



## Methods of Meeting the Requirement for Automatic Line Leak Detection for Underground Pressurized Piping on Emergency Generator Systems

State and Federal regulations require that underground pressurized piping be equipped with an automatic line leak detector (ALLD) that will alert the owner/operator to the presence of a leak by restricting or shutting off the flow of regulated substances through piping, or by triggering an audible or visual alarm. This equipment must be able to detect leaks of 3.0 gph at 10 psi within 1 hour. An annual test of the operation of the leak detector must be conducted in accordance with the manufacturer's requirements.

Beginning with the 2016 Edition of NFPA 110 (Standard for Emergency and Standby Power Systems), the installation of an automatically actuated valve into the fuel lines of e-gen systems was prohibited. The requirements of this guidance must be followed for utilizing the triggering of an audible or visual alarm without restricting or shutting off flow.

A trained operator must be available **at all times** to initiate a response to an alarm that is indicating the presence of a leak.

### Option 1: Using Secondary Containment and Sump Sensors

To function as an ALLD, the system must include the following:

1. A secondary containment system - including piping and all connected containment sumps (STP, transition, etc.) – that has been UL-approved, and has been specifically designed and approved by the manufacturer for use as secondary containment.
  - a. Chase piping that was not manufactured or intended to be used as secondary containment (i.e. corrugated chase piping, PVC pipe, etc.) will not meet this requirement.
  - b. The piping and secondary containment system must be installed in accordance with manufacturer requirements, or PEI or API recommended practices.
2. Sensors that have received third-party certification and are approved by the National Work Group for Leak Detection Evaluations (NWGLDE).
  - a. Sensors must be included in all sumps (STP, transition, etc.) unless it can be sufficiently demonstrated that piping is properly sloped to drain fluids from secondary containment piping to the detection point.
  - b. Sensors must have a fuel alarm activation height of **0.25 inches or less** per manufacturer specifications.
  - c. Sensors must be located in the lowest point of the sump where liquids may accumulate.

### Option 2: Using an Automatic Tank Gauge with Electronic Line Leak Detection (ELLD)

Where an automatic tank gauge that includes ELLD (PLLD, WPLLD, SLLD, etc.) is used, the positive shutdown of the pump should be disabled so that flow is not restricted or shut off.

## Periodic Testing of System Equipment

In order to meet the requirement for an **annual** test of the operation of the leak detector, testing of this system must include an annual inspection of the ATG console to verify system configuration and operability according to manufacturer requirements or PEI RP1200-17, and one of the following:

### For Option 1:

- a. An annual tightness test of all secondary containment components in the ALLD system, including piping and all connected containment sumps (STP, transition, etc.), must be performed according to manufacturer requirements, PEI RP1200-17, or another approved method.

**Note:** Failed tightness test results must be reported to OPS at 303-318-8547 within 24 hours.

- b. An annual test of all sump sensors for functionality, including a test showing that the fuel alarm activation height is 0.25 inches or less and that all associated alarms are functional, must be performed according to manufacturer requirements, PEI RP1200-17, or another approved method.

### For Option 2:

An annual test of all ELLDs must be performed according to manufacturer requirements, PEI RP1200-17, or another approved method.

**All inspections and tests must be documented and maintained until the next ones are completed.**