

# THINK



Spring 2009

Number 58

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## UST Regulations Revision Update

Jill Hall

The Tank Management Branch (TMB) conducted 3 public workshops in October 2008 to roll out changes to the Delaware Regulations Governing Underground Storage Tanks (UST Regulations). The UST Regulations were completely revamped last year and became effective January 11, 2008. Changes were made last year for 2 reasons: (1) the UST Regulations were woefully out of date with regards to technological changes, and (2) the Federal Energy Policy Act (EPACT) dictated that states make several changes to their UST programs. The changes required by EPACT have deadlines ranging from 2008 to August 2009. Delaware could not make all the required changes by January 11, 2008 because the United States Environmental Protection Agency did not publish all of its EPACT guidelines in time for Delaware to incorporate the necessary requirements and provide adequate public notice.

The most significant changes in the current draft UST Regulations include:

1. Addition of an operator training program (required by EPACT)
2. Prohibition of new USTs within specific distances from public, industrial or domestic wells (to be consistent with Delaware's Regulations Governing the Construction and Use of Wells)

3. Addition of specific requirements for retrofits and upgrades
4. Addition of an option to utilize modified inventory for used oil USTs
5. Changed the routine inspection frequency to a range of 28-31 days (changed in response to comments at public workshop)

The draft UST Regulations and a The draft UST Regulations and a spreadsheet listing the changes will be posted on the TMB home page (<http://www.dnrec.state.de.us/dnrec2000/Divisions/AWM/ust/>) prior to the public hearing. A public hearing on the revised UST Regulations is scheduled for April 21, 2009 at 7:00 pm at the Lukens Drive office.

### Mark Your Calendar!

What: UST Regs Public Hearing

When: April 21, 2009 at 7:00 pm

Where: DNREC Lukens Drive office

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# Storing, Dispensing and Using Ethanol Fuel (E85)

Peter Rollo

Ethanol is now present in all of the gasoline sold in Delaware in the form of a 90% gasoline and 10% ethanol blend commonly referred to as E10. But E10 is not the only ethanol blend available and, as gasoline prices rise, a blend called E85 (85% ethanol and 15% gasoline) is gaining favor among consumers. The technology for storing and dispensing E85 is essentially the same as we use for gasoline. Ethanol, however, is very corrosive and only ethanol-compatible components can be used. The issues that must be addressed are summarized below.

## Equipment Compatibility

### *Tanks (Steel and Fiberglass)*

For fuels other than E85, it is a cost-effective option to convert existing fuel tanks to the desired fuel. In addition to underground storage tank (UST) regulatory requirements of notification and site assessment, such tanks are cleaned of all sludges and suspended material and simply filled with the new fuel. Components and materials used for storing and dispensing conventional fuels (gasoline, kerosene, and diesel) are time-tested, commonly-manufactured and easily-obtainable.

This is not the case with E85. Existing tanks must be certified by the manufacturer that the method of manufacture is compatible with E85. Locating manufacturers' records and assessing the condition of older tanks is not an easy task. Considering the risks associated with this process, tank manufacturers most likely will not certify such tanks. Installing new tanks specifically designed for this fuel is usually the most cost effective way to go.

### *Dispensers*

An E85 dispenser must use iron, unplated steel or stainless steel in the fuel path. Pump impellers made of zinc, brass, lead or aluminum are not compatible with E85. Impellers made of steel or engineered polymer with high chemical resistance are desired. General dispensing equipment made from zinc, brass, lead, aluminum or other soft metals are to be avoided. Ethanol tends to causing leaching from such soft metals, which can contaminate a vehicle's fuel system, resulting in poor performance.

### *In-Line Filters*

A one (1)-micron, in-line filter is recommended for ethanol-dispensing equipment. This filter will trap most of the impurities that might be in the storage

tank and prevent them from being transferred into the vehicle during refueling.

Ethanol is hydrophilic and absorbs moisture, so there will be increased moisture in the fuel. As a result of water retention, fuel filters can clog and malfunction, creating the need for frequent replacement. There are filters specifically designed for stripping water from fuel that can minimize this problem.

## Dispenser Hoses

Only dispenser hoses specified by the manufacturer for use with ethanol may be used. In some cases, equipment specified for use with methanol may be available. Since methanol is even more corrosive than ethanol, components certified for methanol use will almost always be acceptable for ethanol.

## Nozzles

Aluminum nozzles and those made from aluminum alloy cannot be used with ethanol. A nickel-plated nozzle is required.

## Fittings and Connectors

All fittings, connectors and adaptors that will be in contact with ethanol are to be made from materials like stainless steel (best choice), black iron or bronze to avoid corrosion. If aluminum or brass fittings are used, they must be nickel plated.

