

**Maine Department of Environmental Protection  
Policy to Clarify Leak Detection and Corrosion Protection  
Requirements for Siphon Piping Pursuant to 06-096 CMR c. 691  
§5.B(1) and (2)**

### General Policy

The policy of the Department's Bureau of Remediation and Waste Management will be to consider properly designed siphon piping systems designed to enable product flow directly between two underground oil storage tanks as suction piping provided all underground piping involved in the system is protected against corrosion pursuant to Department rules.

### Background

Department rules (06-096 CMR c. 691 §5(2)(a)) require secondary containment and continuous interstitial space monitoring for all facility components routinely containing product for underground oil storage facilities. However, the rules further provide an exemption (06-096 CMR c. 691 §5(2)(d)) for conforming suction piping.

Historically, the suction piping exemption was written and interpreted to apply to piping between the tank and the dispenser. Rules were silent regarding any piping between two tanks.

It is possible, and sometimes viewed as advantageous for business purposes, to connect piping between two tanks in a siphon arrangement. Development and increased use of dispensers that blend product have reduced the need for storage of mid-grade products but increased the need to store regular grade product. Such an arrangement also offers the flexibility of consolidating storage for two products into a larger amount of storage for one product without tank replacement while retaining the capability to return to storage of two products by removing the siphon piping.

Department review of the physics of siphon connections between tanks indicates such piping, including the small diameter tubing between the siphon piping and the submersible pump head, operate under negative pressure. This is analogous to the operation of a suction pumping system for product dispensing. A break or a hole in any part of a siphon line, therefore, would result in product flowing back to one or the other of the tanks rather than being discharged to the environment. Should a break or hole occur, the siphon system would become nonfunctional, but it would not represent a danger to public health or the environment.

While not creating direct threats to the environment from breakage, siphon systems do raise other concerns when ball float valves are used for overflow prevention. When a ball float valve is used to restrict the flow of a delivery into siphoned tanks, overflow of one of the siphoned tanks may result in pressurized flow through the siphon piping and subsequent discharge into the environment if the siphon piping is compromised.

Further, leak detection systems based on product inventory, including daily inventory with annual statistical inventory analysis as well as the use of an automatic tank gauge (ATG) become more complicated when multiple rather than single tanks or chambers are involved.

Finally, industry requested clarification of whether rules relating to corrosion protection for underground piping apply to all siphon piping, including the small diameter tubing between the siphon piping and the submersible pump head.

### Requirements for the Design and Installation of Siphon Piping Systems.

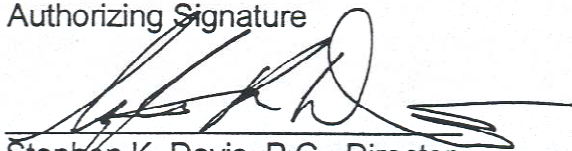
Therefore, the Department will consider siphon piping to be included as part of the rules' suction piping exemption provided such piping meets industry standards as specified in the following publication:

Petroleum Equipment Institute. 2000. *Recommended Practices for Installation of Underground Liquid Storage Systems*. PEI/RP 100-2000. Tulsa, OK.

Siphon systems shall also meet the following conditions:

1. Any and all vent restriction devices used for overflow protection (ball float valves) on any of the tanks in the siphoned systems must be completely removed and replaced with fill restriction devices or overflow alarms prior to the siphoned system going into service;
2. Automatic Tank Gauges (ATG's), as otherwise allowed for leak detection pursuant to 06-096 CMR c. 691 §5.C(2)(d) or (e), cannot be used to meet regulatory requirements for leak detection unless the ATG is certified by the manufacturer to meet the performance requirements specified in the rules when installed in the siphoned tank system OR the siphon connection is broken whenever the ATG conducts a test;
3. If daily inventory and statistical inventory analysis (SIA) is used as the leak detection method pursuant to 06-096 CMR c. 691 §5.C(2)(a), the complete siphoned system shall be treated as one (1) tank for the purposes of data analysis and the SIA system is certified for use on siphoned systems by a third party leak detection system evaluation; and
4. All piping, including small diameter tubing between the siphon piping and the submersible pump head, is subject to the corrosion protection requirements specified in 06-096 CMR c. 691 §5.B(1).

Authorizing Signature



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9/1/05  
Date