OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

SERVICE PROVIDER BULLETIN

A Bulletin of the Underground Storage Tank Program

State of Oregon Department of Environmental Quality

Program Update — December 2009

Licensed UST Services Supervisor Oversight of Temporary Closure Site Assessments is Required

In March 2008, Oregon modified its UST compliance rules to require that a site assessment report accompany any request for extension of a temporary closure certificate (see OAR 340-150-0167 (2)(c)(A)). Typically, initial temporary closure certificates are issued for one year, during which time it is expected that the USTs will be permanently decommissioned, the USTs will be returned to service or a request for a temporary closure extension will be submitted. Before granting a temporary closure extension, it is important to know whether or not the site is contaminated from prior petroleum releases.

New Horizon water sampling.

Recently the question was asked if a temporary closure site assessment must be performed by a person licensed as an UST services supervisor. The answer is yes. By definition, temporary closure is considered a decommissioning activity. The definition of "decommission" in OAR 340-150-0010 (17) is as follows: "Decommission" means temporary or permanent closure, including temporary or permanent removal from operation, filling in place, removal from the ground or change-in-service to a non-regulated status. Pursuant to OAR 340 – Division 160 rules, UST decommissioning work must be performed by companies licensed as UST service providers and the work itself must be overseen by licensed UST services supervisors. This includes the collection of soil and groundwater samples. Persons completing site assessments by installing test pits, borings and/or monitoring wells must also comply, as applicable, with the Oregon Water Resources Department's rules on constructing monitoring wells and other geotechnical holes and the Oregon Board of Geologist Examiners' rules on the practice of geology.

Although the site assessment rules (OAR 340-150-0180) do not require supervisors to get approval of written sampling plans before starting work, DEQ UST inspectors highly encourage supervisors to do so to ensure that the site assessment meets DEQ requirements. The most common site assessment deficiencies are inadequate sampling along piping runs and around dispensers. Another common deficiency is not running the appropriate analytical tests to characterize the contamination. Communicating with UST inspectors before the work begins will help ensure that the final site assessment report is complete, thereby facilitating DEQ's decision on a temporary closure extension.

What's Inside

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Confirming UST Releases

What Level of Precision is Required of the Equipment Used to Investigate a Suspected Release?

In establishing the release detection standards for UST systems in the late 1980s, EPA faced a number of technological challenges in setting a simple leak rate (for example, a line tightness test of 0.1 gallons per hour (gph)). In researching release detection equipment in common use at the time, EPA learned that the following variables, among others, could significantly influence reported test results:

- Temperature changes in the product
- Trapped vapor pockets
- Condensation and evaporation
- Tank-end deflection

EPA learned that the degree to which any of these factors influence a given test will vary between different tanks, and even between separate tests on the same tank. These factors must be monitored very closely because even the slightest changes can either mask leaks that exist, or mimic a leak where none exists.

Because these variables will always exist, EPA concluded it could not come up with a simple numerical leak rate. Instead EPA came up with a three-part performance standard that applies to all release detection methods except inventory control, manual tank gauging and statistical inventory reconciliation. For each release detection method, EPA established:

- A leak rate expressed in terms of gph (varies by release detection method, see below)
- A probability of detection (PD) of 95% or more
- A probability of false alarm (PFA) of not more than 5%

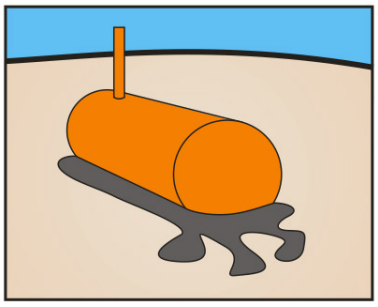
For example, the leak rate for line leak detectors on pressurized pipe is 3 gph at 10 pounds per square inch line pressure within one hour. In the case of an annual line tightness test, the leak rate is 0.1 gph at one and one-half times the operating pressure. The leak rate for a tank tightness test was set at 0.1 gph from any portion of the UST that routinely contains a regulated substance. For automatic tank gauging equipment, the leak rate is 0.2 gph.

Finally, EPA required that equipment manufacturers document how their equipment is capable of detecting leaks at or below the leak rate with a probability of detection of 95 % or more and a probability of false alarm of not more than 5%. In order to document compliance with the leak rate and the PD and PFA statistical standards, manufacturers run a series of equipment tests to establish a threshold value for their release detection method. The threshold value will always be a number less than the leak rate itself. At this threshold value, one is assured that the EPA established leak rate meets a PD of 95% and a PFA of no more than 5%.

