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DOE Contract No. DE-AC05-98OR22700  
Job. No. 23900  
February 28, 2003

Mr. W. Don Seaborg  
Paducah Site Manager  
U.S. Department of Energy  
P.O. Box 1410  
Paducah, KY 42002-1410

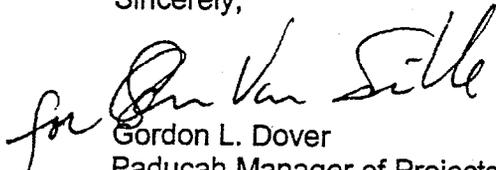
Subject: Transmittal—*Remedial Design/Remedial Action Work Plan for the North-South Diversion Ditch Detention Basin at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE/OR/07-2008&D2)*

Dear Mr. Seaborg:

Enclosed are 18 copies of the subject document, along with the Comment Response Summary. Also enclosed is suggested text for the transmittal letter to the regulatory agencies. Please forward 11 copies of the enclosed document to the following at the Commonwealth of Kentucky regulatory agencies: Ms. Gaye Brewer, Mr. Robert Daniell (7), Mr. Steve Hampson, Ms. Janet Miller, and Mr. Eric Scott. Four copies of the enclosed document are to be transmitted to the following at the U.S. Environmental Protection Agency: Mr. Jeff Crane and Mr. Carl Froede (3). The remaining three copies are for your use. This document is being distributed in accordance with the *Standard Distribution List for Bechtel Jacobs Company LLC Primary and Secondary Documents (01/28/03)*.

If you have any questions or require further information, please contact Rudy Bonilla of my staff at 5198.

Sincerely,

  
Gordon L. Dover  
Paducah Manager of Projects

GLD:dm  
LTR-PAD/EP-SJ-03-0015

- Enclosure: 1. Subject document (18)  
2. Comment Response Summary  
3. Suggested text

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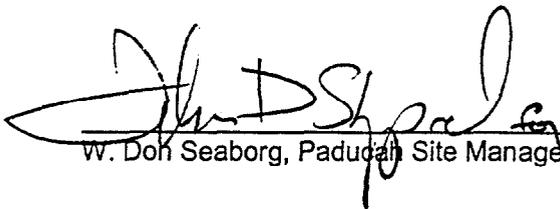
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CERTIFICATION

Document Identification: *Remedial Design/Remedial Action Work Plan for the North-South Diversion Ditch Detention Basin at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky (DOE/OR/07-2008&D2)*

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

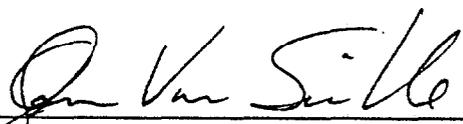
U.S. Department of Energy (DOE)  
Owner and Operator

  
W. Don Seaborg, Paducah Site Manager

02-28-03  
Date Signed

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Bechtel Jacobs Company LLC  
Co-operator

  
for Gordon L. Dover, Paducah Manager of Projects

2/28/03  
Date Signed

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**Remedial Design/Remedial Action Work Plan  
for the North-South Diversion Ditch Detention Basin  
at the Paducah Gaseous Diffusion Plant,  
Paducah, Kentucky**



I-04816-0033



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**Tetra Tech, Inc.**

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

**Remedial Design/Remedial Action Work Plan  
for the North-South Diversion Ditch Detention Basin at the  
Paducah Gaseous Diffusion Plant,  
Paducah, Kentucky**

Date Issued—February 2003

Prepared by  
Tetra Tech, Inc.  
under subcontract 23900-BA-ES008

Prepared for the  
U.S. Department of Energy  
Office of Environmental Management

BECHTEL JACOBS COMPANY LLC  
managing the  
Environmental Management Activities at the  
East Tennessee Technology Park  
Y-12 National Security Complex Oak Ridge National Laboratory  
Paducah Gaseous Diffusion Plant Portsmouth Gaseous Diffusion Plant  
under contract DE-AC05-98OR22700  
for the  
U.S. DEPARTMENT OF ENERGY

## PREFACE

This *Remedial Design/Remedial Action Work Plan for the North-South Diversion Ditch Detention Basin at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (DOE/OR/07-2008&D2) was prepared in accordance with requirements under the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980*. The four objectives of this report are to (1) update the schedule for performing construction activities; (2) provide a summary level description of the detention basin construction and plugging of culverts phase of the remedial action; (3) provide a detailed design report (i.e., scope of work, technical specifications, design drawings, and project calculations); and (4) detail a crosswalk between each applicable or relevant and appropriate requirement (ARAR) for the design and implementation of the remedial action, the citation that mandates the ARAR, and the specification or plan that implements the ARAR. This work is performed under Work Breakdown Structure 04.01.01.22.04.

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## ACRONYMS

ARAR	applicable or relevant and appropriate requirement
BJC	Bechtel Jacobs Company LLC
BMP	best management practices
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
EPA	Environmental Protection Agency
ES&H	Environmental, Safety, and Health
KPDES	Kentucky Pollutant Discharge Elimination System
NEPA	National Environmental Policy Act
NSDD	North-South Diversion Ditch
O&M	operations and maintenance
PGDP	Paducah Gaseous Diffusion Plant
PCB	Polychlorinated biphenyls
PRAP	Proposed Remedial Action Plan
QA/QC	quality assurance/quality control
RD/RA WP	Remedial Design/Remedial Action Work Plan
ROD	Record of Decision
STR	Subcontract Technical Representative
SWMU	Solid Waste Management Unit

## EXECUTIVE SUMMARY

The United States Department of Energy (DOE) is conducting environmental restoration activities at the Paducah Gaseous Diffusion Plant (PGDP) to address contamination that is the result of historic operations, waste-handling activities, and disposal practices at the plant. During Phase I of the North-South Diversion Ditch (NSDD) Remedial Action, DOE will route plant effluent around a portion of the NSDD, plug culverts to eliminate future discharges from the fenced area via the NSDD, and construct a detention basin to facilitate collection of storm water runoff. Phase II remediation activities include excavation of the NSDD inside the PGDP fenced area to a depth of 4 ft, post excavation sampling, restoration of the excavated area with clean clay and soil, and management and proper disposition of the remediation waste. The rerouting of plant effluent and Phase II remediation of the NSDD are addressed under separate Remedial Design/Remedial Action Work Plans (RD/RA WP).

The NSDD is a drainage ditch that originates in the north-central portion of the PGDP. It drains northward, outside the security-fenced area, and empties into Little Bayou Creek. The entire NSDD is located on property owned by DOE. The portion located inside the security-fenced area of PGDP is designated as Solid Waste Management Unit (SWMU) 59. The NSDD historically received wastewater from the C-400 Building, coal pile runoff, and storm water. As a result, the NSDD became contaminated with radionuclides, metals, and polychlorinated biphenyls. An interim remedial action was completed in 1994 to mitigate transport of contaminated sediment offsite.

Representatives from the United States Environmental Protection Agency, Commonwealth of Kentucky, Kentucky Radiation Control Branch, and DOE held a series of meetings to discuss concerns associated with the NSDD. One concern was the plant process cooling water that is discharged into the NSDD, and the potential for this discharge to transport contamination from NSDD sediments.

The portion of the NSDD Remedial Action addressed here will include plugging of culverts to eliminate discharges outside the PGDP security fence and construction of a detention basin to facilitate the collection of storm water runoff for rerouting to the C-616-C Lift Station. Remediation of the NSDD will be performed under a separate RD/RA WP. This remedial action supersedes earlier interim remedial actions for the NSDD.

This RD/RA WP contains the project schedule, a description of the work to be performed, a detailed design report, and a list of applicable or relevant and appropriate requirements. Also included are the remedial action objectives and goals attainment statement. Rerouting of plant effluent began upon signature of the ROD and applicable RD/RA WP. The remaining Phase I work (plug culverts, and construct detention basin) will proceed upon approval of this RD/RA WP. Phase II excavation work will begin after Phase I activities are complete and disposal options have become available. The waste derived from the NSDD Remedial Action will be temporarily staged pending characterization and disposed at an appropriate on- or off-site facility. Non-hazardous waste generated from the implementation of Phase I and II remediation activities will be disposed in the C-746-U Landfill, when it becomes available. The C-746-U landfill will begin accepting waste, pending regulatory approval of permit modifications and submittal of authorized limits request. Non-contaminated soils excavated adjacent to the NSDD (i.e., outside SWMU 59) will be screened by RADCON personnel prior to release for use as backfill in the NSDD or other areas on the PGDP site, as appropriate.

## 1. INTRODUCTION AND PURPOSE

The North-South Diversion Ditch (NSDD) Remedial Action, detailed in *the Record of Decision for Interim Remedial Action at the North-South Diversion Ditch at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (DOE 2002) is being conducted under the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA). The NSDD Remedial Action addresses the potential threat to human health and the environment from contact with contaminated sediments within the portion of the NSDD inside the security fence at the Paducah Gaseous Diffusion Plant (PGDP) in Paducah, Kentucky (Figure 1). The portion of the Remedial Action addressed here will plug culverts at the PGDP security fence and construct a detention basin for collection of storm water. Collected storm water will subsequently be pumped by the C-616-C Lift Station to the C-616-F Full Flow Lagoon (Figure 2 and Figure 3) for treatment and discharge.

PGDP was constructed from 1951 to 1954, began operating in 1952, and was fully operational by 1955, supplying enriched uranium for commercial reactors and military defense reactors. PGDP was operated by Union Carbide Corporation until 1984, when Martin Marietta Energy Systems, Inc. (which later became Lockheed Martin Energy Systems, Inc.), was contracted to operate the plant for the U.S. Department of Energy (DOE). In July 1993, the United States Enrichment Corporation, which was established by the United States Congress, leased uranium enrichment production facilities from DOE and became responsible for the production of enriched uranium. DOE maintains ownership of the plant and is responsible for environmental restoration and waste management activities. Since 1998, Bechtel Jacobs Company LLC (BJC) has managed these activities under a management and integration contract with DOE.

PGDP was placed on the National Priorities List in 1994. Section 120 of CERCLA required the negotiation and implementation of the PGDP Federal Facility Agreement, which provides the regulatory strategy for site CERCLA actions. Section 104 of CERCLA addresses the mitigation of releases, or threatened releases, of hazardous substances to the environment through response action. Executive Order 12580, "Superfund Implementation," delegates to DOE the authority for response actions for DOE facilities. As lead agency, DOE is authorized to conduct response measures (e.g., remedial actions) under CERCLA. The entire NSDD is located on property owned by DOE. The portion located inside the PGDP security-fenced area is designated as Solid Waste Management Unit (SWMU) 59.

