

Guidance for Residential Underground Home Heating Oil Tank Releases

When it has been determined that an underground residential home heating oil tank or connected piping has leaked, the underground tank and/or piping should be excavated and disposed of. DEEP recommends that the following actions be taken to address oil polluted soil or ground water.

What Should Be Removed

The underground tank and/or any underground piping should be excavated and properly disposed of. If the tank is not underground but the piping from the tank to the oil burner runs underground (a common configuration), the piping should be excavated and disposed of. When removing the tank and/or piping, any petroleum saturated or stained soil should also be removed to the maximum extent practical. If in the course of excavating, it is determined that liquid oil (free product) is present (floating) on the water table all such floating product should be removed to the maximum extent practical. Any free product that collects in drains around the house or discharges to surface water bodies must be removed as well. In such cases, the release is required to be reported to the DEEP.

Extent of Soil Excavation

To evaluate the concentration of fuel oil that may remain following excavation, soil samples should be collected by the tank removal contractor or environmental professional. The soil samples should be collected at the base of the excavation and from the sides of the excavation. Samples should be collected using a backhoe bucket or soil auger when direct access to the sampling location (sidewall or bottom) is not safe. The CT DEEP does not endorse unsafe work practices. Please contact the Connecticut Occupational Safe and Health Administration (Conn OSHA) for assistance with safe work practices.

The soil samples should be tested for heating oil by an environmental laboratory using the Reasonable Confidence Protocol (RCP) for Extractable Petroleum Hydrocarbons (EPH RCP). The EPH RCP will provide analytical data of known quality. The laboratory must be certified by the Connecticut Department of Public Health and approved for this analysis. Because the soil samples are intended to evaluate the most contaminated soil, the samples should be collected from locations and depths most likely to be contaminated, based on the location and depth of the fuel oil release, and field observations such as stained soil. In an effort to help bring about the end of Freon use in Connecticut, soil samples should not be tested for heating oil using the EPA Method 418.1.

If the reported Total Petroleum Hydrocarbon (TPH) concentrations exceed 500 mg/kg (parts per million or part per million), additional soil should be removed and additional soil testing should be conducted to document TPH concentrations remaining on the walls and base of the excavation. The laboratory report and included narrative should be reviewed by the tank removal contractor or environmental professional to determine if

the quality of the analytical data is sufficient for the intended purpose using CT DEEP analytical data quality assessment and usability guidance.

Exceptions To Soil Excavation

If such excavation would compromise the safety of a building, it may not be possible to excavate TPH contaminated soil from under or very near the building. If the contamination is not very severe (e.g. soil saturated with oil), it may not be necessary to excavate contaminated soil where the excavation would damage permanent features such as mature trees or stone fences since remediation of TPH contaminated soil in such areas can be accomplished through natural attenuation. Natural attenuation occurs when chemical, physical, and microbial decay processes naturally remediate the TPH polluted soil over time. Natural attenuation will reduce the concentration of TPH to acceptable levels over time. In addition, excavation of soil with TPH concentrations just slightly greater than 500 ppm TPH is not necessary.

Vapor Intrusion / Soil Venting

If it is impractical to remove TPH contamination detected above 500 ppm because it is under a building and objectionable odors occur within the building, passive venting that uses perforated plastic piping in a stone-lined trench or excavation can be used to eliminate or reduce the odor problem. If there is no noticeable petroleum odor in a building, neither passive nor active soil venting systems may be necessary.

Drinking Water Well / Groundwater Sampling

If a drinking water well is located on the property with the leaking residential underground storage tank or on any immediately adjacent property, call the Remediation Program District Supervisor for advice on appropriate sampling and remedial action procedures. In areas where ground water is not used for drinking water purposes, ground water samples do not need to be collected from an excavation or a monitoring well, provided that any floating product has been removed.

Documentation

Homeowners should ensure that any actions taken to address leaking residential fuel oil tanks are well documented. In particular, all sampling locations should be marked on a map or diagram of the excavation area, and all analytical results should be included in the documentation. Homeowners should retain this information with their other important property related documents as questions regarding contamination from heating oil USTs frequently come up during property transfers.

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