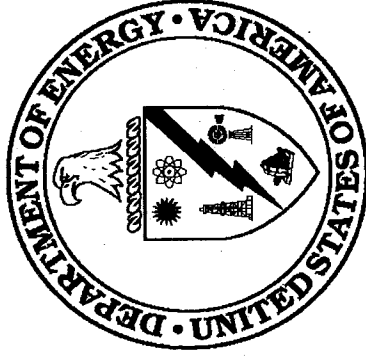


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**SITE MANAGEMENT PLAN
PADUCAH GASEOUS DIFFUSION PLANT
PADUCAH, KENTUCKY**

ANNUAL REVISION—FY 2005



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**SITE MANAGEMENT PLAN
PADUCAH GASEOUS DIFFUSION PLANT
PADUCAH, KENTUCKY**

ANNUAL REVISION—FY 2005

Date Issued—April 2005

Prepared for
U.S. Department of Energy
PADUCAH GASEOUS DIFFUSION PLANT
Paducah, Kentucky 42002

by
Bechtel Jacobs Company LLC
under contract DE-AC05-03OR22980
with contributions by
U.S. Environmental Protection Agency
Kentucky Cabinet for Environmental Protection
Kentucky Cabinet for Health Services



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ACRONYMS

ACO	Administrative Consent Order
AOC	area of concern
ARAR	applicable or relevant and appropriate requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSOU	Comprehensive Site-Wide Operable Unit
D&D	decontamination and decommissioning
DMSA	DOE Material Storage Area
DNAPL	dense, nonaqueous-phase liquid
DOE	U.S. Department of Energy
DUF ₆	depleted uranium hexafluoride
EM	Environmental Management
EPA	U.S. Environmental Protection Agency
FFA	Federal Facility Agreement
FS	feasibility study
FY	fiscal year
GDP	gaseous diffusion plant
KDFWR	Kentucky Department for Fish and Wildlife Resources
KNREPC	Kentucky Natural Resources and Environmental Protection Cabinet
LOI	Letter of Intent
LUC	land use control
LUCAP	Land Use Control Assurance Plan
LUCIP	Land Use Control Implementation Plan
NCP	National Contingency Plan
O&M	operations and maintenance
OU	operable unit
PCB	polychlorinated biphenyl
PGDP	Paducah Gaseous Diffusion Plant
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RGA	Regional Gravel Aquifer
RI	remedial investigation
ROD	Record of Decision
SMP	Site Management Plan
SWMU	solid waste management unit
TCE	trichloroethene
USEC	United States Enrichment Corporation
WAG	Waste Area Grouping
WKWMA	West Kentucky Wildlife Management Area

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1. INTRODUCTION

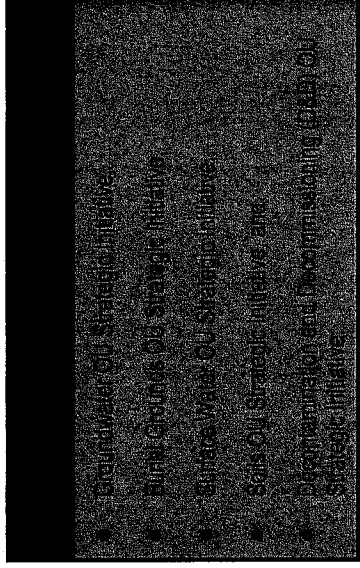
The Paducah Gaseous Diffusion Plant (PGDP) was placed on the National Priorities List on May 31, 1994. In accordance with Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the U.S. Department of Energy (DOE) entered into a Federal Facility Agreement (FFA) with the U.S. Environmental Protection Agency (EPA) and the Commonwealth of Kentucky on February 13, 1998. The FFA established one set of consistent requirements for achieving comprehensive site remediation in accordance with the Resource Conservation and Recovery Act (RCRA) and CERCLA, including stakeholder involvement.

