SECONDARY CONTAINMENT WITH INTERSTITIAL MONITORING (TANKS AND PIPING)

The following handout provides information on the methods of interstitial monitoring available as leak detection for double-walled underground storage tank systems (tanks and piping), and a log sheet on which to record your monthly leak checks. When installed and operated according to manufacturer's specifications, secondary containment with interstitial monitoring meets the federal and state leak detection requirements for underground storage tanks (USTs) and piping.

Monitoring of the space between the inner and outer tank (interstice) or between piping walls is performed at least once a month in order to alert the operator of a possible leak. Interstitial monitoring methods range from a simple dip stick or visual inspection to check for the presence of fuel or water within the normally dry interstitial space, to a continuous electronic vapor or liquid sensor permanently installed between the walls that activates an alarm when a leak is detected. Following is a brief summary of the different monitoring methods.

Manual Testing: A gauge stick is inserted in a monitoring port that extends into the interstitial space and is visually inspected for evidence of leaked product from the inner tank or piping, or groundwater infiltration from a breach in the outer tank or piping. Petroleum detecting paste may be placed on the end of the gauge stick to help identify leaking product. Double-walled piping systems typically slope or drain back to one or a series of containment sumps which can be visually inspected for product.

Pressure or Vacuum Sensor: The interstitial space of a double-walled tank is placed under pressure or vacuum and leaks are identified by pressure changes that occur when the inner or outer tank wall is compromised. Detection devices can consist of a pressure or vacuum gauge which is visually inspected once a month, or automated systems that trigger an alarm when a change in pressure is detected.

Vapor Sensor: The interstitial space between tanks or piping is monitored continuously for the presence of petroleum vapors with automated equipment which triggers an alarm in the presence of petroleum fumes. The monitoring port may also be checked once a month for petroleum vapors with a portable field instrument.

Hydrostatic Sensor: A low freezing point fluid that completely fills the interstitial space of a double-walled tank is monitored continuously with a float for a change in the fluid level. Groundwater entry from a breach in the outer wall will set off a high level alarm. Loss of the interstitial fluid through a breach in the inner or outer wall will set off the low level alarm.

Fluid Sensor: Fluid sensing systems are used to detect petroleum or groundwater in the normally dry interstitial space of double-walled tanks or piping. An alarm is activated if liquid is detected.

Electrical Conductivity: Leaked product from the inner piping or tank wall alters the resistance of sensing wires within the interstitial space which in turn activates an alarm.

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY

Regulatory Agency

North Dakota Department of Environmental Quality
Division of Waste Management
Underground Storage Tank Program
4201 Normandy Street, 2nd Floor
Bismarck, ND 58503-1324
Phone: 701.328.5166
Fax: 701.328.5200
Website: https://deq.nd.gov/wm/UndergroundStorageTankProgram/