

Emergency Power Generator (EPG)

Pressurized Piping – Automatic Line Leak Detector (LLD) requirement

MDEQ Approved Alternative (s)

In accordance with 11 Miss. Admin. Code Pt. 5, Ch. 2, R. 2.4, Sec. 280.41:

“Pressurized piping. Underground piping that conveys regulated substances under pressure must be equipped with an automatic line leak detector conducted in accordance with §280.44(a) except for life safety/critical function UST systems, in which case, an alternative method of leak detection must be approved by MDEQ.”

Life safety / critical function UST systems as defined by Sec. 280.12:

“Life safety/critical function UST means any one or combination of tanks (including underground pipes connected thereto) that is used to contain an accumulation of regulated substances, and the volume of which (including the volume of underground pipes connected thereto) is 10 percent or more beneath the surface of the ground and is used to maintain operation of critical function equipment for the preservation of human life.”

UST systems installed prior to October 1, 2008 that store fuel solely for use by emergency power generators must meet the Rule 2.4 requirements on or before October 5, 2021.

As of May 12, 2021 MDEQ approves of the use of the following alternatives to meet the automatic line leak detector requirement, subject to verification that the pressurized piping is associated with a life safety / critical function UST system as defined.

Approved Alternatives

Pressurized Piping installed prior to 10/1/2008. (Single or Double Walled Piping)

- 1.) An annual precision line tightness test performed in accordance with 280.44 b.; **AND**
- 2.) Have monthly monitoring conducted in accordance with other tank methods (280.44 d) referencing specifically Vapor monitoring (280.43 e) or groundwater monitoring (280.43 f) and other methods as approved by MDEQ (280.43 h).

What will MDEQ NOT require with these systems?

- a. The installation of a traditional automatic line leak detector (mechanical or electronic).
- b. Verification that the piping system can detect an equivalent leak rate of 3 gph @ 10 psi within 1 hour shall NOT be required by MDEQ due to implementation and maintenance of dual leak detection methods. For these typical EPG systems, due to frequency of operation, throughput, and other EPG components; the approved alternatives above should be no less protective of human health and the environment. *(Approved only for Life Safety / Critical Use UST systems)*

Pressurized Piping installed on or after 10/1/2008. (Double Walled) (Using Interstitial monitoring)
(May also be used for double walled pipe systems installed prior to 10/1/2008)

- 1.) Must be monitored at least once every 30 days for leaks in accordance with 280.44(c) interstitial monitoring by use of electronic device (sensors).
- 2.) Sensors shall be required at each end of the double walled pipe, installed as close as practical to the bottom of the containment sump (collection point), and maintained in accordance with 280.43 (g).
- 3.) Containment sumps shall be maintained in accordance with 280.31. (Annual sump inspection and 3 year sump integrity testing)
- 4.) Additionally, a piping secondary containment integrity test shall be required at installation and once every three (3) years thereafter in accordance with PEI RP 1200 or an MDEQ approved equivalent test procedure. (Repair or replacement of failed secondary piping and retesting required within 90 days of failure)

What will MDEQ NOT require with these systems:

- a. The installation of a traditional automatic line leak detector (mechanical or electronic).
- b. MDEQ will NOT require an external audible or visual alarm as long as the Automatic Tank Gauge associated with the sensors is equipped with a functional audible or visual alarm.
- c. MDEQ will NOT require sensors to be wired or programed to shut off power to a submersible turbine pump (STP).
- d. Verification that the piping system can detect an equivalent leak rate of 3 gph @ 10 psi within 1 hour shall NOT be required by MDEQ due to the confirmation of containment sump and piping secondary containment integrity every 3 years as stated above. For these typical EPG systems, with a tight secondary pipe system any leak rate should be detected by the monitoring system if components are properly installed and maintained and should be no less protective of human health and the environment. *(May be used in other applications as specified below.)*

Mechanical Line Leak Detectors

MDEQ does not recommend the use of mechanical line leak detectors which restrict the flow of fuel upon detection of an equivalent 3 gph leak rate. Mechanical line leak detectors may meet the requirement, however due to the restriction the piping would have to be reconfigured to manually bypass the LLD if it restricts during an emergency. In addition to a manual bypass, facility staff would have to be trained to quickly bypass the LLD once restriction occurs. There are too many variables to account for which may result in loss of power in an emergency for an unknown amount of time. Mechanical LLDs are not a good option for life safety / critical use systems. Depending on the elevation change (static head pressure of fuel stored) of the piping a mechanical LLD also may not detect the equivalent 3 gph @ 10 psi leak rate.

Electronic Line Leak Detectors

Electronic LLDs may be programmed to alarm only upon detection of an equivalent 3 gph @ 10 psi leak rate and maybe used to meet the LLD requirement. Depending on the elevation change (static head pressure of fuel stored) of the piping an electronic LLD may not detect the equivalent 3 gph @ 10 psi leak rate AND will likely be prone to having more false alarms due to more piping (increased surface area) exposed to atmospheric temperatures resulting in thermal contraction / expansion of the fuel stored. In some cases electronic LLDs may not meet or be ideal for use to meet the requirement. MDEQ does not recommend the use of electronic line leak detectors if they are programmed to shut down power to the STP upon detection of the equivalent 3 gph leak rate. If electronic LLDs are selected to meet the requirement they should be programed to provide audible or visual alarm only.

Application to other UST systems:

MDEQ acknowledges that some typical non-retail UST fueling facilities (ie. Bulk Fueling facilities, other EPG facilities not classified as life safety / critical function UST systems) are affected by high static head pressure & the thermal effects of exposed piping as described above, to where neither a mechanical or electronic LLD may detect the equivalent 3 gph @ 10 psi leak rate or provide adequate notification to the operator of the leak. If equipment is not commercially available by UST manufacturer (s) to meet the requirement, MDEQ may authorize use of the above alternatives for other UST systems upon written request only. In these rare situations both the line leak detector AND an alternative above will be required to be approved as no less protective of human health and the environment. (Please note, in most cases the Line Leak Detector requirement can be met with currently available UST equipment.) MDEQ will not approve of the above alternatives for typical retail fueling facilities.

Previously approved applications of the alternatives:

This position supersedes all previous verbal or written agreements where MDEQ gave approval to use an alternative method to meet the automatic line leak detector requirement. For the unique cases where MDEQ has previously approved an alternative method (double walled UST systems), those systems are subject to and required to meet the testing requirements as written above.

This position is subject to change with future regulations or availability of new UST equipment to meet the requirement at which time the approved alternatives above may no longer be approved and all UST systems using them may be required to upgrade to meet future requirements or alternatives.

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6/1/2021