Section XVIII of the FFA requires DOE to submit an annual Site Management Plan (SMP), which outlines DOE's strategic approach for achieving cleanup under the FFA, to EPA and the Kentucky Natural Resources and Environmental Protection Cabinet (KNREPC) by November 15th of each year. The FFA states that the purpose of the SMP is to coordinate and document the potential and selected operable units (OUs), including removal actions; define cleanup priorities; identify work activities that will serve as the basis for enforceable timetables and deadlines under the agreement; and establish long-term cleanup goals.

DOE and the Commonwealth of Kentucky entered into a Letter of Intent (LOI) in August 2003. EPA was not a signatory to the LOI. The LOI documents the commitment by the Commonwealth of Kentucky and DOE to promote accelerated cleanup at PGDP, develop an integrated planning and funding request, meet commitments under the FFA, and settle all identified outstanding enforcement and compliance issues through an Agreed Order. The LOI does not affect DOE's legal obligation to comply with the National Contingency Plan (NCP) or FFA. An Agreed Order between DOE and Kentucky, which incorporated certain provisions of the LOI related to waste management, was signed in 2003.

The FY 2004 SMP officially incorporated the provisions of the SMP Agreement signed by DOE, EPA, and KNREPC on April 14, 2003 and input

from various strategic planning meetings between DOE and the regulators. Specifically, the FY 2004 SMP established enforceable milestones for FY 2004, FY 2005, and FY 2006 and enforceable completion dates for investigation and response actions associated with the strategic cleanup initiatives below. This annual update sets forth enforceable milestones for FY 2005, FY 2006, and FY 2007 and maintains the enforceable completion dates for investigation and response actions associated with the strategic cleanup initiatives.



These initiatives include a series of prioritized response actions, ongoing site characterization activities to support future response action decisions, and decontamination and decommissioning (D&D) of the currently operating gaseous diffusion plant (GDP) once it ceases operation. After completion of these activities, the Comprehensive Site-Wide Operable Unit (CSOU) evaluation will be conducted, with implementation of additional actions as needed to ensure long-term protectiveness.

The primary objectives of these initiatives are to take actions necessary to prevent both on-site and off-site human exposure that presents an unacceptable risk, ensure safe environmental conditions for industrial workers during ongoing GDP operations, and implement actions that provide the greatest opportunities to achieve significant risk reduction before site closure. Some areas that might require investigation and/or response actions are associated with GDP operations. The timing and sequencing for investigation and/or implementation of response actions at those areas will be coordinated, as appropriate, with cessation of GDP

operations and/or D&D of the currently operating GDP. Any such decisions will be made on a case-by-case basis and will include both risk and technical considerations.

The following concepts will guide the implementation of the site cleanup strategy:

- Ensure response actions are protective under both current and reasonably anticipated future land use.
- Implement a remediation approach that uses OUs, with an emphasis on accelerated actions.
- Establish priorities that emphasize accelerated risk reduction while considering opportunities to deploy mortgage-reduction activities intended to reduce long-term surveillance and maintenance cost.
- Ensure that enforceable milestones and funding requests are based on clearly defined work scope and objectives.

In accordance with Section XVIII.F of the FFA, execution of these concepts, combined with other cost and productivity initiatives, will continue to be used to achieve efficient and cost-effective cleanup that is protective of human health and the environment.

The SMP is considered a strategic planning document that is updated annually in accordance with the FFA. It contains scope, schedule, and milestones based upon certain planning assumptions and is not intended to be predecisional. These assumptions serve as the basis for establishing enforceable milestones and long-term goals in accordance with Section XVIII of the FFA. The actual scope, schedule, and cost for selected remedies will be based on an evaluation of all data necessary to support final remedy selection in accordance with the NCP's nine criteria and the CERCLA statutory requirements for remedy selection, including CERCLA and RCRA requirements for public review of proposed remedies. In the event that an actual or apparent inconsistency arises between the FFA and the SMP, the provisions of the FFA will govern.

