



PDHonline Course G156 (2 PDH)

**Environmental Regulations and Codes
For Underground Tank Storage of
Flammable & Combustible Liquids**

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2020

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Course Content

Industry Links:

UST industry recommended practices and standards list of documents can be found at:
<http://www.epa.gov/swerust1/cmplastc/standard.htm>

The Petroleum Equipment Institute (PEI) has a searchable data based of manufactures, supplies and contractors in the UST industry. The PEI represents nationwide the petroleum equipment manufacturing and construction industry. PEI web site at <http://www.pei.org/>

Some Web Sites for Manufactures of UST system components.

I) Ohio Pattern Works (OPW), Manufacturer of many UST system components:

Web site: <http://www.opwglobal.com/Products.aspx>

II) Veeder Root, Leak Detection and Red Jacket Pumps

Web site <http://www.veeder.com/us/>

III) Emco Wheaton, Pumps Leak Detection,

Web site <http://www.emcoretail.com/>

IV) Franklin Fueling, FE Petro Inc., Pumps & Leak Detectors

Web site <http://www.fepetro.com/>

V) INCON, Inc. Fuel Management Systems

Web site <http://www.intelcon.com/>

VI) Morrison Brothers, Petroleum Marketing Equipment

Web site <http://www.morbros.com/>

New Legislation Requires Changes to the Underground Storage Tank Program

On August 8, 2005, President Bush signed the Energy Policy Act of 2005. Title XV, Subtitle B of this act (entitled the Underground Storage Tank Compliance Act of 2005) contains amendments to Subtitle I of the Resource Conservation and Recovery Act - the original legislation that created the underground storage tank (UST) program. This new law significantly affects federal and state underground storage tank programs, will require major changes to the programs, and will go a long way toward keeping our nation's land and water safe from underground storage tank releases. Gas station owners and operators, as well as other non-marketers who own underground storage tanks, will be impacted by the changes EPA and states make in their tank programs as a result of the law.

The Underground Storage Tank Compliance Act focuses on preventing releases. Among other things, it expands eligible uses of the Leaking Underground Storage Tank (LUST) Trust Fund, extends the LUST Trust Fund tax through 2011, and includes provisions regarding inspections, operator training, delivery prohibition, secondary containment and financial responsibility, and cleanup of releases that contain oxygenated fuel additives. Some of these provisions require implementation by August 2006; others will require implementation in subsequent years. To implement the new law, EPA and states will work closely with tribes, other federal agencies, tank owners and operators, and other stakeholders to bring about the mandated changes affecting underground storage tank facilities.

THURSDAY, NOVEMBER 16, 2006 - The Environmental Protection Agency (EPA) has issued their final guidance on UST secondary containment to comply with the Energy Policy Act of 2005. Industry submitted comments on the draft and will be reviewing the final document to determine the impact on the petroleum industry. States receiving UST funding from the federal government are requested to implement these guidelines or the financial responsibility and installer certification requirements by February 8, 2007. A link to the new secondary containment guidelines: <http://www.epa.gov/oust/prevleak.htm>

FINANCIAL RESPONSIBILITY AND INSTALLER CERTIFICATIONS GUIDELINES ISSUED BY EPA

TUESDAY, JANUARY 23, 2007 - The financial responsibility and installer certification guidelines have been published by the Environmental Protection Agency (EPA). The Energy Policy Act requires additional measures to protect groundwater from contamination from underground storage tanks through either use of evidence of financial responsibility and installer certification or secondary containment. The guidelines describe the minimum requirements states must meet in order to comply. The guidelines include definitions, requirements, criteria and options for states choosing to implement the financial responsibility and installer certification provision.

If you would like to review the documents issued by EPA, please look at the following link.

- http://www.epa.gov/oust/fedlaws/epact_05.htm#Final

General Amendments:

- **Withdrawal of Approval of State Funds:** “After an opportunity for good faith, collaborative efforts to correct financial deficiencies with a State fund, the Administrator may withdraw approval of any State fund or State assurance program to be used as a financial responsibility mechanism without withdrawing approval of a State underground storage tank program.”
- **Ability to Pay:** “An inability or limited ability to pay corrective action costs must be demonstrated to the Administrator (or the State pursuant)” and “shall take into consideration the ability of the owner or operator to pay corrective action costs and still maintain its basic business operations, including consideration of the overall financial condition of the owner or operator and demonstrable constraints on the ability of the owner or operator to raise revenues.” The owner or operator may “provide the Administrator (or the State pursuant) with all relevant information” needed for the decision and “the Administrator (or State pursuant) shall consider alternative payment methods as may be necessary or appropriate if the Administrator (or State pursuant) determines the owner or operator cannot pay all or a portion of the costs in a lump sum payment.”

Inspection

Amendments to inspection requirements:

- All regulated tanks not inspected since December 22, 1998, must undergo on-site inspection “to determine compliance with this subtitle and the regulations under this subtitle” within two years of the enactment of this subsection.
- Following the completion of the aforementioned inspections, “the Administrator or State that receives funding under this subtitle, as appropriate, shall conduct on-site inspections of each underground storage tank regulated under this subtitle at least once every three years to determine compliance with this subtitle and the regulations under this subtitle or a requirement or standard of a State program.”
- “The Administrator of the Environmental Protection Agency, in coordination with the State, shall gather information on compliance assurance programs that could serve as an alternative to the inspection programs under section 9005 (c) of the Solid Waste Disposal Act and shall, within four years after the date of enactment of this Act, submit a report to the Congress containing the results of such study.”

Delivery, deposit and acceptance:

“Delivery to, deposit into, or acceptance of a regulated substance” into an underground storage tank which is not in compliance with State or Administrative regulations will be prohibited “beginning two years after the date of enactment. Within one year after the date of enactment of this section, the Administrator shall, in consultation with the States, underground storage tank owners, and product delivery industries, publish guidelines detailing the specific processes and procedures they will use to implement the provisions of this section.” Special consideration may be given to situations involving rural areas. “Any person making or accepting a delivery or deposit of a regulated substance to an underground storage tank at an ineligible facility in violation of section 9012 shall also be subject to the same civil penalty for each day of violation.” Persons shall only be held accountable if they were given proper notice concerning compliance failure and ineligibility.

Federal accountability

Federal departments and agencies are subject to the same regulations as all others concerning underground storage tanks. Exemptions may be made only by the President. Twelve months following the enactment of the Underground Storage Tank Compliance Act, “each Federal agency that owns or operates one or more underground storage tanks, or that manages land on which one or more underground storage tanks are located, shall submit to the Administrator, the Committee on Energy and Commerce of the United States House of Representatives, and the Committee on the Environment and Public Works of the Senate a compliance strategy report that”:

Groundwater protection

New requirements for tank installation include:

- New tanks or “piping connected to any such new tank, installed after the effective date of this subsection, or any existing underground storage tank, or existing piping connected to existing tank, that is replaced after the effective date of this subsection, shall be secondarily contained and monitored for leaks if the new or replaced underground storage tank or piping is within 1,000 feet of any existing community water system or any existing potable drinking water well.”

- “In the case of a new underground storage tank system consisting of one or more underground storage tanks and connected by piping,” the abovementioned requirement “shall apply to all underground storage tanks and connected pipes comprising such system.”
- “In the case of a replacement of an existing underground storage tank or existing piping connected to the underground storage tank,” the abovementioned requirement “shall apply only to the specific underground storage tank or piping being replaced, not to other underground storage tanks and connected pipes comprising such system.”
- “Each installation of a new motor fuel dispenser system, after the effective date of this subsection, shall include under-dispenser spill containment if the new dispenser is within 1,000 feet of any existing community water system or any existing potable drinking water well.”
- “Repairs to an underground storage tank, piping, or dispenser that are meant to restore a tank, pipe, or dispenser to operating condition” do not apply.

Responsibility

Manufacturers of underground storage tanks or UST piping and those who install USTs are “required to maintain evidence of financial responsibility... in order to provide for the costs of corrective actions directly related to releases caused by improper manufacture or installation unless the person can demonstrate themselves to be already covered as an owner or operator of an underground storage tank.”

States and the Administrator must “require that a person that installs an underground storage tank system” be qualified by:

- certification or license “by tank and piping manufacturer”
- certification or license “by the Administrator or a State, as appropriate”
- UST installation “certified by a registered professional engineer with education and experience in underground storage tank system installation”
- UST installation “inspected and approved by the Administrator or the State, as appropriate”
- compliance “with a code of practice developed by a nationally recognized association or independent manufacturer’s instructions or compliance with another method as determined by the Administrator or a State, as appropriate, to be no less protective of human health and the environment”

These changes will have a significant effect on the UST community. For more information on the policy and compliance, visit the EPA’s Web site, http://www.epa.gov/swerust1/fedlaws/nrg05_01.htm .

Reference: Underground Tank Technology Update

Underground Tank Technology Update is an electronic bimonthly publication of the University of Wisconsin–Madison, Department of Engineering Professional Development. To receive this electronic newsletter, e-mail Debbie Benell (benell@epd.engr.wisc.edu) or call 608-263-7428. There is no cost to subscribers. Your e-mail address will not be shared with other organizations.

US EPA ISSUES FINAL GUIDELINES ON MANDATORY UST OPERATOR TRAINING

The EPA has issued final guidelines that states must follow when developing mandatory UST operator training programs. The operator training requirements were mandated by the controversial underground storage tank provisions in the Energy Policy Act of 2005. The guideline does not establish a federal training program for c-store operators. They provide minimum criteria that state UST administrators must follow when implementing their own training program regulations.

UST Operator Classes: The guideline requires states to establish three separate classes of employees, identified as Class A, Class B and Class C, who must undergo mandatory UST operator and maintenance training.

Class A Operator –has primary responsibility to operate and maintain the UST system. In general, this individual is typically in a management position and focuses on the broader aspects of UST statutory and regulatory requirements, including supervision of employees that operate and maintain UST systems (generally c-store managers and clerks). For example, the Class A operator must have a general knowledge of the UST system including; spill prevention, overfill prevention, release detection, corrosion protection, emergency response, product compatibility, financial responsibility documentation requirements, notification and reporting, and operator training requirements.

