

UTAH

Installer

Reference Document

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www.undergroundtanks.utah.gov

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General, Rules, Regulations

Notification and Permit Requirements for Installing New USTs

Link: http://www.undergroundtanks.utah.gov/ust_install.htm#notif

When you install a new tank you are required to notify the Utah Division of Environmental Response and Remediation (DERR) ten days prior to beginning the work. An installation permit and fee of \$200 per tank is required and should be obtained prior to the completion of the installation. The local fire jurisdiction and health department should also be contacted for any requirements that they may have associated with the installation of new tanks.

UST Installation Permit

Information on the installation permit includes:

- Utah Certified UST installer who is directing all critical operations associated with tank installation
- Installation company name, address and current UST Installation Company Permit number
- Date the work will commence
- Tank owner name and address
- Facility name and address
- Complete description of what is to be installed: tank or piping, capacity, material of construction, substance to be stored, etc.

Red Tag

Link: <http://www.undergroundtanks.utah.gov/redtag.htm>

No more tank tags! Starting in 2013 the Division of Environmental Response and Remediation (DERR) will discontinue issuing tags to be placed on underground petroleum storage tanks to show they are eligible to receive deliveries of fuel or other regulated substances.

From now on, large red "delivery prohibition" tags will be placed on tanks that are NOT eligible to receive deliveries.

These are tanks whose certificate of compliance has lapsed or has been revoked, and tanks that have never qualified for a certificate of compliance. The 2012 Utah legislature changed the Utah Underground Storage Tank Act to create the new "red tag" program.

The DERR will continue to issue a certificate of compliance each year. You should be sure to keep the certificate on site, but it will not be necessary to have it posted for deliveries. Delivery drivers will only have to see that a delivery prohibition tag is not in place to verify that a tank is eligible to receive deliveries. You should also remove all the tags issued for previous years from your tanks.

Delivery prohibition tags will also be placed on a new tank during the installation process, to help ensure that no unauthorized deliveries are made to the tank before it qualifies for a certificate of compliance.

Removal of Red Tag

When the new tank does qualify for a certificate of compliance, the DERR will issue the certificate and a letter authorizing the removal of the delivery prohibition tag. Allow the DERR several days for this, it has to be approved by several levels of management.

One Time Drop Letter

Before a tank can receive a Certificate of Compliance, the integrity of the tank and associated piping must be evaluated through a tank and line tightness test. To receive fuel for the test, the owner or installer must contact the DERR for authorization of a one-time delivery (One Time Drop Letter).

Information to submit to request a One Time Drop Letter:

- Facility and owner name, facility I.D. or facility address, and phone number
- Date(s) delivery of fuel is needed
- Name of company delivering fuel and contact person
- Fax number of delivery company

Request can be made by fax (801) 359-8853 or phone (801) 536-4100 or e-mailed to the appropriate UST Inspector (who to contact).

DERR/UST must have 24 hour notice prior to the date the delivery is needed. Our office hours are 7 a.m to 6.p.m. Monday thru Thursday (closed holidays). A One Time Drop Letter request recieved Thursday afternoon may not be approved until Monday. Requests can be made via e-mail 24-7 (who to contact).

After the initial drop, the tanks may not receive subsequent deliveries of fuel until they are issued a Certificate of Compliance and are marked with a proper identification tag at the fill pipe. The owner of the facility and the delivery company will be subject to a \$500 fine for each delivery made to an UST without a Certificate of Compliance (other than the One Time Drop).

Testing

In addition to the above rule changes, DERR (UST) will be asking for documentation of integrity testing on all newly installed secondary containment and spill containment (spill buckets) prior to going into operation. These tests should be conducted according to the equipment manufacturer requirements.

Ref: PEI/RP 1200-12

- Tanks, piping, and line leak detectors must be tested by a Certified Utah Tester.
- Sumps, spill buckets and under dispenser containment must have an integrity test; according to the manufacturers requirements.

Certificate of Compliance

Obtaining a Certificate of Compliance

What is Required?

The Utah Underground Storage Tank (UST) Act requires that owners and operators of regulated petroleum USTs qualify their tanks for and receive a Certificate of Compliance, and keep the tanks in substantial compliance with all UST rules and regulations. It is a violation of the UST Act to operate these USTs without a certificate. New tanks must have a certificate before being put into operation. Fines may be assessed if product or other regulated substance is delivered to or placed into an UST that does not have a Certificate of Compliance. (Certificate of Compliance Packet)

How Do I Get a Certificate?

To qualify for and receive a Certificate of Compliance, complete the following steps:

- Submit a completed Application for Certificate of Compliance and declare whether you will participate in the Utah Petroleum Storage Tank Trust Fund (PST Fund) or demonstrate financial responsibility for your USTs by another allowable mechanism. You must meet all requirements for coverage under your chosen mechanism before you operate the USTs.

- Pay the Registration Fee of \$100 per tank for USTs participating in the PST Fund, or \$200 per tank for USTs using another allowable financial responsibility mechanism.
- Conduct a tank and line tightness test and submit a complete copy of the results (including field notes, measured leak rate, and other technical data). The tightness tests must be performed by a Utah certified UST Tester. To receive fuel for the test, you must contact the Division of Environmental Response and Remediation (DERR) at 801-536-4100 for authorization of a one-time delivery. The DERR will need to know the date of delivery and the name of the company that will deliver the fuel.
- Submit a completed Previous Pollution Incidents form to indicate whether you have had any petroleum releases at the facility. If you participate in the PST Fund, failure to report previous releases could void your coverage. Payment of clean-up costs for previous releases is your responsibility.
- Submit a facility site plat or as-built drawing that shows the tank excavation, buildings, tanks, product lines, vent lines, cathodic protection systems, tank leak detection systems and product line leak detection systems. The site plat is required under Section R311-203-3(e) of the Utah UST rules.

