THINK

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Compliant Operations

Post-1998 Compliance - Part I

It's now early in the year 2000 and the rush to bring existing USTs into compliance with the corrosion protection requirements of December 1998 has passed. You stepped up to the plate, spent the money, replaced or upgraded your tanks and lines, installed all the bells and whistles, and even got your Financial Responsibility (FR) for the tanks in order. You're all done, right? Not exactly! If you installed an impressed current system for corrosion protection or if you have sacrificial anodes, you need to monitor your systems periodically, you must keep your FR current... and then there's the matter of leak detection.

Put simply, you must always be looking for leaks in your tank system. This is an ongoing responsibility of every owner and operator of a regulated UST system. Faithfully and regularly looking for leaks not only helps protect our environment, and saves money on cleanup when a leak does occur, it is required by Delaware's *Regulations Governing Underground Storage Tank Systems* (the *Regulations*). It is important to keep in mind that failure to perform leak detection can void FR insurance making the owner or operator responsible for cleanup costs.

Part B, §1.07 of the *Regulations* requires owners and operators of UST systems to provide a method, or combination of methods, of release detection that can detect a release from any portion of the tank and its piping that routinely contains product. Furthermore, equipment is required to be installed, calibrated, operated, and maintained in accordance with the manufacturer's instructions and must meet any performance claim stated in writing by the equipment manufacturer or installer. This requires you to do periodic testing and maintenance of equipment as well as keep records to prove compliance.

In addition, each method of leak detection must be able to detect a leak rate or quantity of product specified in the *Regulations*. Methods or equipment must have at least a 95% probability of detecting the specific quantities or leak rates and must have a probability of false alarm no greater than 5%.

There are specific requirements for leak detection for tanks and for piping. This is the first in a series of articles on post-1998 compliance and will discuss specifics for tanks. Future articles will discuss FR, piping, inventory control and manual tank gauging, and corrosion protection monitoring requirements.

All regulated USTs, except those containing heating fuel, must perform inventory control in accordance with the Regulations Part A, § 8.02. And *all* regulated USTs, including those with a capacity of more than 2000 gallons and which contain heating fuel, must have one or more of the following methods of leak detection:

Interstitial Monitoring (of double wall tanks) Monitoring may be continuous (electronic) or may be manual. Manual monitoring requires monthly sticking or inspection of the interstitial space. Records or printouts must be kept for at least three years.

Automatic Tank Gauging (ATG) This method of electronic monitoring must be able to detect a leak of 0.2 gph (gallons per hour) and must perform a valid test at least

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once monthly. You must keep the printouts for record-keeping requirements. ATG may also be used for inventory control in accordance with the requirements of Part A, §8.02. Check with your manufacturer to determine what functions your ATG can perform for you.

Observation Tubes
These may be used if installed within the tank field excavation at the time of tank installation and may not be appropriate for heating fuel or other heavier petroleum products. The Department will determine whether this method is appropriate at the time of new tank installation or retrofit. They must be monitored monthly for vapors or free product and the results recorded.

Tank Tightness Testing
The method used must be able to detect a leak of 0.1 gph. Testing must be performed yearly and may only be used for leak detection for 10 years after installation or upgrade, which ever is later.

Monitoring Wells
A minimum of four wells must be placed immediately outside the tank excavation and must conform to the Department's *Regulations Governing The Construction of Water Wells*. Continuous monitoring must be able to detect the presence of at least 1/8" of free product on top of groundwater in the well. Manual monitoring must be performed monthly.

Vadose Zone Vapor Detection Tubes and U-Tubes
These must be able to detect an increase in vapor concentration and need to be monitored at least monthly and records kept. The Department will determine whether this method is appropriate at the time of new tank installation or retrofit

Alternative Release Detection Method
Any method in this category must be pre-approved by the Department and must be able to detect a leak of 0.2 gph or a release of 150 gallons within a month with a probability of detection of 95% or more and a false alarm rate of 5% or less. For example, SIR.

All leak detection records must be kept for at least three years and must be made available within 10 days when requested by the Department. This includes any daily, monthly, and yearly monitoring or testing.

As you can see, there's more to owning a tank than meeting the requirements of corrosion protection, spill containment, overfill protection, fill line protection and FR. In a sense, that's the easy part. Leak detection is a daily, monthly, and yearly routine that requires time and attention. Equipment must be maintained, tested, and inspected routinely to assure it is operating properly and within design specifications. Leak detection monitoring must take place routinely, and records must be kept for at least three years.

When your tanks are in full compliance with the right equipment, you can have some assurance that you are helping to protect our environment by minimizing the possibility of leaks. And when you are in compliance with leak detection requirements you can have a greater assurance that any leak that occurs will be identified quickly to minimize the impact to the environment and the cost of cleanup. □

Drop Tubes

by Colin Gomes

Implementation of the revised Pressure Decay Test has revealed problems with many drop tubes. Drop tubes were designed to deliver gasoline to the bottom of a storage tank. This submerged fill reduces turbulence and vapor growth in the tank. The types of drop tubes regulated in the State include regular, popetted coaxial and shut off valve equipped tubes. To comply with Vapor Recovery regulations each one of these tubes must be vapor tight.

In some facilities equipped with regular drop tubes, inspectors have discovered that the shaft of the drop tube contained holes. This unauthorized alteration to the tube may have voided the manufacturers' warranty. Additionally, the holes are not necessary for Vapor Recovery permitted facilities.

Facilities permitted for Single Point Stage I require vapor line closures that seal upon disconnect. Only poppeted coaxial drop tubes can satisfy this condition. Unfortunately, many facilities have installed non-poppeted coaxial drop tubes. Additionally, the poppeted tube ends cannot withstand five years of wear and tear from gasoline deliveries.

