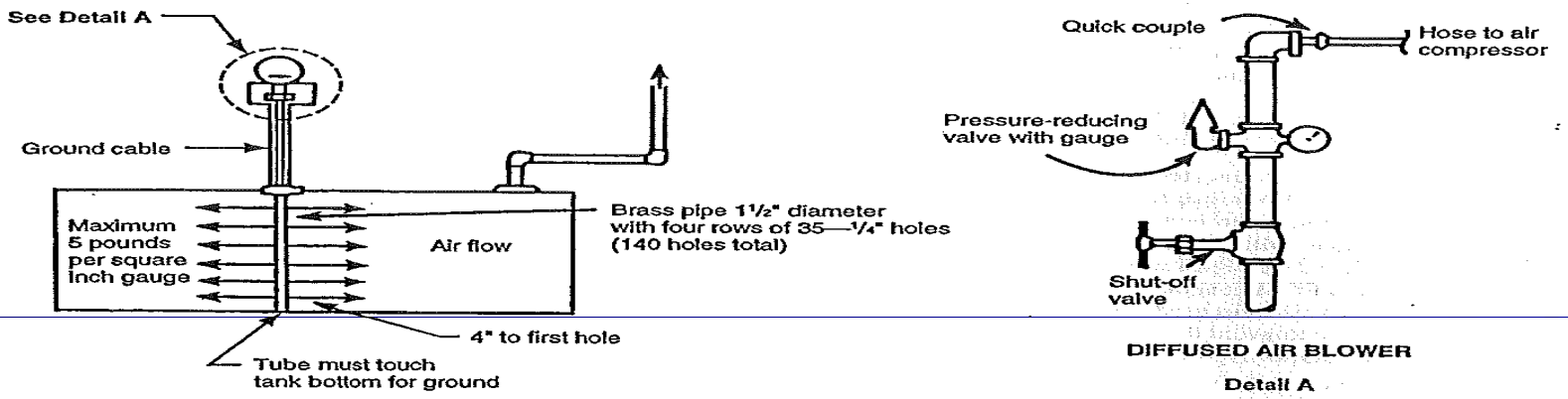


Figure 1—Eductor-Type Air Mover

Diffused Air Blower Purging

- **Diffused Air Blower:** Drop tube is removed. The diffused air blower pipe must be bonded (tank bottom contact). Air goes in through the fill and out the vent



Note: Ground cable brazed to pipe must be clamped to fill (drop) tube. Use 12 gauge ground wire from fill (drop) tube to water pipe or ground rod.

Figure 2—Diffused Air Blower

Purging with water

- Simple, safe, and very expensive
- Hose cannot directly contact the tank
- Water, sampling & disposal costs add up

Inerting - Gas Method

- Adding CO_2 (carbon dioxide) or N_2 (nitrogen) to the tank. N_2 is preferred
- Gas should enter near the tank bottom from the opposite end as the vent
- Introduce gasses at a low pressure to avoid static electricity
- Pressure should never exceed 5psi or manufactures specifications

Inerting - Dry Ice

- Dry Ice is solid CO_2
- 1.5lbs will inert 100gal of tank capacity
  or 15-20lbs/1,000gal
- Distribute shaved/crushed dry ice evenly across the tank bottom
- Plug all openings except for the vent
- All dry ice must evaporate before proceeding
- Use extreme caution when handling dry ice, it will burn your skin!

Inerting Dry Ice

Testing Before Removing or Cutting the Tank

- Readings should be taken from the bottom, middle, and top of the tank
- An LEL meter can be used for purging and inerting. A reading < 10% of the LEL is acceptable.
- An oxygen meter can be used only when inerting. Generally at least 15% oxygen is needed to support combustion. A reading of less that 8% is preferred along with using a meter that detects LEL.