If you choose to participate in the PST Fund you must:

- Check the box on the Application for Certificate of Compliance to indicate participation in the PST Fund and indicate the financial responsibility mechanism you will use to pay the cleanup costs not covered by the Fund.
- Pay the PST Fund fee. Pay \$50 per tank for USTs installed at new facilities. If a new UST is installed at a facility with existing USTs, pay the rate assessed to the existing USTs for the current fiscal year, either \$50 or \$150 per tank. If the new UST is a replacement for a previously-existing UST, the current year PST Fund fee paid for the original tank is applied to the new UST.

Manufacturer's Installation Checklist

Submit a copy of the manufacturer's installation checklist for review by the DERR, and for their records.

EPA Notification Form

The tanks should be registered using Notification for Underground Storage Tanks, EPA Form 7530-1, at the completion of the installation. The notification must be complete with the owner's signature and include the tank installer's signature certifying that the tanks meet all state and federal requirements for proper installation. Utah rules also require as-built drawings or site plats.

Recent changes to R311, the Utah Underground Storage Tank (UST) Rules

There have been several significant changes in the UST rules that will affect certified UST Installers and those who repair and or service any part of the UST system.

UST Installer

After January 1, 1991, no person shall install an underground storage tank without having certification or the on-site supervision of an individual having certification to conduct these activities.

After January 1, 1991, no owner or operator shall allow the installation of an underground storage tank to be conducted on a tank under their ownership or operation unless the person installing the tank is certified according to Rule R311-201. The Executive Secretary may issue a limited certification restricting the type of UST installation the applicant can perform. Utah Admin. Code R311-201-02(e).

The DERR is currently issuing three limited or specialty certifications under the UST Installer certification.

1. Cathodic Protection (CP) Installer
2. Tank Liner
3. Service/Repair Technician

Limited Installer Certification or Service/Repair Technician

This allows for issuing limited certifications for UST installers, so individuals who perform work that falls under the definition of UST installation can be certified without having to meet all the requirements for a "full" Installer certification.

A person must have the limited Installer certification (technician) if they work on any portion of the UST system that is critical to the integrity of the system, this includes:

- Line leak detectors
- Repairs on any portion of the UST system
- Automatic Tank Gauging (ATG) systems
- Probes/sensors
- Overfill and spill devices
- Containment sumps
- Sub-pump

UST Installer

New requirements for UST Installer.

Financial Assurance

An applicant or the applicant's employer shall have insurance, surety bonds, liquid company assets or other appropriate kinds of financial assurance. (\$250,000)

Training

For initial and renewal certification, an applicant must have successfully completed an underground storage tank installer approved training course within the six-month period prior to the application in a program approved by the Executive Secretary. Training shall include: Pre-installation tank testing, tank site preparation including anchoring, tank placement, backfilling, cathodic protection installation, service or repair, vent and product piping assembly, fill tube attachment, installation of manholes, pump installation, secondary containment, UST repair, and state and federal statutes, rules and regulations.

Experience

Each applicant must provide with his application a sworn statement or other evidence that he has actively participated in a minimum of three underground storage tank installations.

Examination

An applicant must successfully pass a certification examination.

Fees

Certification fee of \$225 for 2 year certification period.

In addition to UST Installer, installation companies must have:

UST Installation Company Permit from the DERR

After July 1, 1994 no individual or underground installation company may install an UST without having a valid UST installation company permit. This permit provides the UST Installation Company up to \$2 million of financial assurance for environmental releases after paying \$10,000 per incidence.

Fees

Annual fee of \$2,000 if 15 or fewer USTs were installed in Utah during the prior year.

Annual fee of \$4,000 if 16 or more USTs were installed in Utah during the prior year.

The annual fee is due July 1 each year. There is no proration for portions of the year. A \$60 penalty is assessed for payments which are received late.

Installation permit fee of \$200 for installation of each UST system. (See R311-203-3.)

Petroleum System Contractor Licence from the DOPL**Training**

"Trade training" as required for certification of UST Installer Examination: An applicant must successfully pass the UST Installer certification exam administered by the Division of Environmental Response and Remediation (DERR) and a business and law examination administered by the Division of Professional Licensing (DOPL).

Fees

Examination fee and licensing fee as required by the Division of Professional Licensing.

UST Installer Specialties

Cathodic Protection

Training

Applicant must document specialized training for installation of cathodic protection.

Experience

Each applicant must provide with his application a sworn statement or other evidence of actively participating in a minimum of three installations of cathodic protection of underground storage tanks.

Examination

An applicant must successfully pass a certification examination.

Fees

Certification fee of \$225 for 2 year certification period. No additional fee is required if the applicant is currently certified as an installer and the expiration date remains the same.

Lining

Training

Applicant must document specialized training for UST lining.

Experience

Each applicant must provide with his application a sworn statement or other evidence of actively participating in a minimum of three UST linings.

Examination

An applicant must successfully pass a certification examination.

Fees

Certification fee of \$225 for 2 year certification period. No additional fee is required if the applicant is currently certified as an installer and the expiration date remains the same.

