Iowa Department of Natural Resources
Underground Storage Tank Section
502 East 9th Street
Des Moines, IA 50319-0034

INSTALLER GUIDELINES FOR INSTALLATION OF UNDERGROUND STORAGE TANK (UST) SYSTEMS IN IOWA

These guidelines are applicable for the installation of underground storage tank (UST) systems that will contain petroleum fuels or hazardous substance. These guidelines are prepared to assist the Iowa licensed installers and installation inspectors in the process of submitting notification forms to the Iowa DNR UST Section in a timely manner, as well as working with owner/operators to plan, build and operate their system according to State regulations. Please save this web address: **www.iowadnr.gov/ust**

PLANNING STAGE

Review all the forms involved with UST installation with the UST owner/operators. Let them know what is required by the Iowa DNR. Remind them of all the resources available on the Iowa DNR website and requirements of Technical Standards and Corrective Action Requirements for Owners and Operators of USTs [567—Chapter 135 Iowa Administrative Code (IAC)]. Be sure to include an opening date (MM/DD/YYYY) for the facility on the paperwork sent to the DNR along with the registration number if the site is already registered..

Tank Design

USTs installed must be secondarily contained and constructed of a non-corrodible material or steel that is cathodically protected. The USTs must also be designed to allow owners/operators to complete interstitial monitoring for leak detection by detecting the presence of liquid in the interstitial space monthly using one of the following:
• Continuous automatic leak-sensing device
• Manual procedure such as sticking the interstitial space of the tank

Piping Design

Pressurized piping and suction piping, other than safe suction must be secondarily contained (double-wall) and constructed of a non-corrodible material, or steel that is cathodically protected.

These piping systems must also be designed to conduct interstitial monitoring by detecting the presence of liquid in the interstitial space monthly using one of the following:
• Gravity drain to sump with sensor that alerts the operator of the presence of liquid
• Gravity drain to sump and monthly visual sump inspections Pressurized piping must have an automatic line leak detector (mechanical or electronic) that can detect a leak of three gallons per hour at 10-psi line pressure within one hour. An anti-siphon device must be installed on pressure or suction piping if the piping is positioned lower than the tank top.

For safe suction piping, piping must be sloped to drain back to the tank, with a single check valve located directly beneath the suction pump. Secondary containment and release detection are not required on the piping, but is required beneath the fuel dispenser.

Secondary Containment Requirements

All new and replacement underground storage tank systems and appurtenances used

for the storage and dispensing of petroleum products must have secondary containment. This includes the installation of turbine sumps, transition or intermediate sumps and under-dispenser containment (UDC).

Secondary containment shall be installed whenever:
• installation of new or replacement turbine pumps involving the direct connection to the tank
• a motor fuel dispenser is installed at a location where there previously was no dispenser (new UST system or new dispenser location at an existing UST system)
• an existing motor fuel dispenser is removed and replaced with another dispenser and the equipment used to connect the dispenser to the underground storage tank system is replaced. This equipment includes flexible connectors or risers or other transitional components that are beneath the dispenser and connect the dispenser to the piping.
• ten (10) feet or more of piping is repaired or replaced within ten (10) feet of a motor fuel dispenser.
• all piping replacements requiring secondary containment shall be constructed with transition or intermediate containment sumps.

A UDC is not required when only emergency shutoff, shear valves or check valves are replaced.

Containments must be checked for evidence of a release at least every 30 days either by use of a sensor or manual visual inspection using DNR's manual monthly interstitial monitoring form (542-0115). Secondary containment systems shall be liquid-tight and must be integrity tested at installation and every three years thereafter. Sensing devices used to monitor the interstitial space shall be tested annually for proper function.

PRE-INSTALLATION NOTIFICATIONS

The UST owner/operator and the UST installer must complete the notification of intent to install (542-0104) form and submit it to the UST Section 30 days prior to installation [567—135.3(3)c]. Notifications can be emailed to the UST section at ustoperations@dnr.iowa.gov The department will sign the approval portion of the form and notify the owner and installer that the UST installation has been approved.

Contact Local Authorities
It is the duty of the licensed installer to contact the local authorities for any additional requirements or permitting. This includes notifying the local fire department.

If installing UST systems in Polk and Linn Counties, contact them to find out more about Air Quality requirements:

Air Quality Division Linn County Public Health Department 501 13th St. N.W. Cedar Rapids, IA 52405-3700 Phone: (319) 892-6000; Fax: (319) 892-6099	Public Works—Air Quality Division Polk County 5885 NE 14th Street Des Moines, IA 50313 Phone: (515)-286-3705; Fax: (515)-286-3437

Ballast and Testing with Regulated Substance
Regulated substances may be stored in the tank and used for ballast, however, installers and owner/operators must have written permission from the UST Section in order to receive a delivery of a regulated substance to USTs that do not have financial responsibility (FR) and current tank management tags. You may email the UST Section at ustoperations@dnr.iowa.gov to request delivery authorization of fuel for ballast for testing.

Interstitial monitoring (sensor/vacuum/pressure) is required as soon as the regulated substance is transferred to the tank. FR must be in place and tank tags issued before the UST system goes into operation.

NOTE: Diesel Exhaust Fluid (DEF) tanks. While DEF is not a regulated substance, the DNR recommends treating it as such. If a DEF tank is installed, the DNR asks that a registration form be properly completed, and a $10 registration fee be paid. This would benefit the owner if DEF becomes regulated in the future or if DEF is no longer used, the tank could be used to store a regulated substance.