Highlights from Module 6

- Fire Triangle = Oxygen, Fuel, and Ignition Source (always try to minimize ignition sources at job sites)
- Immediately before purging or inerting a tank use a combustible gas indicator with LEL to assess the vapor concentrations
- Minimum height vapors should be vented

  3 feet above rooflines

  12 feet above the grade
- Eductor: In through vent, out through fill with extension
- Diffused: In through fill, out through vent
- 15- 20 pounds of dry ice is used to inert every 1,000 gallons of a tanks capacity
- Tank pressure should never exceed 5psi during purging/inerting
- Before cutting

  Purging= <10% LEL

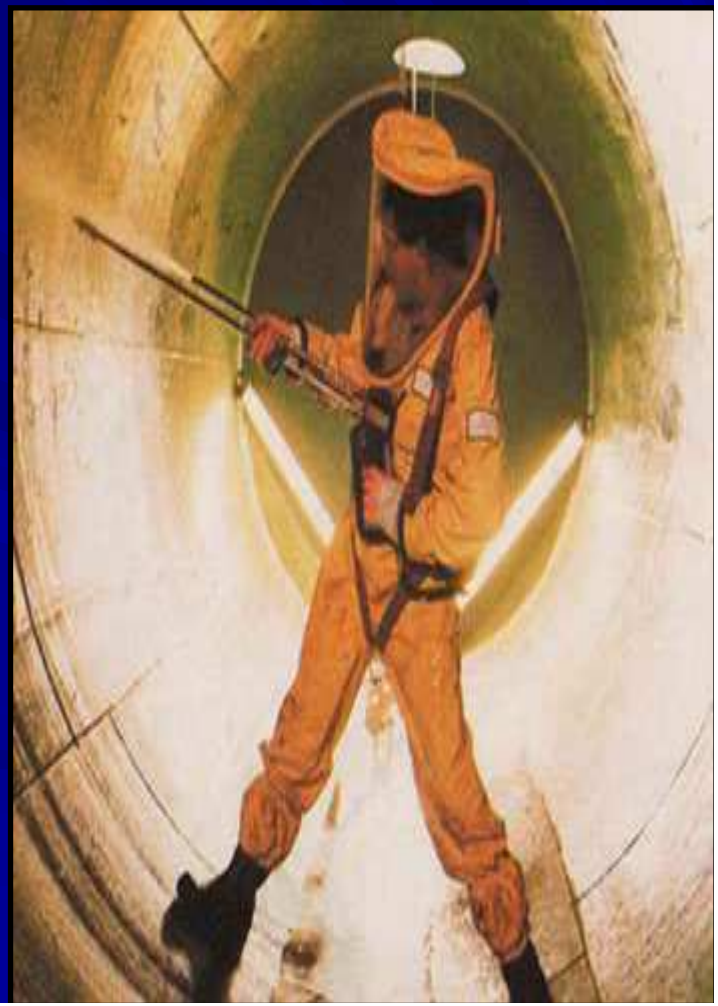
  Inerting = <10%LEL or <8% less oxygen

Movie
API 1663D
Underground Storage Tank Removal

Module 7
Tank Cleaning
&
Confined Space Entry

Tank Cleaning

- Tanks must be thoroughly cleaned before being finally scrapped or otherwise disposed of
- Rinsate must be collected and properly disposed of and the waste manifests must be retained for the closure report.
- The tank cleaning method will be documented in the closure report and should also be stated in your safety plan.



Tank Cleaning Methods

- The method chosen for tank cleaning will be affected by the product stored, number of tanks, and size of the tanks
- Power washing is becoming more popular
- Brooms, sponges, shovels and buckets still get the job done!

Confined Space

- What is a confined space?