Standards of Performance for Installers R311-201-6

- (e) UST Installer. An individual who performs underground storage tank installation in the State of Utah:
- (1) shall display his certificate upon request;
 - (2) shall comply with all local, state and federal laws, rules and regulations regarding underground storage tank installation in this state;
 - (3) shall perform all work in a manner that there is no release of the contents of the tank;
 - (4) shall report the discovery of any release caused by or encountered in the course of performing tank installation to the local health district, local public safety office and the Executive Secretary within twenty-four hours;
 - (5) shall assure that all operations of tank installation which are critical to the integrity of the system and to the protection of the environment which includes preinstallation tank testing, tank site preparation including anchoring, tank placement, backfilling, cathodic protection installation, service, or repair, vent and product piping assembly, fill tube attachment, installation of tank manholes, pump installation, secondary containment construction, and UST repair shall be supervised by a certified person;
 - (6) shall not participate in fraudulent, unethical, deceitful or dishonest activity with respect to any certificate application;
 - (7) shall not participate in fraudulent, unethical, deceitful or dishonest activity with respect to performance of work for which certification is granted where the manner of the activity would increase the possibility of a release from an underground storage tank; and
 - (8) shall not participate in any other regulated certification program activities without meeting all requirements of that certification program.
- (9) shall notify the Executive Secretary as required by R311-203-3(a) before installing or upgrading an UST.
- Note: A certified UST installer who participates in fraudulent, deceitful or dishonest activity with respect to the certificate can be subject to a \$10,000 fine and have his certificate revoked.

Energy Policy Act of 2005

As of August 18, 2008 several significant changes have been made to the UST rules that will affect contractors who install UST systems and who upgrade or replace any part of the UST system.

Summary of the Rule Changes

- R311-203-2, Notification. UST owner/operators are required to notify the DERR (UST) before switching to some alternative fuels in their tanks. “Alternative Fuels” is defined as petroleum based fuel containing more than 20% Biodiesel or more than 10% Ethanol. There may be compatibility issues when these fuels are used in steel tanks, older fiberglass-reinforced plastic tanks, or in tank systems with certain types of fittings, seals, etc. Adding this requirement will help ensure that these problems are minimized.
- R311-203-6, Requirements for Secondary Containment. This section implements the “Additional Measures to Protect Groundwater” provision of the Energy Policy Act of 2005. Beginning October 1, 2008, secondary containment will be required for most new UST

installations and upgrades. This includes secondary containment on tanks, piping, and product dispensers. The rule specifies some exceptions to this requirement. Please refer to the full text of the rule changes for details. Interstitial monitoring will be required for all new secondary containment installed under this rule change.

- R311-206-3, Requirements for Issuance of Certificates of Compliance. Owner/operator must submit an as-built drawing for new UST installations, prior to the issuance of a Certificate of Compliance for new installations. A Certificate of Compliance will not be issued without an as-built drawing.

In addition to the above rule changes, DERR (UST) will be asking for documentation of integrity testing on all newly installed secondary containment and spill containment (spill buckets) prior to going into operation. These tests should be conducted according to the equipment manufacturer requirements.

Definitions

R311-200-1. Definitions.

- (a) Refer to Section 19-6-402 for definitions not found in this rule.
- (b) For purposes of underground storage tank rules:
 - (1) "Actively participated" for the purpose of the certification programs means that the individual applying for certification must have had operative experience for the entire project from start to finish, whether it be an installation or a removal.
 - (2) "Alternative Fuel" means a petroleum-based fuel containing:
 - (A) more than ten percent ethanol, or
 - (B) more than twenty percent biodiesel.
 - (3) "As-built drawing" for purpose of notification means a drawing to scale of newly constructed USTs. The USTs shall be referenced to buildings, streets and limits of the excavation. The drawing shall show the locations of tanks, product lines, dispensers, vent lines, cathodic protection systems, and monitoring wells. Drawing size shall be limited to 8-1/2" x 11" if possible, but shall in no case be larger than 11" x 7".
 - (4) "Automatic line leak detector test" means a test that simulates a leak, and causes the leak detector to restrict or shut off the flow of regulated substance through the piping or trigger an audible or visual alarm.
 - (5) "Backfill" means any foreign material, usually pea gravel or sand, which usually differs from the native soil and is used to support or cover the underground storage tank system.
 - (6) "Biodiesel" means a fuel comprised of mono-alkyl esters of long chain fatty acids derived from vegetable oils or animal fats, designated B100.
 - (7) "Burden" means the addition of the percentage of indirect costs which are added to raw labor costs.
 - (8) "Certificate" means a document that evidences certification.
 - (9) "Certification" means approval by the Executive Secretary or the Board to engage in the activity applied for by the individual.
 - (10) "Certified Environmental Laboratory" means a laboratory certified by the Utah Department of Health as outlined in Rule R444-14 to perform analyses according to the laboratory methods identified for UST sampling in Subsection R311-205-2(d).
 - (11) "Change-in-service" means the continued use of an UST to store a non-regulated substance.
 - (12) "Community Water System" means a public water system that serves at least fifteen service connections used by year-round residents or regularly serves at least 25 year-round residents.
 - (13) "Confirmation sample" means an environmental sample taken, excluding closure samples as outlined in Section R311-205-2, during soil overexcavation or any other remedial or investigation activities conducted for the purpose of determining the extent and degree of contamination.
 - (14) "Consultant" is a person who is a certified underground storage tank consultant according to Subsection 19-6-402(6). (may provide information, opinions, or advice relating to UST release management, abatement, investigation, corrective action or evaluation.)
 - (15) "Customary, reasonable and legitimate expenses" means costs incurred during the investigation, abatement and corrective actions that address a release which are normally charged according to accepted industry standards, and which must be justified in an audit as an appropriate cost. The costs must be directly related to the tasks performed.
 - (16) "Customary, reasonable and legitimate work" means work for investigation, abatement and corrective action that is required to reduce contamination at a site to levels that are protective of human health and the environment. Acceptable levels may be established by risk-based analysis and taking into account current or probable land use as determined by the Executive Secretary following the criteria in R311-211.
 - (17) "Department" means the Utah Department of Environmental Quality.
 - (18) "Eligible exempt underground storage tank" for the purpose of eligibility for the Utah Petroleum Storage Tank Trust Fund means a tank specified in 19-6-415(1).

