

Green Remediation Focus

Minimizing the environmental footprint of site cleanup

A Profile in Using Green Remediation Strategies

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Delfasco Forge
Grand Prairie, Texas

Superfund, NPL

Cleanup Objectives: Mitigate offsite trichloroethene (TCE) vapor migrating through soil into indoor air of residential properties from a contaminated ground water plume that resulted from the site's past use as a munitions manufacturing and forge operation since the 1950s.

Green Remediation Strategy: Employ onsite sampling and analytical techniques during site investigations, and use renewable energy to power exhaust systems addressing TCE vapor intrusion.

- Deployed EPA's mobile laboratory to collect and analyze soil and air samples in the vicinity of over 80 homes and private properties overlying the estimated groundwater plume.
- Conducted passive air sampling within a targeted four-block area to further define the plume.
- Installed an exhaust system consisting of a conventional 6-inch fan, operating at a rate of 200 cubic feet per minute, in the crawl space of buildings with TCE concentrations above the 14 µg/m³ action level.
- Connected each exhaust system through exterior-wall wiring to a 10- by 16-inch 10-watt solar panel mounted on the building's roof.
- Made available to each building owner a 24-volt battery with a lifespan of 5-7 years to ensure continuous operation of the exhaust system.

Results:

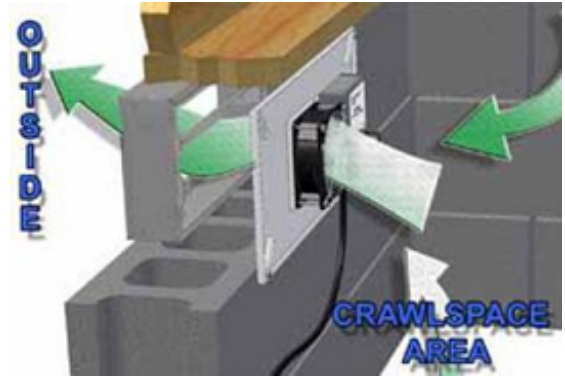
- Reduced materials, time, and costs associated with offsite laboratory analysis of soil and air samples, through onsite use of equipment such as a trace atmospheric gas analyzer and summa-type canisters.
- Employed passive air sampling techniques providing continuous, real-time analytical results that optimize field decisions regarding locations for follow-on sampling.
- Installed each exhaust system within two days, including less than one hour for the solar equipment.
- Incurred equipment costs of only \$200 for the fan and solar panel, plus \$50 for the battery, needed for each building.
- Achieved an immediate 95% reduction in TCE vapor in each building's interior following exhaust system.
- Avoided a building owner burden estimated at \$96 each year for electricity to power the exhaust system, through use of solar energy.
- Mitigating offsite vapor intrusion until the contaminated ground water plume at Delfasco Forge is successfully treated through technologies such as soil vapor extraction.

Property End Use: Continued occupancy of nearby buildings, while onsite Superfund cleanup progresses

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The trace atmospheric gas analyzer (TAGA) van is a self-contained mobile laboratory with specialized sampling equipment for measuring indoor air. TAGA equipment can provide analytical results for concentrations reaching the low parts per billion.



Most homes near the Delfasco Forge site are "pier and beam" structures with underlying crawl spaces where exhaust systems can easily be installed.



Each crawl space exhaust system vents to the building's exterior at ground level.



Each solar panel is installed at a 25-50° tilt with unobstructed southern exposure to the sun.

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Delfasco Forge

<http://clu-in.org/greenremediation/profiles/delfascoforge>



United States Environmental Protection Agency
Office of Solid Waste and Emergency Response (5202P)

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