### 1.1. PURPOSE OF THE REMEDIAL DESIGN/REMEDIAL ACTION WORK PLAN

Preparation of this Remedial Design/Remedial Action Work Plan (RD/RA WP) follows development and approval of a Focused Feasibility Study (DOE 2001a), Proposed Remedial Action Plan (PRAP) (DOE 2001b), and Record of Decision (ROD) (DOE 2002). This RD/RA WP addresses plugging culverts at the PGDP security fence and constructing a detention basin for collection and rerouting of storm water. This document provides the project schedule for implementation of the remedial action, summarizes the work to be performed, identifies and provides project plans to be used during construction, and provides a crosswalk to identify the applicable or relevant and appropriate requirements (ARARs).

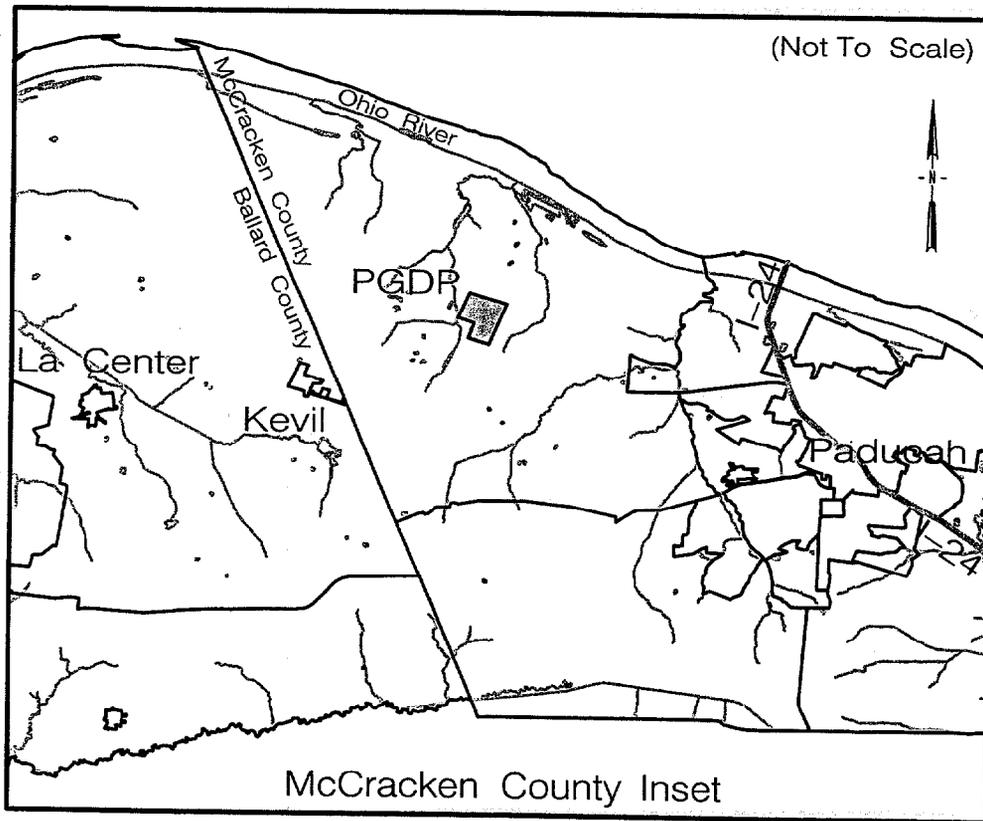
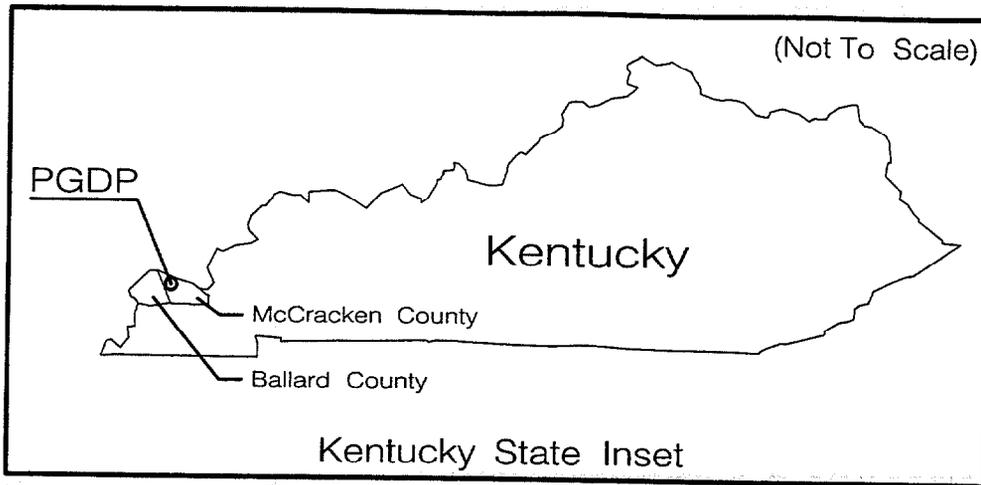
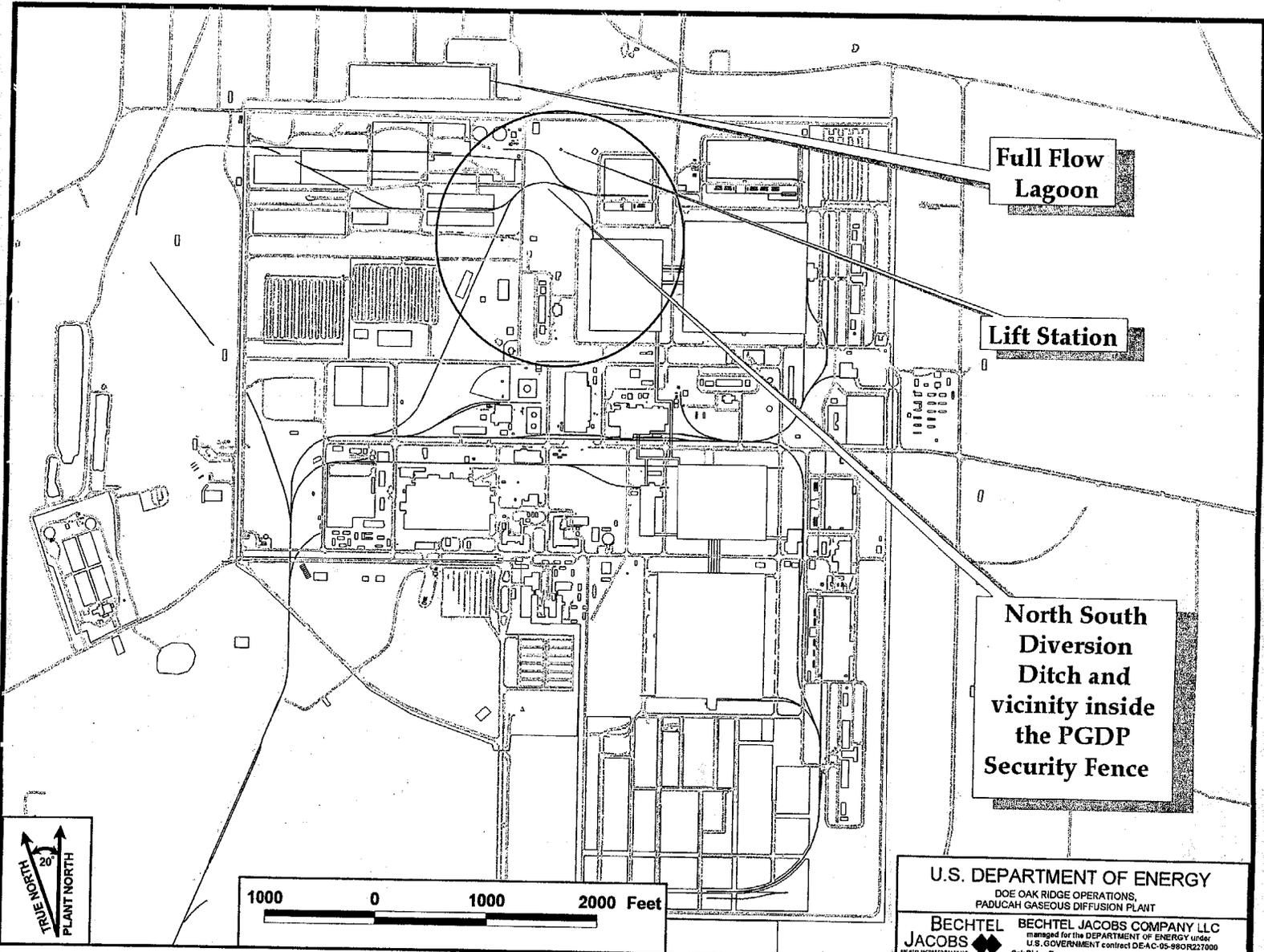


Figure 1. Regional location map for Paducah Gaseous Diffusion Plant, Kentucky

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**Full Flow  
Lagoon**

**Lift Station**

**North South  
Diversion  
Ditch and  
vicinity inside  
the PGDP  
Security Fence**

**Paducah Gaseous Diffusion Plant**

**U.S. DEPARTMENT OF ENERGY**  
DOE OAK RIDGE OPERATIONS,  
PADUCAH GASEOUS DIFFUSION PLANT

**BECHTEL** **BECHTEL JACOBS COMPANY LLC**  
managed for the DEPARTMENT OF ENERGY under  
U.S. GOVERNMENT contract DE-AC-05-98OR227000  
Oak Ridge, Tennessee • Paducah, Kentucky • Portsmouth, Ohio