  -Has limited or restricted means of entry or exit

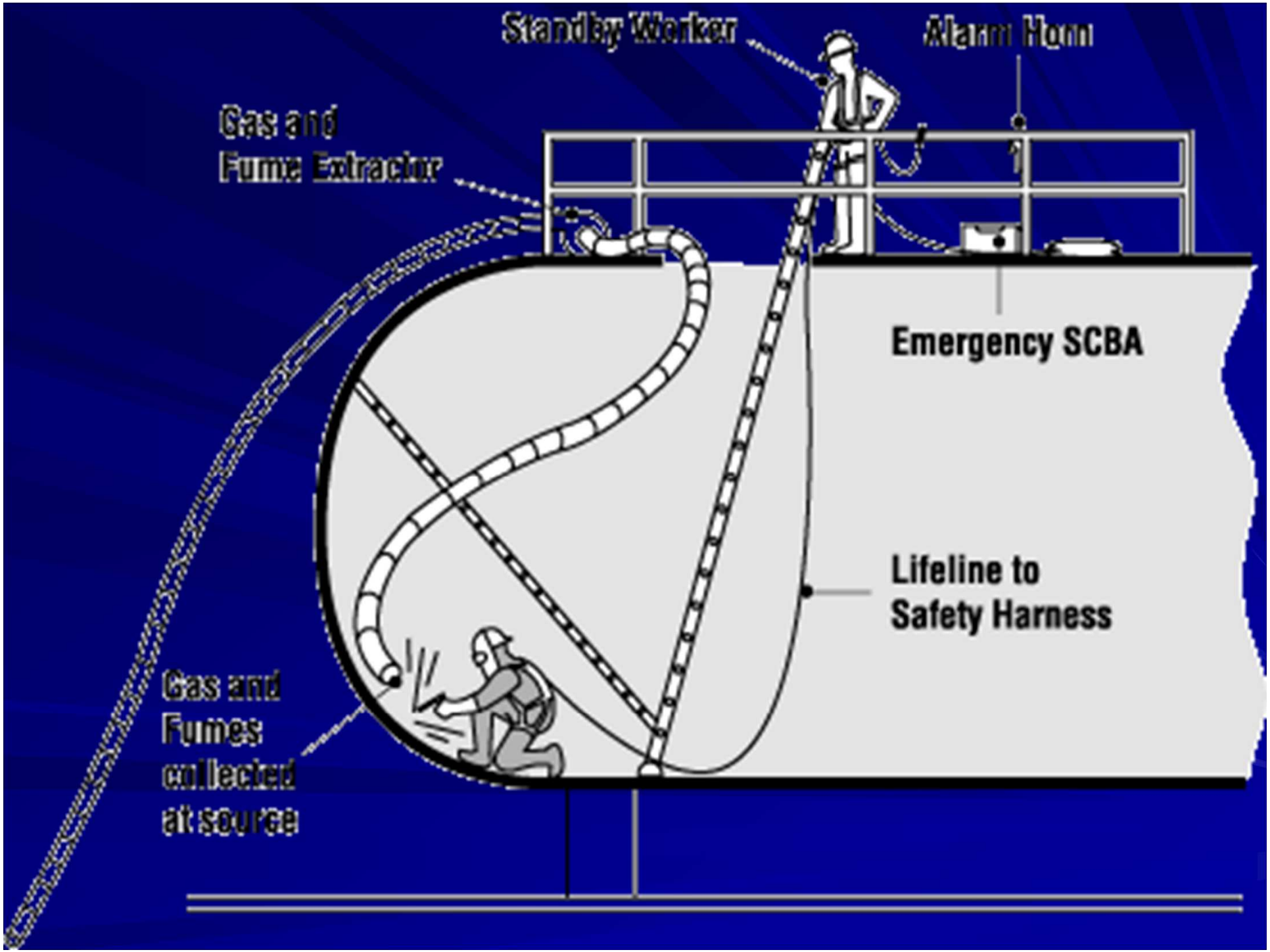
  -Is large enough for a worker to enter and perform assigned work, but is not designed for continuous occupancy by the worker

Confined Space

- A **permit-required confined space** is one that meets the definition of a confined space and has one or more of these characteristics:
  - Contains or has the potential to contain a hazardous atmosphere
  - Contains a material that has the potential for engulfing the entrant
  - Has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section
  - Contains any other recognized serious safety or health hazards
- **To summarize: All tank cleaning confined space entry requires a permit!!!**

Confined Space Considerations

- Assigned roles: supervisor, entrant, attendant.
- Who has the training to perform the work?
- How many workers in the confined space?
- How many workers in support? (at least 1 per worker in the confined space, more is recommended)
- Life-line to emergency harness
- Protective clothing
- Air supply: Ventilation, SCBA, Supplied Air
- Entry equipment for rescue personnel


Standby Worker
Alarm Horn
Gas and
Fume Extractor
Emergency SCBA
Lifeline to
Safety Harness
Gas and
Fumes
collected
at source

Highlights of Module 7

- All tanks must be thoroughly cleaned before they can be permanently closed
- A confined space has limited or restricted means of entry or exit and is not designed for normal occupancy
- Confined space entry requires specially trained employees and a permit
- A method of air supply, life-lines, & rescue personnel are all required for confined space entry