Class B Operator - implements day-to-day aspects of operating, maintaining, and recordkeeping for underground storage tanks at one or more facilities and must have a general knowledge of UST systems and related equipment. This individual (possibly the c-store manager) typically monitors, maintains, and ensures that release detection methods, recordkeeping, and reporting requirements are met; that all equipment complies with performance standards; and employees are trained to properly respond to UST emergencies at the facility where they work. Compared with training for the Class A operator, training for the Class B operator will provide a more in-

depth understanding of operation and maintenance aspects, but may cover a more narrow breadth of applicable regulatory requirements.

Class C Operator - generally, the first line of response to events indicating emergency conditions (c-store clerk). This individual is responsible for responding to alarms or other indications of emergencies and for notifying emergency responders as well as Class A and B operators. At a minimum, the Class C operator must be trained in emergency response procedures.

A single employee may represent all three classes. In addition, for facilities such as cardlocks, no trained employee is required to be present on site.

Compliance Deadline - States must adopt an approved training program by August 8, 2009 and ensure that Class A, B, and C operators are trained according to state-specific training requirements by August 8, 2012

Training Schedule - Class A and B operators must be trained within 30 days or another reasonable period specified by the state, after assuming operation and maintenance responsibilities at the underground storage tank system. Class C operators must be trained **before** assuming responsibility for responding to emergencies. Retraining must occur at least once per year in addition to anytime the UST system is not in compliance.

Training Requirements - States may select from several training methods including an operator training program conducted or developed by the state or by a third party that has received prior state approval. The program may include in-class, on-line, or hands-on training. States may require an appropriately administered and evaluated verification of operator knowledge (i.e., examination). The state or a third party acceptable to the state may administer this examination. For Class C operator training, the state may accept training conducted by a trained Class A or Class B operator. The state may combine any of these three training approaches or comparable training approaches recognized by the state.

Go to http://www.epa.gov/oust/fedlaws/epact_05.htm#Final for US EPA UST Operator Guideline

Petroleum Underground Storage Tanks - Technical Standards

The Resource Conservation and Recovery Act (RCRA) of 1984 required EPA to mandate underground storage tank (UST) standards and financial responsibility requirements to protect the general public. The technical standards became effective on December 22, 1988. The North Carolina UST rules, **15A NCAC 2N "Underground Storage Tanks"**, substantially adopts the federal regulations by reference. However, the NC rules are stricter in some areas. The NC rules have been effective since January 1, 1991.

Secondary Containment Rule Effective November 1, 2007

Amendments and additions to Title 15A North Carolina Administrative Code Subchapter 2N (15A NCAC 2N) "Criteria and Standards Applicable to Underground Storage Tanks" will go into effect November 1st, 2007. What this means is that for underground storage tank (UST) system installations completed on or after November 1st, 2007 certain new standards will need to be met. In addition to new installations, all UST system components replaced on existing systems on or after November 1st, 2007 must also meet the new standards. Please take special note that if you are in the middle of an UST system installation and the installation is completed on or after November 1st, you will be required to meet the new requirements.

UST system or UST system component installations or replacements COMPLETED on or after November 1, 2007 must meet the secondary containment requirements. Emergency generator tanks are also included in this rule.

Highlights of the rule are as follows:

- **All UST system components including tanks, connected piping, underground ancillary equipment, dispensers, line leak detectors, submersible pumps, spill buckets, siphon bars, and remote fill pipes are required to have secondary containment *including interstitial monitoring*.**
- **Gravity-fed vertical fill pipes, vapor recovery, vent lines, and containment sumps are *excluded* from the secondary containment requirements.**
- **A UST system design is required for installation or replacement of a UST system. If required by the engineering statute, UST system designs must be prepared by a PE licensed in NC.**
- **UST systems may not be installed or replaced in areas where they will be in contact with contaminated soil or free product.**
- **New or any replacement below the shear valve must have under dispenser containment sumps. The containment sump must be monitored. It does not have to be double-wall.**

Notification to the UST Section is required that includes:

A UST system design, equipment to be installed including model and manufacturer and the materials of construction, device or method to be used to allow piping to be located after it is buried underground, a

site plan drawn to scale showing the proposed location of UST systems relative to buildings and other permanent structures, roadways, utilities, other UST systems, monitoring wells, and water supply wells used for human consumption within 500 feet, and a schedule for UST system installation or replacement.

Owners and operators must notify the Division at least 48 hours prior to the following stages of construction so that the Division may perform an inspection of the installation: Pre-installation tightness testing of tanks and final tightness testing of piping before it is backfilled. Documents showing the following information must be submitted to the Division within 30 days after UST system, UST, or connected piping installation or replacement is completed and shall be maintained at the UST system site or the owner's or operator's place of business for the life of the UST system. These records shall be transferred to a new tank owner at the time of a transfer of tank ownership:

UST6A & 6C FORMS

One Copy of a scale drawing that is 11" x 17" (must be legible) showing the proposed location of the following UST system features. The UST facility drawing must encompass at least more than 2/3 of the page and have a legend listing the drawing's scale:

- a. The name and address of the UST system site;***
- b. Tanks***
 - i. The Capacity is Gallons;***
 - ii. The diameter in feet;***
 - iii. Method of anchoring (describe if deadmen, a bottom hold-down pad or overburden are to be used)***
 - iv. Tank ID from UST-6 form;***
- c. Piping (including vent lines and tank manifold piping);***
- d. Dispensers;***
- e. Leak detection system(s) with the intended monitoring points (including sensor and console locations);***
- f. Automatic line leak detectors;***
- g. Flexible connectors (also indicate if this equipment will not be installed);***
- h. Vapor recovery;***
- i. Containment sumps;***
- j. Overfill prevention equipment, including the proper installation depth;***
- k. Spill Prevention Equipment:***
 - l. Cross-sectional figures for systems components needing greater detail, such as transition sumps showing the specific location and configuration of UST system piping & associated components (e.g., solenoid valves, ball valves, breakaways, anti-siphon valves, ect.)***
 - m. Adjacent roadways including the names of the roads;***
 - n. Onsite structures and monitoring wells;***
 - o. Water supply wells within 500 feet of a UST system component (also indicate if there are no wells within 500');***
 - p. Existing tanks & existing dispensers. Also, any other existing equipment related to the proposed work. Existing piping not related to the proposed installation should be shown if sufficient information is available.***
 - q. Method for locating piping after installation. Detectible tape/wiring shall also include width (gauge) and installation depth.***

Current UST 6C FORM

INSTRUCTIONS: List the manufacturer, model or part number and quantity for the following equipment installed at the facility: tanks, piping, including flex connectors, leak detection equipment including interstitial monitoring sensors and automatic line leak detectors, spill and overfill prevention equipment, vapor recovery equipment, containment sumps and method of locating the piping once it is buried. Group like categories of equipment together in the list. The item number provided below must correspond to the location(s) of the equipment shown on the scale drawing. Attach additional pages as necessary.

NCDENR –UST Section Guidance Policy on UST-6A Modifications: There are certain requirements that must be met prior to making any modifications to a 6A from.

Minor modification to the original NCDENR approved design plans are allowed with our submitting an amended UST 6A form, provided a NC PE reviews the proposed changes; finds them acceptable and compatible with other UST components; and the modification are noted in the UST-6B submission.

Minor Modification may include:

- Installing a different size tank than originally proposed
- Installing a different but equivalent make or model piece of UST equipment
- Installing tanks and/or piping in a slightly different location on the property due to unexpected site conditions.

This may include relocating the tanks/piping within the same general work area that approved with the UST-6A plans (e.g., due to contamination, utilities or other conflicts). If minor modifications are made to the original design plan, then each modification must be shown on new or revised design plan (As built)/UST-6C, submitted with the UST-6B. The new or revised design plan and UST-6C must be sealed or stamped by a NC PE.

Significant Modifications to the original NCDENR approved design plans are not allowed without submitting an amended UST-6A form, updated design plans and/or UST-6C form, for review and approval by the UST Section.

Significant modifications include, but not limited to:

- Installing extra tanks,
- Installing new, relocated or modified transition pumps
- Installing additional piping systems, lines or runs
- Installing extensions to existing piping and/ or dispensers
- Installing different equipment that is not equivalent to the equipment originally proposed and approved (considering regulatory compliance, compatibility and functionality)
- Installing tanks and/or piping outside the general work area that was approved with the UST-6A plans (e.g., relocating tanks and/or piping from one side of a building to another side)
- Elimination of approved equipment that may affect compliance with 15A NCAC 2N.

NCDENR may take up to 45 days to expedite its review of the amended UST-6A form and/ or appropriate documents so that installation work can proceed. NCDENR UST inspector is not authorized to approve installations where significant modifications were made without a revised UST-6A approval. Keep in mind submitting a revised UST-6A permit application with significant modification will add to the project timeline so be sure the petroleum equipment locations/specifications have been finalized.

Whenever an existing tank is removed prior to installation of a new tank, piping that does not meet the secondary containment requirements must also be removed.

When existing piping (including European suction systems) is replaced or extended, the entire piping system must meet the secondary containment requirements. However, if only existing riser pipes, flexible connectors, fittings, flanges, valves or pumps are replaced, then only the replacement equipment must meet the secondary containment requirements.

