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VOC Contaminants Reduced in One Month for Homeowners in Virginia Following Retro-Coat Installation

Project Highlights

- VOCs reduced within one month of operation
- Achieved site goals of meeting VDEQ and DEH IAQ standards and rendering home safe for habitation

Project Summary

At a residential site in Virginia, vapor intrusion affected the interior living space of a private building due to release of heating oil from an Above Ground Storage Tank (AST) to the sub-slab environment beneath the structure. Indoor air quality sampling after the release revealed several petroleum compound contaminants at concentrations above EPA Residential Screening Levels.

To minimize the displacement of the homeowners for an extended period of time, the vapor intrusion mitigation system had to produce good indoor air quality results as quickly as possible. Leading environmental firm, Duncklee & Dunham, designed and installed an active, sub-slab vapor mitigation system and sealed the surface of the slab in the interior of the building with 1000 sq. ft. of Retro-Coat™ applied. The active system consisted of vertical vent wells installed in the building slab to a depth just below the bottom of the slab and connected to a manifold. Soil vapors were extracted from the sub-slab environment with an electric radon fan and exhausted to the exterior atmosphere. Retro-Coat primer and sealant were then applied to the entire surface area of the interior building slab to provide supplemental vapor intrusion prevention.

DUNCKLEE & DUNHAM
ENVIRONMENTAL GEOLOGISTS & ENGINEERS

Site Details

Site Type: Residential
Contaminant of Concern: Petroleum Hydrocarbons (BTEX, TPHg, TPHd) & PAHs (naphthalene)
Remediation Approach: Vapor Mitigation System

Retro-Coat™
Vapor Intrusion Coating

Technology

The Retro-Coat Vapor Intrusion Coating System is a complete product line that consists of chemically resistant materials to properly protect existing structures from the threat of contaminant vapor intrusion.

Results

The vapor mitigation system reduced VOCs in the exhaust gas within one month of operation, and reduced levels of petroleum compounds in indoor air to the extent that the building was suitable for occupancy six weeks after the system startup.

About the Consultant

Duncklee & Dunham is an environmental consulting firm based in North Carolina specializing in environmental geology, hydrogeology, site investigation and remediation, industrial hygiene, civil engineering and brownfields. For questions regarding this project, please contact Andrew Rodak, P.E. at (919) 858-9898.