- (19) "Environmental sample" is a groundwater, surface water, air, or soil sample collected, using appropriate methods, for the purpose of evaluating environmental contamination.
- (20) "EPA" means the United States Environmental Protection Agency.
- (21) "Expeditiously disposed of" means disposed of as soon as practical so as not to become a potential threat to human health or safety or the environment, whether foreseen or unforeseen as determined by the Executive Secretary.
- (22) "Fiscal year" means a period beginning July 1 and ending June 30 of the following year.
- (23) "Full installation" for the purposes of 19-6-411(2) means the installation of an underground storage tank.
- (24) "Groundwater sample" is a sample of water from below the surface of the ground collected according to protocol established in Rule R311-205.
- (25) "Groundwater and soil sampler" is the person who performs environmental sampling for compliance with Utah underground storage tank rules.
- (26) "Injury or Damages from a Release" means, for the purposes of Subsection 19-6-409(2)(e), any petroleum contamination that has migrated from the release onto or under a third party's property at concentrations exceeding Initial Screening Levels specified in R311-211-6(a).
- (27) "In use" means that an operational, inactive or abandoned underground storage tank contains a regulated substance, sludge, dissolved fractions, or vapor which may pose a threat to human health, safety or the environment as determined by the Executive Secretary.
- (28) "Lapse" in reference to the Certificate of Compliance and coverage under the Petroleum Storage Tank Trust Fund, means to terminate automatically.
- (29) "Native soil" means any soil that is not backfill material, which is naturally occurring and is most representative of the localized subsurface lithology and geology.
- (30) "No Further Action determination" means that the Executive Secretary has evaluated information provided by responsible parties or others about the site and determined detectable petroleum contamination from a particular release does not present an unacceptable risk to public health or the environment based upon Board established criteria in R311. If future evidence indicates contamination from that release may cause a threat, further corrective action may be required.
- (31) "Notice of agency action" means any enforcement notice, notice of violation, notice of non-compliance, order, or letter issued to an individual for the purpose of obtaining compliance with underground storage tank rules and regulations.
- (32) "Occurrence" in reference to Subsection R311-208-4 means a separate petroleum fuel delivery to a single tank.
- (33) "Owners and operators" means either an owner or operator, or both owner and operator.
- (34) "Over excavation" means any soil removed in an effort to investigate or remediate in addition to the minimum amount required to remove the UST or take environmental samples during UST closure activities as outlined in Section R311-205-2.
- (35) "Permanently closed" means underground storage tanks that are removed from service following guidelines in 40 CFR Part 280 Subpart G adopted by Section R311-202.
- (36) "Petroleum storage tank" means a storage tank that contains petroleum as defined by Section 19- 6-402(20).
- (37) "Petroleum storage tank fee" means the fee which capitalizes the Petroleum Storage Tank Trust Fund as established in Section 19-6-409.
- (38) "Petroleum storage tank trust fund" means the fund created by Section 19-6-409. (The current deductible on the PST Fund Fee is \$ 10,000.)
- (39) "Potable Drinking Water Well" means any hole (dug, driven, drilled, or bored) that extends into the earth until it meets groundwater which supplies water for a non-community public water system, or otherwise supplies water for household use (consisting of drinking, bathing, and cooking, or other similar

uses). Such well may provide water to entities such as a single-family residence, group of residences, businesses, schools, parks, campgrounds, and other permanent or seasonal communities.

(40) "Public Water System" means a system for the provision to the public of water for human consumption through pipes or, after August 5, 1998, other constructed conveyances, if such system has at least fifteen service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. It includes any collection, treatment, storage, and distribution facilities under control of the operator of the system and used primarily in connection with the system; and, any collection or pretreatment storage facilities not under such control which are used primarily in connection with the system.

(41) "Registration fee" means underground storage tank registration fee.

(42) "Regulated substance" means any substance defined in section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act "CERCLA" of 1980, but not including any substance regulated as a hazardous waste under subtitle C, and petroleum, including crude oil or any fraction thereof that is liquid at standard conditions of temperature and pressure, 60 degrees Fahrenheit and 14.7 pounds per square inch absolute. The term "regulated substance" includes petroleum and petroleum-based substances comprised of a complex blend of hydrocarbons derived from crude oil through processes of separation, conversion, upgrading, and finishing, and includes motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils.

(43) "Secondary Containment" means a release prevention and detection system for a tank or piping that has an inner and outer barrier with an interstitial space between them for monitoring. The monitoring of the interstitial space shall meet the requirements of 40 CFR 280.43(g).

(44) "Site assessment" or "site check" is an evaluation of the level of contamination at a site which contains or has contained an UST.

(45) "Site assessment report" is a summary of relevant information describing the surface and subsurface conditions at a facility following any abatement, investigation or assessment, monitoring, remediation or corrective action activities as outlined in Rule R311-202, Subparts E and F.

(46) "Site investigation" is work performed by the owner or operator, or his designee, when gathering information for reports required for Utah underground storage tank rules.

(47) "Site plat" for purpose of notification, or reporting, refers to a drawing to scale of USTs in reference to the facility. The scale should be dimensioned appropriately. Drawing size shall be limited to 8-1/2" x 11" if possible, but shall in no case be larger than 11" x 17". The site plat should include the following: property boundaries; streets and orientation; buildings or adjacent structures surrounding the facility; present or former UST(s); extent of any excavation(s) and known contamination and location and volume of any stockpiled soil; locations and depths of all environmental samples collected; locations and total depths of monitoring wells, soil borings or other measurement or data points; type of ground-cover; utility conduits; local land use; surface water drainage; and other relevant features.