Facilities that installed the earliest versions of the shut off valve equipped tubes may have defective equipment. These types of tubes had hinge rods that passed through the shaft. The holes used for the hinge rod produce the same problems as the altered and poppeted fill tubes.

During normal operations, defective drop tubes decrease the certified vapor recovery efficiency of the Stage I system. Gasoline dropped into tanks, via defective drop tubes, creates a vacuum in the shaft. This vacuum sucks air from the top of the tank through the tube, into the gasoline. The

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Status of DERBCAP Guidance

DERBCAP and You

by Emil Onuschak, Jr.

The UST Branch presented the Delaware Risk-Based Corrective Action Program (DERBCAP), its adaptation of ASTM's RBCA procedure, at a public workshop at the University of Delaware on March 30, 1999. The purpose of DERBCAP is to move leaking underground storage tank sites toward closure in a scientifically valid way and eliminate the indefinite monitoring of sites that has occurred in the past. It was announced at the workshop that DERBCAP would be implemented as a "working draft procedure" through the remainder of 1999 and that feedback from the underground storage tank community would be welcomed during this period.

A printed guidance document describing the DERBCAP procedure in detail was prepared to supplement the workshop and was released to the public in October 1999.

Very few suggestions for changes were received by the December 31, 1999 cutoff date. Numerous tank owners, consultants, and contractors volunteered their satisfaction with DERBCAP as a definite improvement over existing procedures. Thus, effective January 1, 2000, DERBCAP became the official procedure for assessing and remediating leaking underground storage tanks. Minor changes, most typographical corrections, have been incorporated into a final DERBCAP Guidance document.

DERBCAP Technical Issues Forum

As the underground storage tank community and the staff of the UST Branch together apply DERBCAP to more and more sites, it is to be expected that technical or policy-level questions may arise regarding application of DERBCAP in specific situations. Discussion and clarification of these questions will appear in *"Think Tank"* from time to time and should be regarded as an open public forum. Your comments are invited.

What is a Risk-Based Screening Level?

There appears to be a misunderstanding on the part of some regarding the pre-calculated table of Tier 1 Risk-Based Screening Levels (RBSLs; Table 4 in the DERBCAP guidance document). This table shows the various Chemicals of Concern (COCs) down the left-hand side and various distances to a Point of Exposure (POE) across the top. A concentration for each COC in soil and in ground water is given for each range of distances.

These concentrations apply ***at the source*** of the contamination. Given the conservative inputs to DERBCAP, these are the maximum concentrations, which, if present ***at the source***, will not produce an unacceptable risk to human health at a Point of Exposure located at the distance stated in the table. The concentrations in Table 4 are *not* the concentrations of contaminants that are "allowed" at various distances. Remember that "source" can be a leaking tank, tank field, tank system, a spill, or residual contaminated soil or ground water.

For example, if a leaking underground storage tank site is being assessed for potential impacts from benzene and the nearest point of exposure is 400 feet away, then Table 4 indicates that 23 milligrams of benzene per kilogram of soil *at the source* will not be capable of producing an unacceptable risk to human health at a Point of Exposure 400 feet away. Similarly, if the benzene is already known to be in the ground water *at the source*, then 3 milligrams of benzene per liter of ground water will not be capable of producing an unacceptable risk to human health at a Point of Exposure 400 feet away. ■

Drop Tubes - *Cont. from p.2*

gasoline-saturated vapor bubbles to the surface, splashes and creates droplets. The droplets combine with the vapor growth to raise the pressure in the tank. The excess pressure blows the gasoline vapor and droplets out the pressure/vacuum valve. This condition can only add to Delaware's air pollution.

With the fill cap off, defective components will not pass the revised Pressure Decay Test. Owners and operators are advised to inspect the condition and design of the drop tubes in use at their facilities. Facilities upgrading their Stage II System may need to include drop tube valves in the scope of work. ■

UST on the Web

The UST Branch is updating its web site continually. You may visit the site at: *http://sirb.awm.dnrec.state.de.us/deusthom.htm*.

Now available is a guide to MTBE web sites, facility location maps for the entire state, and links to UST information on the web. More to come — check back often! □

THINK TANK

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Help is on the way for "orphaned" USTs in Delaware!

by Suzanne Halter

Every year the UST Branch identifies "orphaned" UST sites that require some sort of environmental rehabilitation, but there is either no "owner" available or the owner does not have the financial resources to complete the rehabilitation. Previously there was no funding available to address these sites. In order to protect the environment, the General Assembly provided funding for a program to address these sites. The program has been named the FIRST Fund (Fund for the Inability to Rehabilitate Storage Tank sites).

The Department is in the process of developing the FIRST Fund policy which will address "orphaned" UST sites in Delaware. An orphaned UST is one for which an owner, as defined in 7 Del. C. § 7402 (11), cannot be identified by the Department. The purpose of the FIRST Fund is to provide a mechanism to investigate and remediate sites where there is no known owner, as determined by the Department. Tanks whose owners do not have the ability to pay to properly close and remediate their tank(s) are also eligible under this fund. A tank owner must prove their inability to pay for the required tank closure and remedial work.

FIRST Funds may be used for the following activities:

- Removal or abandonment of USTs containing products regulated under 7 Del. C. Chapter 74;
- Investigation and assessment of contaminated UST sites;
- Remediation of soil/water contamination as a result of a release from an UST system;
- Restoration or replacement of potable water supplies;
- Emergency response and initial site hazard mitigation.

The result of this program will be to return the property to productive use. For information regarding the FIRST Fund please contact the UST Branch. ■

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