Vapor Monitoring

When installed and operated properly, vapor monitoring meets the North Dakota leak detection requirements for underground storage tanks and piping. Vapor monitoring uses strategically placed monitoring wells in the backfill or surrounding soil around the tanks and piping to measure for the presence of petroleum fumes which may indicate a leak. The state regulations also recognize sampling for tracer compounds introduced into the UST system.

How does the vapor monitoring work?

- Vapor monitoring senses or measures fumes from leaked product in the soil around the tank.

- Tracer compound analysis samples for the presence of a tracer compound outside the UST system that was introduced into the tank and underground piping. Tracer compound analysis requires the installation of monitoring wells/sampling points strategically placed in the tank backfill or along pipe runs to intercept special chemicals that, in the event of a leak, are picked up at the sampling points.

- Monitoring can be performed manually every 30 days with a portable field instrument or with permanently installed equipment which automatically and continuously monitors soil gas vapors and responds with a visual or audible alarm when a release is detected.

What are the regulatory requirements for vapor monitoring?

- The UST backfill must be sand, gravel or another material that will allow the petroleum vapors or tracer compound to easily move to the monitor.
- The backfill should be clean enough that previous contamination does not interfere with the detection of a current leak.
- The substance stored in the UST must vaporize easily so that the vapor monitor can detect a release. Vapor monitoring systems do not work well with diesel fuel.
- High groundwater, excessive rain, or other sources of moisture must not interfere with the operation of vapor monitoring for more than 30 consecutive days.
- Monitoring wells must be secured and clearly marked.
- Monitoring must be performed at least ***every 30 days***.
- A written log must be kept documenting the monitoring results.
- The most recent 12 months of monitoring records must be maintained on file.
- All vapor monitoring devices should be periodically calibrated according to the manufacturer's instructions to ensure they are properly responding.

What are the regulatory requirements for vapor monitoring?

- All release detection equipment needs to be tested and inspected every year.
    - If you use permanently installed electronic equipment for vapor monitoring, at a minimum, test the alarm, battery backup and verify the system configuration. For probes and sensors, you must inspect for residual buildup, ensure floats move freely, ensure the shaft is not damaged, ensure cables are free of kinds and breaks, and test alarm operability and communication with controller.
    - All hand-held equipment must be checked for functionality and operability.
- Keep results of your 30-day release detection tests for at least one year. Your monitoring equipment may provide printouts that can be used as records.
- Keep results for your annual release detection system operation tests for at least three years.
- Keep all records of calibration, maintenance, and repair of your release detection equipment for at least one year.
- Keep any schedules of required calibration and maintenance provided by the release detection equipment manufacturer for at least five years from the date of installation.
- Keep all performance claims supplied by the installer, vendor, or manufacturer for at least five years.

Will vapor monitoring work at your site?

Although this type of leak detection is allowed in North Dakota, vapor monitoring is not the best method to detect releases in USTs because it only detects releases after petroleum has impacted the environment.

Before installing a vapor monitoring system, a site assessment must be performed to determine whether vapor monitoring is appropriate at the site. A site assessment usually includes at least a determination of the groundwater level, background contamination, stored product type, and soil type. You must maintain a site assessment for as long as vapor monitoring is used for release detection at your facility. Site assessments completed after April 1, 2018 must be signed by a licensed professional.

The number and placement of vapor monitoring wells for UST systems is site specific and depends on the size, number and location of the tanks and piping at the site. Generally one well per 20 to 40 feet surrounding tanks and piping is sufficient if the monitoring well is installed in the backfill surrounding the tank system. In all cases the Department should be consulted when determining the correct number and placement of vapor monitoring wells.

What to do if vapor monitoring detects a release?

- Contact a service technician **immediately** to determine the source of the release.
- Empty the product from the identified leaking tank and/or stop using the grade of fuel that is associated with the identified piping release.
- **Report the confirmed fuel release to the North Dakota Department of Environmental Quality at 701-328-5166.**