2. BACKGROUND

PGDP reached its 50th anniversary of operation in October 2002 as the only operating uranium enrichment plant in the United States. With a half-century of production behind it, the plant faces significant environmental cleanup challenges.

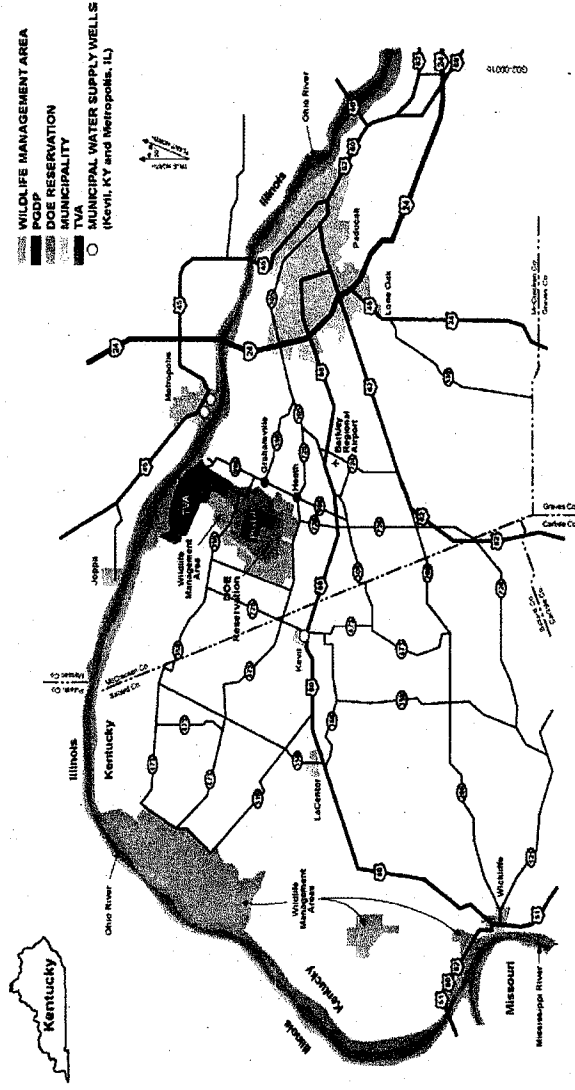
2.1 FACILITY LOCATION AND OPERATIONS

PGDP is situated on a 3,556-acre parcel of DOE-owned property in western Kentucky, approximately 10 miles west of the city of Paducah and 3 miles south of the Ohio River (Fig. 1). The primary GDP operations associated with the enrichment process are located on 748 acres within the plant security fence. Of the remaining acreage comprising the DOE-owned property (i.e., outside the main security fence), 1,986 acres are leased to the Kentucky Department for Fish and Wildlife Resources (KDFWR), as part of the West Kentucky Wildlife Management Area (WKWMA), and the remaining land (822 acres) is relegated as a buffer zone around the secure area.

The area surrounding PGDP is predominantly rural. Immediately adjacent to PGDP is the WKWMA, which is used by hunters and fishermen. The remaining area is lightly populated with randomly located residences and farms, with some private residences located immediately adjacent to the DOE property boundary and WKWMA. The small communities of Grahamville and Heath are located approximately 1.5 to 2 miles east of the plant. Metropolis, Illinois, is located north of PGDP across the Ohio River.

PGDP is in an area of abundant surface water and groundwater resources. Bordering the east and west sides of the secure area are Little Bayou Creek and Bayou Creek, respectively. Little Bayou Creek originates in the WKWMA, and Bayou Creek originates about 2.5 miles south of PGDP. Both creeks flow north toward the Ohio River, which is about 3 miles north of PGDP. Much of the flow in both creeks is caused by permitted effluent releases from PGDP. These effluents constitute the majority of normal flow in Bayou Creek and Little Bayou Creek.

The major groundwater resource at PGDP is called the Regional Gravel Aquifer (RGA).



Paducah Gaseous Diffusion Plant
Paducah, KY

Fig. 1 Site Location

