

# Green Remediation Focus

Minimizing the environmental footprint of site cleanup

## A Profile in Using Green Remediation Strategies

Additional profiles available at [www.clu-in.org/greenremediation](http://www.clu-in.org/greenremediation)

**Paducah Gaseous Diffusion Plant**  
Paducah, KY

**Federal Facility**  
Superfund NPL

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**Cleanup Objectives:** Characterize and remediate soil contaminated with uranium and polychlorinated biphenyls (PCBs) at the site's area of concern (AOC) 492

**Green Remediation Strategy:**

- Used the Triad approach to integrate site characterization, remedial activities, and cleanup verification in a 7,000 foot<sup>2</sup> area with suspected uranium and PCB contamination
- Convened federal and state agencies to develop a conceptual site model and dynamic work plan prior to beginning any field work
- Used investigative tools requiring no soil disturbance, including laser-based gamma "walkover" surveys (GWS) and x-ray fluorescence (XRF) with in situ gamma spectroscopy (ISGS)
- Used field techniques involving few analytical samples and minimal sampling waste, including PCB immunoassay kits, multi-increment sampling, and adaptive compositing
- Relied on real-time data for decisionmaking in the field

**Results:**

- Integrated field information involving 24,000 GWS data points, hundreds of XRF measurements, and nearly 400 surface soil increments, which resulted in a need for laboratory confirmation on only 23 samples instead of an estimated 300 samples involved in a traditional field approach
- Minimized generation of sampling waste through use of state-of-the-art tools and dynamic work planning
- Surgically excavated 13 meter<sup>3</sup> of uranium-contaminated soil comprising the contaminant "hotspot," and disposed the material at an off-site facility
- Completed investigatory, removal, and verification activities in a single 10-day field mobilization, resulting in less dust generation, fuel consumption, and site disturbance
- Saved significant time and costs in reaching cleanup closure when compared to traditional, static work plans involving multiple field mobilizations, reiterative activities, and significantly more sample analysis performed by an offsite, fixed laboratory

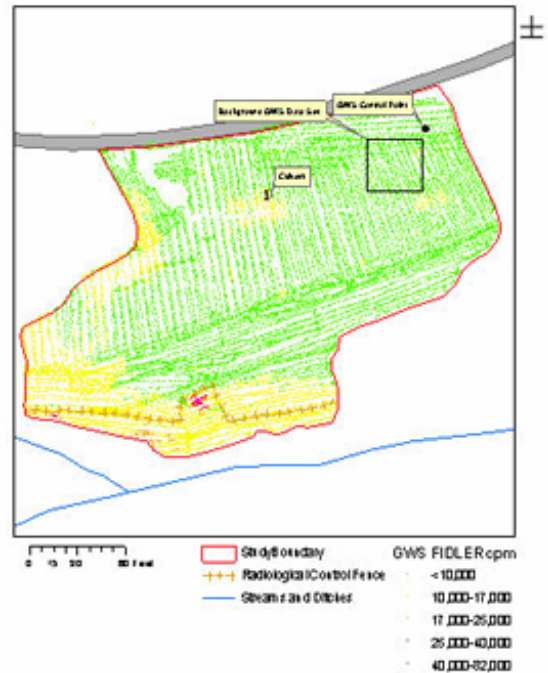
**Anticipated Property Use:** Ongoing uranium enrichment activities conducted by the U.S. Department of Energy (DOE)

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GWS measurements provided high-density spatial resolution regarding the presence or absence of uranium contamination.



Data compiled through gamma walkover surveys identified a single uranium hotspot, confirming historical indication of uranium concentrations reaching 1,150 parts per million in AOC 492 surface soil.



Locations for XRF and ISGS sampling and analysis were selected on the basis of initial GWS results. In turn, XRF/ISGS data then were integrated with GWS data to determine the spatial distribution of contamination.

### Paducah Gaseous Diffusion Plant

[http://www.cluin.org/greenremediation/profiles/subtab\\_d28.cfm](http://www.cluin.org/greenremediation/profiles/subtab_d28.cfm)



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

For more information:  
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