



# Coffee Break Training - Fire Protection Series

## Inspection Techniques: Equipment Safety Issues

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**Learning Objective:** The student will be able to identify inspection and maintenance requirements for fixed monitor nozzle assemblies.

When inspecting, testing and maintaining fire protection systems, we often are concerned mostly with their ability to perform as designed in the event of a fire or other emergency. Occasionally, however, the work reveals a problem that could have other consequences, including injury or death to the operator.

Look closely at the illustration, and you will see a small crack in the upper left-hand elbow of this monitor nozzle assembly. The crack has been circled by the inspector to highlight its location.

While the crack's source isn't known, it may be an early sign of metal fatigue that could lead to serious operator injury when the monitor nozzle assembly is pressurized in the event of a fire. Depending upon manufacturer and model, it is not uncommon for monitor nozzle assemblies to operate at 200 pounds per square inch (13.8 bar).

Monitor nozzle assemblies, such as this one located at a methanol production and storage facility, often are installed as fixed appliances where large water quantities may be needed early in an event. These devices are installed routinely at bulk fuel facilities, hog fuel piles, lumber yards, liquefied petroleum gas storage facilities, and other high-hazard installations.

The design, selection and installation of monitor nozzles is regulated by National Fire Protection Association (NFPA) 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances* because they generally are connected directly to underground water main systems.

As a water-based fire protection system, they are subject to inspection, testing and maintenance requirements of NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*. Regular inspections increase the likelihood that these potential failure points are found before they become more dangerous.

Among other things, for monitor nozzle assemblies, NFPA 25 requires monitor nozzles to be:

- Inspected semiannually.
- Lubricated annually.
- Oscillated and moved throughout their full range annually.
- Checked for leakage, corrosion or other physical damage. Equipment should be repaired or replaced as needed.<sup>1</sup>

For more information on fire protection systems and equipment, review past copies of Coffee Break Training items at <http://www.usfa.fema.gov/nfa/coffee-break/index.shtm>.

<sup>1</sup> Used with permission from NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, Copyright © 2014, National Fire Protection Association.



The small crack in the upper left-hand elbow of this monitor nozzle assembly may be a sign of metal fatigue that could lead to a serious operator injury. (Photo/Byron Blake)

