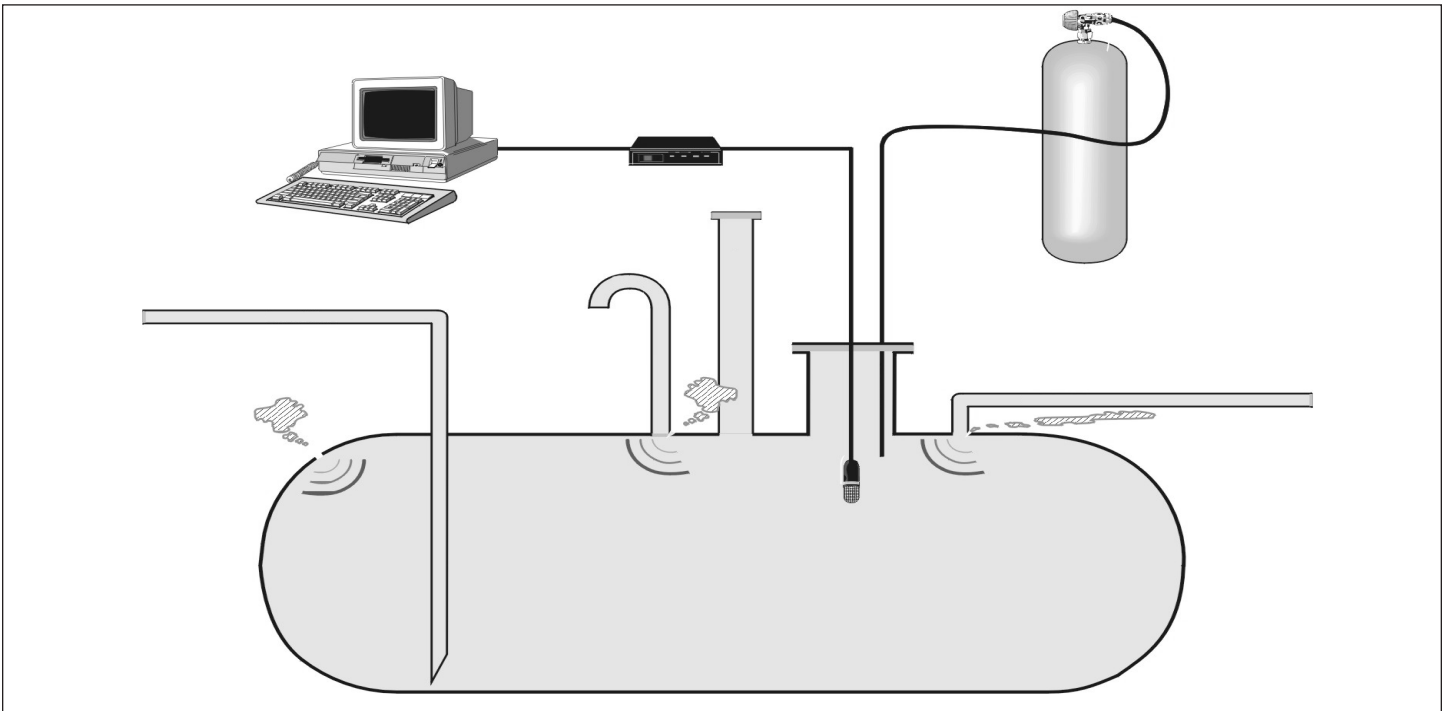


# Technical Procedures

## Upstream Underground Storage Tank Leak Detection Test

March 2004



The integrity of a storage tank can be verified and in a short period of time with the sonic leak detection test. This technique has been third party performance evaluated and generates reliable leak detection test results in a cost-effective manner.

The test procedure is a computerized sonics based method for identifying and recording a leak in the empty portion of a storage tank, connections, risers and connected piping. Leaks are identified through the sound frequencies that are created when nitrogen escapes through a breach.

### Sonic Test Procedures

- A microphone is placed into the empty portion of the tank
- Tank risers and connected piping are plugged in order to pressurize the storage tank system
- A computerized sonic reading of the tank is taken and the sound frequencies are amplified and recorded as a "base line sound frequency"
- The storage tank system is pressurized with approximately 2 PSI of nitrogen and a second sound frequency is taken
- A leak in the storage tank system is detected through a comparison of the two sound frequencies
- Escaping nitrogen gas through a breach in the tank,

connection, riser or piping will create a unique sound frequency that is detected through the computerized comparison

- The processed data is graphically presented for onsite review
- Computerized, conclusive test results are generated on site and prior to removal of test equipment

### Test Specifications

- Non-intrusive, non-hazardous and intrinsically safe
- Performance evaluated and meets the criteria of a precision leak detection test
- Test results are based on a pass or fail basis
- The tank must empty prior to the test procedure
- Product source must be isolated from the tank during the test
- The tank must be taken out of service during the procedure and for approximately one hour
- Test procedure will evaluate the complete storage tank systems including tank, risers, connections, connected piping and associated equipment for leaks
- Meets or exceeds: Regulatory requirements



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