**JACOBS**

**TETRA TECH, INC.**  
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Figure 2. Paducah Gaseous Diffusion Plant

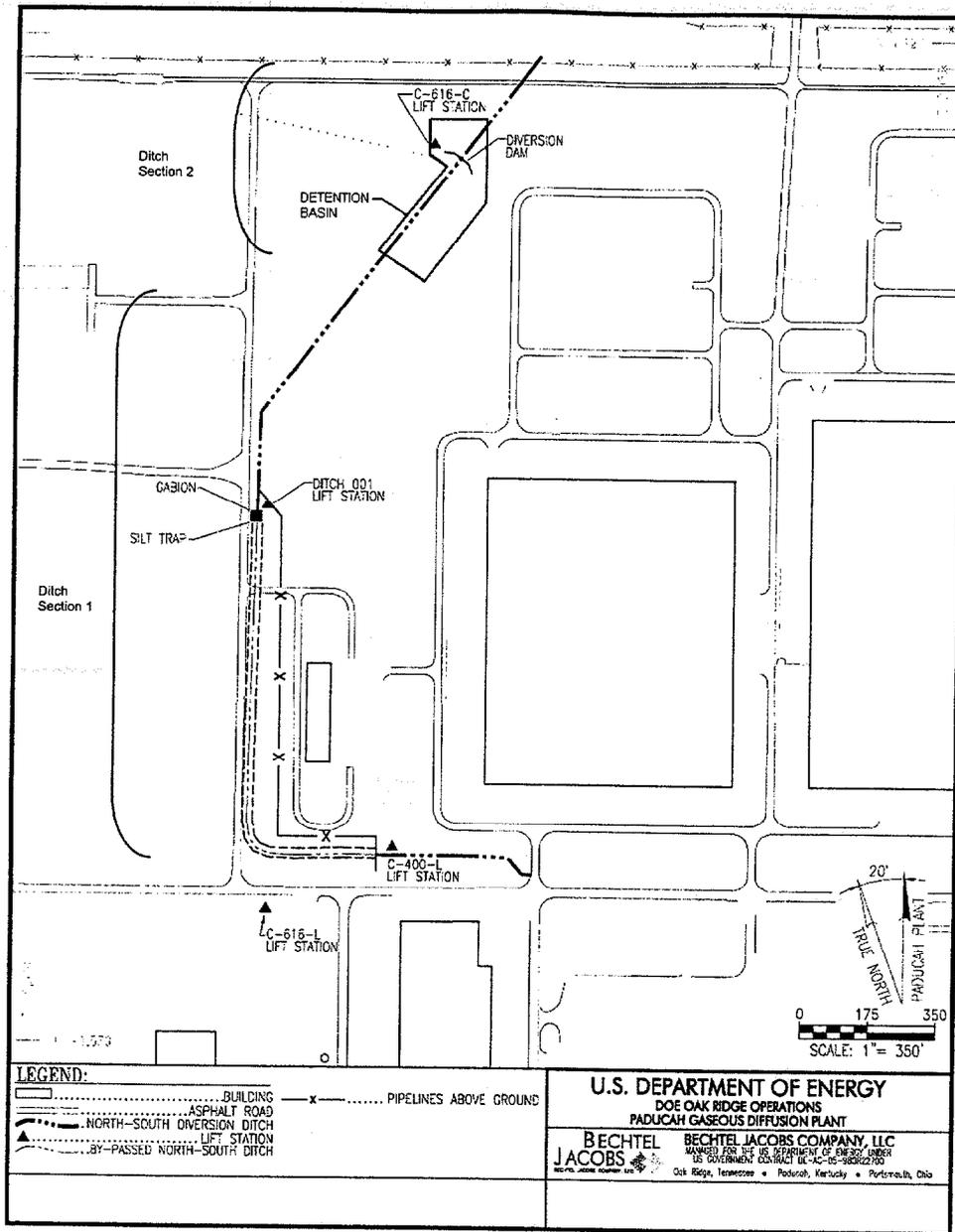


Figure 3. On-site North-South Diversion Ditch and vicinity

## 1.2. SCOPE OF THE REMEDIAL DESIGN/REMEDIAL ACTION WORK PLAN

This RD/RA WP is prepared in accordance with requirements under CERCLA and the National Contingency Plan, integrating the National Environmental Policy Act of 1969 (NEPA), and other ARARs. The following items are addressed in this RD/RA WP:

- an updated schedule for performing construction activities;
- a summary level description of the detention basin construction and plugging of culverts;
- a design report (i.e., scope of work, technical specifications, design drawings, and project calculations); and
- a crosswalk between each ARAR for the design and implementation of the remedial action, the citation that mandates the ARAR, and the design drawing, specification, or plan that implements the ARAR.

## 2. PROJECT ORGANIZATION

The project organization chart outlining the relationship of key personnel and organizations is shown in Figure 4. The roles and responsibilities of the project team are described below.

DOE Project Manager – Serves as the point of contact with regulatory agencies, and directs the overall completion of the remedial action in accordance with the approved ROD and RD/RA WP. Establishes baseline scope, schedule, and budget and serves as the primary interface for environmental management activities implemented by BJC.

BJC Project Manager – Serves as the primary point of contact with DOE to implement the remedial action. Performs work in accordance with the baseline scope and schedule and directs the day-to-day activities of BJC personnel.

BJC Subcontract Technical Representative (STR) – Serves as BJC's primary point of contact with the subcontractor during remedial action activities. Verifies work is performed in accordance with the subcontract document and approved work plans.

Subcontractor Project Manager – Serves as the subcontractor's primary point of contact with the STR and is responsible for the performance, quality, schedule, and budget of the work. Provides overall project direction and execution, implements corrective actions as necessary, verifies compliance with safety and health requirements, and participates in the readiness review.

QA/QC Manager – Verifies all work is completed in accordance with the quality assurance plan. Develops QA/QC procedures and implementing administrative procedures that govern both technical and non-technical work.

Field Superintendent – Oversees all field activities and verifies field operations follow established and approved plans and procedures. The Field Superintendent interfaces with the STR during field activities.

Safety and Health Manager – Develops the environmental, safety, and health (ES&H) plan and oversees implementation of Integrated Safety Management Systems and the overall safety and health of all employees, both in the field and the office. Provides direct support to the Subcontractor Project Manager concerning the safety and health of project personnel, the general public, and damage to property and the environment. Each task will have the proper ES&H controls in place before work begins, meeting all federal, state, and local regulations.

Field Technical Staff – Provides direct support to the Field Superintendent concerning technical aspects of the project.

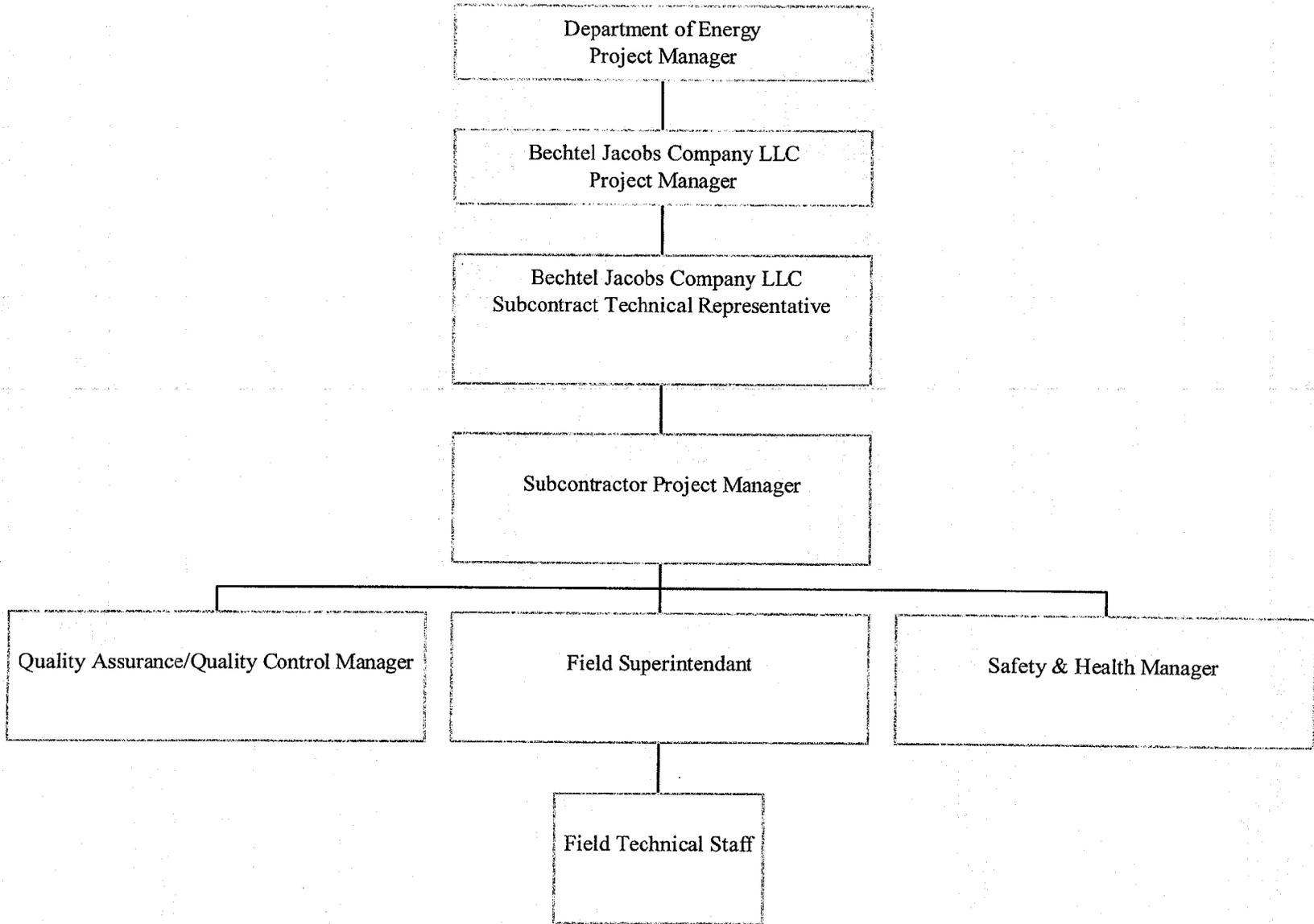


Figure 4. Project Organization

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### 3. PROJECT DESCRIPTION

#### 3.1. HISTORY

Historically, the NSDD received wastewater from the C-400 Building, coal pile runoff, and storm water. The primary operations of the C-400 Building included cleaning, metal plating, metals recovery, radioactive materials stabilization and recovery, uranium trioxide production, diffusion process equipment testing, and uranium tetrafluoride (green salt) pulverization. Sources of storm water runoff to the NSDD include a steam plant (C-600), process buildings (C-335 and C-337), a cooling tower (C-635), and electrical switchyards (C-535 and C-537). As a consequence, soil and sediments in the NSDD have been contaminated. Over the years, fly ash and coal dust from the C-600 Steam Plant and sediment from the NSDD watershed have nearly filled the southern (i.e., inside the PGDP security fence) portion of the NSDD. This caused runoff from heavy rainfall events to overflow the NSDD, primarily near 10<sup>th</sup> Street. In order to restore adequate flow, sediments periodically were dredged from the NSDD, and the spoil material was placed near the banks (DOE 2001b).