1. Pre Installation for UST-20 form, *Alternative Fuel Compatibility Checklist*, if the UST system will store an ethanol blend greater than 10% or a biodiesel blend greater than 20%;

POST INSTALLATION UST 6B:

Owners or operators of regulated underground storage tanks (USTs) must submit the following documentation once the UST system(s) have been installed:

- 1) UST-15A form, *Ownership of UST System(s)*. **(SHOULD BE SUBMITTED PRE-INSTALLATION)**
- 2) Appropriate annual operating fees are included. **(SHOULD BE SUBMITTED PRE-INSTALLATION)**
- 3) Proof of Financial Responsibility along with the *Certification of Financial Responsibility* forms. **(SHOULD BE SUBMITTED PRE-INSTALLATION)**
- 4) **One Copy** of as-built plan (new or revised design plan consisting of a UST-6C schedule of materials and scale drawing signed/sealed by NC PE) attached. The design plan approved with the UST-6A can be copied and submitted, if no changes were made. If changes were made then, highlight any changes from original design plan on drawing.
- 5) Manufacturers tank installation checklist and warranty registrations (NA for piping only)
- 6) Manufacturers piping installation checklist and warranty registrations (NA for tank only)
- 7) Copies of manufacturer's installer certifications for each employee who installed

- equipment at this facility.
- 8) UST-6C, *Application to Install or Replace Underground Storage Tank Systems (Schedule of Materials)*
 - 9) UST-6D/23A, *Application to Install or Replace Underground Storage Tank Systems (Spill Bucket Installation Testing)* containing post-installation test results. (N/A for piping only)
 - 10) UST-6E/23D, *Application to Install or Replace Underground Storage Tank Systems (Tank Installation Testing)* containing pre-installation, installation and post-installation test results. (N/A for piping only)
 - 11) UST-6F/23B, *Application to Install or Replace Underground Storage Tank Systems (UDC/Containment Sump Installation Testing)* containing post-installation test results.
 - 12) UST-6G/23C, *Application to Install or Replace Underground Storage Tank Systems (Piping Installation Testing)* containing pre-installation, installation and post-installation test results.
 - 13) Line Tightness Test (LTT) and data sheets
 - 14) Automatic Line leak Detector (ALLD) test data with ALLD data (NA for non-pressurized piping only)
 - 15) Leak detection console printout showing each interstitial liquid/vacuum sensor set-up copied on 8 1/2 X 11 paper. Must show Normal/OK (prior to test); Alarm during test; & Normal/OK after test. Additional printouts may be required to document sensors with multiple alarm states –discriminating, position sensitive, or dual float hydrostatic Leak detection console printout showing most recent interstitial sensor “fuel alarm” history report , followed by a sensor status report (showing “normal” or OK”) for each sensor copied on 8 1/2 X 11 paper attached. Note that additional printouts may be required for certain types of sensors (i.e., discriminating, position-sensitive, etc).
 - 16) UST-22A; Overfill Prevention Verification & Operability Check
 - 17) UST-22B; Annual Interstitial Sensor Operability Check
 - 18) UST-22C; Annual Containment Sump Visual Inspection

UST system or UST system component installations or replacements COMPLETED on or after November 1, 2007 must meet the secondary containment requirements. Emergency generator tanks are also included in this rule. This means that you cannot start an install on October 31 and still put in a single wall system. It also means that you cannot sign a contract with an installer today to install a UST system that will not be COMPLETE on November 1, 2007 unless it meets the new requirements.

Highlights of the rule are as follows:

- All UST system components including tanks, connected piping, underground ancillary equipment, dispensers, line leak detectors, submersible pumps, spill buckets, siphon bars, and remote fill pipes are required to have secondary containment *including interstitial monitoring*.
- Gravity-fed vertical fill pipes, vapor recovery, vent lines, and containment sumps are *excluded* from the secondary containment requirements.
- A UST system design is required for installation or replacement of a UST system. If required by the engineering statute, UST system designs must be prepared by a PE licensed in NC.
- UST systems may not be installed or replaced in areas where they will be in contact with contaminated soil or free product.
- New or replacement dispensers must have under dispenser containment sumps. The containment sump must be monitored. It does not have to be double-wall.

Notification to the UST Section is required that includes:

A UST system design, equipment to be installed including model and manufacturer and the materials of construction, device or method to be used to allow piping to be located after it is buried underground, a site plan drawn to scale showing the proposed location of UST systems relative to buildings and other permanent structures, roadways, utilities, other UST systems, monitoring wells, and water supply wells used for human consumption within 500 feet, and a schedule for UST system installation or replacement.

Owners and operators must notify the Division at least 48 hours prior to the following stages of construction so that the Division may perform an inspection of the installation:

Pre-installation tightness testing of tanks and final tightness testing of piping before it is backfilled. Documents showing the following information must be submitted to the Division within 30 days after UST system, UST, or connected piping installation or replacement is completed and

shall be maintained at the UST system site or the owner's or operator's place of business for the life of the UST system. These records shall be transferred to a new tank owner at the time of a transfer of tank ownership:

- (1) Certification from the UST system installer containing:
- (2) The UST system installer's name, address and telephone number; training and any certification received from the manufacturer of the equipment that was installed or replaced or the equipment manufacturer's authorized representative including any certification number;
- (3) An as-built diagram drawn to scale showing: the name and address of the UST system site; the date of UST system, UST, or connected piping installation or replacement; the equipment that was installed including model and manufacturer; the results of pre and post installation tightness tests; the method used to anchor a tank in the ground; if the equipment has single-walled or double-walled construction; the year the piping was manufactured and any production code; and the device or method used to allow piping to be located after it is buried underground. The as-built diagram shall also show the location of the installed or replaced UST systems relative to: buildings and other permanent structures, utilities, monitoring wells and other UST systems located at the site; adjacent roadways; and water supply wells used for human consumption within 500 feet;
- (4) A listing of the manufacturer's written guidelines, codes of practice, and industry standards used for installation; and
- (5) A statement that the UST system was installed in accordance with the design and the manufacturer's specifications.
- (6) Manufacturer warranties;
- (7) Any equipment performance claims; and
- (8) Records of all tightness testing performed.

Whenever an existing tank is removed prior to installation of a new tank, piping that does not meet the secondary containment requirements must also be removed. The replacement tank cannot be connected to piping that does not meet the secondary containment requirements.

When existing piping (including European suction systems) is replaced or extended, the entire piping system must meet the secondary containment requirements. However, if only existing riser pipes, flexible connectors, fittings, flanges, valves or pumps are replaced, then only the replacement equipment must meet the secondary containment requirements.

1. New Petroleum USTs, those not exempt from the law, must be installed to prevent future releases i.e. protected against corrosion. Therefore, new USTs must be constructed of fiberglass reinforced plastic, steel which is dielectrically coated and cathodically protected (STiP3), or steel clad with fiberglass reinforced plastic (composite tank). Field installed cathodic protection systems must be designed by a **Corrosion Expert**. A corrosion expert, as defined in the regulations, must demonstrate the education and training needed to qualify in the practice of corrosion control in buried metal piping systems and tanks. Proof of qualification can take one of two forms: 1) a person must be a registered professional engineer with certification of licensing that includes education and experience in corrosion control of buried metal piping and tanks, or 2) a person must be accredited or certified as being qualified by the National Association of Corrosion Engineers [now known as NACE International]. Some states require double wall tanks.

2. Piping at new installations must either be fiberglass reinforced plastic or steel coated with a suitable dielectric coating and cathodically protected. Flex connectors are considered piping and if in contact with the ground must be cathodically protected unless installed in a boot or jacket that isolates it from the ground. Some states require double wall piping.

3. Spill and overflow prevention must be provided if transfer is over 25 gallons. Most waste oil tanks would be exempt from spill/overflow requirements. New USTs must have spill containment and overflow alarm or automatic shutoff at 95% of tank capacity.

4. New installations must be certified as being done according to nationally recognized standards (PEI / RP 100, API 1615). Plans or drawings for new installations must bear the seal of a NC Registered Professional Engineer. A Precision testing of the UST system must be performed prior to beginning operation.

(a) **2N .0104 IDENTIFICATION OF TANKS**. Owners and operators are required to maintain at each facility a current diagram that indicates for each UST: location, capacity, type of product stored, and year the tank was installed.

5. Leak Detection for new tanks and piping must be provided upon installation of the tanks. Leak detection for new tanks may be Monthly Monitoring by means of statistical inventory reconciliation (SIR), automatic tank gauging,

vapor monitoring, interstitial monitoring, groundwater monitoring, or other approved methods. However, until 12-22-98 a combination of daily inventory control and periodic precision tank testing may be used. Thereafter, one of the aforementioned methods is required. All existing tanks were required to have some form of leak detection by 12-22-98. USTs containing waste oil must comply with these regulations. If your waste oil tank is 1,000 gallons or less in capacity, you can use manual tank gauging as a form of leak detection. If your tank is between 1001 and 2,000 gallons capacity, you can use manual tank gauging only when combined with a periodic tank tightness test. Manual tank gauging cannot be used at all for tanks larger than 2,000 gallons; therefore one of the aforementioned methods of leak detection must be used. Pressurized piping systems must be equipped with an automatic line leak detector (ALLD) and either have an annual line tightness test or have monthly monitoring. At this time, NC will not allow the use of an interstitial monitoring system with a sump sensor in lieu of an ALLD because it cannot determine a 3.0 gallon per hour leak rate. For new and old piping certain alternatives are allowed depending on type of piping. Pipe tightness testing must be able to detect a leak of 0.1 gallon per hour leak rate at 1.5 times the operating pressure.

Conduct at least one valid 0.2 gallon per hour (gph) test per month on each UST tank for auto tank gauging monthly monitoring systems.

6. Upgrading Existing Tanks - Existing tanks must be upgraded by December 22, 1998 for corrosion protection. "Upgrading" means adding internal lining or cathodic protection or both plus spill/overflow prevention. **2N .302 UPGRADING OF EXISTING SYSTEMS:** All existing UST systems in close proximity to water supplies, as described in **2N .0301**, must be replaced with double - walled systems by 12-22-98. UST Systems upgraded to the federal standards found at **40 CFR 280.21** prior to the adoption date of this regulation (1-1-91) are considered to be in compliance. Within 30 days of completed upgrading, owners must submit, on proper agency forms, a description of the upgrade.

7. 2N .0303 NOTIFICATION REQUIREMENTS. A "notice of intent" must be submitted by the Owner to the agency on specific forms at least 30 days before beginning these activities:

- Installation of a new UST System on proper agency forms
- Installation of an external leak detection device such as vapor or groundwater monitoring wells. Site assessment is required, also using appropriate form.
- Permanent closure of an UST system and proper agency forms.

