Interstitial Monitoring in the NJ UST Rule

N.J.A.C. 7:14B

Interstitial monitoring is expressly mandated in New Jersey in two instances. First, in any system installed on or after September 4, 1990 contained within a wellhead protection area, as noted in 4.1(b):

> *(b) All underground storage tank systems installed on or after September 4, 1990, within wellhead protection areas as defined in N.J.A.C. 7:14B-1.6 shall be secondarily contained and monitored in accordance with the requirements of N.J.A.C. 7:14B-6.4(a)2.*

6.4(a)2 states:

> *2. Release detection at underground storage tank systems installed on or after September 4, 1990, shall have secondary containment which are designed, constructed, and installed in accordance with N.J.A.C. 7:14B-6.3(a)2.*

In addition to wellhead protection areas, the updated federal regulations of 40 CFR 280 require secondary containment and interstitial monitoring for new systems installed on or after April 11, 2016. NJ conformed with this requirement in the revision promulgated January 16, 2018. 4.1(a)1v states:

> *v. Except as set forth in (a)1v(1) below, each tank for which installation begins on or after April 11, 2016, shall be designed and constructed with secondary containment and interstitial monitoring in accordance with N.J.A.C. 7:14B-6.5(a)7, such that in the event of a primary containment breach the secondary containment shall contain regulated substances until they are detected and removed. Secondary containment shall prevent the release of regulated substances to the environment at all times during the operational life of the tank.*
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> *(1) The provisions of (a)1v above shall apply to a regulated heating oil tank system for which installation begins on or after July 15, 2018.*

Note the difference in date for state regulated heating oil tank systems in 4.1(a)1v(1).

Additionally, where owners/operators have chosen to perform interstitial monitoring, they are required to continue to do so. 4.1(a)1vi:

> *vi. For each tank installed prior to January 16, 2018, that has secondary containment and is performing interstitial monitoring as of January 16, 2018, shall maintain interstitial monitoring at all times during the operational life of the tank.*

Further, since the initial adoption of the NJ UST rule in 1990, owners and operators have been able to exempt themselves from applying for an NJDEP installation permit by utilizing secondary containment and interstitial monitoring.

10.1(b) continues to exempt these installations from permitting, but now requires a 14-day notice email:

> *(b) An owner and operator of an existing or proposed underground storage tank system need not apply for a permit with the Department, but shall provide notification pursuant to N.J.A.C. 7:14B-10.1A, when:*
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> *1. The underground storage tank and piping being installed, upgraded or modified is or shall be upon completion of installation or modification protected from corrosion, spills and overfills in accordance with N.J.A.C. 7:14B-4.1(a) or 4.2 and is secondarily contained and interstitially monitored in accordance with N.J.A.C. 7:14B-6.4(a)2;*

Facilities that installed UST systems between 1990 and April 2016 that did not submit a permit application prior to installation under this provision, must maintain their systems in compliance with the stated requirements, unless a permit for substantial modification had been submitted to and approved by the Department.

Under Dispenser Containment:

The EPA UST Rule of 2015 and the NJ UST Rule of 2018 include the requirement for under dispense containment (UDC) to be installed as part of the secondary containment system. Also, many facilities have proactively included UDC as part of system upgrades prior to the requirement. The most recent UST rules also included the requirement for testing of containment sumps, used for interstitial monitoring, (see below) at installation and every three (3) years unless the containment itself is double wall and monitored via pressure, vacuum, or liquid in 5.11(a)1:

> *1. Each containment device shall be tested at least once every three years, or within 30 days of discontinuing monitoring described in (a)2 below, to ensure the equipment is liquid tight by using a vacuum, pressure, or liquid testing method, in accordance with one of the following:*

Since this new requirement was enacted, there has been some confusion nationally about what containment vessels must be tested and where interstitial monitoring is required. EPA's memo to NJ of October 19, 2018 stated:

> *All piping that routinely contains product in an UST system must have release detection, including single wall piping of any length in a UDC. Single walled piping in the UDC uses the UDC as secondary containment and interstitial monitoring of the UDC to meet the release detection requirement. Therefore, because the UDC is used for interstitial monitoring of the piping, the owner or operator must test the integrity of that UDC at least once every three years to ensure it is liquid tight.*

Given the federal regulation and NJ's own state provisions regarding interstitial monitoring outlined above, many facilities are required to perform interstitial monitoring of the piping in their UDC. In discussions with USEPA, FMA, PECA, and NJGCA during the last several months, the Department has concluded the following are acceptable scenarios for these facilities:

- **For facilities with entry/test boots closing the outer wall of the double wall piping to the UDC:** liquid sensors or shut off devices are required. UDC must be tested at least every 3 years. The sensors can be wired to a panel or be of the stand-alone variety. A device that shuts down the dispenser in the event of a leak is also acceptable. This equipment, since it is part of the monitoring system, is required to be tested annually for functionality pursuant to 6.1(h).
- **For facilities with an open outer wall to the UDC where a leak will be detected by the sensor at the bottom of the piping run within 30 days:** either sensors, shut off devices, or a 30 day inspection log are required. UDC must be tested at least once every 3 years. Equipment is part of the monitoring system and must be tested annually pursuant to 6.1(h). 30 day inspections will also be considered part of the required monitoring for the regulated piping in the UDC.
- **For facilities with an open outer wall to the UDC, but a leak will not be detected within 30 days:** see options for closed entry/test boots.
- **For facilities with an outer wall of piping or booted up to the shear valve but open in the STP/piping sump where a sensor is present:** UDC is not required to be tested or monitored.
- **For facilities with European "safe" suction piping:** monitoring is not required. Therefore, containment testing is not required by federal or NJ state regulation.

What IS interstitial monitoring according to the NJ UST rule? It is defined in 6.5(a)7:

> *7. Interstitial monitoring between the underground storage tank system and a secondary barrier immediately around or beneath it may be used, but only if the monitoring system is designed, constructed, and installed to detect a leak from any portion of the tank and/or piping that routinely contains product and also meets one of the following requirements:*
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> *i. For double walled underground storage tank systems, the sampling or testing method shall detect a leak through the inner wall in any portion of the tank and/or piping that routinely contains product;*
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> *ii. For underground storage tank systems with a secondary barrier within the excavation zone, the sampling or testing method used shall detect a leak between the underground storage tank system and the secondary barrier. The secondary barrier shall meet the following requirements:*

(1) The secondary barrier shall consist of artificially constructed material that is sufficiently thick and impermeable (at least 10-6 cm/sec for the regulated substance stored) to direct a leak to the monitoring point and permit its detection;

(2) The secondary barrier shall be compatible with the regulated substance stored so that a leak from the underground storage tank system shall not cause a deterioration of the barrier allowing a release to pass through undetected;

(3) For cathodically protected underground storage tank systems, the secondary barrier shall be installed so that it does not interfere with the proper operation of the cathodic protection system;

(4) The ground water, soil moisture, or rainfall shall not render the testing or sampling method used inoperative so that a release could go undetected for more than 30 calendar days;

(5) The site shall be assessed to ensure that the secondary barrier is always above the ground water and not in a 25-year flood plain, unless the barrier and monitoring designs are for use under such conditions; and

(6) Monitoring wells shall be clearly marked and secured to avoid unauthorized access and tampering; or

iii. For tanks with an internally fitted liner, an automated device shall detect a leak between the inner wall of the tank and the liner, and the liner shall be compatible with the substance stored.