DOE/OR/07-2119&D0/R2
SECONDARY DOCUMENT

DRAFT

Risk-Based End State Vision and Variance Report for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky

This document is approved for public release per review by:

2-2-04

BJC Classification & Information Office Date

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

contributed to the preparation of this document and should not be considered an eligible contractor for its review.

DOE/OR/07-2119&D0/R2
SECONDARY DOCUMENT

DRAFT

Risk-Based End State Vision and Variance Report for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky

Date Issued–January 2004

Prepared for the
U.S. DEPARTMENT OF ENERGY
Office of Environmental Management

Environmental Management Activities at the
Paducah Gaseous Diffusion Plant
Paducah, Kentucky 42001

managed by
Bechtel Jacobs Company LLC

for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-03OR22980

04-014(doc)/ 011604

PREFACE

This *Draft Risk-Based End State Vision and Variance Report for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky,* DOE/OR/07-2119&D0R2, was prepared to meet requirements set forth in a memorandum from Jessie Roberson to Distribution (including William E. Murphie) dated September 22, 2003, as amended by clarification contained in a memorandum entitled "Risk Based End State Guidance Clarification" dated December 23, 2003. The presentation of material in this document is consistent with U.S. Department of Energy (DOE) Policy, DOE P 455.1, entitled *Use of Risk-Based End States* and the standardized approach set forth in a guidance document entitled *Guidance for Developing a Site-Specific End State Vision* (dated September 11, 2003), as amended by the "Risk Based End State Guidance Clarification." When finalized, this document will be used as the primary tool for communicating the Paducah Gaseous Diffusion Plant's (PGDP's) risk-based end state vision to the involved parties (i.e., DOE, the Environmental Protection Agency, the Commonwealth of Kentucky, and the general public). This report will be modified and resubmitted after receipt and resolution of comments from DOE headquarters and other stakeholders.

Although this report presents potential actions to address hazards that could be used to reach the PGDP's risk-based end state, this report is not a decision document. Rather, discussions of potential specific mechanisms are included to provide an analytical frame-work that DOE will use to further evaluate the cleanup activities and the strategic approaches at PGDP to determine if it is appropriate to pursue changes in the PGDP baseline. Any decision to pursue changes to the baseline will include factors beyond those presented in the risk-based end state report, including input from involved parties. If DOE ultimately decides to seek changes to the current compliance agreements, decisions, or statutory/regulatory requirements, then those changes will be made in accordance with applicable requirements and procedures.

CONTENTS

FIGURES

TABLES

ABBREVIATIONS AND ACRONYMS

ACL	alternate concentration limit
ACO	Administrative Consent Order
amsl	above mean sea level
ARAR	applicable or relevant and appropriate requirement
ATSDR	Agency for Toxic Substances Disease Registry
ASTM	American Society for Testing and Materials
BGOU	Burial Grounds Operable Unit
BRA	baseline risk assessment
BWMA	Ballard Wildlife Management Area
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSM	conceptual site model
CSOU	Comprehensive Site Operable Unit
D&D	decontamination and decommissioning
DNAPL	dense nonaqueous-phase liquid
DOE	U.S. Department of Energy
DMSA	DOE Material Storage Area
DUF_6	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
GWOU	Groundwater Operable Unit
IDW	investigation-derived waste
KDWM	Kentucky Division of Waste Management
KPDES	Kentucky Pollutant Discharge Elimination System
LLW	low-level waste
MCL	maximum contaminant level
NCP	National Contingency Plan
NPL	National Priorities List
NSDD	North-South Diversion Ditch
OU	operable unit
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PGDP	Paducah Gaseous Diffusion Plant
ppm	parts per million
RAO	remedial action objective
RBES	risk-based end state
RCRA	Resource Conservation and Recovery Act
RGA	Regional Gravel Aquifer
RL	remediation level
ROD	Record of Decision
RI	Remedial Investigation
SMP	Site Management Plan
SSOU	Surface Soils Operable Unit
SWMU	solid waste management unit
SWOU	Surface Water Operable Unit

^{99}Tc	technetium-99
TI	technical impracticability
1,1,1-TCA	l,1,1-trichloroethane
TCE	trichloroethene
trans-1,2-DCE	*trans*-1,2-dichloroethene
UF_6	uranium hexafluoride
^{234}U	uranium-234
^{235}U	uranium-235
^{238}U	uranium-238
USEC	United States Enrichment Corporation
VC	vinyl chloride
WKWMA	West Kentucky Wildlife Management Area
WMA	Wildlife Management Area