For example, for Veeder-Roots' TLS Model 350 Automatic Tank Gauge used on a 30,000-gallon tank, the certification for a leak rate of 0.2 gph is a threshold value of 0.126 gph at a PD of 95.6% and a PFA of 0.3%. For any permittee using this model of automatic tank gauge, any detected release above 0.126 gph must be reported as a suspected release. In the case of Franklin Fueling Systems' automatic electronic line leak detector (ELLD) Model TS-LLD used on any piping with a capacity up to 163 gallons, the certification for a leak rate of 3 gph is a threshold value of 1.5 gph, with a PD of 100% and a PFA of 0%. Any permittee using this electronic line leak detector must report any releases above 1.5 gph as a suspected release. Information on the equipment's threshold value is included in the owner's manual provided at the time of installation. If the owner's manual has been misplaced or lost, this information can also be looked up online by going to the National Work Group on Release Detection Evaluations web site at: www.nwglde.org/.

Why is DEQ concerned about leak rates, threshold values, PD and PFA? DEQ is concerned because these numbers can become an issue during an investigation of a suspected release. A suspected release may turn out to be an actual confirmed release or it may turn out to be malfunctioning release detection equipment, malfunctioning precision tightness testing equipment or improperly conducted tests or operated equipment. In the case of malfunctioning equipment, one remedy is to replace the release detection equipment and perform additional monitoring with the new equipment. In the case of a failed precision tightness test, one remedy is to rerun the test using the same vendor and equipment or you can use a different vendor with different testing equipment.

It is in the specific cases where release detection monitoring equipment is replaced, or different precision tightness testing equipment is used, that threshold values, PD and PFA values become of paramount importance. In order for the suspected release investigation to have merit, the equipment used to conduct the suspected release investigation must be at least as precise as the equipment used when a suspected release was discovered including having an equivalent or better threshold value, PD and PFA. UST inspectors will specifically look at the investigation documentation to insure that the investigation was conducted to the same or better level of precision as used at the time of reporting a suspected release. Using equipment of less precision cannot prove that a suspected release is not an actual release. UST inspectors will require additional investigation in any cases where it finds that less precise equipment was used to conduct the suspected release investigation.



Interstitial Tightness Testing of Existing Underground Double Wall Tanks

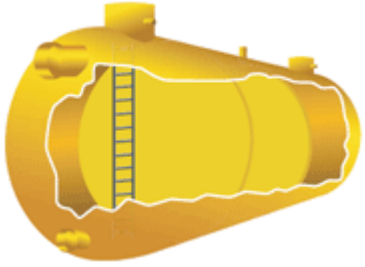
Service providers and supervisors should be aware that the Fiberglass Tank & Pipe Institute (FTPI) and the Steel Tank Institute (STI) have published recommended practices for the tightness testing of interstice spaces of underground double wall tanks. In addition, the National Fire Protection Association's NFPA 30 Standard requires tightness testing be done in accordance with good engineering practices or manufacturers' guidelines and warns about over-pressurizing or applying excessive vacuum to interstice spaces.

Secondary Tank Diameter	Water Table Inches of Depth Above the Tank Bottom	Annular Space Vacuum (Max) In Inches of Hg
144	48	6
144	84	6
144	120	3.5
144	144	2
144	168	Apply no Vacuum

The FTPI's standard is entitled "Field Test Protocol for Testing the Annular Space of Installed Underground Fiberglass Double and Triple-Walled tanks with Dry Annular Spaces" and is available for download at www.fiberglasstankandpipe.com/annular.htm. The protocol warns against applying more than 12 inches of mercury (Hg) vacuum to the annular space.

The STI's standard is entitled "Recommended Practice for Interstitial Tightness Testing of Existing Underground Double Wall Steel Tanks, R012, Revised April 2007" and can be purchased from the STI at www.steeltank.com. This standard warns that the combination of the hydrostatic pressure from an elevated groundwater table and an excessive vacuum can cause the outer steel tank shell to buckle, particularly along the bottom of the tank where the combination of the two pressures is greatest. Before testing the interstice space the STI recommends that the groundwater elevation is determined and the maximum vacuum to be applied is obtained from the table of values published in the standard. See Table for an example of how the maximum vacuum level decreases with an elevated water table.

Although not required at this time, DEQ recommends to tank owners and service providers that a groundwater observation well be installed in all tank pits so that groundwater elevations can be measured, if needed.



Reminder – Check Out Latest Copy of Interactive Forms

DEQ reminds service providers and supervisors who manually fill out our forms to regularly check for updates on the DEQ web site at: www.deq.state.or.us/pubs/forms.htm#Tanks. Over the past six months, DEQ has updated almost all the forms to correct errors, to reflect rule changes or, in a few cases, to simplify the forms. To confirm you are using the most current form, look on the bottom of the first page. DEQ dates each form with the month and year the form was created or modified. DEQ is also now numbering each form with a unique document number.

If you haven't been filling out DEQ forms online, DEQ encourages you to try this service. The agency has converted all the forms to interactive PDF documents. You can call up a form on your computer, type in all the required information and then print copies of the form for your files and submit a copy to DEQ. Filling out the form online ensures that you are using the most up-to-date version.

