



Vaporless Manufacturing, Inc.
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Technical Bulletin 070704

Manifolded Piping Systems and Additional Leak Detection Solutions
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VMI Technical Bulletin 060200 entitled “*Mechanical Leak Detectors and Problems Associated with Manifolded Piping*” dated June 2, 2000, addresses specific problems encountered when using mechanical line leak detectors with manifolded piping systems. VMI Technical Bulletin 060700 entitled “*Manifolded Piping Systems and Leak Detection Solutions*” dated June 7, 2000, addresses one solution to these problems.

With the recent introduction of the **VMI ISM-4080** and **VMI ISM-4081** Integrated Shutdown Modules, **VMI** now has an additional, less costly, solution to manifold piping systems problems.

The **ISM-4080** and **ISM-4081** Integrated Shutdown Modules are designed to provide submersible shutdown in the event a **VMI LD-2000** or **99 LD-3000** mlld detects a catastrophic (3 GPH at 10 psi) leak. Additionally, the **ISM** is able to detect line pressure loss. If for any reason line pressure is falling, the submersible will be energized, re-pressuring the line. In this manner leaks are detected, and false alarms are eliminated.

The **ISM-4080** requires a simple wiring connection from the module to the pump relay box and shuts down the turbine when a line leak is detected by the **VMI** mlld. Shutdown function is enabled with a sensor that is installed on the leak detector. The sensor is wired to the existing sump sensor wiring and shares that wiring to inside the building. The sump wiring is disconnected from the tank monitor system and re-wired to the **ISM-4080** module. With the **ISM-4080** module, shutdown of the turbine will also de-activate the pump when the sump sensor goes to an alarm state. Wiring may be installed that allows the **ISM** to notify the tank monitor system of turbine and sump alarms.

If a single wall piping system exists on the manifold system, a direct burial cable could be used to wire the leak detector sensor inside the building to the location of the **ISM** module. The sensor wire may not be in the same conduit as high power AC or DC wire.

The **ISM-4081** module allows an alarm only state (no shut-down of the submersible) if the sump sensor is activated. The **ISM-4081** will shut down the submersible if the leak detector senses a leak.

In a pumping system that is manifolded, an **ISM-4080** or **ISM-4081** module is in the control room for each submersible. The modules are wired together with two wires going from module to module and the submersibles are designated as to lead and lag submersibles.

When dispenser authorization occurs the lead submersible will start. The **ISM** will check the status of the line pressure associated with the leak detector on the lead submersible. When the leak detector is at full flow (pass of catastrophic line leak), lag turbines will be activated in five-second intervals. If the leak detector on the lead submersible does detect a leak, the lead submersible will be shut down and the lag submersible(s) will be prevented from starting.

Note: Any number of turbines may be run in series this way.

The ISM-4080 and ISM-4081 is third party certified and listed by the National Work Group.

For further information on these products call 1-800-367-0185 or visit our web site at www.vaporless.com.