

**DOE/LX/07-2185&D1
Secondary Document**

**Sampling and Analysis Plan to Support the
Additional Field Investigation for the Waste Disposal
Alternatives Remedial Investigation/Feasibility Study
at the Paducah Gaseous Diffusion Plant,
Paducah, Kentucky**



CLEARED FOR PUBLIC RELEASE

1. INTRODUCTION

This Sampling and Analysis Plan (SAP) documents how groundwater level measurements will be collected to support the Waste Disposal Alternatives (WDA) evaluation for Candidate Site 5A (Site 5A) and Candidate Site 11 (Site 11) at the Paducah Gaseous Diffusion Plant (PGDP). The U.S. Environmental Protection Agency (EPA) requested additional information on hydrologic conditions for the WDA Candidate Sites (EPA 2015a). This additional fieldwork was scoped by the Federal Facility Agreement (FFA) parties on March 31, 2015, and April 8, 2015, and documented by the U.S. Department of Energy (DOE) in correspondence dated April 17, 2015 (DOE 2015). Also as documented in the April 17, 2015, letter, the FFA parties agreed that no additional field investigation or data collection is needed at Candidate Sites 1, 3A, or 9 in response to the EPA request (EPA 2015b). The Kentucky Department for Environmental Protection and the EPA concurred with DOE's approach on April 23, 2015.

The resulting groundwater level measurements at Site 5A will be used to determine whether the depth to historical high water table within the footprint of Site 5A is less than or greater than 50 ft below ground surface. This information will be considered by EPA, if the On-Site Alternative is selected, in deciding whether a waiver of 40 *CFR* § 761.75(b)(3) is necessary, specifically as related to the requirement for the historical high groundwater table, "...The bottom of the landfill liner system or natural in-place soil barrier shall be at least fifty feet from the historical high water table."

The groundwater level data at Site 11 will be evaluated to determine whether groundwater in Site 11 is connected hydraulically to the stream that crosses Site 11. This information will be considered by EPA, if the On-Site Alternative is selected, in deciding whether a waiver of 40 *CFR* § 761.75(b)(3) is necessary, as related to the requirement regarding hydraulic connection, "...There shall be no hydraulic connection between the site and standing or flowing surface water."

Additionally, soil samples for soil index properties will be collected during the field activities at Site 5A. The soil index properties data are not required to meet the objectives of this field investigation; however, the data will be used to plan future field investigations, as appropriate, if the On-Site Alternative is selected.

2. PURPOSE

Determine the depth to Upper Continental Recharge System (UCRS) groundwater within the footprint of Site 5A and determine whether groundwater at Site 11 is connected hydraulically to the stream that crosses Site 11. The parties have agreed that the following field approach and groundwater level measurement locations shown on Figures 1 and 2 will provide a sufficient basis on which to evaluate qualitative water level measurements at Site 5A and Site 11:

- A visual walkdown will be performed to evaluate site-conditions (e.g., presence of standing water; indications of hydraulic connections, such as the presence of crayfish burrowing, etc.). A description of the visual walkdown will be documented and will include photographs.
- Install piezometers and measure groundwater levels at 10 locations in Site 5A. The piezometers will be installed using direct push technology (DPT). The location, ground surface elevation, and top of casing elevation (relative to a standard datum) of each piezometer will be accurately located by field survey. Collect soil samples from the DPT cores at the locations in Site 5A, where different soil types