

When installed and operated properly, groundwater monitoring meets the North Dakota leak detection requirements for underground storage tanks and piping. Groundwater monitoring uses strategically placed monitoring wells in the backfill or surrounding soil around the tanks and piping to measure for the presence of petroleum in the groundwater which may indicate a leak. To discover if leaked product has reached groundwater, these wells must be checked monthly by hand or continuously with permanently installed equipment.

## ***Groundwater Monitoring***

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### **How does the groundwater monitoring work?**

- Groundwater monitoring involves the use of permanent monitoring wells placed close to the UST. The wells are checked at least monthly for the presence of product that has leaked from the UST and is floating on the groundwater surface.
- The two main components of a groundwater monitoring system are the monitoring well (typically a well of 2-4 inches in diameter) and the monitoring device.
- Detection devices may be permanently installed in the well for automatic, continuous measurements for leaked product.
- Detection devices are also available in manual form. Manual devices range from a bailer (used to collect a liquid sample for visual inspection) to a device that can be inserted into the well to electronically indicate the presence of leaked product. Manual devices must be used at least once a month.

## ***Regulatory Requirements***

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### ***What are the regulatory requirements for groundwater monitoring?***

- Groundwater monitoring can only be used if the stored substance does not easily mix with water and floats on top of water.
- If groundwater monitoring is to be the sole method of leak detection, the groundwater must not be more than 20 feet below the surface, and the soil between the well and the UST must be sand, gravel or other coarse materials.
- Product detection devices must be able to detect 1/8 inch or less of leaked product on top of the groundwater.
- Monitoring wells must be properly designed and sealed to keep them from becoming contaminated from outside sources. The wells must also be clearly marked and secured.
- Wells should be strategically placed in the UST backfill so that they can detect a leak as quickly as possible.
- Monitoring must be done at least ***once a month***.
- A written log must be kept documenting the MONTHLY monitoring results.
- At a minimum, the most recent 12 months of monitoring records must be maintained on file.

## ***Regulatory Requirements***

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### **Will groundwater monitoring work at your site?**

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

Before installing a groundwater monitoring system, a site assessment must be done to determine whether groundwater 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. This assessment can only be done by a trained professional.

The number and placement of groundwater 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 groundwater monitoring wells.

## ***Regulatory Requirements***

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### **What to do if groundwater monitoring detects a leak?**

- Contact a service technician **immediately** to determine the source of the leak.
- Empty the product from the identified leaking tank and/or stop using the grade of fuel that is associated with the identified piping leak.
- **Report the confirmed fuel leak to the North Dakota Department of Health at 701.328.5166.**