Module 8
Permanent Closure

Closure-in-Place & Removal

Closure in Place

- Removal is always preferred though location can sometimes make removal impossible
- Sampling is still required
- If the existing openings are not adequate to fill the tank, holes may be cut, after inerting/purging, with intrinsically safe tools

Closure In Place

- All product must be removed and the tank must be thoroughly cleaned before a solid, inert material can be added to fill the tank as much as possible

Closure In Place

- Sand, Earth, and Slurry are common materials
- Water can be added to sand or earth to fill in the ends if coning occurs *(small amount)*
- After the tank is filled, plug/cap all openings, remove and cap the vent, begin backfilling
- Sampling can be performed after cleaning or after filling the tank - either through tank bottom or perimeter borings

Closure In Place Disadvantages

- More Expensive
- More Time
- Difficult to Sample
- The tank(s) could cause issues with the property in the future

Tank Removal

Tank Removal

- After inerting/purging cap/plug all openings
- The vent is always the last component to be disconnected
- Leave 1/8” vent hole to maintain pressure equilibrium, this should always be on top during all transportation
- The 1/8” hole is usually drilled into a plug that is then screwed into a bung
- Lift the tank out of the hole with straps, chains, or cables. If lifting lugs are not available, cables can be put around or through the tanks
- If you are moving a tank, you are lifting a tank!
- No dragging!

Tank Removal

- Set the tank on a secure area and use a nonabrasive material to prevent it from rolling (ie wood or tires)
- Dismantle the tanks onsite if possible
- Only use air driven tools to cut the tank!
- Air monitoring must occur until the all tanks are offsite or completely dismantled

Tank Transportation

- Dismantling tanks at the site is always preferred though some circumstances require transportation for offsite dismantling
- Tanks to be dismantled off site must be labeled with the following for transportation:
    1. Removal date
    2. Former contents of tank
    3. Not able to store food or liquid meant for consumption
- Labeling letters must be at least 2” in height
- Boiler plugs should be used to plug any holes in the tanks before transporting
- All other DOT regulations must be followed

Change In Service

- If doing a change in service from a regulated to a non-regulated tank (ie.. Changing from a diesel tank to an onsite #2 HO tank) this counts as a permanent closure
  - Must do a full tank closure
  - Samples
  - Submitting the registration form

Highlights from Module 8

- Material for closing tanks in place must be solid and inert
- Moving Tank = Lifting Tank
- The vent is always the last component to be disconnected
- Only use air driven tools to cut into a tank
- During removal one plug should be open 1/8 of an inch that remains at the tank's highest point
- A tank being transported so it can be dismantled off site must be labeled letters at least 2" high that state the following:
  1. former contents
  2. not able to store liquid or food meant for consumption
  3. date of removal
- Air monitoring is performed until all tanks have left the site
- Boiler plugs should be used to plug holes in a tank that is being transported

Module 9
Sampling Related to Regulated Storage Tank Closure

Soil Sampling

- Field screenings are not official
- Use new bottles (often lab provided) and very clean or new tools
- Ensure the required parameters get analyzed
- Soil must be freshly exposed
- Send to a lab ASAP so the maximum holding time isn't violated, preservatives are usually needed
- Samples must be kept cold until they reach the lab
- Soil sampling should be performed by or under the direct supervision of a certified individual

UST Soil Sampling

- When no water is encountered soil samples should be taken 2’ beneath the tank bottom (this is to account for backfill)
- When water is encountered, soil samples should be taken from the excavation wall slightly above the soil water interface
- When water is encountered, water samples should be taken from the surface of the water

UST Sampling Removal

CONFIRMATORY SAMPLING PROTOCOL
TANK REMOVAL
Number of Samples

NO WATER ENCOUNTERED					
	TANKS*		PRODUCT DISPENSERS	DELIVERY LINES	REMOTE FILL (IF PRESENT)
	<= 1000 GAL	1001-20000 GAL			
SOIL**	2	3	1	1***	1
COMMENTS	Take Samples 2 Ft. Below Bottom of Tank-See Section d. (3), Pages 18 and 20 For Specific Locations		Take 1 Sample Per Dispenser, 2 Ft. Below Surface Directly Under Dispenser	Take 1 Ft. Below Line	Take 2 Ft. Below Fill Opening