Within 30 days of bringing an UST into use, an Owner must file notification forms with the agency. The notification includes data on ownership, location, description of system components, and certification that installation complies with the regulation. Copies of all of the above forms may be obtained by calling your state agency or internet web sites.

8. Compatibility - Underground storage tanks must consist of or be lined with material compatible with substance stored in the system.

9. Repairs are allowed if they conform to certain publication standards or standards of the manufacturer.

10. 2N .0405 REPORTING AND RECORDKEEPING - Results of site investigation must be submitted on appropriate forms to the DWM within 30 days following completion of:

- Permanent UST system closure.
- To insure compliance with the requirements for installation of vapor monitoring and groundwater monitoring devices or wells.

Owners must also submit to the DWM on appropriate forms within 30 days following completion of:

- Upgrading of existing UST systems.
- Certification of proper operation of a corrosion protection systems. A **Cathodic Protection Tester (CPT)** does not have to be a registered professional engineer. However, there are minimum requirements for education and experience for a CPT. A CPT must perform the required inspection within 6 months of installation and every 3 years thereafter.
- Certification of compliance with leak detection requirements as specified in state or federal requirements.

11. Detecting Leaks. Your tanks must be monitored or checked monthly to determine any leaks. See items 5 above. If you do not use any of those monitoring methods (in item 5) you must have inventory control and have the tanks precision tested for tightness regularly. Inventory control requires gauging the tanks each operating day using a gauge stick or an automatic tank gauge. If you have questions about Inventory Control or Manual Tank Gauging, download a copy of the EPA booklets entitled "**Doing Inventory Control Right**" or "**Manual Tank Gauging.**" (See web site links below)

2N .0506 RELEASE DETECTION RECORDKEEPING. See <http://www.epa.gov/swrust1/pubs/index.htm> for downloading US EPA manuals. All owners and operators must keep records showing their compliance with the leak detection requirements. These records include:

- Third party claims of any leak detection method used, i.e. SIR, ATGs, and precision tank tests.
- Results from any sampling, testing, or monitoring must be kept for one year, except that results from tank tightness testing must be kept until the next test is conducted.
- Written documentation of all calibration, maintenance, and repair of release detection equipment must be kept for one year from date servicing work is completed.

12. When a leak is suspected, notice must be given to the Federal or State Agency, within 24 hours. The suspicion must be confirmed or denied within 7 days and a report made to the regional office. A precision test can be used to determine if the system has leaked unless environmental contamination is the basis for the suspected release. In that case, samples must be taken. Reasons to suspect a release include:

- Product or vapors in soils, basements, sewer and/or utility lines, or nearby surface waters.
- Unusual operating conditions
- Monitoring results from a leak detection device indicate that a release may have occurred. (unless device is defective or inventory control data for second month does not confirm release.

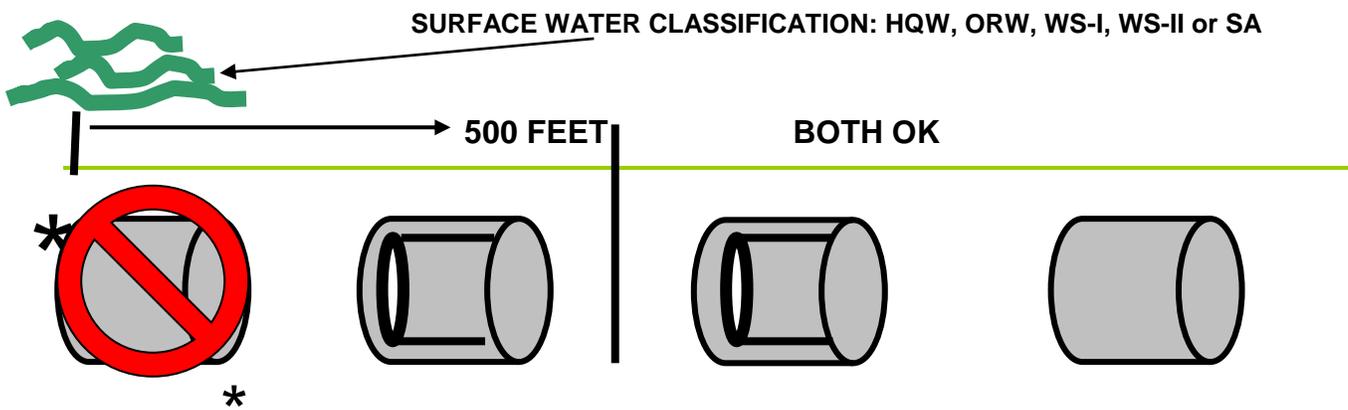
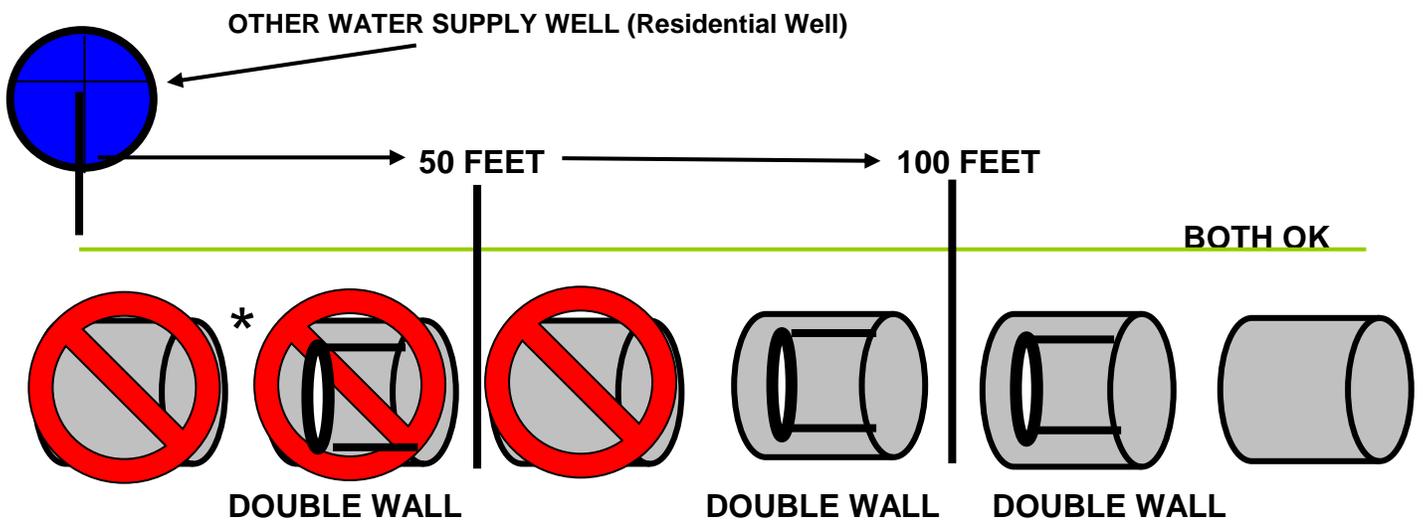
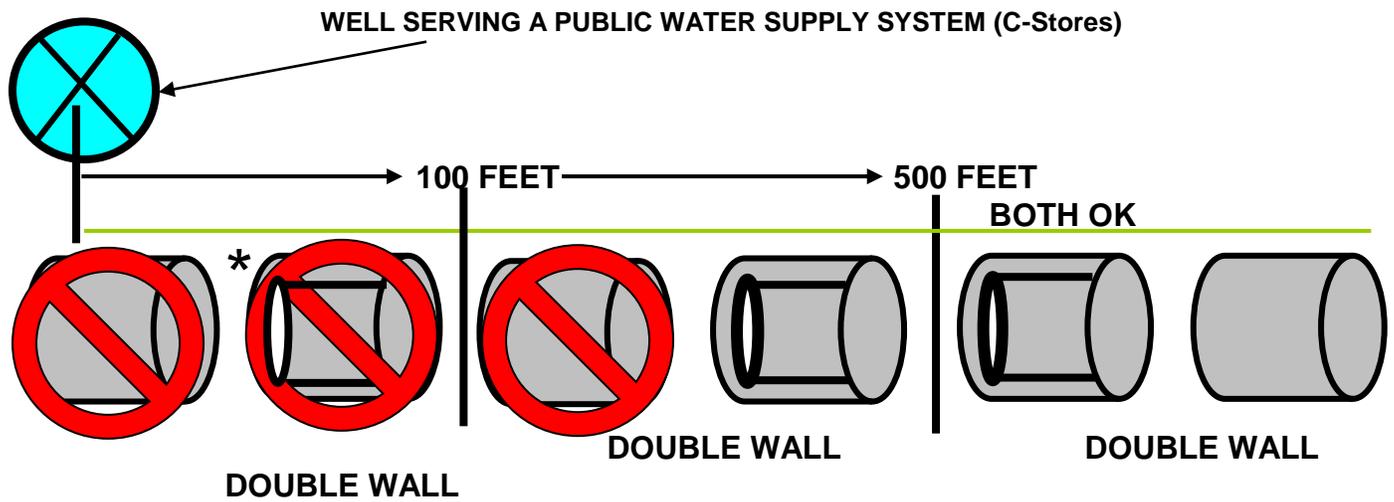
13. Temporary Closure. If a tank is taken out of operation temporarily, leak detection must be continued unless the tank is emptied. The tank is empty when no more than one inch of product remains in the tank. When a tank is closed temporarily for 3 months or more the lines, pumps, manways, and ancillary equipment must be capped and secured. The vents should be left open and functioning. A corrosion protected tank can remain temporarily closed indefinitely. A non-protected tank may only remain temporarily closed for 12 months before it must be permanently closed.

14. Permanent Closure. To permanently close a tank, it must be emptied and cleaned of all liquids and sludge. The tank must be removed from the ground or filled in place with a solid inert material (sand, cement, or foam). A site assessment report must be submitted to DWQ upon completion of the tank closure. If there has been a discharge or release of product from the tank, the report must be signed and sealed by a NC Registered Professional Engineer or Licensed Geologist. A state agency form may be used when completing a closure report.

