

LEAK DETECTION

INTERSTITIAL MONITORING

What is Interstitial Monitoring?

- A monthly Monitoring Method for double walled and integral secondary containment tanks and piping systems.
- A method that detects a leak before it becomes a release into the environment (subsurface soils, or the ground water).
- A **Required** method for all hazardous substance storage tank systems.

How does this method work?

- By monitoring the space between the inner and the outer walls of tanks or piping systems, at least once every month.
- This includes the sumps of double wall piping system, and the vertical pipe to the interstitial space of a double wall tank, where such a pipe is provided.

How is the monitoring done?

- By visual and olfactory inspections of sumps and by using the dip-stick with a product finding paste or water finding paste.
- By monitoring a change in the level of brine in the space between the two walls of FRP tanks when brine is used.
- By electronic sensors placed in the sumps and between the two walls of the tank.
- By pressure balancing methods when used.

What is manual monitoring?

- Manual monitoring is the process of inspecting the sumps for evidence of product released from the inner wall of the piping.
- Manual monitoring also includes lowering a dip-stick with product finding paste and water finding paste into the stand-pipe of a double wall tank.
- Making a signed and dated entry into a log sheet that this was done and that no liquid was found, or reporting a suspected or confirmed release when liquid is found in the interstitial space.
- The tank must be repaired when either wall leaks.

What is liquid monitoring?

- Liquid monitoring is observing the level of a liquid, such as brine between the two walls of fiberglass double wall tanks, to see if there has been a loss. A loss implies that there is a hole in either of the walls of the tank.
- The monitoring is usually done through an electronic monitor.

What about Pressure?

- Positive or negative pressure (vacuum) on the interstitial space can be used to monitor double walled tanks or piping. This method is more suited for testing than monthly monitoring.
- Air is not allowed for testing of systems that contain flammable or combustible liquids or vapors. Inert gases such as nitrogen or carbon dioxide can be used.

Would Vapor monitoring be acceptable?

- Yes! Vapor monitoring can be used as a means of monitoring the interstitial space. However, this method is only suited for tanks and not suited for piping systems.
- Vapor monitoring can be done by a portable device or a continuous vapor monitor.
- Monthly checking for water will also be required in secondary containment zones that have a high water table or another means for testing the outer wall.

What about Sensors?

- Many types of sensors are available for use in monitoring the interstitial space.
- Point and cable sensors can be used.
- Sensors are available that can detect only water, only petroleum products, or they can detect both water and petroleum products.
- Sensors can be discriminating, i.e. identify the liquid to be water or the petroleum product. differently. Or they can be non-discriminating, i.e. can't tell the difference between water or gasoline.

What types of sensors are acceptable?

- Sensors are required to be capable of detecting the stored liquid and water.
- They are required to be capable of triggering an alarm.
- They are required to disable the dispensing operation when they alarm.

Interstitial Monitoring does not apply when:

- The storage system is not double walled or is not an integral secondary containment system.
- The piping system is not sloped adequately toward the sump where the sensor is installed; Except, when a cable sensor is used.

Interstitial Monitoring is always required:

- For hazardous substance storage tank systems.
- In the secondary containment zones of drinking water wells and surface water intake zones.
- In wellhead protection and environmentally sensitive areas.

JUST REMEMBER THAT INTERSTITIAL MONITORING:

- IS A MONTHLY MONITORING METHOD FOR DOUBLE WALL TANKS AND/OR DOUBLE WALL PIPING SYSTEMS.
- IS A METHOD THAT DETECTS LEAKS BEFORE THEY BECOME A RELEASE.
- IS REQUIRED FOR HAZARDOUS SUBSTANCE TANKS AND IN SECONDARY CONTAINMENT ZONES.

PLEASE KEEP IN MIND

- INTERSTITIAL MONITORING CAN BE MANUAL OR ELECTRONIC.
- MONITORING IS EITHER CONTINUOUS OR INTERMITTENT.
- ELECTRONIC SENSORS MUST BE CAPABLE OF DETECTING THE PRODUCT STORED AND WATER.
- ALL SENSORS MUST BE REPLACED WHEN THEY ALARM.

MANUAL INTERSTITIAL MONITORING

- YOU OR YOUR DESIGNATED EMPLOYEE MUST CHECK ALL SUMPS FOR EVIDENCE OF A LEAK FROM THE PRIMARY TANK OR PIPING SYSTEM INTO THE INTERSTITIAL SPACE. AT LEAST ONCE A MONTH. VISUAL OR OLPHACTORY EVIDENCE OF PRODUCT AND WATER DETECTING PASTE ON A DIPSTICK.

AUTOMATIC MONITORING METHODS

- PRESSURE OR VACUUM APPLIED TO THE INTERSTITIAL SPACE ONCE A MONTH.
- BRINE OR ANOTHER ENVIRONMENTALLY FRIENDLY LIQUID IN THE INTERSTITIAL SPACE AND MONITORED FOR ANY POSSIBLE LOSS AT LEAST ONCE A MONTH.
- AN ELECTRONIC SENSOR THAT SOUNDS AN ALARM WHEN THE STORED PRODUCT OR WATER IS PRESENT IN THE INTERSTICE, AND STOPS THE DISPENSING PROCESS.

INTERSTITIAL MONITORING DOES NOT APPLY WHEN:

- YOUR STORAGE SYSTEM IS NOT DOUBLE WALLED. OR
- THE SECONDARY CONTAINMENT DOES NOT PROVIDE LIQUID FLOW TO THE SUMP OR SENSOR. OR
- THE INTERSTITIAL SPACE DOES NOT CONTAIN THE ENTIRE PRIMARY TANK OR PRIMARY PIPING.

INTERSTITIAL MONITORING IS ALWAYS REQUIRED:

- ON STORAGE TANK SYSTEMS FOR HAZARDOUS SUBSTANCES
- IN SECONDARY CONTAINMENT ZONES.
- IN WELLHEAD PROTECTION AREAS.