

# Breach of Integrity Testing Guidance

## **Introduction:**

This document is meant to provide guidance to inspectors, tank owners/operators, and contractors concerning the Florida Department of Environmental Protection's (DEP's) requirements in Chapters 62-761 and 62-762, Florida Administrative Code for breach of integrity testing. By rule, breach of integrity testing is only required for Category-C systems (those systems installed on or after July 13, 1998).

## **Overview:**

The purpose of breach of integrity testing is to determine the integrity of the inner and outer wall of the component. Most release detection methods used at this time do not establish the integrity of these walls, especially the outer wall, thus the need for periodic breach of integrity testing.

DEP's rules require breach of integrity testing at the time of system installation and every 5 years thereafter for the following: double-walled Underground Storage Tanks (USTs) with closed interstitial spaces; double-bottomed Aboveground Storage Tanks (ASTs); and double-walled integral piping with a closed interstitial space that is in contact with the soil and that is connected to USTs or ASTs.

Double-Walled shop fabricated ASTs are required to be installed and tested in accordance with the applicable provisions of NFPA 30, NFPA 30A, and PEI/RP 200-96 as well as the manufacturer's requirements. However, they are not required to be tested every 5 years thereafter for a breach of integrity. DEP's rules do not currently specifically discuss whether breach of integrity testing is required for double-walled field erected ASTs. To-date, very few of these systems exist within the State. In the few instances where there are double-walled field erected ASTs, either the interstice is open and thus not subject to breach of integrity requirements, or the double-walled AST is not in contact with the soil (thus should be handled as double-walled shop fabricated ASTs are handled).

DEP defines a closed interstitial space as "space between two steel or impervious barriers that are sealed, not open to the atmosphere, and designed to be tested for a breach of integrity of the interstitial space".

## **Double-Walled USTs:**

A double-walled UST is defined as a storage tank that has an outer tank wall that provides secondary containment of the primary tank. They can further be described as having a closed interstitial space, in that the interstice is sealed by the inner and outer

walls of the UST and the capped release detection access port. Thus, the only time a double-walled UST's interstice is open to the atmosphere is for testing of interstitial monitoring equipment or conducting monthly release detection. In addition, double-walled USTs are designed to be tested for a breach of integrity of the interstitial space. Therefore, double-walled USTs must be tested periodically for a breach of integrity.

All double-walled USTs must be tested upon installation for a breach of integrity. The testing must be in accordance with manufacturer's instructions or by another method approved and listed by DEP on its Approved Equipment List. In addition all Category C double-walled USTs must be tested every 5 years thereafter for a breach of integrity, except for the following:

- USTs that store fuel solely for use by emergency power generators.
- USTs where it can be demonstrated that they are totally submerged in groundwater at least once every 5-years.
- USTs that employ a hydrostatic release detection system (for example, an UST with a brine-filled interstice) that has been approved and listed by DEP on its Approved Equipment List.
- USTs that employ a vacuum release detection system that has been approved by DEP.
- USTs that employ any other release detection system that has been approved and listed by DEP on its Approved Equipment List as a system that continuously conducts breach of integrity testing.

*This is not to imply that USTs that use continuous electronic sensing equipment are exempted from testing. Only if the release detection system continuously conducts breach of integrity testing, not just interstice monitoring, is this exemption valid.*

- USTs that are approved by DEP where the equipment approval specifies an alternate breach of integrity testing schedule shall comply with the testing schedule as provided in the equipment approval order. For example - EQ403 and EQ729 require that breach of integrity pressure testing be conducted every 2 years following the UST's upgrade with secondary containment.

### **Double-Bottomed ASTs:**

A double-bottomed AST is defined as an AST that has secondary containment in the form of an outer tank bottom having a closed interstitial space between the primary tank bottom and secondary outer tank bottom. Generally, double-bottomed ASTs are

field erected ASTs.

All double-bottomed ASTs must be tested upon installation for a breach of integrity. The testing must be in accordance with manufacturer's instructions or by another method approved and listed by DEP on its Approved Equipment List. In addition all Category C double-bottomed ASTs must be tested every 5 years thereafter for a breach of integrity, except for the following:

- Double-Bottomed ASTs that employ any release detection system that has been approved and listed by DEP on its Approved Equipment List as a system that continuously conducts breach of integrity testing.

### **Double-Walled Integral Piping:**

Currently, the majority of double-walled underground piping used in Florida has its test boots pulled back in the STP and/or dispenser sumps to allow the piping interstice to drain to the sumps where continuous or monthly release detection is conducted. DEP has determined that in this scenario, the interstitial monitoring being conducted is of an open interstitial space, and thus the 5-year periodic breach of integrity testing is not required, although it is recommended. The initial breach of integrity testing upon installation is still required.

If the double-walled piping meets the definition of a closed interstitial space, then the 5-year periodic breach of integrity testing would be required, unless one of the exceptions listed in this guidance document for USTs is met.