(48) "Site under control" means that the site of a release has been actively addressed by the owner or operator who has taken the following measures:

(A) Fire and explosion hazards have been abated.

(B) Free flow of the product out of the tank has been stopped.

(C) Free product is being removed from the soil, groundwater or surface water according to a work plan or corrective action plan approved by the Executive Secretary.

(D) Alternative water supplies have been provided to affected parties whose original water supply has been contaminated by the release.

(E) A soil or groundwater management plan or both have been submitted for approval by the Executive Secretary.

(49) "Soil sample" is a sample collected following the protocol established in Rule R311-205.

- (50) "Surface water sample" is a sample of water, other than a groundwater sample, collected according to protocol established in Rule R311-205.
- (51) "Tank" is a stationary device designed to contain an accumulation of regulated substances and constructed of non-earthen materials, such as concrete, steel, or plastic, that provide structural support.
- (52) "Third-party Class B operator" is any individual who is not the facility owner/operator or an employee of the owner/operator and who, by contract, provides the services outlined in R311-201-12(e).
- (53) "UAPA-exempt orders" are orders that are exempt from requirements of the Utah Administrative Procedures Act under Section 63G-4-102(2)(k), Utah Code Annot.
- (54) "Under-Dispenser Containment" means containment underneath a dispenser that will prevent leaks from the dispenser or transitional components that connect the piping to the dispenser (check valves, shear valves, unburied risers or flex connectors, or other components that are beneath the dispenser) from reaching soil or groundwater.
- (55) "Underground storage tank" or "UST" means any one or combination of tanks, including underground pipes connected thereto and any underground ancillary equipment and containment system, that is used to contain an accumulation of regulated substances, and the volume of which, including the volume of underground pipes connected thereto, is ten percent or more beneath the surface of the ground, regulated under Subtitle I, Resource Conservation and Recovery Act, 42 U.S.C., Section 6991c et seq.
- (56) "Underground storage tank registration fee" means the fee assessed by Section 19-6-408 on tanks located in Utah.
- (57) "UST inspection" is the inspection required by state and federal underground storage tank rules and regulations during the installation, testing, repairing, operation or maintenance, and removal of regulated underground storage tank.
- (58) "UST inspector" is an individual who performs underground storage tank inspections for compliance with state and federal rules and regulations as authorized in Subsection 19-6-404(2)(c).
- (59) "UST installation" means the installation of an underground storage tank, including construction, placing into operation, building or assembling an underground storage tank in the field. It includes any operation that is critical to the integrity of the system and to the protection of the environment, which includes:
- (A) pre-installation tank testing, tank site preparation including anchoring, tank placement, and backfilling;
 - (B) vent and product piping assembly;
 - (C) cathodic protection installation, service, and repair;
 - (D) internal lining;
 - (E) secondary containment construction; and
 - (F) UST repair and service.
- (60) "UST installation permit fee" means the fee established by Section 19-6-411(2)(a)(ii).
- (61) "UST installer" means an individual who engages in underground storage tank installation.
- (62) "UST removal" means the removal of an underground storage tank system, including permanently closing and taking out of service all or part of an underground storage tank.
- (63) "UST remover" means an individual who engages in underground storage tank removal.
- (64) "UST tester" means an individual who engages in UST testing.
- (65) "UST testing" means a testing method which can detect leaks in an underground storage tank system, or testing for compliance with corrosion protection requirements. Testing methods must meet applicable performance standards of 40 CFR 280.40(a)(3), 280.43(c), and 280.44(b) for tank and product piping tightness testing, 280.44(a) for automatic line leak detector testing, and 280.31(b) for cathodic protection testing.

Additional Terms and Definitions

Capillary fringe: the zone of a porous medium above the water table within which the porous medium is saturated by water under pressure that is less than atmospheric pressure

Composite Sample: A series of water samples taken over a given period of time and weighted by flow rate.

Extraction well: a well employed to extract fluids (either water, gas, free product, or a combination of these) from the subsurface. Extraction is usually accomplished by either a pump located within the well or suction created by a vacuum pump at the ground surface.

Field blank: Any sample submitted from the field identified as a blank.

Grab Sample: A single sample of soil or of water taken without regard to time or flow

Headspace: The vapor mixture trapped above a solid or liquid in a sealed vessel.

ISL: Initial Screening Levels

MTBE: Methyl tertiary butyl ether

O&G: Oil and Grease

Release: means any spilling, leaking, discharging or disposing or regulated substances into surface waters, groundwater, or soils.

Tier I: Is risk based closure levels for petroleum contaminated sites

TPH: Total Petroleum hydrocarbons

TRPH: Total recoverable petroleum Hydrocarbons

USC: Unified Soil Classification, means soil samples analyzed for soil type

Vadose zone: the zone between land surface and the water table within which the moisture content is less than saturation (except in the capillary fringe) and pressure is less than atmospheric. Soil pore spaces also typically contain air or other gases. The capillary fringe is included in the vadose zone.

VOC: Volatile Organic Compounds.

Installation

Tank Handling (PEI Ch. 3)

- Tanks must not be dropped or dragged. Avoid sharp objects and collisions.
- Always lift tanks by the lifting lugs installed on the tank.
- Ensure that the lifting device is strong enough to lift and lower the tank.
- If the tank is damaged, it must be repaired according to the manufacturer's requirements.
- When storing tanks before installation, always chock the tanks to prevent movement.
- Ensure that stored tanks are in a secure area.