In 1977, the C-616-C Lift Station was constructed approximately 475 ft upstream of the PGDP security fence. This lift station diverts normal flow from upstream locations in the NSDD to the C-616-F Full Flow Lagoon prior to discharge through the Kentucky Pollutant Discharge Elimination System (KPDES) Outfall 001 ditch system to Bayou Creek. The C-616-H (Outfall 001) Lift Station began operation in 1991. This lift station pumps effluent from the C-335 and C-337 Process Buildings and the C-535 and C-537 Switchyards into the NSDD for downstream capture by the C-616-C Lift Station (DOE 2001b).

In March 1994, DOE and the U.S. Environmental Protection Agency (EPA), with the concurrence of the Kentucky Division of Waste Management, signed a ROD for an interim action at the NSDD (DOE 1994b) as an incremental step toward addressing site-wide problems. The primary objectives for the interim action were to mitigate the discharge of contaminants into the NSDD, decrease the potential for offsite migration of contaminants already present in the NSDD, and decrease the potential for worker exposure (i.e., direct human contact) to the contaminants within the NSDD. The interim remedial action consisted of the following activities:

- Discharges from the C-400 Building to the NSDD were eliminated. An ion exchange treatment system was installed to reduce radionuclide levels in the effluent from the C-400 Building. The treated effluent was rerouted from the NSDD to KPDES Outfall 008 (DOE 2001b).
- Flow from the sediment-filled southern end of the NSDD was piped around a portion of the NSDD northward to a discharge point near the C-616-H (Outfall 001) Lift Station to reduce the potential for mobilization of contaminants. This was accomplished by constructing a lift station (C-400-L) near the southern end of the NSDD (DOE 2001b).
- A gabion-type rock structure was constructed in the NSDD upstream of the C-616-H (Ditch 001) and C-400-L Lift Station discharge points. This structure traps sediments and mitigates the potential for sediment transport to downstream areas from the portion of the NSDD that was bypassed by the C-400-L Lift Station (i.e., the section from the C-400-L Lift Station to the Outfall 001 Lift Station) (DOE 2001b).

- Warning signs were installed on both sides of the NSDD from Virginia Avenue to the C-616-C Lift Station. These signs provide notice that elevated levels of radionuclides, metals, and polychlorinated biphenyls (PCBs) are present in the area (DOE 2001b).

The NSDD Remedial Action supercedes the earlier actions described above, and may include removal or modification of these actions (e.g., removal of gabion-type rock structure, piping and lift station modifications, etc.). As the first step in implementation of the NSDD ROD (DOE 2002), fieldwork was initiated in October 2002 to reroute existing effluent discharges and upgrade the existing pumps in the C-616-H (Outfall 001) Lift Station. Implementation of the actions (i.e., plug culverts and construct detention basin) addressed in this document will occur following approval of the RD/RA WP. Phase II remediation activities, which will be addressed in a separate RD/RA WP, will follow completion of the detention basin construction.

### **3.2. REMEDIAL ACTION OBJECTIVES**

The main objectives for this portion of the remedial action are to modify existing culverts to eliminate discharges from inside the PGDP security fence, and to construct a detention basin. The detention basin will be capable of handling a 25-year, 24-hour storm event, with the effluent pumped to the C-616-F Full Flow Lagoon for discharge through KPDES Outfall 001. This remedial action supersedes the earlier interim actions for the NSDD.

Inside the PGDP security fence, the current land use has been determined to be industrial. DOE is developing a Land Use Control Implementation Plan for the NSDD that addresses the units covered by the ROD that cannot support unrestricted use after implementation of the selected remedy. Objectives identified in the ROD (DOE 2002) for this action are as follows:

- prevent future discharge of process water to the NSDD;
- reduce the risk to industrial workers and ecological receptors from exposure to contaminated surface soil, sediment, and surface water to acceptable levels by eliminating direct exposure to contaminated media at the NSDD; and
- prevent future on-site runoff from being transported offsite via the NSDD.

### **3.3. NATIONAL ENVIRONMENTAL POLICY ACT INTEGRATION**

Pursuant to the "Secretarial Policy Statement on NEPA" (DOE 1994a) DOE relies on the CERCLA process for review of environmental impacts of actions to be taken under CERCLA. NEPA values are included in all CERCLA documents. NEPA values address any anticipated impacts to human health and the environment, which include but are not limited to air, soil, water, land use, wetlands, floodplains, historic properties, threatened and endangered species, workers, environmental justice, waste minimization, pollution prevention, mitigative measures, and cumulative impacts. Subcontractors are required to address NEPA values to the extent practicable as a part of the planned activities.

### 3.4. REMEDIAL ACTION APPROACH

The portion of the NSDD Remedial Action addressed in this RD/RA WP includes excavation, handling, and management of soils and structures to modify existing culverts and to construct a detention basin to collect storm water runoff. Work will include mobilization, culvert modification, detention basin construction, and demobilization. Refer to Appendices A, B, and C, for the Subcontract scope of work/technical specifications, design drawings, and project calculations, respectively.

Mobilization shall include, but is not be limited to, participation in the Readiness Assessment process, delivery of all necessary construction and ES&H equipment, setup of any temporary facilities, establishment of a trained and qualified workforce on the job site, and delivery of construction materials required to initiate work. Erosion control measures will be established as detailed in the technical specifications in Appendix A and storm water control plan in Appendix D. At a minimum, storm water management controls, including, but not limited to, rock check dams, silt fences, and straw bale barriers will be installed and maintained during construction at locations described in the storm water control plan. Temporary controls will be removed upon completion of remediation during subcontractor demobilization.

Work will be organized into two elements. Initially, culvert modifications will be performed along the perimeter road, eliminating flow into the existing NSDD. Culverts will be plugged [i.e., filled with controlled low-strength material (flowable fill)] prior to any remediation activities. Once the culverts are plugged, the second element includes construction of the detention basin. Additional information on both elements is provided below.

Approximately 60 linear feet of 48-inch diameter culvert and inlet structures will be removed, and the remaining sections will be plugged with flowable fill. Waste materials will be placed into soft-sided, disposable containers (or a suitable alternate). All waste will be managed in accordance with the project waste management plan (Appendix E). A new 24-inch diameter corrugated metal pipe culvert will be installed inside the PGDP security fence, and a new ditch will be excavated to drain to the existing holding pond as detailed in Appendix A. Topsoil will be added, fertilized and seeded. Erosion control matting will be installed over disturbed areas in accordance with the storm water control plan.

Construction of the detention basin will initially include surveying of NSDD Section Two, as identified in the ROD (DOE 2002), to verify existing grades and to establish the construction baseline. The existing concrete diversion dam, parshall flume, and inlet structure will be demolished and removed. A new 24-inch diameter corrugated metal pipe culvert with steel flared end sections will be installed, and a new access road will be constructed to the existing groundwater Monitoring Well 355. NSDD Section Two, from Station 25+20 to Station 31+00, will be excavated to a depth of 4 ft. Soils from the excavation will be placed into soft-sided, disposable containers (or an acceptable alternate). Approximately 4,200 cubic yards of existing soil, spoiled during earlier construction near the NSDD and currently located in soil piles west of NSDD Section Two, will be excavated and properly managed. Additional soil adjacent to NSDD Section Two will be excavated as necessary to construct a detention basin with capacity for the runoff from a 25-year, 24-hour storm event.

A BJC entity (i.e. BJC or a BJC subcontractor) will conduct post-excavation soil sampling activities following Subcontractor excavation of NSDD Section Two. Limited additional excavation of 'hot spots' may be required depending upon sampling results. Direction to proceed

with detention basin construction following excavation and sampling will be given by the STR. Post-excavation sampling will be completed in accordance with the sampling plan included in Appendix G. Table 1 shows an uncertainty matrix that details responses to potential deviations from expected conditions based on the sampling results.

Following excavation and post-excavation sampling activities, NSDD Section Two and the detention basin will be lined with a 2 ft thick compacted clay cover and compacted clean soil to the final grade detailed in the design included in Appendix A. Clean soil will be added to the excavation as necessary to return the soil elevation to the design grade.

A new concrete paved ditch section and spillway will be constructed inside the detention basin for the extended piping discharge and C-616-C inlet structure. Piping modifications are not in the scope of this RD/RA WP, but are addressed in the *Remedial Design/Remedial Action Work Plan for the North-South Diversion Ditch Piping and Pump Modifications at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (DOE/OR/07-1967&D2). The remaining disturbed areas will receive topsoil, fertilizer, seed, and erosion control matting.

All excavated soils and demolition debris will be compliantly managed at the designated areas until dispositioned in accordance with the project waste management plan, included in Appendix E. All soil excavated from within SWMU 59 (i.e., the NSDD) will be containerized and disposed in an appropriate on- or off-site facility. Non-contaminated soil excavated adjacent to the NSDD (i.e. outside SWMU 59) may be used as fill material onsite at the PGDP following screening and release by RADCON personnel.

Following completion of fieldwork, demobilization will occur. Demobilization includes decontamination and removal of all Subcontractor supplied construction and health and safety equipment, dismantlement and removal of temporary structures and storm water controls, removal of excess construction materials, removal of all personnel, and preparation of a post construction report.

