

Aboveground Storage Tank: ISCO Technology



ISCO Technology

Norfolk Ram Group, LLC (Norfolk) was retained by the client to address contamination from an aboveground storage tank (AST), which leaked approximately 160-gallons of home heating oil into the soil. The AST was located at the rear of the home, and the property consisted of a slab-on-grade ranch style home with no crawl space underneath the structure. Groundwater is located approximately 3-feet below the ground's surface, and the property is located within a GW-1 (drinking water) protected aquifer. The client required treatment of oil-contaminated soils located beneath the home.

Site assessment by Norfolk determined that the fuel oil had migrated on the groundwater located below the house, and was moving towards the wetlands located adjacent to the property. Access to the soil and groundwater below the house was restricted, due to the slab-on-grade construction style of the home. Norfolk was retained to design a treatment system to be utilized to remediate soil and groundwater located beneath the house using *In-Situ* Chemical Oxidation (ISCO) technology. Norfolk designed and installed a series of pressure injection wells, which were utilized to inject catalyzed 35% hydrogen peroxide below the house, in order to treat the petroleum-contaminated soil and groundwater. The ISCO treatments consisted of injecting catalyzed hydrogen peroxide into the injection wells at low to moderate pressures, in order to ensure the even distribution and saturation of the petroleum-impacted area. The injection wells were installed every four feet horizontally below the house, and approximately 1.5 feet above the water table in the smear zone.

Scope of Services

In an effort to provide ISCO technology services for the client, Norfolk performed the following tasks:

- An injection system was designed, in order to treat the soil and groundwater contamination located below the slab-on-grade house. Horizontal injection wells were installed in accordance with Norfolk's design.
- Norfolk constructed an ISCO delivery system for the low to moderate pressure application of ISCO, where a gravity feed application would not be feasible.
- Catalyzed hydrogen peroxide was applied to the injection wells under low to moderate pressure, in order to facilitate an even distribution of the remedial additive, as well as to ensure the saturation of the impacted area.
- Six (6) treatments were provided, in order to achieve remedial goals for closure of the site to residential cleanup standards.