WATER ENCOUNTERED					
	TANKS*		PRODUCT DISPENSERS	DELIVERY LINES	REMOTE FILL (IF PRESENT)
	<= 1000 GAL	1001-20000 GAL			
SOIL**	2	2	1	1***	1
WATER	1	2	****	****	****
COMMENTS	Take Soil Samples Just Above Soil/Water Interface Along Each Long Wall Of Excavation-Take Water Samples From Water Surface In Excavation		Take 1 Sample Per Dispenser, 2 Ft. Below Surface Directly Under Dispenser	Take 1 Ft. Below Line	Take 2 Ft. Below Fill Opening

* For tanks in excess of 20,000 gallons, contact the DEP Regional Office responsible for the county in which the tank is located.

** Where obvious contamination is observed, one composite sample per 100 cubic yards of the uncontaminated soil pile must be collected at a minimum depth of 12 inches, if it is intended to be reused on-site. Also, for up to 100 cubic yards, one discrete sample for each 50 cubic yards or fraction thereof, of the contaminated soil pile must be collected, if it is intended to be reused on-site. One discrete sample for each additional 100 cubic yards of contaminated soil must also be taken. The samples are to be taken from the most obviously contaminated areas based upon visual observation and field screening.

*** If piping is closed-in-place, see Section VI.C.2.c. (2), p. 22.

**** Assumes water is not encountered.

UST Sampling Closure In Place

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

SOIL UNDER TANK ACCESSIBLE - NO WATER ENCOUNTERED					
	TANKS*		PRODUCT	DELIVERY	REMOTE FILL
	<= 1000 GAL	1001-20000 GAL	DISPENSERS	LINES	(IF PRESENT)
SOIL	2	3	1	1**	1
COMMENTS	Take Samples 2 Ft. Below Bottom of Tank-See Section e. (3)(a), Pages 22 and 24 For Specific Locations		Take 1 Sample Per Dispenser, 2 Ft. Below Surface Directly Under Dispenser	Take 1 Ft. Below Line	Take 2 Ft. Below Fill Opening

SOIL UNDER TANK ACCESSIBLE - WATER ENCOUNTERED WITHIN 2 FEET OF TANK BOTTOM					
	TANKS*		PRODUCT	DELIVERY	REMOTE FILL
	<= 1000 GAL	1001-20000 GAL	DISPENSER	LINES	(IF PRESENT)
SOIL	2	3	1	1**	1
WATER	2	3	***	***	***
COMMENTS	Take Soil Samples Just Above Soil/Water Interface-Take Water Samples From Water Surface-See Section e. (3)(a), Pages 22 and 24 For Specific Locations		Take 1 Sample Per Dispenser, 2 Ft. Below Surface Directly Under Dispenser	Take 1 Ft. Below Line	Take 2 Ft. Below Fill Opening

SOIL UNDER TANK NOT ACCESSIBLE OR WATER ENCOUNTERED BETWEEN TANK BOTTOM AND GROUND SURFACE (Using Perimeter Borings)					
	TANKS*		PRODUCT	DELIVERY	REMOTE FILL
	<3000 GAL	3001-20000 gal	DISPENSER	LINES	(IF PRESENT)
SOIL	4	6	1	1**	1
WATER	4	6	***	***	***
COMMENTS	Take One Soil Sample And One Water Sample (If Water Encountered) Per Boring-If Water Encountered, Take Soil Samples Just Above Soil/Water Interface and Take Water Samples From Water Surface-See Section e. (3)(b), Page 24 For Specific Locations		Take 1 Sample Per Dispenser, 2 Ft. Below Surface Directly Under Dispenser	Take 1 Ft. Below Line	Take 2 Ft. Below Fill Opening

* For tanks in excess of 20,000 gallons, contact the DEP Regional Office responsible for the county in which the tank is located.