***Tanks that are exempt from the state & federal law generally are:**

- **Farm or residential tank of 1100 gallons or less capacity used for storing motor fuel for non resale purposes...**
- **Tank used for storing heating oil for consumptive use on the premises where stored...**
- **Septic tanks; pipe lines; surface impoundment, pit, pond, or lagoon; storm-water or wastewater collection system; flow-through process tank; liquid trap or associated gathering lines directly related to oil or gas production and gathering operations; or storage tank situated in an underground area (such as a basement, cellar, mineworking, drift, shaft, or tunnel) if the storage tank is situated upon or above the surface of the floor.**
- **Tanks under 110 gallons.**

15A NCAC 2N .0301(d) PERFORMANCE STANDARDS FOR NEW UST SYSTEMS. No NC UST system shall be installed within 100 feet of a public water system (as defined in 15A NCAC 18C .0102) or within 50 feet of any other water supply well. However, any UST system existing in such locations on the date of adoption of this regulation (1-1-91) may be replaced with a double-walled UST system. Also, UST systems that met the "new" UST system performance standards prior to 1-1-91 are exempt from this rule. New UST systems installed between 100 and 500 feet of a public water supply well, High Quality surface water, Outstanding Resource water (WS-I, WS-II, or SA), or between 50 and 100 feet of any other well supplying water for human consumption must meet the double-wall requirements.



* EXCEPT SYSTEMS INSTALLED BEFORE 1-1-91 THAT MET 12-22-98 STANDARDS OR EXISTING BEFORE 12-22-88 AND UPGRADED PRIOR TO 1-1-91. **THERE IS NO EXTENSION FOR UST SYSTEMS LOCATED IN THESE AREAS THAT ARE NOT EXCEPTED!!!**
 A Temporary Rule was adopted effective May 1, 2000 setting a new schedule for providing double-walled UST systems with interstitial monitoring for UST systems located near wells and certain surface waters. The rule is as follows:

IMPLEMENTATION SCHEDULE FOR PERFORMANCE STANDARDS FOR NEW UST SYSTEMS AND UPGRADING REQUIREMENTS FOR EXISTING UST SYSTEMS LOCATED IN AREAS DEFINED IN RULE .0301(d)

(a) The following implementation schedule shall only apply to UST owners and operators of UST systems located within areas defined in Rule .0301(d) and who are in compliance with Paragraph (b) of this Rule. This implementation schedule shall be used by NC for tank owners and operators to comply with the secondary containment requirements contained in Rule .0301 (d) for new UST systems and the secondary containment requirements contained in Rule .0302(a) for existing UST systems located within areas defined in Rule .0301(d).

1. All new UST systems and all replacements to a UST system shall be provided with secondary containment in accordance with 40 CFR 280.42(b) (1) through (4) as of the effective date of this Rule.
2. All steel or metal connected piping and ancillary equipment of a UST system regardless of date of installation, shall be provided with secondary containment in accordance with 40 CFR 280.42(b)(1) through (4) as of January 1, 2005.
3. All fiberglass or non-metal connected piping and ancillary equipment of a UST system regardless of date of installation, shall be provided with secondary containment in accordance with 40 CFR 280.42(b)(1) through (4) as of January 1, 2008.
4. All UST systems installed on or before January 1, 1991 shall be provided with secondary containment in accordance with 40 CFR 280.42(b) (1) through (4) as of January 1, 2008.
5. All UST systems installed after January 1, 1991 shall be provided with secondary containment in accordance with 40 CFR 280.42(b) (1) through (4) as of January 1, 2016.

(b) All owners and operators of UST systems shall implement the following enhanced leak detection monitoring by October 1, 2000. The enhanced leak detection monitoring must consist of the following:

1. Install a continuous monitoring automatic tank gauging system (ATG) for each UST; for those with standard ATGs, conduct a valid 0.1 gph test at least monthly or conduct a valid 0.2 gph test at least weekly; for those with a continuous ATG, conduct a valid 0.2 gph test at least weekly.
2. Install an electronic line leak detector (ELLD) for each pressurized piping system;
3. Conduct at least one valid 0.1 gallon per hour (gph) test per month on each UST system;
4. Conduct a line tightness test capable of detecting a leak rate of 0.1 gph, at least once per year for each suction piping system. No release detection is required for suction piping that is designed and constructed in accordance with 40 CFR 280.41(b)(2)(i) through (iv);
5. If the UST system is located within 500 feet of a public water supply well or within 100 feet of any other well supplying water for human consumption, sample the supply well at least once per year. The sample collected from the well must be analyzed for the constituents of petroleum using the following methods:
 - (i) EPA Methods 601 and 602, including methyl tertiary butyl ether, isopropyl ether and xylenes;
 - (ii) EPA Method 625; and
 - (iii) if a waste oil UST system is present which does not meet the requirements for secondary containment in accordance with 40 CFR 280.42(b)(1) through (4), the sample should also be analyzed for lead and chromium using Standard Method 3030C preparation.**

A public water supply well may be wells at C-Stores and Service Stations with public restrooms and an outside spigot or within 100 feet of other wells used for human consumption (bathing, showering, cooking, dishwashing, toilets, and oral hygiene are considered human consumption as well as drinking) shall have secondary containment.

NOTE: All UST Systems that met the 1998 standards (corrosion protection, overfill prevention and spill prevention) on or before January 1, 1991 are in compliance with the rules and excluded from these siting and secondary containment rules. NC's UST Rules became effective on that date so those systems that met the 1998 standards on or before January 1, 1991, are grandfathered.

UST Operating Permit Application Requirements

Most States require owners and operators of commercial petroleum underground storage tanks (USTs) to annually obtain an operating permit for a facility at which a UST is located. Fuel may not be placed into a UST at a facility for which the owner or operator does not hold a currently valid operating permit. The State UST Section may

only issue an operating permit to a tank owner or operator provided certain criteria are met. These criteria include payment of annual tank operating fees and a demonstration of compliance with all state laws and rules pertaining to UST systems. The specific requirements for applying for a permit are described below:

(1) Tank Fees: Tank owners or operators must pay all required annual tank fees.

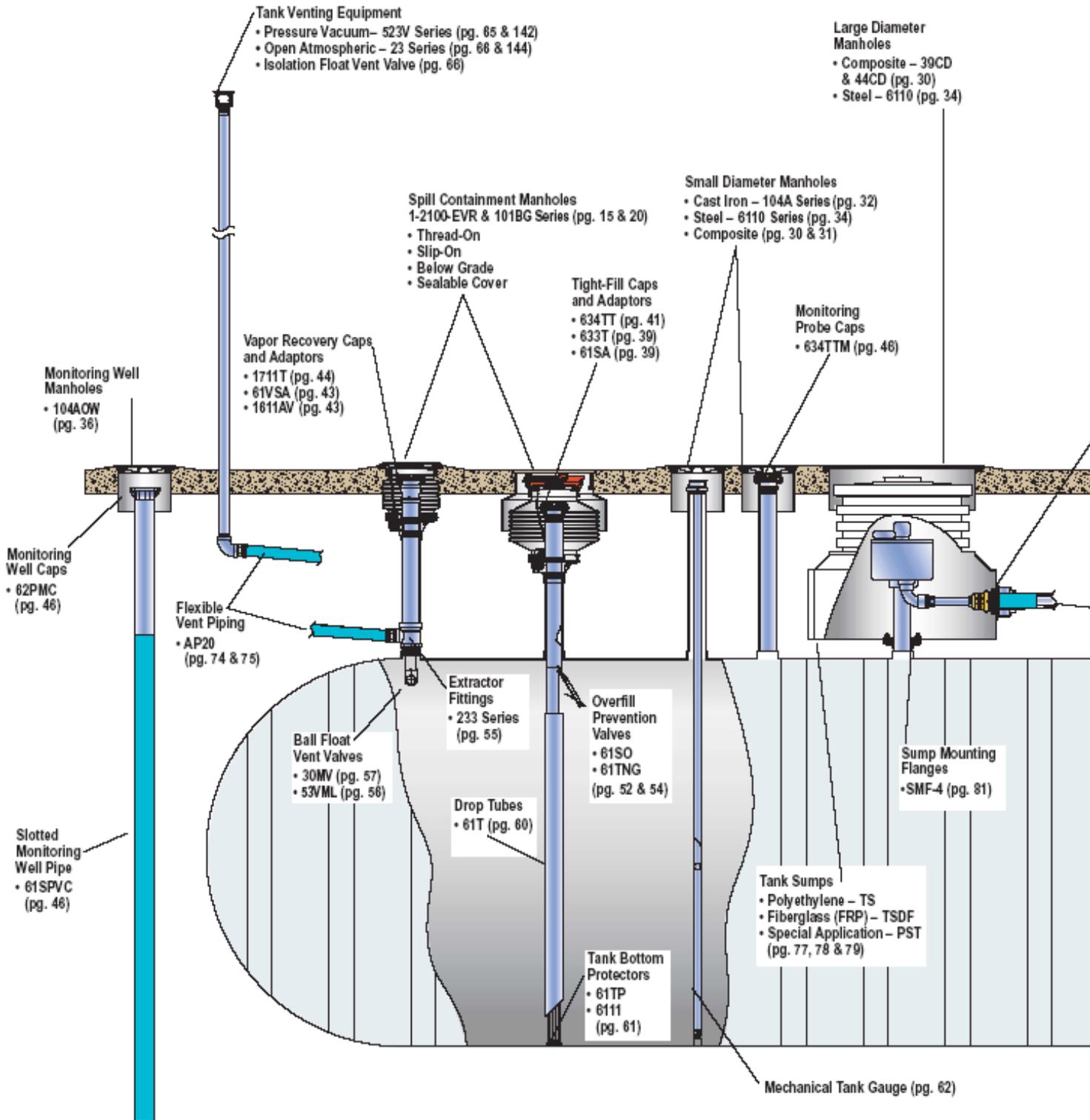
(2) Tank Ownership: The current tank owner must have a completed and notarized statement of ownership on file with the UST Section. The statement of ownership must be on file with state agency.