Testing

- Pressure test the tank with 3 to 5 psig air pressure.
- Pressure testing with over 5 psig could be hazardous and harm the tank.
- Never leave a pressurized tank unattended.
- Read and follow the manufacturer's installation instructions carefully.
- Select a pressure gauge that does not exceed 10-15 psig.
- It is recommended to use two gauges to reduce the chance of over-pressurizing the tank, due to a gauge failure.
- After pressurizing the tank, soap the tank surface with a mop or spray, check the entire tank for air bubbles

Testing of Double-Walled FRP Tanks

- First, read and follow the manufacturer's instructions.
- Plug and tighten all fitting before pressurizing the tank
- Pressurize the inner tank to 5 psig.
- Monitor the pressure for one hour.
- Pressurize the outer tank (or interstice) with air from the inner tank. Because the capacity of the outer tank is so small compared to the inner tank, this method prevents over pressurizing the outer tank.
- Never pressurize the outer tank unless there is an equal or greater pressure on the inner tank. Failure to do this could cause the inner tank to collapse.
- Soap the tank and inspect for air bubbles.
- Release the pressure from the interstice, then the pressure from the inner tank.

Note:

Tanks shipped with a liquid filled interstice or with a vacuum interstice are not subject to the pre-installation air/soap test. (PEI p.6)

The Excavation (ref. PEI ch. 4)

Size of the excavation

- Ensure that the excavation area is large enough to accommodate the tanks, piping and all associated equipment and backfill materials.
- The excavation must be deep enough to provide for the tanks, sufficient bedding and cover depth as determined by the type of surface pavement and load.
- A minimum of five feet from the excavation to the base of the nearest structure is recommended.
- If more than one tank is to be installed in the same excavation there must be at least 24 inches between the tanks.
- Things to consider in determining the size, shape, and depth of the excavation
 - Tank manufactures installation requirements
 - Stability of the soil
 - Requirements for compacting bedding and backfill
 - Space for placing and storing associated equipment
 - Depth and type of cover.

Burial depths

- FPR tanks, maximum burial depth is 7 feet.
- Steel tanks, maximum burial depth is 5 feet.
- The burial depth should never exceeds the manufacturer's recommendations
- To provide a firm foundation, set the tank on a bed of backfill material 1 foot thick that extends 1 foot beyond the ends and sides of the tank.
- Place at least 2 feet of backfill between adjacent tanks and between tanks and excavation walls.

Backfill (Ref: PEI ch. 4)

- Backfill material should be a clean, well-granulated, free-flowing, noncorrosive, inert material (e.g., sand, crushed rock, or pea gravel).
- Careful placement and compaction of approved backfill materials is essential to protect underground tanks.
- Acceptable material is, pea gravel no larger than ¾ inch and finely crushed stone.
- Tanks subjected to traffic loads must have a cover depth of at least 30 inches of back fill plus 6 inches of asphalt or 18 inches of backfill plus 6 inches or steel re-bar reinforced concrete.
- Tanks subjected to traffic loads and high water must have 30 inches of backfill and either 8 inches of asphalt or 6 inches or steel re-bar reinforced concrete.
- Tanks not subject to traffic loads must have a minimum of 24 inches of backfill plus 4 inches of steel re-bar reinforced concrete.
- Tanks in high water areas not subjected to traffic loads must have 36 inches of backfill.
- Place at least 2 feet of backfill between adjacent tanks and between tanks and excavation walls.

Deflection

- The tank diameter may be altered due the addition of overburden/backfill
- Check for vertical deflection on FRP tanks following the manufacturer's installation instructions.
- Only FRP tanks have to be checked for vertical deflection

Tank Diameter	Maximum Deflection
4ft	½ inch
6ft	5/8 inch
8ft	1 ¼ inch
10ft	1 ½ inch
12ft	1 ½ inch

Safety

- Be sure the excavation area is properly barricaded and clearly marked.
- Have Blues Stakes or utility companies mark all underground utilities to include: gas, water, telephone, electrical, sewers etc.
- All workers on the job should wear hard hats, gloves, and protective safety shoes.
- Have a least 2 approved fire extinguishers on the site
- Have first aid supplies on hand
- Shore up the excavation if needed.
- Have a safety plan and discuss with each worker
- Identify the location of the nearest hospital
- Have a gas vapor testing apparatus on site.

Anchoring

- Where installations are located in areas subject to high water tables or flooding, provision should be made to prevent tanks, either full or empty, from floating during a rise in water level.
- normal backfill and paving on top of the tank provide adequate restraint if the burial depth is at least 60 percent of the tank diameter and the tank is 8 feet in diameter or less.
- Buoyancy can be offset by either adding more weight/cover on the top of the tank, or use tie down straps and anchoring.
- Always follow the manufacturer's instructions.
- API recommends anchoring tanks when a high water table exists or if flooding can be expected.
- Deadman Anchors, are beams of reinforced concrete placed alongside tanks in the bottom of the excavation with cables and/or straps attached.
- Hold-down pad, A bottom hold-down pad usually consists of 8 inches of reinforced concrete that extends at least 18 inches beyond the tank sides and 1 foot beyond each end. The thickness of the pad, the amount of concrete reinforcement, and the number and size of anchor points must be calculated for each installation.

Piping Materials

All piping components, including fittings, gaskets, o-rings, pipe sealant, and the piping itself, must:

- be fully compatible with the products stored
- be compatible with the underground environment
- be resistant to damage under normal operating or test pressures
- have sufficient strength to withstand the stresses produced during construction and subsequent operation
- be isolated from the ground, constructed of noncorrosive materials, or coated and cathodically protected

Pipe Burial

- Make piping trenches wide enough and deep enough to accommodate both the piping and the backfill material required to provide protection from damage that might be caused by settlement, abrasion, vibration, expansion, contraction, and contact with foreign materials.
- 6 inches of clearance between piping and electrical conduit, utilities and other structures.
- In traffic areas, ensure that the trench is sufficiently deep to permit 6 inches of bedding and at least 18 inches of compacted backfill material and pavement above the top of the piping.
- Piping should slope a minimum of 1/8 inch per foot (1 inch for every 8 feet of piping)
- All internal piping including: suction lines, fill drop tubes, submersible pumps, should be a minimum of 4 inches from the bottom of the tank.

