

**DOE/LX/07-2200&D1
Secondary Document**

**Sampling and Analysis Plan to Support the
Additional Action for the CERCLA Five-Year Review
at the Paducah Gaseous Diffusion Plant,
Paducah, Kentucky**



CLEARED FOR PUBLIC RELEASE

1. INTRODUCTION

This Sampling and Analysis Plan (SAP) documents how groundwater samples will be collected and analyzed in a screening study to determine whether volatile organic compound (VOC) [primarily trichloroethene (TCE)] concentrations warrant a vapor intrusion study at certain locations within the Water Policy Area outside the Paducah Gaseous Diffusion Plant (PGDP).

The *Five-Year Review for Remedial Actions at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-1289&D2/R1, (Five-Year Review) (DOE 2014a) presents the results of a 2012 review of the Water Policy Removal Action. In a letter dated September 30, 2014, (EPA 2014a) the U.S. Environmental Protection Agency (EPA) noted the following project-related uncertainty:

The protectiveness determination of the removal action for the Water Policy cannot be made at this time until further information is obtained. Further information will be obtained by taking the following actions: DOE demonstrates that all residents located above the contaminated groundwater plume are not using groundwater from their wells, and a vapor intrusion study is conducted if current groundwater data indicate a study is warranted.

Three meetings were held to scope this concern raised by EPA. The meetings were held on August 8, 2014, February 24, 2015, and April 22, 2015. The meeting presentations are located in Appendices B, C, and D, respectively. As a result of these meetings, the Federal Facility Agreement (FFA) parties agreed to undertake this screening study to determine whether a vapor intrusion study is warranted. This study is being accomplished under the provisions of Section XXX, Five-Year Review, of the PGDP FFA, as documented in the Record of Conversation letter dated August 1, 2014 (DOE 2014b).

2. PURPOSE

Collect first-available water samples from four locations within the Water Policy Area near the residences located above the TCE Plume. The FFA parties have agreed that this sampling approach will provide a sufficient basis on which to determine whether a vapor intrusion study is warranted, as follows:

- Advance Direct Push Technology (DPT) rods into the Upper Continental Recharge System (UCRS) to allow collection of water from the first-available depth.
- Sample groundwater from the first available depth and analyze for VOCs.
- Compare groundwater analytical results to the respective Vapor Intrusion Screening Level (VISL) for groundwater calculated using the VISL Calculator (EPA 2014b).

3. INVESTIGATION BOUNDARY

The screening study boundaries are first available UCRS water from DPT rods installed near six residences (4 locations) within the TCE plume, as detailed in this plan. Samples will be taken within 100 ft laterally, where possible, from the residence but no further than 300 ft for this study.