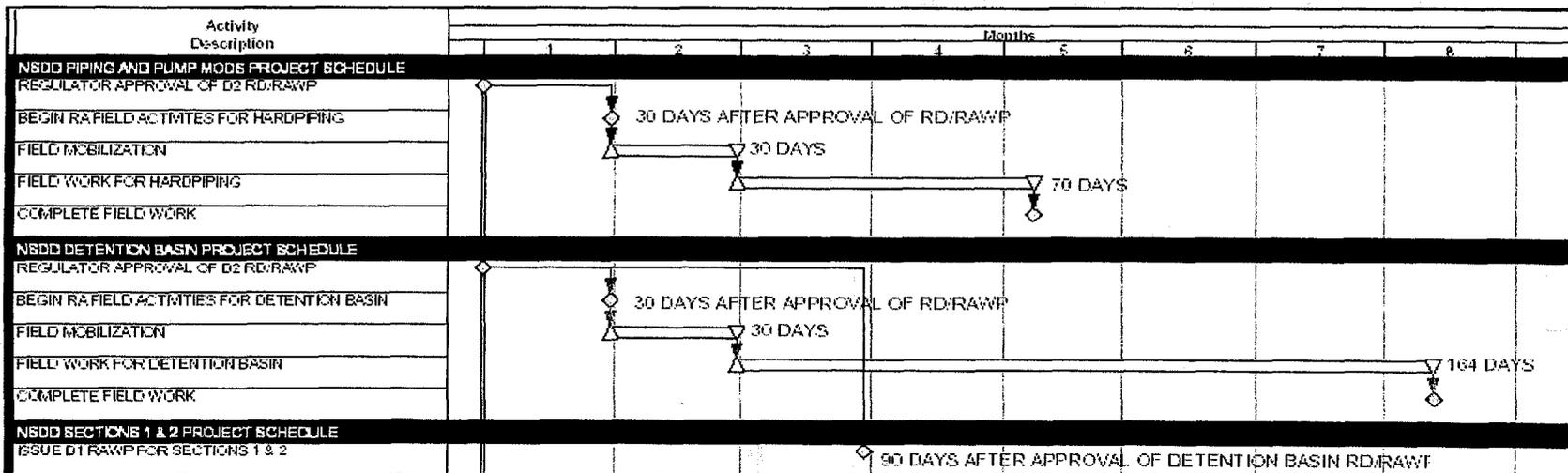
#### 4. PROJECT SCHEDULE

The schedule for Phase I, including the detention basin construction portion of the NSDD remedial action, is detailed in Figure 5. Piping and Pump Modifications were implemented upon signature of the ROD. The schedule in Figure 5 identifies durations for both the Piping and Pump Modifications and the Detention Basin portions of Phase I activities. The durations shown for each activity begin following approval of the respective RD/RA WP, and do not necessarily occur in parallel. Phase II excavation work will begin after Phase I activities are complete, approval of the Phase II RD/RA WP, and disposal options have become available. Specific milestone dates for these activities include:

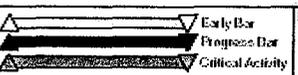
Regulatory approval of D2 RD/RAWP	March 31, 2003
Begin RA field mob/activities for detention basin	April 30, 2003
Complete field work for detention basin	November 10, 2003

**Table 1. Uncertainty matrix for detention basin construction**

<b>Expected Condition</b>	<b>Potential Deviation</b>	<b>Impact if Deviation Occurs</b>	<b>Contingency Plan to Manage Uncertainty</b>	<b>Monitoring</b>
Contamination exceeding industrial surface exposure clean-up levels is limited to top 4 ft and will be removed as part of the planned response action. If excavation achieves or exceeds the specified cleanup levels, long-term maintenance of the 2 ft clay cover would not be required.	Post-excavation sampling shows that contamination in excess of industrial surface exposure clean-up levels continues below 4 ft.	Potentially perform limited additional excavation to remove residual contamination in excess of industrial surface exposure clean-up levels or implement land use controls consistent with the NSDD LUCIP and 5 year reviews.	<p>If sampling indicates the presence of excess levels of residual contamination, DOE will review the data and determine if additional, limited excavation is required.</p> <p>Subsurface contamination may remain above levels that allow unlimited use and unrestricted exposure; therefore, land use controls consisting of property record actions, administrative controls, and access controls may be required, and five-year reviews would be conducted no less often than once every 5 years in accordance with 40 CFR § 300.400(f)(4)(ii).</p>	Post-excavation sampling.
	Post-excavation sampling shows that principal threat source material is present below 4 ft.	Potentially perform limited additional excavation to eliminate principal threat source material (i.e., contaminants in excess of $10^{-3}$ , HI of 10, and dose = 25 mrem/year) that remains in the NSDD at greater than 4 ft below land surface.	If DOE encounters principal threat source material that extends beneath 4 ft, DOE will engage the Kentucky Division of Waste Management and EPA to determine the extent of additional removal of soils to below principal threat source material criteria.	Post-excavation sampling.
Contaminants in the NSDD surface soils (0-4 ft) are not a significant source of groundwater contamination.	Post-excavation sampling shows that contamination at 4 ft exceeds groundwater leaching criteria.	A potential source to groundwater contamination is present.	Excavate to 4 ft to remove contaminants above clean-up criteria. If post excavation sampling indicates the presence of excess levels of residual contamination below 4 ft, the contamination will be addressed as part of the Groundwater Operable Unit action.	Post-excavation sampling.



Start Date 01OCT02  
 Finish Date 12MAY03  
 Extra Date 01OCT02  
 Run Date 03FEB03 14:19



DWL2

Sheet 1 of 1  
 Phase 1 Surface Water NSDD  
 Classic Schedule Layout

Date	Revision	Checked	Approved

Figure 5. Schedule

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## 5. PLANS

The Subcontractor's work plans include an ES&H plan, storm water control plan, waste management plan, quality assurance plan, and sampling plan. The project approach to these plans follows.

### 5.1. ENVIRONMENTAL, SAFETY, AND HEALTH

The Subcontractor shall be responsible for performing all associated work in a manner that minimizes the risk of bodily harm to employees, other project personnel and the general public, and avoids damage to property or the environment. The Subcontractor will follow requirements for safe and compliant work associated with metals, radiological contamination, PCB contamination, and other identified or unidentified hazards associated with this remedial action. In addition, the Subcontractor will implement federal, state, and local ES&H regulations applicable to the remedial action. Proper ES&H controls and monitoring shall be in place for each activity during the course of this work. An ES&H program plan, which includes an environmental compliance plan, was developed for this action and is included as Appendix D.

### 5.2. STORM WATER CONTROL

The Subcontractor will implement a storm water control plan describing the nature of the remedial action and detailing excavation locations. Best management practices (BMP) that will be employed to control storm water discharges in accordance with federal, state, and local erosion and sediment control requirements are specified in the plan. Storm water controls are addressed as part of the environmental compliance plan, which is included in Appendix D.

### 5.3. WASTE MANAGEMENT

The Subcontractor is responsible for management of the wastes generated during construction activities. Waste will be transferred to a BJC entity (i.e., BJC personnel or Subcontractor) for characterization and disposal following the completion of this phase of the remedial action in accordance with *Waste Acceptance Criteria for the Department of Energy Treatment, Storage and Disposal Units at the PGDP, Paducah, BJC/PAD-11*. The waste generated will be characterized in accordance with applicable requirements of 40 Code of Federal Regulations (CFR) 264 and 40 CFR 268. A project-specific waste management plan that incorporates the requirements for waste handling and transportation is included as Appendix E.

### 5.4. QUALITY ASSURANCE

The Subcontractor will have an established QA/QC program that defines the administrative procedures for implementing and integrating good quality practices throughout the work. The Subcontractor will verify that all activities affecting quality are performed in a controlled and consistent manner and in accordance with applicable procedures and requirements. The Subcontractor's QA/QC Plan is included as Appendix F.

## **5.5. SAMPLING AND ANALYSIS**

A sampling plan has been prepared to direct post-excavation sampling activities in excavated areas of the NSDD. The sampling plan identifies contaminants of concern, sampling requirements, and a sampling strategy to verify that remaining contamination levels meet intended land use clean up levels established in the ROD (DOE 2002). The sampling plan is included as Appendix G.

## **6. OBJECTIVES ATTAINMENT**

The objectives of the detention basin construction portion of the NSDD Remedial Action are to prevent future discharge of process water to the NSDD and to prevent future onsite runoff from being transported offsite via the NSDD. These objectives will be attained if the existing culverts are plugged and the storm water flow is collected in the detention basin, allowing for its efficient pumping to the C-616-F Full Flow Lagoon. Any applicable long term (i.e., post implementation) monitoring requirements will be addressed by the NSDD operations and maintenance (O&M) plan or the Land Use Controls Implementation Plan, as appropriate. The O&M plan address the maintenance of the detention basin, which will remain in use after the completion of the remedial action.

## **7. APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS**

The ARARs crosswalk is provided in Tables 2, 3 and 4. The crosswalk lists each chemical- or location-specific ARAR, provides the narrative requirement, and identifies the drawing, specification, or plan that demonstrates compliance with the requirement.

Table 2. Chemical-specific ARARs and TBC guidance for the NSDD

Action/medium	Requirements	Prerequisite	Citation(s)	Response
Remediation of PCB contaminated soil	Must achieve the cleanup levels of 1 ppm PCBs in high occupancy areas (as defined in 40 CFR 761.3) without further restrictions.	Self-implementing cleanup of bulk PCB remediation wastes (e.g., soil and sediments) as defined in 40 CFR 761.3.- <b>relevant and appropriate</b>	40 CFR 761.61(a)(4)(I)(A)	It is expected that the selected remedial alternative will leave no residual contamination that will pose a risk to humans under current and likely future exposure scenarios, and will not pose a risk to ecological receptors in any part of the NSDD (inside the security fence). However, it is expected that some residual contamination may remain in the subsurface following excavation. Any residual soil contamination remaining at depth will be subject to long-term land-use restrictions to restrict exposure under current, and likely potential future, land-use activities. Post-excavation samples will be collected during implementation of the remedial alternative and analyzed for COCs to verify the accomplishment of these objectives. Data collected as part of this response action will be used to support subsequent RI/FS evaluations for the entire SWOU.
Remediation of radioactively contaminated soil	Must achieve authorized limits equal to the specific guidelines derived from the basic dose limit using DOE/CH-8901 (or equivalent) in accordance with DOE Order 5400.5 (IV)(4)(a).	Residual radioactive materials in soil at a DOE facility. -TBC	DOE Order 5400.5(IV)(5)(a)	Same as above.