## Piping

The best choice for underground piping is nonmetallic corrosion-free piping, such as flexible plastic or fiberglass reinforced plastic pipe. In cases where fiberglass reinforced plastic pipe is used, the glue used to connect the pipe must be certified for use with ethanol. There is even E85-approved pipe glue for use with piping in sumps.

## Vapor Recovery

Ethanol is subject to the same vapor recovery requirements as gasoline. However, at the present time, there are no vacuum-assisted vapor recovery systems certified for use with ethanol. A balance vapor recovery system can be constructed of ethanol-compatible components. Balance vapor recovery sys-

tems are only applicable to underground tanks. E85 vapor recovery systems cannot be co-mingled with existing vapor recovery systems. They will require their own system separate from the existing system. Facilities with E85 will, therefore, have two sets of vapor recovery permits and associated fees.

### **Leak Detection Equipment**

Spill containment and overfill devices for use with ethanol must be made of stainless steel or appropriately coated.

Standard leak detection devices, such as sump and interstitial sensors, are made of various metals, polymers and elastomers that may not be compatible with ethanol and could therefore malfunction, allowing leaks to go undetected.

Standard Automatic Tank Gauges (ATGs) that use capacitance probes to make measurements and perform release detection will not work with ethanol. Ethanol has a high conductivity and capacitance probes must be used in a nonconductive product. At present, there are no probe floats that can accurately detect water before phase separation occurs. As little as 50 gallons of water in a 10,000-gallon tank can cause phase separation to occur, rendering the fuel unusable. Standard gasoline dispensing facilities were never designed to be water-tight.

### **Installation Requirements**

All E85 dispensing systems must be certified com-

patible with ethanol to prevent releases due to incompatibility. This cannot be accomplished with existing systems. In order to certify that dispensing facilities are E85-compatible, only new systems can be installed.

New E85 dispensing systems should be continuously monitored so as to increase the likelihood that should a malfunction or component failure occur, the resulting release will be contained.

Most newly manufactured vehicles are only E10-compatible. They are not E85-compatible. Use of E85 in ill-equipped vehicles will eventually cause engine damage. E85 vehicles require engines specifically designed for that fuel, i.e. "Flex-Fuel" vehicles. To minimize the possibility of mis-fueling vehicles by uninformed consumers, E85 fueling facilities should be handled like kerosene and located away from gasoline dispensers to minimize accidental fueling.

Anticipate longer lead times associated with installing an E85 fueling system. Equipment manufacturers may not stock some E85-compatible components, requiring them to be specially manufactured.

The Fire Marshall has determined that E85 is to be treated like gasoline so they have no special requirements. However, the Office of the State Fire Marshall must still review your installation plan.

To ensure that the E85 review and installation process goes smoothly, contact the TMB Engineer to discuss your installation.

### **Vapor Recovery Reminders**

Please remember that, here in Delaware, all pressure decay tests must be performed according to Test Procedure TP-96-1 of the San Diego Protocol. The requirements of TP-96-1 include, but are not limited to, running the test at a beginning pressure of ten (10) inches of water column gauge (wcg). Tests performed at lesser pressures (e.g., 2" wcg) are invalid and noncompliant in Delaware.

Please remember to submit your vapor recovery testing notifications at least ten (10) days prior to the test date. Any vapor recovery testing requires notification, including post-construction or post-repair testing. Any failures must be reported within 24 hours of the failure.

### **Financial Responsibility Changes**

Please be aware that, when the UST Regulations were re-promulgated on January 11, 2008, minor changes were made to the wording of the financial responsibility (FR) mechanisms. The TMB continues to receive certificates of insurance and other FR documents that still contain the language from the March 12, 1995 version of the UST Regulations. If you are submitting FR documents to the TMB, please take a minute to review them against the forms in Part F of the UST Regulations to ensure that they're correct and up to date. As always, please make sure that the owner name and address, and tank information (size, product, location, etc.) on the FR match the information that the TMB has on file.

# THINK TANK

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Doc. 40-09-03/09/02/01

## Announcements

**Erin McEnaney** – was hired in February as an Environmental Scientist. Erin graduated from the University of Delaware with a B.S. in wildlife conservation and worked in DNREC's Division of Parks and Recreation with the Environmental Stewardship Program prior to becoming a seasonal Environmental Scientist with the TMB in February 2008. She is now a full-time TMB employee.

**Aaron Siegel** – Congratulations to Aaron for his recent promotion to Hydrologist II. Aaron has been working in the TMB since September 2007, and is a valued contributor to the Corrective Action Group. He is responsible for working on LUST sites throughout the state, and is a member of the FIRST Fund team.

