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NORTH CAROLINA
Environmental Quality

March 7, 2022

MEMORANDUM

TO: **Underground Storage Tank Owners & Operators, Underground Storage Tank Equipment Installers, and Service Technicians**

FROM: **NC DEQ, Division of Waste Management, UST Section**

SUBJECT: **Advisory- Anti-Siphon valves for Marinas**

The North Carolina Department of Environmental Quality, Division of Waste Management, UST Section has investigated the installation of anti-siphon valves at marinas and found that improper installation can lead to the product siphoning out of the tank if a leak occurs in the product piping since the tanks at a marina are typically installed at a higher elevation than the dock product piping. This memo is to clarify the requirements of proper installation of anti-siphon valves (typically a normally closed solenoid valve) at Marinas.

Figure 1: Proper installation of the anti-siphon valve between the STP and Automatic Line Leak Detector

The correct placement of the anti-siphon valve is shown in Figures 1 and 2. An anti-siphon valve placed as in Figures 1 and 2 would not allow product to go beyond the valve except when the pump is operating, and the valve is open. This requirement applies to suction as well as pressurized piping systems.

Petroleum Equipment Institute (PEI) RP 1000, *Recommended Practices for the Installation of Marina Fueling Systems*, Section 4.4 states "marina piping systems often include a transition from land to over water. The slope of the land may also require that some portion of the product piping be at a lower elevation than the product in the tank. When either of these conditions is present, include the following components in both underground and aboveground piping systems." If the product piping is below the liquid level in the tank at any point, provide *a normally closed* solenoid valve designed to open and close simultaneously with the operation of the pump motor. Locate the valve adjacent to and downstream of the ball valve at the tank outlet.

PEI/RP 1000 Section 4.2 states "if a submersible pump is used (see Figure 2), install a listed mechanical or electronic line leak detector. If an electronic line leak detector is installed, it should provide positive shutdown if a leak rate of 3 gallons per hour or greater is detected. If the piping system includes an anti-siphon valve at the tank, install the leak detector in an appropriate fitting immediately downstream of the anti-siphon valve." While shutting down the pump is a good practice, if a leak is detected, it is not a regulatory requirement in 40 CFR 280, *Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)*, or 15A NCAC 2N, *Criteria and Standards Applicable to Underground Storage Tanks*.

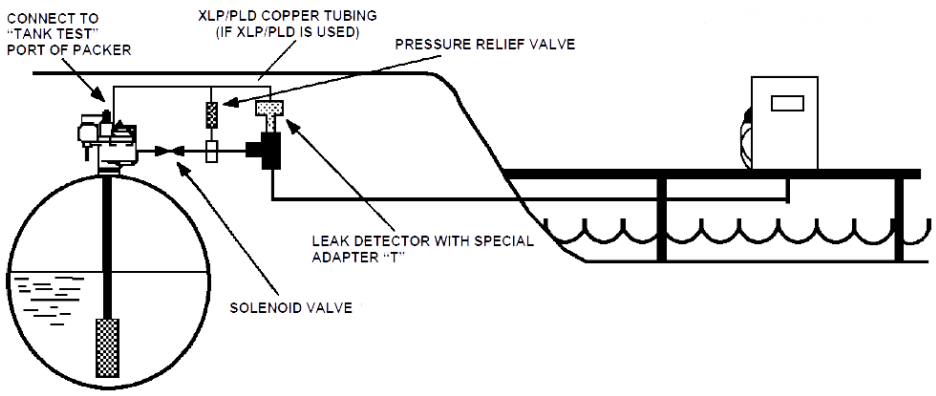

Figure 2: Diagram of proper installation of anti-siphon valve

Additionally, if any valves or other piping components are installed on or after November 1, 2007, to meet these requirements, then a containment sump must be installed at the location of the installed component which meets the secondary containment requirements in 15A NCAC 2N .0900.