Action/medium	Requirements	Prerequisite	Citation(s)	Response
Remediation of RCRA contaminated soil	When an environmental media exhibits a "characteristic" or has been mixed with a listed waste, the media must be managed as a hazardous waste until it no longer contains the listed waste or no longer exhibits the characteristic.	EPA "Contained-In" Policy.-TBC		Management of hazardous waste will be detailed in the Waste Management Plan (WMP).
Protection of Little Bayou Creek classified for <i>Warm Water Aquatic Habitat</i> use	Must not exceed the parameters specified in 401 KAR 5:031 Sect. 4 (1)(a)-(g) and must not exceed the numeric AWQC concentrations in Table 2 of 401 KAR 5:031 Sect. 4 (1)(h) established for the listed toxic substances.	Discharge of pollutants (i.e., hazardous substances, contaminants) into waters of the state of Kentucky.- <b>relevant and appropriate</b>	401 KAR 5:031 Sect. 4	The storm water control plan will detail storm water protection measures that will be implemented for compliance with provisions of 401 KAR 5.
Release of radionuclides into the environment	Exposure to individual members of the public from radiation shall not exceed a total EDE of 0.1 rem/year (100 mrem/year) exclusive of the dose contributions from background radiation, any medical administration the individual has received, or voluntary participation in medical/research programs.	Radiation from operations at an NRC licensed facility.- <b>relevant and appropriate</b>	10 CFR 20.1301(a)(1) 902 KAR 100:019 Sect. 10(1)(a)	Potential release of radionuclides would only be expected from water erosion or wind suspension of the soils in the area of this project. Activities to mitigate the migration of radionuclides in either airborne dust or as erosion sediment will be sufficient for the public EDE to not exceed 10 mrem per year as defined in the project erosion control plan.
	Shall use, to the extent practicable, procedures and engineering controls based on sound radiation protection principles to achieve doses to members of the public that are ALARA.		10 CFR 20.1101(b) 902 KAR 100:015 Sect. 2(2)	Same as above.

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Action/medium	Requirements	Prerequisite	Citation(s)	Response
Release of radionuclides into the environment from a decommissioned site	Radiation shall not cause a total EDE > 25 mrem/year (to an average member of the critical group as defined in 10 CFR 20.1003), including that from groundwater sources of drinking water. Residual radioactivity shall be reduced to levels that are ALARA.	Residual radioactivity that is distinguishable from background at a decommissioned NRC-licensed site for unrestricted use.- <b>relevant and appropriate</b>	10 CFR 20.1402 902 KAR 100:042	Same as above.

Table 3. Location-specific ARARs and TBC guidance for the NSDD

Action/medium	Requirements	Prerequisite	Citation(s)	Response
Wetlands				
Presence of wetlands as defined in 10 CFR 1022.4(v)	Avoid, to the extent possible, the long- and short-term adverse effects associated with destruction, occupancy, and modification of wetlands. Measures to mitigate adverse effects of actions in a wetlands include, but are not limited to, minimum grading requirements, runoff controls, design and construction constraints, and protection of ecology-sensitive areas as provided in 10 CFR 1022.12(a)(3).	Federal actions that involve potential impacts to, or take place within, wetlands.- <b>applicable</b>	10 CFR 1022.3(a)	The discussion of the prevention of runoff will be in the best management practices (BMP) associated with storm water control and will be described in the environmental compliance plan (ECP).
	Take action, to extent practicable, to minimize destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetland.		10 CFR 1022.3(b)(5) and (6)	Project activities will be conducted in a manner as to not cause material runoff that would degrade any identified wetlands.
	Potential effects of any new construction in wetlands shall be evaluated. Identify, evaluate, and as appropriate, implement alternative actions that may avoid or mitigate adverse impacts on wetlands.		10 CFR 1022.3(c) and (d)	The discussion of the prevention of runoff will be in the BMP associated with storm water control and will be described in the ECP.
Floodplains				
Presence of floodplain as defined in 10 CFR 1024.4(i)	Avoid, to the extent possible, the long- and short-term adverse effects associated with occupancy and modifications of floodplains. Measures to mitigate adverse effects of actions in a floodplain include, but are not limited to, minimum grading requirements, runoff controls, design and construction constraints, and protection of ecology-sensitive areas as provided in 10 CFR 1022.12(a)(3).	Federal actions that involve potential impacts to, or take place within, floodplains.- <b>applicable</b>	10 CFR 1022.3(a)	Construction activities for this project will not to the extent practicable occur within the 100-year floodplain of Little Bayou Creek.

Table 3. Location-specific ARARs and TBC guidance for the NSDD (continued)

Action/medium	Requirements	Prerequisite	Citation(s)	Response
Presence of floodplain as defined in 10 CFR 1024.4(i) (continued)	Potential effects of any action taken in a floodplain shall be evaluated. Identify, evaluate, and implement alternative actions that may avoid or mitigate adverse impacts on floodplains.		10 CFR 1022.3 (c) and (d)	The floodplains that are potentially associated with the areas of this project will be defined and, to the extent practicable, construction will not occur within the 100-year floodplain.
	Design or modify selected alternatives to minimize harm to or within floodplains and restore and preserve floodplain values.		10 CFR 1022.5 (b)	Same as above.
Presence of a "base floodplain" as defined in 401 KAR 4:060 Sect. 1	No fill, deposit, obstruction, excavation, storage of materials, or structure, either alone or in combination with existing or future similar works, which may adversely affect the efficiency or capacity of the regulatory floodway, existing streams, or drainage facilities shall be placed in the regulatory floodway.	Construction across, along, or adjacent to a stream (i.e., base floodplain) or in the regulatory floodway of a stream.- <b>applicable</b>	401 KAR 4:060 Sect. 4(1)	Project activities, including the storage of materials and placement of structures, will not be conducted along streams, such as Little Bayou Creek, as to obstruct flow. Construction materials used will be stable, inert, and free from pollutants, and meet applicable engineering standards.
Construction along a stream (e.g., Little Bayou Creek)	No person shall store materials that are buoyant, flammable, explosive, or injurious to human, animal, or plant life within the regulatory floodway limits.	Placement of structures consistent with open spaces, but that could themselves obstruct flood flows.- <b>applicable</b>	401 KAR 4:060 Sect. 4 (1)(d)	Same as above.
	Dredging or other removal of material from between the stream banks, if disposal of the dredged material is outside of the regulatory floodway, is allowed if it is not of such a nature as to result in increases in flood elevations.	Activities or structures allowed within the regulatory floodway limits of a stream.- <b>applicable</b>	401 KAR 4:060 Sect. 4(2)(d)	Same as above.

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Table 3. Location-specific ARARs and TBC guidance for the NSDD (continued)

Action/medium	Requirements	Prerequisite	Citation(s)	Response
	Construction materials must be stable and inert, free from pollutants and floatable objects and shall meet all appropriate engineering standards applicable to the project.	Use of construction materials in stream construction projects.- <b>applicable</b>	401 KAR 4:060 Sect. 7	Same as above.
Aquatic resources				
Location encompassing aquatic ecosystem as defined in 40 CFR 230.3(c)	No discharge of dredged or fill material into an aquatic ecosystem is permitted if there is a practicable alternative that would have less adverse impact.	Action that involves the discharge of dredged or fill material into waters of the United States, including jurisdictional wetlands.- <b>applicable</b>	40 CFR 230.10(a)	Handling of dredged and fill materials will be described in the WMP. The ECP will detail storm water protection.
	No discharge of dredged or fill material shall be permitted unless appropriate and practicable steps in accordance with 40 CFR 230.70 et seq. have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem.	Action that involves the discharge of dredged or fill material into waters of the United States, including jurisdictional wetlands.- <b>applicable</b>	40 CFR 230.10(d)	Same as above.
	Allows minor discharges of dredge and fill material or other minor activities for which there is no practicable alternative, provided that the pertinent requirements of the NWP system are met.	Action that involves the discharge dredged or fill material into waters of the United States, including jurisdictional wetlands.- <b>applicable</b>	33 CFR 330.5	Same as above.

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Table 3. Location-specific ARARs and TBC guidance for the NSDD (continued)

Action/medium	Requirements	Prerequisite	Citation(s)	Response
Location encompassing migratory bird species as identified within the Migratory Bird Treaty Act	<p>Federal agencies are encouraged (until requirements are established under a formal MOU) to do the following:</p> <ul style="list-style-type: none"> <li>• avoid or minimize, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions;</li> <li>• restore and enhance the habitats of migratory birds, as practicable;</li> <li>• prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable;</li> <li>• ensure that environmental analysis of federal actions required by the NEPA or other established environmental review processes evaluate the effects of actions and agency plans of migratory birds, with emphasis on species of concern; and</li> <li>• identify where unintentional uptake likely will result from agency actions and develop standards and/or practices to minimize such unintentional take.</li> </ul>	<p>Protected of Endangered Species Action that is likely to impact migratory birds, habitats, and resources. -<b>applicable</b></p>	16 USC. 703-711 Executive Order 13186	DOE relies on the CERCLA process for review of environmental impacts of actions to be taken under CERCLA. NEPA values are included in all CERCLA documents. NEPA values address any anticipated impacts to human health and the environment, which include threatened and endangered species.
Location encompassing endangered species or critical habitat	Actions that jeopardize the existence of listed species or result in the destruction or adverse modification of critical habitat must be avoided or reasonable and prudent mitigation measures taken.	Action that is likely to jeopardize fish, wildlife, or plant species or destroy or adversely modify critical habitat. - <b>applicable</b>	16 USC 1531 et seq. Section 7(a)(2)	Same as above.

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**Table 4. Action-specific ARARs and TBC guidance for the NSDD**

Action/medium	Requirements	Prerequisite	Citation(s)	Response
		Site preparation, construction, and excavation activities		
Activities causing fugitive dust emissions	Shall take reasonable precautions to prevent particulate matter from becoming airborne. Reasonable precautions shall include, but are not limited to, the following:	Handling, processing, transporting or storing of any material, demolition of structures, construction operations, grading of roads, or the clearing of land, etc.- <b>applicable</b>	401 KAR 63:010 Sect. 3 (1)	The ECP will discuss in detail all of the requirements and associated actions to mitigate airborne fugitive emissions. These will include all applicable requirements of 401 KAR 63.
	Use of water or chemicals for control of dust where possible;		401 KAR 63:010 Sect. 3 (1)(a)	Same as above.
	Application of asphalt, oil, water, or suitable chemicals on dirt roads, materials stock piles, and other surfaces that can create airborne dusts; and		401 KAR 63:010 Sect. 3 (1)(b)	Same as above.
	Covering at all times when in motion, open bodied trucks transporting materials likely to become airborne.		401 KAR 63:010 Sect. 3 (1)(d)	Same as above.
	Shall not cause or permit the discharge of visible fugitive dust emissions beyond the lot line on which the emission originates.		401 KAR 63:010 Sect. 3 (2)	Same as above.
Activities causing radionuclide emissions	Shall not exceed those amounts that would cause any member of the public to receive an EDE of 100 mrem per year.	Radionuclide emissions from point sources, as well as diffuse or fugitive emissions at a DOE facility.- <b>applicable</b>	40 CFR 61.92	Potential release of radionuclides would only be expected from water erosion or wind suspension of the soils in the area of this project. Activities to mitigate the migration of radionuclides in either airborne dust or as erosion sediment will be sufficient for the public EDE to not exceed 100 mrem per year as defined in the project ECP.