Piping Testing

- Air test new single-walled product piping, or double-walled piping where the primary pipe can be soaped, at 50 psig or at the manufacturer's recommended test pressure for a period of 1 hour.

Vent Piping (NEPA 30, 1993 2-4)

- The vent piping for all tanks should be adequately sized.
- Slope piping no less than 1/8 inch per foot back to the tank.
- Not less than 12 feet above the ground, and 2 feet above the roof if attached to a building.
- At least 5 feet from building openings
- Not less than 1 ¼ inch in diameter
- Located so the vapors will not accumulate under eaves or travel to unsafe locations

Flex Connectors

- Flexible connectors may be installed at the tank end of each product line, vent line, and vapor-recovery line, and at the base of dispensers.
- Flexible connectors are not required on flexible pipe.
- Do not twist or kink flexible connectors, nor bend to radiuses beneath minimums specified by manufacturers.
- Do not apply wrenches to any part of a flexible connector not intended for tool application.
- Flexible connectors installed in dispenser or intermediate sumps should be listed for aboveground use.
- Flexible connectors installed in tank-top sumps may be listed for underground or aboveground use.

Spill Containment and Overfill Prevention

- Spill and overfill prevention is not required on USTs where there are transfers of 25 gallons or less

Spill Containment

- Spill containment is intended to contain small releases of product that may result when the delivery hose is disconnected from the fill pipe after a delivery.
- Spill containment is usually achieved by installing a liquid-tight container, usually referred to as a "spill-bucket," around the underground tank fill pipe.
- Spill-buckets may also be used at Stage I vapor-recovery risers and at automatic tank-gauge risers.
- Spill containment is available in single-walled or double-walled configuration.

Overfill Prevention.

- Spill containment is intended to contain small releases of product that may result when the delivery hose is disconnected from the fill pipe after a delivery.
- Overfill prevention is intended to stop the delivery of fuel into an underground tank before the tank is completely full so that room is available in the tank to drain fuel contained in the delivery hose.
- In the past, the lack of spill-containment and overfill-prevention equipment often resulted in environmental contamination.

Three types of overfill-prevention devices:

Alarms. Alarms consist of an external signaling device that is typically connected to an automatic tank-gauging system. To be effective, the alarm should:

- provide visual and audible signals to the delivery person
- be located in close proximity to where the delivery person stands during the delivery
- be clearly labeled as a "tank overfill alarm"

Automatic Shut-Off Devices.

- Often called "flapper valves," are installed in the fill pipe of underground tanks and automatically stop the flow of product into the tank during a delivery. After the main valve closes, various bypass mechanisms allow the contents of the delivery hose to drain into the tank.
- To operate properly, shut-off devices must be installed according to the manufacturer's instructions, particularly with regard to attaching the shut-off device to the drop tube and attaching the drop tube to the fill pipe.
- Shut-off devices that are designed for use with underground tanks should only be used with gravity deliveries and where there are liquid-tight connections between the delivery hose and the fill pipe.
- All risers above the flow shut-off device must be properly sealed or else product may discharge from the unsealed openings when the overfill shut-off device closes.

Ball-float valves,

- Are installed inside the underground tank just below the vent opening.
- A ball-float valve must be installed in an extractable fitting to allow access for inspection, maintenance, and tightness testing.
- When a ball-float valve operates as designed, the tank becomes pressurized, creating a hazardous condition. The pressure is most often relieved by releasing flammable vapors at grade. For this reason, ball-float valves are not recommended.

Installing overfill-prevention devices:

When installing an overfill-prevention device, refer to the gauging chart provided by the tank manufacturer to determine the correct distance below the tank top for that device.

Regulations specify that overfill devices may be installed at a percentage of tank capacity, not a percentage of tank diameter.

In all cases, the set-points for alarms or ball float devices, should not exceed 90 percent of capacity of the tank.

Flapper-valve-type devices should not exceed 95 percent of the actual capacity of the compartment into which the delivery is made.

Secondary Containment

Secondary-containment systems provide an additional layer of protection against released product. These systems should be designed to contain any release from tanks, piping, or associated equipment; facilitate the detection of any release; and provide access for released-product recovery. Secondary-containment systems typically consist of the following components:

- spill-containment manholes
- double-walled tanks
- double-walled piping
- tank-top sumps
- under-dispenser sumps
- transition sumps
- sensing devices.

Double-walled tanks and piping should be installed and tested in accordance with the manufacturer's recommendations.

Tank Sumps, or total containment sump, or STP sump.

- Tank-sumps, are liquid-tight containers designed to contain leaks or spills that involve tank-top fittings and equipment, and to isolate metallic pipefittings from the corrosive underground environment. In addition, tank-sumps frequently serve as the leak-detection point for double-walled piping systems.
- Ensure that tank-top sumps are liquid-tight, both to contain spilled or leaked product and to prevent groundwater intrusion or surface water runoff.
- Install liquid-tight penetration fittings on all sump entries, including electrical conduit.
- Complete sump connections to the tank top in accordance with the manufacturer's instructions.