(3) Tank Registration: Tank owners or operators must have a completed Form UST-8 entitled "Notification of Activities Involving Underground Storage Tank System(s)" on file with the UST Section. Tank owners or operators must submit a new Form UST-8 each time the registration information for a UST system changes (e.g., steel piping is replaced with double-walled flex piping).

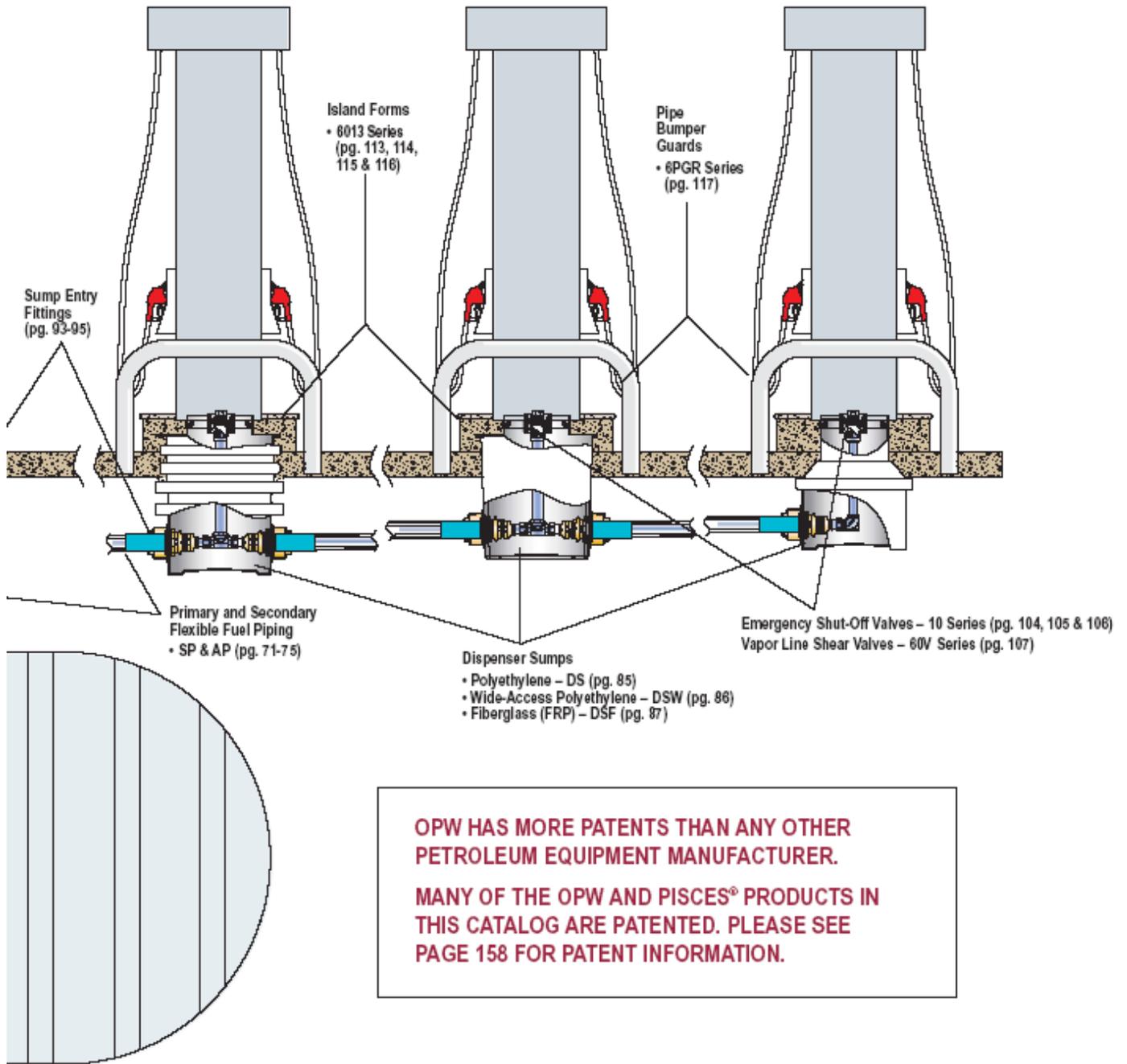
(4) Tank Compliance: Tank owners or operators must complete and sign a "Compliance Questionnaire" for each facility. This questionnaire consists of four questions and is located on the back of the invoice for annual tank fees. The questionnaire must be completed each year. A Form UST-8 may be used in place of the Compliance Questionnaire for an initial operating permit.

(5) Financial Responsibility: Tank owners or operators will be required to submit proof of financial responsibility when new tanks are installed, tank ownership is transferred from one owner to another, or as determined by the UST Section. Financial responsibility must be maintained for a regulated UST until the tank is permanently closed and any required corrective action is completed. In addition to the requirements listed above, an operator who applies for an operating permit will also be required to sign a statement of responsibility for UST systems. Operating permits are issued to tank owners or operators. Therefore, if a UST at a facility is sold to a new owner, the new owner must apply for a permit in his/her name. The permit issued to the old owner is no longer valid even if annual tank fees are paid through the end of the permit period. A new permit must be obtained in the name of the new tank owner. The same requirement applies to operators seeking a permit. **COMMON REASONS FOR OPERATING PERMIT NON-ISSUANCE:** Tank owners and operators are responsible for maintaining currently valid operating permits for all USTs. If you have paid your tank fees, but have not received your operating permit, please make sure that you have met the permit application requirements listed above. Common reasons for permit non-issuance are improper completion of the required forms, insufficient proof of ownership and/or lack of financial responsibility. In addition, the UST Section may not issue a new permit or may revoke an existing permit if unresolved violations exist.

Sample UST Installation from OPW Catalog



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UST Records

- **Permits** – All facilities with Commercial USTs must have a valid UST operating permit. Fees must be paid and leak detection employed in order to receive a permit. It is illegal to drop product at a facility that does not have a valid permit. All fees must be paid up before a release is discovered in order to be eligible for Trust Fund coverage.
- **Site Diagram** – Each facility must have a diagram that shows the location of USTs with respect to property boundaries and permanent structures, total storage capacity in gallons, types of product stored, and the year the tanks were installed.
- **Leak Detection Records** – The previous 12 months of leak detection records must be available at an inspection. This might include inventory records, records of tightness tests for tanks and piping, SIR records, annual leak detector operational tests, sump inspections, etc. Single wall UST systems in close proximity to water supply wells must perform a weekly 0.2 gallon per hour leak test or monthly 0.1 gallon per hour leak test. The well must also be sampled annually and analyzed for petroleum constituents and the results sent to the State Agency.

UST owners and/or operators are reminded that Inventory Control combined with Periodic Tank Tightness Testing is only viable as a method of Leak Detection for 10 years after the tank is installed or upgraded. After that time, the owner/operator must use a form of Monthly Monitoring (Automatic Tank Gauging, Statistical Inventory Reconciliation, etc.). For example, a bare steel UST is installed in 1984. In 1994, the tank is upgraded by adding an impressed current corrosion protection system. In 1998, spill prevention buckets and an overflow alarm are added. The owner/operator must start using Monthly Monitoring in 2004 because it has been 10 years since the tank was upgraded.

There have been and continue to be reports of releases from double-walled piping systems, especially when petroleum is allowed to accumulate in sumps. The gaskets as well as the secondary piping can deteriorate upon lengthy exposure to petroleum. Please take the time to check these sumps from time to time to make sure this problem is detected before a release occurs. Owners and operators are reminded that an Integrity Assessment is required before the addition of an Internal Tank Liner or an Impressed Current System to a tank. An Integrity Assessment can be an Internal Inspection or Other Approved Method. [i.e., Mean Time to Corrosion Failure (MTCF), Mean Age to Corrosion Failure (MACF), Cathodic Protection Suitability Study (CPSS), Tank Environmental Profiling (TEP), or Statistical Corrosion Probability Analysis (SCPA)] A corrosion expert must design or approve the design of a field-installed corrosion protection system. If you have questions about this rule or any other UST rule.

- **Corrosion Protection Records** – For upgraded tanks, proof of suitability for upgrade (internal inspection, records of non-invasive method [MTCP, TEP]) must be available. For all cathodically protected steel UST systems the anodes must be tested every three (3) years and records kept of the latest test. Impressed current systems must also be checked every three (3) years. These tests must be performed by a corrosion expert.
- **Proof of Financial Responsibility – Why are there FR requirements?**

The FR requirements are in Subchapter 20, Title 15A of the North Carolina Administrative Code, <http://ust.enr.state.nc.us/regs.html#sr>. Federal FR requirements ([Subpart H - 280.90-280.116](#)) are at <http://www.epa.gov/swerust1/fedlaws/cfr.htm>.

The NC rules are based on federal regulations requiring that persons responsible for USTs demonstrate that they can pay the environmental cleanup and third-party liability costs when an UST petroleum release occurs. In North Carolina, the Commercial State Trust Fund pays cleanup and third-party liability costs in excess of the deductibles up to \$1.5 million, with a 20% owner/operator (O/O) co-payment for costs greater than \$1 million. O/Os must pay annual operating fees into the State Trust Fund, which fulfills a major portion of the FR requirements. To fully satisfy the FR requirements, O/Os must also be able to demonstrate that they can pay the State Trust Fund deductibles.

Who needs to meet the FR requirements? An owner or operator of an UST must meet the requirements. Federal and state government agencies do not have to meet the requirements. Local government agencies must meet the requirements.

What kinds of USTs must meet the FR requirements? Only regulated petroleum USTs must meet the requirements. Examples of USTs that must meet the requirements include those that store motor fuel for resale, farm USTs greater than 1,100 gallons that store motor fuel, most emergency generator USTs, oil-water separator USTs that are not regulated under Clean Water Act, and USTs that store heating oil for resale or for use off the premises where stored.

What is the amount of financial assurance needed? (State Regulations may be different) 40 CFR Protection of Environment CHAPTER I ENVIRONMENTAL PROTECTION AGENCY (CONTINUED) SUBCHAPTER I -- SOLID WASTES (CONTINUED)

§280.93 Amount and scope of required financial responsibility.