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Table 4. Action-specific ARARs and TBC guidance for the NSDD

Action/medium	Requirements	Prerequisite	Citation(s)	Response
Activities causing storm water runoff	Shall provide a narrative description of the following:	Operation of an existing or new storm water discharge associated with construction activity.- <b>applicable</b>	401 KAR 5:060 Sect. 12 (2)(a)(2)	A BMP will be included in the ECP to define the controls to be used to minimize storm water discharges. These controls will be consistent with requirements/guidance in 40 CFR 122 and 401 KAR 5 and will be implemented to the extent practicable. The requirement for a BMP is for disturbance less than 5 acres.
	Location, including a map, and nature of the construction activity;		401 KAR 5:060 Sect. 12 (2)(a)(2)(a)	Same as above.
	Total area of the site and the area of the site expected to undergo excavation;		401 KAR 5:060 Sect. 12 (2)(a)(2)(b)	Same as above.
	Proposed measures, including BMPs, to control pollutants in storm water discharges during and after construction, including a brief description of applicable state or local erosion and sediment control requirements;		401 KAR 5:060 Sect. 12 (2)(a)(2)(c) and (d) KRS 224.001-400	Same as above.
	An estimate of the runoff coefficient of the site and the increase in impervious area after the construction, the nature of the fill material, and existing data describing the soil or quantity of the discharge; and		401 KAR 5:060 Sect. 12 (2)(a)(2)(e)	Same as above.
	The name of the receiving water.		401 KAR 5:060 Sect. 12 (2)(a)(2)(f)	Same as above.

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Table 4. Action-specific ARARs and TBC guidance for the NSDD

Action/medium	Requirements	Prerequisite	Citation(s)	Response
		Waste generation activities		
Characterization of solid waste (e.g., contaminated PPE, equipment, soils, wastewater, etc.)	Must determine if solid waste is hazardous waste or if waste is excluded under 40 CFR 261.4 [401 KAR 32:010 Sect. 4];	Generation of solid waste as defined in 40 CFR 261.2 and which is not excluded under 40 CFR 261.4(a).- <b>applicable</b>	40 CFR 262.11(a) 401 KAR 32:010 Sect. (2)(1)	All wastes generated from the project activities will be characterized in accordance with all applicable requirements of 40 CFR 261 through 268. This will be described in detail in the WMP. Same as above.
	Must determine if waste is listed under 40 CFR Part 261 [401 KAR 31:040], or		40 CFR 262.11(b) 401 KAR 32:010 Sect. (2)(2)	
	Must characterize waste by using prescribed testing methods or applying generator knowledge based on information regarding materials or processes used.		40 CFR 262.11(c) and (d) 401 KAR 32:010 Sect. 3	Same as above.
	If waste is determined to be hazardous, it must be managed in accordance with pertinent sections of 40 CFR 261-268 and 273.	Generation of solid waste which is determined to be hazardous.- <b>applicable</b>	40 CFR 262.11(d) 401 KAR 32:010 Sect. 4(1)(a)	Same as above.
Characterization of hazardous waste	Must obtain a detailed chemical and physical analysis of a representative sample of the waste(s) that, at a minimum, contains all the information that must be known to treat, store, or dispose of the waste in accordance with 40 CFR 264 and 268.	Generation of RCRA hazardous waste for storage, treatment or disposal.- <b>applicable</b>	40 CFR 264.13(a)(1) 401 KAR 32:020 Sect. 4(1)(a)	All wastes generated from the project activities will be characterized per all applicable requirements of 40 CFR 261 through 268. This will be described in detail in the WMP.

Table 4. Action-specific ARARs and TBC guidance for the NSDD

Action/medium	Requirements	Prerequisite	Citation(s)	Response
Characterization of hazardous waste (continued)	Must determine the underlying hazardous constituents [as defined in 40 CFR 268.2(i)] in the D001, D002, D012-D043 waste.	Generation of Resource Conservation and Recovery Act characteristic hazardous waste (other than D001 High TOC Subcategory or treated by CMBST or RORGS) for storage, treatment or disposal.- <b>applicable</b>	40 CFR 268.9(a) 401 KAR 37:010 Sect. 9(1)	Same as above.
	Must determine if the waste is restricted from land disposal under 40 CFR 268 et seq. by testing in accordance with prescribed methods or use of generator knowledge of waste.		40 CFR 268.7 401 KAR 37:010 Sect. 7	Same as above.
	Must determine each EPA Hazardous Waste number (Waste Code) to determine the applicable treatment standards under 40 CFR 268.40 et. seq.		40 CFR 268.9(a) 401 KAR 37:010 Sect. 9(1)	Same as above.
Characterization of LLW (e.g., contaminated PPE, equipment, soils, wastewater, etc.)	Shall be characterized using direct or indirect methods and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance criteria of the receiving facility.	Generation of LLW for storage or disposal at a DOE facility.- <b>TBC</b>	DOE M 435.1-1(IV)(I)	All wastes generated from the project activities will be characterized per all applicable requirements of 40 CFR 261 through 268. This will be described in detail in the WMP.
	Physical and chemical characteristics;		DOE M 435.1-1 (IV)(I)(2)(a)	Same as above.
	Volume, including the waste and any stabilization or absorbent media;		DOE M 435.1-1 (IV)(I)(2)(b)	Same as above.
	Weight of the container and contents; identifies, activities, and concentrations of major radionuclides;		DOE M 435.1-1 (IV)(I)(2)(c) DOE M 435.1-1 (IV)(I)(2)(d)	Same as above.
	Characterization date;		DOE M 435.1-1 (IV)(I)(2)(e)	Same as above.
	Generating source;		DOE M 435.1-1 (IV)(I)(2)(f)	Same as above.

Table 4. Action-specific ARARs and TBC guidance for the NSDD

Action/medium	Requirements	Prerequisite	Citation(s)	Response
Characterization of LLW (e.g., contaminated PPE, equipment, soils, wastewater, etc.) (continued)	Any other information that may be needed to prepare and maintain the disposal facility performance assessment or demonstrate compliance with performance objectives.		DOE M 435.1-1 (IV)(1)(2)(g)	Same as above.
Management of PCB waste (e.g., contaminated PPE, equipment, soils, wastewater, etc.)	Any person storing or disposing of PCB waste must do so in accordance with 40 CFR 761, Subpart D.	Generation of waste containing PCBs at concentrations $\geq 50$ ppm.- <b>applicable</b>	40 CFR 761.50(a)	Storage of specific types of PCB or PCB contaminated waste will be described in detail in the WMP. The storage and handling of these wastes that contain PCBs will be compliant with the substantive requirements of each cited section of 40 CRF 761.
	Any person cleaning up and disposing of PCBs shall do so based on the concentration at which the PCBs are found.			Same as above.
Management of PCB/radioactive waste	Any person storing such waste (50 ppm PCBs) must do so taking into account both its PCB concentration and radioactive properties, except as provided in 40 CFR 761.65(a)(1), (b)(1)(ii) and (c)(6)(i).	Generation of PCB/ Radioactive waste for storage and disposal.- <b>applicable</b>	40 CFR 761.50(b)(7)(i)	Same as above.
	Any person disposing of such waste must do so taking into account both its PCB concentration and its radioactive properties.		40 CFR 761.50(b)(7)(ii)	Same as above.

Table 4. Action-specific ARARs and TBC guidance for the NSDD

Action/medium	Requirements	Prerequisite	Citation(s)	Response
Temporary storage of hazardous waste in containers (e.g., PPE, rags, etc.)	A generator may accumulate hazardous waste at the facility provided that these conditions are met:	Accumulation of RCRA hazardous waste on site as defined in 40 CFR 260.10.- <b>applicable</b>	40 CFR 262.34(a) 401 KAR 32:030 Sect. 5	All hazardous waste generated by the project and stored onsite will comply with all of the substantive requirements of 40 CFR 262 through 268 and 401 KAR 32 to the extent practicable. Detailed storage requirements will be described in the WMP.
	waste is placed in containers that comply with 40 CFR 265.171-173 (Subpart I); and		40 CFR 262.34(a)(1)(i) 401 KAR 32:030 Sect. 5(1)(a)	Same as above.
	the date upon which accumulation begins is clearly marked and visible for inspection on each container and each container is marked with the words "hazardous waste" or;		40 CFR 262.34(a)(2) 401 KAR 32:030 Section 5(1)(b) 40 CFR 262.34(a)(3) 401 KAR 32:030 Sect. 5(1)(c)	Same as above.
	container may be marked with other words that identify the contents.	Accumulation of 55 gal or less of RCRA hazardous waste at or near any point of generation.- <b>applicable</b>	40 CFR 262.34(c)(1)(ii) 401 KAR 32:030 Sect. 5(3)(a)	Same as above.
Use of and management of hazardous waste in containers	If container is not in good condition (e.g., severe rusting, structural defects) or if it begins to leak, must transfer waste into container in good condition.	Storage of RCRA hazardous waste in containers.- <b>applicable</b>	40 CFR 264.171 401 KAR 34:180 Sect. 2	Same as above. Including all applicable sections of 401 KAR 34.
	Use container made or lined with materials compatible with waste to be stored so that the ability of the container is not impaired.		40 CFR 264.172 401 KAR 34:180 Sect. 3	Same as above.
	Keep containers closed during storage, except to add/remove waste.		40 CFR 264.173(a) 401 KAR 34:180 Sect. 4(1)	Same as above.