** If piping is also closed-in-place, see Section VI.C.2.e. (2), p. 22.

*** Assumes water is not encountered.

AST Sampling

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

	TANK DIAMETERS*		TRANSFER PUMP/DISPENSER & LOADING RACK(s)	UNDERGROUND DELIVERY LINES/PIPING	ABOVEGROUND DELIVERY LINES/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 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; samples 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 DELIVERY LINES/PIPING	ABOVEGROUND DELIVERY LINES/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 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 appropriate DEP regional office must be notified as soon as practicable, but not later than 24 hours, after the confirmation of a reportable release, in accordance with 25 Pa. Code Chapter 245, Subchapter D, Section 234.305(a)(4), and immediately initiate corrective action. See Attachment 1 for the appropriate release reporting telephone numbers.
- DEP may exclude or limit sampling for ASTs with secondary and emergency containment meeting requirements and permeability standards at 25 Pa. Code Chapter 245, Subchapter F, Sections 245.542(a),(b),(c) and (d)(1).
- For Change-in-service tanks, 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.
- Confirmatory sampling is not required for delivery lines, piping, loading racks and the like that are located outside of the emergency containment of the tank(s) being closed, but is strongly recommended by DEP.

Line Sampling

- If the double-wall lines are being completely removed, only 1 line sample per piping trench is required
- If the lines are being abandoned in place, a sample must be taken every 20’ of the trench
- Single-wall lines require sampling every 20’ & at all joints
- All dispensers require a sample

Soil Sampling

- If conditions prevent you from following standard sampling protocol, DEP must approve an alternate plan before sampling is performed.
- The sampling chain of custody is very important. If your company cannot transport the samples to the lab a certified courier must be used.
- All people/time from the sample being taken until it reaches the lab must be accounted for on the chain of custody.

Sampling Stockpiled Soil

- If contamination is encountered during excavation attempt to stockpile contaminated and uncontaminated soil separately
- One sample should be taken for every 50 cubic yards of contaminated soil
- One sample should be taken for every 100 cubic yards of uncontaminated soil
- Get the results before using the suspected clean soil as backfill

Highlights of Module 9

- Be aware of the maximum holding times
- Analyze the samples for the proper parameters
- All people/time from the sample being taken until it reaches the lab must be accounted for on the sampling chain of custody
- Stockpiled Soil Sampling:

  1 sample/100 cubic yards uncontaminated soil

  1 sample/50 cubic yards contaminated soil
- UST Sampling:

  No water encountered: take soil samples 2’ beneath tank bottom

  Water encountered: take soil samples from the excavation wall near the soil water interface and water samples from the water surface

Video
Tank Closure Without Tears

Module 10
Procedures Specific to Aboveground Tank Removal

AST Closure

- Manufactured ASTs are divided into two categories

  Large: Greater than 21,000 gallons

  Small: Less than or equal to 21,000 gallons
- ASTs can be removed or left in place
- Piping outside of the emergency containment is not regulated and therefore does not need to be closed per DEP regulations (no sampling required)

ASTs Less Than 21,000gal

- Only a visual check is needed
- If contamination is not suspected, no further action is required
- All product must be removed and properly disposed
- The tank must be properly disposed of
- Waste manifests of the tank and product should be maintained by the owner for a period of 3 years
- Submit registration form

ASTs over 21,000gal

- Sampling must be performed in accordance with PADEP's AST Closure Guidance
- Closure report rules are the same as USTs; kept for three years by the owner if contamination is not encountered

AST Closure In Place

- ASTs can be left in their current location and permanently closed (don't forget to check local ordinances)
- Tank(s) must be emptied, cleaned and rendered vapor free and ventilated
- Piping shall be removed or capped
- Fill port(s) shall be secured, capped or dismantled
- Unless doing a change of service, the tank(s) should be labeled "permanently closed" with the date reflecting the change to this status

AST Removal

- If excavation is necessary, PA One Call must be made
- Though piping outside of emergency containment is not regulated, a suspected/confirmed release from this area must still be reported
- If the tank cannot be dismantled on site, it must be labeled for transportation (size, product, date permanently out of service) All DOT regulations apply

Highlights from Module 10

- Two categories up to and including 21,000gal and over 21,000gal
- 21,000gal and smaller needs to have a visual check and further investigation only if contamination is suspected
- Over 21,000gal need to have soil sampling completed
- ASTs can be closed in place and left on-site if permitted by municipal regulations
- Piping outside of the emergency containment area is not regulated, though suspected/confirmed releases from this piping must be reported
- Closure records must be kept for 3 years by owner; 10 years by certified company/individual (for small AST's the closure records may mean only manifests)

2015 EPA Regulations
PADEP Adoption Date: 12/22/2018

Full set of the new regulation and the PADEP summary of changes on the thumb drive

Questions Before the Test