Testing Tank Sumps

- Test tank-top sumps after all joints have been assembled, any seating materials have cured, and all penetration fittings have been installed, but before backfilling.
- Follow the sump manufacturer's or regulatory agency's testing procedure. If testing instructions are not specified by the sump manufacturer or the regulatory agency, use the following procedure:
 1. Fill the sump with water to 6 inches above the highest joint or penetration fitting, whichever is higher.
 2. Visually inspect all joints and fittings for drips or moisture indicating a leak.
 3. Replace any leaks observed and restore the water level in the sump.
 4. Mark the water level using spray paint or other suitable marker.
 5. Wait at least 4 hours and repeat the visual inspection for leaks,
 6. If no leaks are visible and the water level has not changed, the sump is considered tight.
- Follow the equipment manufacturer's test procedures.
- Vacuum or pressure-based test procedures may be used instead of this hydrostatic procedure if approved by the manufacturer of the sump.

Dispenser Sumps

- Dispenser sumps are designed to contain leaks and spills from dispensers and pumps, and to isolate metallic pipe fittings from the corrosive underground environment.
- All dispenser-sump entries, including electrical conduit, should be fitted with liquid-tight penetration fittings to prevent the escape of released liquids or water intrusion.
- Dispenser sumps should be designed and installed so that surface-water entry is minimized.
- Test dispenser sumps after all joints have been assembled, any sealing materials have cured, and all penetration fittings have been installed, but before backfilling.
- Follow the sump manufacturer's or regulatory agency's testing procedure. If testing instructions are not specified by the sump manufacturer or the regulatory agency, use the same procedure described for tank-top sumps in section.

Transition Sumps

Transition sumps may be required for reasons of extending existing piping systems, extending from underground piping to aboveground apparatus, or creating branches in piping. Transition sumps have similar requirements as other sumps, but, additionally, should always be continuously monitored and installed in conjunction with a raised concrete apron not less than 24 inches all around the grade opening for durability reasons.

Sensors

- Although secondary-containment systems may be monitored visually, sensing devices that monitor for the presence of product or liquids are typically installed in tank-top sumps.
- Installing sensors in dispenser sumps can provide a timely and more reliable warning of dispenser leaks.
- Sensors may either indicate only the presence of a liquid or have the ability to discriminate between product and water.
- Mount sensors securely and place them at the bottom of the sump. Carefully follow the manufacturer's instructions for installation of sensing devices.

Secondary Containment Requirements (R311-203-6)

- New and replacement tanks and piping installed after October 1, 2008 shall have secondary containment including, double-walled components and containment sumps. R 311-203-6.
- If any portion of piping from tank to dispenser is replaced, double walled piping is required and must have interstitial monitoring
- Existing dispensers that are replaced must have sumps installed under the replaced dispenser if any of the piping connecting the dispenser to the product piping is replaced. This includes: flex connectors, risers, check valves, shear valves, etc.
- All tanks and product piping that are installed as part of an underground storage tank system shall have secondary containment if the installation is located 1000 feet or less from an existing community water system or an existing potable drinking water well. R311-203-6
- Secondary containment sumps shall meet the requirements of 40 CFR 280.42(b) and R311-203-6 require:
 - Monitored monthly for release from the tank and piping.
 - At the submersible pump or other location where the piping connects to the tank
 - Where the piping connects to a dispenser
 - Where double-walled piping that is required connects with existing piping.
- Under-dispenser containment (R311-203-6(b))
 - Be liquid-tight on its sides, bottom, and at all penetrations.
 - Be compatible with the substance conveyed by the piping
 - Allow for visual inspection or have continuous monitoring for the presence of liquids.
 - Prevent leaks from the dispenser to reach the soil.

Release Detection

The purpose of release detection is to provide early warning of the loss of integrity in any portion of the underground storage system that routinely contains product.

All tank systems installed after October 1, 2008 must have interstitial monitoring.

If any portion of piping from tank to dispenser is replaced, double walled piping is required and must have interstitial monitoring.

Automatic Tank Gauging

- Install the tank-gauging probe as close as possible to the middle of the tank. Avoid locating the probe adjacent to the fill pipe or the submersible pump.
- Factors to be considered include tank volume, facility throughput, and presence of any siphon connections between tanks.
- Follow the manufacturer's instructions to determine the type of wire to use to connect the tank probes and the control console.
- Follow the manufacturer's instructions for grounding the tank gauge to maintain the intrinsic safety rating of the tank gauge, for programming and calibrating the tank gauge.

Interstitial Monitoring

- Monitoring double-walled tanks for leaks can be done manually by inserting a gauge stick or other probe to the bottom of the interstitial space.
- Monitoring can also be accomplished through the installation of liquid sensors at the bottom of the interstitial space.
- Both hydrostatic monitoring systems, where the interstitial space is filled with a liquid, and vacuum systems, where the negative pressure in the interstitial space is monitored, have the ability to monitor the integrity of both walls of the storage tank.
- Sensors that are installed in tank interstitial spaces should be easy to remove and replace to allow for servicing and testing of sensor operation.

Leak Detection Methods for Piping

- Install piping so that any released liquid will flow to a sump, where it can be visually observed or detected by sensors,
- Mount sensors according to the manufacturer's instructions. Place sensors at the bottom of the sump. Sensors should be easily accessible so they can be tested periodically for proper operation,
- After installation testing is completed, ensure that test fittings do not interfere with the flow of any released product from the interstitial space of the piping into the sump,

Cathodic-Protection Systems

- Metallic underground storage tanks and product-pipe systems in contact with soil must be provided with cathodic protection. Tank and pipe systems constructed of corrosion-resistant materials do not require additional cathodic protection. Cathodic protection should be installed in accordance with the manufacturer's instructions, plans, and specifications.

- A cathodic protection system must be designed by a corrosion expert as defined in 40 CFR 280
- Cathodic protection systems must be test within six months of installation or upgrade and at least once every three years thereafter.
- There are two types of Cathodic protection systems: Impressed Current, and Galvanic Anodes