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Tanks Information on the Web:

www.deq.state.or/lq/tanks/

Tankline Bulletin is going digital.

If you would like to go digital with us, please send an e-mail with your name and organization to:

tanks.info@deq.state.or.us

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Repairing a STI-P3 Tank's Sacrificial Anodes

DEQ recently reviewed several repair records documenting the apparent failure of STI-P3 sacrificial anodes. Service providers and supervisors are reminded that failure of a sacrificial anode cathodic protection system falls under the UST system repair rule OAR 340-150-0350. Section 3 of the repair rule requires that the UST system components must be repaired "according to the manufacturer's specifications and the repairs must be performed in accordance with a code of practice developed by a nationally recognized association or an independent testing laboratory."

In the specific case of STI-P3 tanks, the Steel Tank Institute (STI) has published a standard entitled "Recommended Practice for the Addition of Supplemental Anodes to STI-P3 USTs – R972 – Revised January 2006". You can purchase a copy of the standard from the STI at www.steeltank.com . One of the first steps in applying this standard is to determine if the tank is even a candidate for repair by adding supplemental anodes. A current requirement test must be performed and it must be found that the tank requires no more than 30 milliamps of current to bring the tank to protected levels. If more than 30 milliamps is required, the STI must be contacted for assistance or a cathodic protection design expert must design an effective repair. If less than 30 milliamps of current is required, than the STI recommended practice procedures must be followed.

UST inspectors also remind service providers and supervisors that adequate documentation of the repair must be provided including documentation of the initial corrosion test failure, results of electrical isolation testing and results of current requirement testing. Documentation of the size of anodes, their burial depth and how the anodes are connected to the tank should also be provided. Documentation must be sufficient to demonstrate that the STI recommended practice was followed and/or that the corrosion expert's design was implemented.

Compliance Tips

⌦ **Tip 1 Question** – I am replacing my dispensers and currently have under dispenser containment (UDC)? Do I need to collect site assessment samples?

Answer – Maybe. If a visual examination of the UDC confirms the physical integrity of the UDC device, site assessment samples are not needed. On the other hand, if a visual examination of the UDC leads you to believe there is a failure or breaching of the existing UDC, a site assessment is required. A failure or breaching of the UDC must be reported as a suspected release and a suspected release investigation must be undertaken.

⌦ **Tip 2 Question** – To perform routine maintenance on my dispenser, it is necessary to disconnect and reconnect the dispenser from the piping system. Am I required to collect site assessment samples and install UDC?

Answer – No. Site assessment rule OAR 340-150-0180 (1) (e) does not apply to routine maintenance of dispensers even where it is necessary to disconnect and reconnect the dispenser from the existing piping system, unless visual contamination is observed below the dispenser when it is moved off the island. Visual contamination must be reported as a suspected release and an investigation must be conducted. Similarly OAR 340-150-0160 (1) (a) (B) requiring adding UDC when moving or replacing dispensers was not intended to cover routine maintenance of dispensers.

⌦ **Tip 3 Question** – I am replacing my dispensers to allow the use of blenders. Can I abandon a piping run?

Answer – Yes. However, site assessment samples must be collected pursuant to OAR 340-150-0180 (1) (d). A site assessment is required when underground piping is replaced, decommissioned by removal or abandoned.

⌦ **Tip 4 Question** – I have a dispenser at a marina or loading rack that is connected to the aboveground end of a piping run that is partially underground and partially aboveground. Is UDC required if I install, move or replace a dispenser at the end of the aboveground piping?

Answer – Maybe. If the entire underground and aboveground piping run is a contiguous piping run, then the entire length of piping is an underground pipe for regulatory purposes and the dispenser is subject to the UDC requirements for installing, moving or replacing dispensers. If the underground piping portion is isolated from the aboveground piping portion by valves or a transition sump, allowing for monitoring and testing of the entire underground portion, then the aboveground piping is not considered part of the underground storage tank system and the dispenser is not subject to the UDC requirements for installing, moving or replacing dispensers.

⌦ **Tip 5 Question** – I am moving, replacing, decommissioning or abandoning my marina dispenser that is located on a dock over water; do I need to collect site assessment samples?

Answer – No. Even though the dispenser may be considered regulated because it is attached to an underground piping run, there is no practical way to conduct a site assessment for a dispenser located on a dock over water.

⌦ **Tip 6 Question** – Is UDC required for any new, moved or replaced fuel dispenser system?

Answer – Yes. Rule OAR 340-150-0160 (1) (a) (B) requires UDC for each new, moved or replaced fuel dispenser system. Oregon's rule is more stringent than federal requirements in that it covers moved and replaced fuel dispenser systems, as well as new systems. Furthermore, OAR 340-150-0180 (1) (e) requires a site assessment when dispensers are moved, replaced, decommissioned or abandoned.