**Jason M. Turner** – was hired in November as an Environmental Scientist for the UST Program. Jason graduated from Millersville University with a B.S. in Earth Sciences and minor in Meteorology, and also has a technical degree in Meteorology from Meteorological Technical Institute in Montana. Jason previously worked for an environmental consulting/engineering firm in New Jersey.

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## Containment Testing Guidance

Containment testing procedures are now available on the TMB's web page at: <http://www.dnrec.state.de.us/dnrec2000/Divisions/AWM/ust/>. The document includes an explanation of when containment sumps and spill buckets are required to be installed, when they are required to be tested, testing procedures for each, reporting requirements, and an example form to use for recording testing results. If you have any questions, please contact the TMB.



# UST Testing and Inspection Requirements

Erin McEnaney

A year has already gone by since the updated Regulations Governing Underground Storage Tank Systems (the UST Regulations) went into effect, putting in place several new requirements for UST systems. As of January 11, 2008, annual testing of Automatic Tank Gauges (ATGs), spill buckets, interstitial monitoring equipment (sensors and probes) and cathodic protection systems have been implemented.

If you have not completed these newly required annual tests yet, you are out of compliance and need to schedule them as soon as possible. Another very important addition to the UST Regulations is a 30-day routine inspection for **all** UST systems. This walk-around requires all sumps, spill containment devices and ports to be visually inspected once a month to

check for obvious signs of leakage. Also included in the UST Regulations is that release detection is now required for tanks used to supply emergency generators. For all testing and inspections to fulfill compliance requirements, you must save all documentation for the life of the UST System.

The tables below give an overview of the annual and monthly requirements listed in the UST Regulations. There are however, many different configurations of UST systems; therefore, not every single requirement is presented here. If you have an alternative approval in place for your UST system, you must meet the requirements stated in the TMB-issued approval letter. Please call the TMB if you have questions about your UST systems.

## Requirements for **NEW** UST Systems (installed after January 11, 2008):

UST Component	Annual Requirements	Monthly Requirements	Additional
ATG and Tanks	Functionality Inspection by certified technician	ATG 0.1 gph test- Check ATG used for Release Detection for evidence of a release, and save all report printouts	Precision Tightness Test after tank top work
Piping	Tightness Test (if used for release detection)	Check Continuous IM equipment for evidence of release, and save all report printouts	
Line Leak Detector	Functionality Test		
Containment Sumps	Tightness Test if utilizing Interstitial Monitoring and do not have a Line Leak Detector		Tightness Test all containment sumps once every three (3) years
Spill Containment Devices/Spill Buckets	Tightness Test		Vapor recovery spill buckets tested after installations and retrofits only
Interstitial Monitoring (IM) Equipment (sensors and probes) - Tanks or Piping	Functionality Inspection by certified technician	Check IM equipment for evidence of a release, and save all report printouts	UST System must be programmed for automatic shut down if IM is being used for piping release detection
Cathodic Protection (CP)	Sacrificial Anode and Impressed Current CP systems tested by certified individual		Internal Linings no longer acceptable for corrosion protection

Requirements for **EXISTING** UST Systems (installed before January 11, 2008):

UST Component	Annual Requirements	Monthly Requirements	Additional
Tanks		Check Release Detection method for evidence of a release, and save all reports.	Precision Tightness Test after tank top work
Piping	Tightness Test (if used for release detection)	Check Continuous Interstitial Monitoring equipment if used for release detection for evidence of release, and save all report printouts	
Automatic Line Leak Detector	Functionality Test		
Containment Sumps			Tightness Test once every three (3) years if used for piping Release Detection or Secondary Containment
Spill Containment Devices/Spill Buckets	Tightness Test		Vapor buckets tested after installations and retrofits only
Interstitial Monitoring (IM) Equipment (sensors and probes)- Tanks or Piping	Functionality inspection by certified technician of all equipment, including sensors and probes	Check IM equipment used for Secondary Containment or Release Detection for evidence of a release, and save all report printouts	UST System must be programmed for automatic shut down if IM is being used for piping release detection
Automatic Tank Gauge (ATG)	Functionality inspection by certified technician of all equipment, including sensors and probes	Check ATG used for Release Detection for evidence of a release, and save all report printouts	
Cathodic Protection	Sacrificial Anode and Impressed Current CP systems tested by certified individual	Record Impressed Current rectifier readings to ensure CP is properly operating	Internal Linings no longer acceptable for CP; Impressed Current CP systems shall no longer be used as a Repair, Upgrade or Replacement