INSTALLATION PROCESS

Installers must refer to the most recent versions of industry codes, e.g., PEI RP100 and API 1615 in addition to current manufacturer specifications.

An Iowa licensed third party installation inspector will use the Installer / Installation Inspector Checklist (DNR Form 542-0069) to complete the inspections. There are three (3) inspections required in the course of a UST installation for which to prepare. Installers must coordinate with the owner who is hiring the third party installation inspector.

First (1st) inspection- For new installations, the first inspection must occur before the UST system is installed. The inspector must verify that the tank pit has been excavated, tanks and piping and other materials are delivered and ready for installation. This inspection includes the tank exterior inspection for damage, observes that the manufacturer's checklist, and pertinent standards/codes/regulations are followed; observes testing of tank, piping, joints and fittings, including soap testing, interstitial testing, sump liquid filled testing, interstitial space sensor testing, and interstitial space vacuum reading.

Secondary containment testing- Hydrostatic testing of sumps, spill buckets and UDCs. Sumps, spill buckets and UDCs. All secondary containment must be liquid tight, including spill buckets, tank top sumps, piping sumps and UDCs. The third party installation inspector will inspect this test as it's being conducted. Iowa licensed installer conducts the test and records the results using DNR's Secondary Containment Testing form (542-0153). Keep track of all test results and submit them to the UST Section along with the registration form.

Second (2nd) Inspection- The second inspection must occur before the covering of the UST system, when all tanks and lines are exposed. Piping installation and testing must follow the manufacturer's guidelines, including the piping, piping interstice, sumps and UDCs. Tracer tape/wire is not required, but it is strongly recommended this material be installed at this point.

Final Precision Testing- All tanks, piping and equipment shall be installed and tested in accordance with manufacturers' recommendations and guidelines. Testing includes:

a. Passing tank tightness test (0.1 gph) using ATG system, vacuum, pressure, or liquid interstitial monitoring, functional tests of UST system monitoring equipment must be completed prior to

placing UST system into operation. This includes establishing the monthly monitoring and leak detection protocol to comply with 567—135.5 (Release Detection).

b. Passing functional test of dispenser emergency shutoff prior to placing system into operation

Third (3rd) Inspection- The final inspection ensures that each piece of equipment from fill port to nozzle is properly installed and tested. After the third installation inspection, the third-party installation inspector is required to submit the completed Installer / Installation Inspector Checklist (DNR Form 542-0069)within 14 days of the third inspection [567—134.27(6)b IAC].

SUBMITAL OF INSTALLATION DOCUMENTS

The UST owner is responsible to submit the Iowa DNR-UST Registration Form # 148 (DNR Form 542 -3266) within 30 days after the final installation inspection. [567—135.3(3)c IAC]. The UST Section must review the installation and inspection documents, technical, insurance and operating requirements BEFORE the UST system can be put into service.

Some installation documents can be sent electronically to the DNR – UST Section for review, however signed hard copies with payment are required for final approval. Allow up to 10 business days for review and processing.

Installers should assist the owner/operator as much as possible with completing all the forms to ensure they are complete and submitted on time. Continuous communication with the UST Section and the insurance provider is extremely important and should prevent last minute delays during the application process. **Please NOTE:** ***Final approval and tank tags must come from the UST Section before the system is allowed to operate.***

Recommended Submittal of Installation Documents:

Mailed Documents: The following documents must be completed after the second installation inspection and prior to the final installation inspection to allow time for review and mailing of documents. These documents require signatures from the licensed installer and owner.

a) UST Registration Form #148 (DNR Form 542 -3266) along with a check for the correct amount for the tank registration and tank management fees..
b) Testing verification reports. Passing test results for tanks, piping, sumps, UDCs, and spill containments following the second installation inspection; the results must be recorded on Secondary Containment Testing Form (DNR Form 542 – 0153).

If applicable:

c) Underground Storage Tank System Checklist for Equipment Compatibility for blended fuels (DNR Form 542- 1336) (if blended fuels greater than E10 or B20 biofuels are planned).

Email Documents: The following documents may be submitted via email to the UST Section since original signatures are not required.

a) 3rd Party Installation Inspection completed by the Installation Inspector (542-0069)
b) Passing primary test results for tank and piping (0.1gph leak rate)
c) Passing line leak detector tests (for pressurized piping)
d) Copy of ATG printout showing functionality of each interstitial sensors and first passing monthly leak detection test for tanks and piping

e) Vapor Emissions Control or NESHAP form, and associated testing results

Additional items that are the owner's responsibility.

a) Proof of UST financial responsibility
b) Proof of Class A/B UST Operator training

Resources:

Iowa UST Forms (link should have reference all installation forms)
UST Installation Requirements
Iowa UST Owner/Operator Requirements

Mail all Installation Documents & Testing to:

Iowa DNR
UST Section
502 E 9th St
Des Moines, IA 50319
Phone # 515.725.8200
FAX # 515.725.8202

Other contacts
IDNR, Air Quality Bureau for NESHAP questions – Sarah Mousel, 725.8403

Resources and DNR Forms are located at : www.iowadnr.gov/ust
The matrix for easily determining which forms would be needed is on the site as well.

NOTES: