

HYDROGEOLOGIC INVESTIGATION

Overburden and Bedrock Site Characterization

R.E.A. was contacted following the discovery of a fuel oil release during the construction of a new house in Central Vermont. Fuel oil was discovered in the on-site supply well and in the interior plumbing system of the house. **R.E.A.** was able to trace the source of the release to a fuel line that was broken during excavation for a deck footing. During the course of the initial investigation it was noted that bedrock had been blasted to accommodate installation of the building foundation.



Figure 1. Impacted supply well located over 200 feet from the release area.

A fracture trace analysis of the bedrock formation revealed an east-west trending fracture zone that was enhanced by the blasting required for the foundation. This data was used to design an effective remediation system and select another on-site location for a new drinking water supply well.



Figure 2. Subsurface Investigation using Track-Rig



Figure 3 Bedrock Core Samples

Due to the complexity of the site conditions, **R.E.A.** employed a multifaceted approach, which included: an assessment of residual contamination within the interior plumbing of the house, a vapor intrusion survey, a subsurface investigation involving bedrock coring and fracture trace analyses, removal of petroleum contaminated soil from the source area, use of the existing sub-slab radon piping to mitigate vapor intrusion, installation of an oxygen injection system to remediate contamination within the shallow bedrock formation, and selecting a location for a new on-site drinking water supply well.

Key Services:

- Vapor intrusion eliminated using the existing radon piping system;
- Used fracture trace analyses to located a new on-site drinking water supply well;
- Interior plumbing system replaced to eliminate residual contamination;
- Oxygen injection used successfully to remediate dissolved-phase contamination within the shallow bedrock formation;
- Received site closure letter from the VT DEC.