(A) Owners or operators of petroleum underground storage tanks must demonstrate financial responsibility for taking corrective action and for compensating third parties for bodily injury and property damage caused by accidental releases arising from the operation of petroleum underground storage tanks in at least the following per-occurrence amounts:

(1) For owners or operators of petroleum underground storage tanks that are located at petroleum marketing facilities, or that handle an average of more than 10,000 gallons of petroleum per month based on annual throughput for the previous calendar year; \$1 million.

(2) For all other owners or operators of petroleum underground storage tanks; \$500,000.

(B) Owners or operators of petroleum underground storage tanks must demonstrate financial responsibility for taking corrective action and for compensating third parties for bodily injury and property damage caused by accidental releases arising from the operation of petroleum underground storage tanks in at least the following annual aggregate amounts:

(1) For owners or operators of 1 to 100 petroleum underground storage tanks, \$1 million; and

(2) For owners or operators of 101 or more petroleum underground storage tanks, \$2 million.

Soil Contamination and Groundwater Regulations

North Carolina first enacted rules in 1979 and the rules were significantly amended in 1989 and again in 1993. The groundwater rules are intended to (1) maintain and preserve the quality of the groundwaters; (2) prevent and abate pollution; (3) protect public health; and (4) preserve the groundwaters as a source of drinking water. North Carolina's basic policy is that drinking water, without the necessity of significant treatment, is the best use of groundwater.

The NC groundwater rules are codified at [15A NCAC 2L - Classifications and Water Quality Standards \(includes RBCA rule 2L.0115\)](#) web site at <http://ust.enr.state.nc.us/regs.html#sr>

Federal Clean up standards are Subpart F -- Release Response and Corrective Action for UST Systems Containing Petroleum or Hazardous Substances [Subpart F - 280.60-280.67](#) web site at <http://www.epa.gov/swerust1/fedlaws/cfr.htm>

States may have their own clean up standards and may be stricter than federal drinking water or other clean up standards.

GROUNDWATER QUALITY STANDARDS are the maximum allowable concentrations of contaminants that may be discharged into the waters of the state. The standards have been established based on the threat to human health since more than half of all North Carolina residents depend on groundwater as their source of drinking water. The standards for some of the substances commonly found in petroleum products are:

BENZENE	1 PART PER BILLION
ETHYLBENZENE	29 PARTS PER BILLION
MTBE	200 PARTS PER BILLION
NAPHTHALENE	21 PARTS PER BILLION
TOLUENE	1000 PARTS PER BILLION
XYLENES	530 PARTS PER BILLION

RESPONSIBLE PARTIES: In North Carolina, no person shall conduct or cause to be conducted any activity which causes the concentration of any specified substance to exceed the standard. The groundwater rules are applicable to all activities or actions, intentional or accidental, that contribute to the degradation of groundwater quality. Any person who conducts or controls activities that contribute to the degradation of groundwater quality are responsible for corrective measures.

CORRECTIVE ACTION is required where groundwater quality has been degraded. The goal of corrective action shall be restoration to the level of the standard or as close thereto as is economically and technologically feasible.

Responsible parties are required to immediately notify federal or state agencies of the release and the levels; take immediate action to eliminate the source or sources of contamination; perform a site assessment and; implement an approved corrective action plan. RP must also submit a copy of the report to the Health Director of the county or counties in which the contamination occurs. A corrective action plan must be implemented using the best available technology for restoring groundwater to the level of the standards unless federal or state agency approves an alternative cleanup plan. The rules give RPs three options other than cleanup to the standards. The RP may request agency to approve a plan without requiring cleanup to the standards. The RP may request agency to approve a cleanup plan based on “natural remediation.” Finally, the RP may request that the Director approve termination of a corrective action before the standards are achieved. The contamination cannot have migrated or will not migrate offsite or permission is given by the owners of property where the contamination has migrated or the area is served by a public water supply. For all three options, federal or state agency requires a monitoring plan to be implemented that is sufficient to determine the effectiveness of the alternative.

States may have regulations in affect that may mandate the use of natural attenuation, cleanup to levels other than the standards, or termination of cleanup prior to achieving cleanup to the standards at sites that qualify for these alternatives and are eligible for reimbursement from the state’s UST Trust Funds. **All reports required to be submitted by the groundwater rules must be prepared under the supervision of and sealed by a Professional Engineer or Licensed Geologist.**

RISK-BASED CORRECTIVE ACTION FOR PETROLEUM UNDERGROUND STORAGE TANKS

NC Section .0115 of Subchapter 2L was developed as required by the General Assembly to provide for risk-based assessment and corrective action for releases or discharges from petroleum underground storage tanks. The major elements of each subsection are highlighted below. Annotations are provided to clarify or explain certain points.

Subsection (a) - Purpose of Rule

Establishes procedures for risk-based assessment and corrective action to protect human health and the environment and to abate and control contamination in a cost efficient manner.

Subsection (b) - Rule Applicability

- applies only to petroleum USTs;
- applies to assessments and cleanups of discharges or releases begun on or after the effective date of this rule. Can be applied to past releases if cost effective. On-going assessments or cleanups are initially classified as either “high” or “low” risk by Subsection (r).
- brings non-regulated USTs (e.g., heating oil tanks) under the same reporting requirements as regulated tanks ;
- applies to owners and operators of USTs, landowners seeking reimbursement from the Trust Funds and any other persons responsible for a discharge or release from a UST under the Oil Spill Act or 2L [*for consistency purposes to avoid differing requirements depending on the party responsible*].

Subsection (c)-Initial Reporting Requirements and Release Response Activities

Defines:

- initial response activities to be taken by the responsible party [*to provide uniform requirements for all tanks in a manner consistent with Federal requirements as found in 2N*];
- contents for Soil Contamination Report for sites where groundwater has not been contaminated [*to allow minor soil-only sites to drop out of regulatory process at an early stage*];
- contents of a Limited Site Assessment Report for all other sites [*to quickly obtain the information needed by the Department to classify the risk posed by releases. The report would also include possible actions that could lower the risk classification. These could include, for example, well abandonment, municipal water hook-up or “hot-spot” cleanup*].

Subsection (d)-Risk Categories

Assigns responsibility for risk classification to the Department, and defines the criteria for high, intermediate and low risks as follows:

High risks -

- water supply well is contaminated;
- drinking water supply well may be threatened (i.e., well within 1000 feet of source);
- nondrinking water supply well may be threatened (i.e., well within 250 feet of source) [*based on field*]

experience, the level of contamination at receptors is likely to meet acceptable levels for nondrinking exposures using this distance];

- potential future use of groundwater threatened (i.e., no public water line within 500 feet of source) [*distance is based on expected worse case extent of plume*];
- explosion potential from confined vapors;
- imminent danger allows high risk classification based on site-specific information (e.g., drinking water well threatened beyond 1000 feet).

Intermediate risks-

- threat to surface water (i.e., surface water body within 500 feet of source and groundwater contamination is above surface water standards);
- threat to deep aquifers in the Coastal Plain which are or may become a drinking water source
- release occurs in a wellhead protection area];
- gross contamination [*new concept designed to decrease time for natural attenuation and to diminish cumulative impact of very high levels of contamination on a regional basis*].

Low risks-

- all sites that are not high or intermediate risk;
- sites not posing a threat based on review of site-specific information (e.g., drinking water wells only upgradient of source).

Subsection (e) - Reclassification

- allows reclassification based on site-specific information and emphasizes on-going nature of classification process;
- obligates RP's to report information which could result in reclassification.

Subsection (f) - Requirements for High Risks

- complete a comprehensive site assessment report [*currently required*];
- submit a corrective action plan to restore groundwater to the standards [*currently required; close proximity to receptors demands most stringent cleanup requirements*];
- submit a natural attenuation plan as soon as the requirements for 2L .0106(l) can be met at the site [*allows for monitoring only at high risk releases when natural attenuation activities control plume migration at the site*].

Subsection (g) - Requirements for Intermediate Risks

- complete the comprehensive site assessment report [*required due to close proximity of potential receptors*];
- all intermediate risks must be cleaned up at a minimum to a "gross contamination" level which is the lower of 50% of the solubility of the contaminant or 1000 times the groundwater standard or interim standard for any contaminant except ethylene dibromide, benzene, and alkane and aromatic carbon fraction classes. "Gross contamination level for ethylene dibromide and benzene is 1000 times the federal drinking water standard.
- determine if threat to the receptor resulting in the intermediate classification is still present after the full extent of the contamination is known [*if receptor is not threatened, release can be reclassified as low risk and the site closed with no further groundwater cleanup required, if contamination is below the "gross contamination" levels set in the rule*];
- if threat exists, submit a corrective action plan to protect the receptor or to reduce gross levels of contamination [*allows for a true "hot spot" cleanup with established criteria for target cleanup levels and no long-term monitoring requirements once active remediation ceases*];
- requires consideration of natural attenuation in the hot area or on the fringes of the contaminant plume in developing the corrective action plan [*consistent with not requiring groundwater cleanup to the standards*].

Subsection (h) - Requirements for Low Risks

- no comprehensive site assessment required for groundwater [*no need for report since no requirement for a corrective action plan*];
- no corrective action plan required for groundwater [*enabling statute provides authority*];
- requires Department to notify responsible party that no cleanup, no further cleanup or no further action is needed once soil remediation is complete [*consistent with enabling statute*].

Subsection (i) - Soil Contamination

- based on site-specific information, the Department determines whether site is residential or industrial/commercial. Site is presumed residential unless Department reclassifies. [*new provision to protect human health through exposures to contaminated soil. To be a risk-based approach as required by the statute, other routes of exposure besides groundwater must be considered. Assessment and cleanup*

of soil contamination is already referenced in 2N .0706 and .0707, but no standards are set. In the 2L rules, soil contamination is addressed only by looking at groundwater impacts. The new rule addresses soil contamination directly by setting levels for clean-up].

