

FAQs from the NWGLDE

... All you ever wanted to know about leak detection, but were afraid to ask.

Questions about Automatic Mechanical Line Leak Detectors (MLLDs) — Part II

In this issue's FAQs from the National Work Group on Leak Detection Evaluations (NWGLDE), we discuss the effects of the type of piping and the location of the MLLD in the line on the MLLD itself. This article does NOT apply to electronic line-leak detectors (ELLD). (Please Note: the views expressed in this column represent those of the work group and not necessarily those of any implementing agency.)

Q. *Can an MLLD evaluated in a rigid pipeline system be used in a flexible pipeline system?*

A. Due to the difference in bulk modulus (amount of stretching under pressure) between rigid piping and flexible piping, MLLDs designed for use in rigid pipelines may not be satisfactory for use in flexible-pipeline applications. MLLDs are likely to see the stretching as a leak and erroneously respond by restricting the flow (false alarm). NWGLDE believes that MLLDs used in flexible-pipeline systems must be evaluated in flexible-pipeline systems to ensure that they are able to detect leaks in accordance with U.S. EPA performance standards. However, the decision as to whether or not to restrict MLLD use on specific pipeline systems is up to each state.

Evaluations of MLLDs tested for use in flexible pipelines show that the affect of stretch (bulk modulus) limits the capacity (and therefore the length) of flexible-pipeline systems that can be successfully monitored by an MLLD when compared with the capacity (also length) of rigid-pipeline systems that can be successfully monitored with the same MLLD. It is also necessary to evaluate MLLDs in a combination of both rigid and flexible pipelines if they are to be used in that type of system. Again, the decision on whether or not to restrict MLLD use on this type of pipeline system is up to each state.

Q. *Is it important where MLLDs are placed in the system?*

A. Since MLLDs are designed to detect leaks downstream from their installation point (from the MLLD toward the dispenser), the normal installation point is in the submersible turbine pump (STP). In some applications, MLLDs must be placed in a special pipe fitting adjacent to the STP. In these cases, the MLLD should be installed as close to the STP as possible. However, in this situation, the piping that is between the STP and the MLLD is not being monitored for leaks.

Installations involving manifolded tank systems appear to have the most MLLD placement errors. In cases where two or more STP systems are piped to one common discharge line, and each STP has its own MLLD, the leak rate that will be monitored is equal to the total amount of product being metered into the line by the MLLDs. For example, a two-tank system, each with its own STP and MLLD, will trip when a leak greater than 6 gph is detected. The leak rate for a three-tank system would be 9 gph. On the other hand, if a single MLLD is placed on the common discharge line, that MLLD will check the piping downstream for a 3 gph leak.

Manufacturers of MLLDs have suggested configurations that installers can use to achieve the required 3 gph leak-detection rate when connecting to one common discharge line. For example, if the STPs are on a delay relay, when the first pump comes on, the MLLD associated with that pump will check all the piping for a 3-gallon-per-hour leak before the other STPs come on. This information can be found by visiting MLLD manufacturers' websites. ■

About NWGLDE

The NWGLDE is an independent work group comprising 10 members including 9 state and 1 U.S. EPA members. This column provides answers to frequently asked questions (FAQs) the NWGLDE receives from regulators and people in the industry on leak detection. If you have questions for the group, please contact them at questions@nwglde.org

NWGLDE's mission:

- Review leak-detection system evaluations to determine if each evaluation was performed in accordance with an acceptable leak-detection test method protocol and ensure that the leak-detection system meets U.S. EPA and/or other applicable regulatory performance standards
- Review only draft and final leak-detection test method protocols submitted to the work group by a peer review committee to ensure they meet equivalency standards stated in the U.S. EPA standard test procedures
- Make the results of such reviews available to interested parties