

**DOE/LX/07-1256&D1
Primary Document**

**Sitewide Evaluation Report
for the Soils Operable Unit
at the Paducah Gaseous Diffusion Plant,
Paducah, Kentucky**



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EXECUTIVE SUMMARY

This Sitewide Evaluation Report presents the results of the comprehensive effort completed for areas outside the Limited Area and surrounding the Paducah Gaseous Diffusion Plant (PGDP) on U.S. Department of Energy (DOE)-owned property [including property licensed to the Commonwealth of Kentucky and managed by West Kentucky Wildlife Management Area (WKWMA)] and areas owned by the Commonwealth of Kentucky and managed by WKWMA. The overall project objectives were to identify unknown contaminated areas originating from PGDP that may require Comprehensive Environmental Response, Compensation, and Liability Act evaluation and to develop information for determining Environmental Indicators (EIs) used for measuring the Resource Conservation and Recovery Act Corrective Action process.

To meet the project objectives, a number of survey efforts, including a recent confirmatory field effort, were conducted. An aerial radiological survey was conducted from October 28–November 2, 2009, over the PGDP and surrounding area, encompassing an area of approximately 25 square miles. The purpose of the survey was to measure the terrestrial radiological environment within and around the PGDP. An aerial survey, which included aerial photography, topographic mapping, digital orthophotos, and Light Detection and Ranging, encompassed an area of approximately 32 square miles. The purpose of this survey was to provide surface contours and images that aided in identification of anomalies. No anomalies were identified on Commonwealth of Kentucky-owned property by the aerial surveys; therefore, no visual or radiological surveys were performed for Commonwealth of Kentucky-owned property based upon evaluation of the results of the aerial surveys.

Radiological and visual walkover surveys were conducted over DOE-owned property (including property licensed to the Commonwealth of Kentucky), encompassing an area of approximately 2,676 acres. The purpose of these surveys was to identify anomalies visually and to complete a radiological scoping survey of the entire area with a targeted radiological survey of anomalies. These surveys were completed between January 5, 2009, and April 23, 2010, in accordance with the *Sitewide Evaluation Work Plan at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/LX/07-0228&D2 (DOE 2011a).

Anomalies are defined as any area that exhibits two times instrument background and/or are piles, dips, debris, or other potentially man-made disturbances. There were 633 anomalies identified by the visual walkover on DOE-owned property. After crosswalking the anomalies with previously identified anomalies, 99 were found to be part of previous evaluations/investigations and were not evaluated further in this effort. The remaining 534 new anomalies were evaluated as part of this Sitewide Evaluation. Based on the results of the walkover surveys, all of the 534 anomalies were less than the radiological criterion of two times instrument background in the work plan.

DOE completed the 2009–2010 surveys and no previously unknown contaminated areas were identified, no areas were found to have radiological readings greater than twice instrument background, and no areas required removal based on criteria established in the work plan. Consistent with Federal Facility Agreement (FFA) (EPA 1998) and the approaches set forth in the National Contingency Plan, the results of this evaluation determined that no removal or remedial actions are required for the 534 anomalies identified and there is no need to establish solid waste management unit (SWMU) assessment reports.

A confirmatory field effort was executed from October 2014 to January 2015 that included a focused radiological survey and judgmental sampling effort for 25 of the previously identified 534 anomalies to validate the conclusions of the previous 2009–2010 field effort. This evaluation was completed in accordance with the *Sitewide Evaluation Work Plan for Anomalies Located Outside the Limited Area at*

the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-1288&D2 (DOE 2014b). This evaluation validated the conclusions from the previous 2009–2010 field effort.

The April 2008 letter from DOE to KDWM presents a flowchart prepared as a condition to be met for DOE to receive an EI of “Yes” with regard to the Government Performance and Results Act milestone of having human exposures under control (DOE 2008a). The Flow Chart for Uncertainty Management was used to evaluate the data collected for this Sitewide Evaluation. The radiological survey and visual walkover survey information was evaluated, along with the focused radiological survey and judgmental sampling effort performed for the 25 selected anomalies covering DOE-owned property outside the Limited Area at PGDP. The conclusion from the evaluation of the results of the surveys and their associated analyses is that no areas were identified that required either further Comprehensive Environmental Response, Compensation, and Liability Act evaluation under the PGDP FFA or designation as SWMUs or areas of concern. The results demonstrate that these anomalies do not represent unknown areas of contamination that pose a threat to the public or environment. Considering this information, empirical data were obtained to complete step one of the Flow Chart for Uncertainty Management; however, the data establish that there is no contamination present in any areas where it was unknown before this investigation. No further evaluation is necessary in accordance with the flowchart steps; therefore, the information used to conclude that “Human exposures are under control,” is not challenged by new information and supports a continued categorization of “Yes” for this EI.