- at a minimum, all discharges or releases must be cleaned up to either residential or industrial/commercial soil levels, whichever is applicable;
- releases classified as high or intermediate must cleanup to the lower of: residential or industrial/commercial soil levels, whichever is applicable; or to the “soil-to-groundwater” soil levels (levels in soil that will not cause a violation of 2L standards in underlying groundwater).

Subsection (j) - Corrective Action Plan Notifications

- requires responsible party to notify local officials and potentially affected property owners and occupants when submitting a plan not intending to restore groundwater to the standards or interim standards, or to the lower of the residential or soil-to-groundwater contaminant concentrations [*for consistency with current notification requirements for alternative corrective action plans - 2L .0106 (k), (l), and (m)*];
- allows for posting of a notice if individual notices are impractical [*addresses difficulties in current notification process such as where adjacent property is occupied by a high-rise building*].

Subsection (k) - No Further Action Notifications

- For discharge or releases that have not been remediated to the groundwater standards or interim standards, or to the lower of the residential or soil-to-groundwater contaminant concentrations, this subsection requires the responsible party to notify local officials, affected property owners of the receipt of a notice of no cleanup, no further cleanup or no further action [*consistent with current and proposed notifications and allows for public notification where contamination is left unremediated at the site*].

Subsection (l) - Department List of Releases

- requires each regional office to maintain a list of all petroleum UST releases, the dates key reports are received, the date of notice of no further cleanup and contaminant levels left at the site [*provides an institutional control in the form of a registry of pollution sites to help ensure that the use of the property remains the same as at the time the notice of no cleanup was sent to the responsible party; since UST owners and operators do not always own the land on which the release occurred, registry substitutes for the more direct control of the land through deed restriction; deed restrictions were also thought to pose many obstacles such as accurate recordation, liability of the Department and responsibility for removal of deed restrictions; the registry should be an effective means of notice since in a residential property transaction, seller now has duty to disclose contamination at site to buyer or state that no representations about contamination are being made; additionally, environmental investigations are now common-place in commercial property transactions.*].

Subsection (m) - Soil Cleanup Levels

- assigns responsibility to the Department for establishing and publishing soil cleanup levels for residential, industrial/commercial and soil-to-groundwater exposures based on EPA a peer-reviewed scientific documents. Example tables showing such levels are attached. These levels will be for specific chemicals (e.g., benzene, toluene, naphthalene) as well as certain carbon fraction classes (i.e., alkanes and aromatics). [*different from non-risk-based approach used now in which cleanup is based on non-specific hydrocarbon (TPH) levels; specific chemical analyses are necessary to determine risk that contamination poses through soil exposure and impact to groundwater*];
- defines references and methods to be used by Department in establishing these levels;
- obligates Department to annually revise the soil cleanup levels. [*necessary to be able to revise levels based on new toxicological data*].

Subsection (n) - Analytical Procedures for Soil Samples

- specifies analytical parameters for soil samples from different types of petroleum releases. [*The rule requests that samples be analyzed for certain carbon fraction classes; however, EPA’s review of the analytical methods necessary to do these analyses, has not yet been finalized. Therefore, instead of referencing specific EPA methods, language was inserted to allow the Director to approve such methods under the 2H (lab certification) rules. Also, before this rule becomes effective, the DWQ lab certification committee must review the carbon fraction methods and make revisions as necessary. Labs would then need to be certified to perform the methods*];
- specifies analytical methods and references. [*Section .0112 in 2L sets out references that must be used as source documents for analytical methods. However, at least one of these is out-of-date. Therefore, .0115 indicates that any recent additions or versions may be used for these methods. For completeness .0115 also lists all source references for the methods specified in subsections (n) and (o)*].

Subsection (o) - Analytical Procedures for Groundwater Samples

- specifies analytical parameters for groundwater samples for different types of petroleum releases;
- specifies analytical methods and references.

Subsection (p) - Laboratory Certification

- requires labs to obtain DWQ laboratory certification in accordance with lab certification rules (2H) [2H specifies that analyses required under groundwater rules must be performed by a certified lab. However, at present, there is no specific reference to certification in 2L. This subsection clarifies the certification requirement for this rule, at least].

Subsection (q) - Assessment or Cleanup of Releases Other than Petroleum

- ensures that the RP understands that for sites with multiple releases involving both petroleum and non-petroleum substances, the RP is obligated to assess and cleanup the non-petroleum release as they always have under Oil Spill Act, 2N or 2L.

Subsection (r) - Transition to New Classification

- AB releases under Chapter 648 will now be high risk and CDE releases will be low risk until reclassified by the Department [allows time for Department to reclassify all previously classified releases and provides quick direction to the responsible party as to what action, if any, needs to be taken].

UST Enforcement FAQ

What is a Notice of Violation (NOV)? - A Notice of Violation (NOV) is a letter sent to a responsible party (individual or company) giving notice of noncompliance with environmental law(s). The letter is designed to notify the person of the specific violation and associated regulatory cite. In addition, the NOV describes the requirements that the person or party must take to correct the violation or must take as a result of the violation. Generally, the NOV indicates the responsible party must complete the corrective actions and notify the regulatory agency in a certain period of time.

What is a Notice of Regulatory Requirement (NORR)? - A Notice of Regulatory Requirement (NORR) is a letter sent to a responsible party indicating the occurrence of a petroleum product(s) release into the environment. The NORR is an educational tool. NORR is may be used by the state agency to notify a responsible party of a release and the necessary corrective actions or release responses.

What are the consequences of Regulatory Violations? - The authority to initiate enforcement actions is provided for by State or Federal General Statutes. These statutes describe the type of actions and establishes the protocols upon which policies and procedures may be based. The statutes allow three (3) remedies of enforcement to prompt or maintain compliance with environmental regulations, These remedies are Civil Penalties, Injunctive Relief, and Criminal Penalties. The remedy most commonly used is the assessment of civil penalties. Additional information may be available under facts and figures.

North Carolina Non-Commercial Petroleum UST Cleanup Fund

The Non-Commercial Trust Fund (NCF) is funded in two ways. There are moneys allocated from the Inspection Fee that's collected on petroleum products and not used for inspection or administration. This unused inspection money (previously going to the Highway Fund) is split evenly between the Commercial Fund and the Non-Commercial Fund. A marginal cent per gallon tax on motor fuel, effective Jan. 1, 1992 was added to create a loan fund program whereby underground tank owners could borrow to upgrade or replace tanks to meet the 1998 standards. Any money not expended for loans reverted to the Commercial Fund on January 1, 1995

Non-Commercial USTs include:

- ◆ Farm or residential USTs of 1100 gallons or less which store motor fuel for non-commercial purposes;
- ◆ USTs of 1100 gallons or less which contain heating oil for consumptive use on the premises where stored;
- ◆ USTs of more than 1100 gallons which contain heating oil for consumptive use by four or fewer households.
- ◆ Commercial USTs where the UST was taken out of operation prior to January 1, 1974 -- but only if, at the time the release is discovered, neither the owner nor the operator owns the land upon which the UST is located.
- ◆ Commercial USTs where the owner of the UST is the owner only as a result of owning the land where the UST is located -- but only if the owner did not know or have reason to know that the UST was located on the property, and the land was not transferred to avoid liability for the UST.

A Non-Commercial UST does not include:

- ◆ septic tanks;
- ◆ pipeline facility;

- ◆ surface impoundment, pit, pond, or lagoon;
- ◆ stormwater/waste water collection system;
- ◆ flow-through process tank;
- ◆ liquid trap and associated gathering lines;
- ◆ storage tank in a basement situated above the surface of the floor.

Procedure in the event of a leak from an Underground Storage Tank:

- ◆ Report leak to Division of Environmental Management Regional Office within 24 hours;
- ◆ Proceed with cleanup;
- ◆ Apply to the Leaking Underground Storage Tank Trust Funds for reimbursement of cleanup costs.

For inclusion in the Non-Commercial Fund:

- ◆ the leak could have occurred at any time and;
- ◆ no tank fees are required to be paid.

Requests for reimbursement are dealt with on a first come first served basis and turnaround time depends on the completeness of the submittal and the number of reimbursement requests in the system. Reimbursement requests may only be submitted on a quarterly basis or when the request is in excess of \$20,000.

The fund will pay for:

- ◆ Work performed that is reasonable and necessary;
- ◆ Costs documented on forms provided by the state and;
- ◆ Payments proven by canceled check or copy of contract for dual reimbursement.

Deductibles and coverage are as follows:

The fund will not pay for tank removals: Initial samples will not be paid for if no contamination is found.

Change by General Statute August 1, 2013.

NONCOMMERCIAL LEAKING PETROLEUM UNDERGROUND STORAGE TANK CLEANUP FUND:

SECTION 14.15.(a) G.S. 143-215.94D(b1) reads as rewritten:

"(b) The Noncommercial Fund shall be used for the payment of the costs of:

- (1) For releases discovered or reported to the Department prior to August 1, 2013, the cleanup of environmental damage as required by G.S. 143-215.94E(a).**
- (1a) For releases discovered or reported to the Department on or after August 1, 2013, the cleanup of environmental damage as required by G.S.143-215.94E(a) in excess of two thousand dollars (\$2,000) or the sum of the following amounts, whichever is less:**
 - a. A deductible of one thousand dollars (\$1,000) per occurrence.**
 - b. A co-payment equal to ten percent (10%) of the costs of the cleanup of environmental damage, per occurrence.**
- (2) Compensation to third parties for bodily injury and property damage in excess of one hundred thousand dollars (\$100,000) per occurrence.**
- (3) Reimbursing the State for damages or other costs incurred as a result of a loan from the Loan Fund. The per occurrence limit does not apply to reimbursements to the State under this subdivision.**
- (4) Recordation of residual petroleum as required by G.S. 143B-279.11 if the Noncommercial Fund is responsible for the payment of costs under subdivisions (1) through (3) of this subsection and subsection (b) of this section."**

- ◆ **There is a \$100,000 deductible for Third - party claims (item #2 above).**
- ◆ **Coverage is up to \$1 Million per occurrence.**

END August 5, 2014