Table 4. Action-specific ARARs and TBC guidance for the NSDD

Action/medium	Requirements	Prerequisite	Citation(s)	Response
Use of and management of hazardous waste in containers (continued)	Open, handle and store containers in a manner that will not cause containers to rupture or leak.		40 CFR 264.173(b) 401 KAR 34:180 Sect. 4(2)	Same as above.
Storage of hazardous waste in container area	Area must have a containment system designed and operated in accordance with 40 CFR 264.175(b) [401 KAR 34:180 Sect. 6(2)]	Storage of RCRA-hazardous waste in containers with free liquids.- <b>applicable</b>	40 CFR 264.175(a) 401 KAR 34:180 Sect. 6(1)	Same as above.
	Area must be sloped or otherwise designed and operated to drain liquid from precipitation, or	Storage of RCRA-hazardous waste in containers that do not contain free liquids.- <b>applicable</b>	40 CFR 264.175(c) 401 KAR 34:180 Sect. 6(3)	Same as above.
	Containers must be elevated or otherwise protected from contact with accumulated liquid.			Same as above.
Temporary storage of PCB waste (e.g., soils, PPE, rags, etc.) in containers	Container(s) shall be marked as illustrated in 40 CFR 761.45(a)	Storage of PCBs and PCB items at concentrations 50 ppm for disposal.- <b>applicable</b>	40 CFR 761.65 (a)(1)	The storage and handling of these wastes that contain PCBs will be compliant with the substantive requirements of each cited section of 40 CFR 761 and addressed by the WMP.
	Storage area must be properly marked as required by 40 CFR 761.40(a)(10)		40 CFR 761.65(c)(3)	Same as above.
	Container(s) shall be in accordance with requirements set forth in DOT HMR at 49 CFR 171-180.		40 CFR 761.65(c)(6)	Same as above.
	The date shall be recorded when PCB items are removed from service and the storage shall be managed such that PCB items can be located by this date (note: date should be marked on the container).	PCB items (includes PCB wastes) removed from service for disposal.- <b>applicable</b>	40 CFR 761.65(c)(8)	Same as above.

Table 4. Action-specific ARARs and TBC guidance for the NSDD

Action/medium	Requirements	Prerequisite	Citation(s)	Response
Storage of PCB/radioactive waste in containers (e.g., soils, PPE, wastewaters)	For liquid wastes, containers must be non-leaking.	Storage of PCB/radioactive waste in containers other than those meeting DOT HMR performance standards.- <b>applicable</b>	40 CFR 761.65(c)(6)(i)(A)	The storage and handling of these wastes that contain PCBs and radionuclides will be compliant with the substantive requirements of each cited section of 40 CFR 761 and addressed by the WMP.
	For non-liquid wastes, containers must be designed to prevent buildup of liquids if such containers are stored in an area meeting the containment requirements of 40 CFR 761.65(b)(1)(ii); and		40 CFR 761.65(c)(6)(i)(B)	
	For both liquid and non-liquid wastes, containers must meet all regulations and requirements pertaining to nuclear criticality safety.		40 CFR 761.65(c)(6)(i)(C)	
Temporary storage of LLW (e.g., staging excavated soils)	Ensure that radioactive waste is stored in a manner that protects the public, workers, and the environment and that the integrity of waste storage is maintained for the expected time of storage.	Management of LLW at a DOE facility.- <b>TBC</b>	DOE M 435.1-1 (IV)(N)(1)	Storage of LLW will be conducted to minimize dose (ALARA) to the public (not to exceed a total EDE of 25 mrem per year) or contamination of the environment. The methods for storage of LLW will be described in the WMP.
	Shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water.		DOE M 435.1-1 (IV)(N)(1)	Same as above.
	Shall be stored in a location and manner that protects the integrity of waste for the expected time of storage.		DOE M 435.1-1 (IV)(N)(3)	Same as above.
	Shall be managed to identify and segregate LLW from mixed waste.		DOE M 435.1-1 (IV)(N)(6)	Same as above.

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**Table 4. Action-specific ARARs and TBC guidance for the NSDD**

Action/medium	Requirements	Prerequisite	Citation(s)	Response
Packaging of LLW (e.g., PPE, rags)	Shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.	Storage of LLW in containers at a DOE facility.-TBC	DOE M 435.1-1 (IV)(L)(1)(a)	Same as above.
	Vents or other measures shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.		DOE M 435.1-1 (IV)(L)(1)(b)	Same as above.
	Containers shall be marked such that their contents can be identified.		DOE M 435.1-1 (IV)(L)(1)(c)	Same as above.
Institutional controls				
Radioactively contaminated soil left in place	Use of, and access to, residual radioactive material shall be controlled through appropriate administrative and physical controls.	Long-term management of radioactive material at a DOE facility.-TBC	DOE Order 5400.5(IV)(6)(d)(1)(e)	Procedures and other administrative controls for managing residual radioactive material will be compliant with DOE Order 5400.5. LUCIP addresses long-term administrative and physical controls.
	Controls include, but are not limited to, periodic monitoring as appropriate; appropriate shielding; physical barriers (i.e., fences, warning signs) to prevent access; appropriate radiological safety measure during maintenance, renovation, demolition or other activities that might disturb the residual radioactive material or cause it to migrate.		DOE Order 5400.5(IV)(6)(c)(2)	Same as above.

**Table 4. Action-specific ARARs and TBC guidance for the NSDD**

Action/medium	Requirements	Prerequisite	Citation(s)	Response
Treatment of LLW	Treatment to provide more stable waste forms and to improve the long-term performance of a LLW disposal facility shall be implemented, as necessary, to meet the performance objectives of the disposal facility.	Treatment/Disposal Generation of LLW for disposal at a DOE facility.-TBC	DOE M 435.1-1(IV)(O)	The WMP will detail any required waste pretreatment to allow for disposal in accordance with receiving facility WAC.
Treatment of uranium- and thorium-bearing LLW	Such wastes shall be properly conditioned so that the generation and escape of biogenic gases will not cause exceedance of Rn-222 emission limits of DOE Order 5400.5(IV)(6)(d)(1)(b) and will not result in premature structure failure of the facility.	Placement of potentially biodegradable contaminated wastes in a long-term management facility.-TBC	DOE Order 5400.5(IV)(6)(d)(1)(c)	Same as above.
Disposal of LLW at an on-site disposal facility or an off-site disposal facility	LLW shall be certified as meeting waste acceptance requirements before it is transferred to the receiving facility.	Generation of LLW for disposal at a DOE facility.-TBC	DOE M 435.1-1(IV)(J)(2)	Waste certification will be performed in accordance with applicable receiving facility WAC and is addressed in the WMP.

Table 4. Action-specific ARARs and TBC guidance for the NSDD

Action/medium	Requirements	Prerequisite	Citation(s)	Response
Disposal of RCRA/TSCA waste at an off-site commercial facility	<p>Meet authorized limits established in accordance with basic dose limits and consistent with guidelines contained in DOE-EH guidance before release.</p> <p>Authorized limits shall be consistent with limits and guidelines established by other applicable federal and state laws.</p>	Release of hazardous wastes potentially containing residual radioactive material throughout the volume.-TBC	DOE Order 5400.5(II)(5)(c)(6) and 5400.5(IV)(5)(a)	<p>Release of radioactive materials will be performed in accordance with BJC procedure, DOE Orders and applicable federal and state laws and is addressed in the WMP.</p> <p>Same as above.</p>
Performance-based disposal of PCB remediation waste	<p>May dispose of by one of the following methods:</p> <p>in a high-temperature incinerator approved under Section 761.70(b);</p> <p>by an alternate disposal method approved under Section 761.60(e);</p> <p>in a chemical waste landfill approved under Section 761.75;</p> <p>in a facility with a coordinated approval issued under Section 761.77; or</p> <p>through decontamination in accordance with 40 CFR 761.79.</p>	Disposal of nonliquid PCB remediation waste.-applicable	<p>40 CFR 761.61(b)(2)</p> <p>40 CFR 761.61(b)(2)(i)</p> <p>40 CFR 761.61(b)(2)(ii)</p>	<p>PCB wastes will be disposed of in accordance with applicable laws. The WMP will detail the disposition of PCB wastes.</p>

Table 4. Action-specific ARARs and TBC guidance for the NSDD

Action/medium	Requirements	Prerequisite	Citation(s)	Response
Disposal of PCB cleanup wastes (PPE, rags, nonliquid cleaning materials)	<p>Shall be disposed of by one of these methods:</p> <p>in a facility permitted, licensed, or registered by a state to manage municipal solid waste under 40 <i>CFR</i> 258 or nonmunicipal, nonhazardous waste subject to 40 <i>CFR</i> 257.5 through 257.30;</p> <p>in a RCRA Subtitle C landfill permitted by a state to accept PCB waste;</p> <p>in an approved PCB disposal facility; or</p> <p>through decontamination under 40 <i>CFR</i> 761.79(b) or (c).</p>	<p>Generation of nonliquid PCBs at any concentration during and from the cleanup of PCB remediation waste. -<b>applicable</b></p>	40 <i>CFR</i> 761.61(a)(5)(v)(A)	Same as above.
Disposal of PCB cleaning solvents, abrasives, and equipment	<p>May be reused after decontamination in accordance with 40 <i>CFR</i> 761.79.</p>	<p>Generation of PCB wastes from the cleanup of PCB remediation waste. -<b>applicable</b></p>	40 <i>CFR</i> 761.61(a)(5)(v)(B)	Same as above.
Disposal of RCRA-hazardous waste in a land-based unit	<p>May be land disposed only if it meets the requirements in the Table A "Treatment Standards for Hazardous Waste" at 40 <i>CFR</i> 268.40 before land disposal.</p> <p>Must be treated according to the alternative treatment standards of 40 <i>CFR</i> 268.49(c), or according to the UTSs specified in 40 <i>CFR</i> 268.48 applicable to the listed and/or characteristic waste contaminating the soil, prior to land disposal.</p>	<p>Land disposal, as defined in 40 <i>CFR</i> 268.2, of restricted RCRA waste. -<b>applicable</b></p> <p>Land disposal, as defined in 40 <i>CFR</i> 268.2, of restricted hazardous soils. -<b>applicable</b></p>	<p>40 <i>CFR</i> 268.40(a)</p> <p>40 <i>CFR</i> 268.49(b) 401 KAR 37:040 Section 1</p>	<p>RCRA wastes will be disposed of in accordance with applicable laws and regulations. The WMP will detail plans for disposition of RCRA wastes.</p>

Table 4. Action-specific ARARs and TBC guidance for the NSDD

Action/medium	Requirements	Prerequisite	Citation(s)	Response
Disposal of RCRA wastewaters	Are not prohibited unless the waters are subject to a specified method of treatment other than DEALT in 40 CFR 268.40, or are D003 reactive cyanide.	Restricted RCRA characteristic hazardous waste waters managed in a treatment system that is NPDES permitted.- <b>applicable</b>	40 CFR 268.1(c)(4)(iv) 401 KAR 37:010 Section (5)	Same as above.
Transportation				
Transportation of LLW waste offsite	LLW waste shall be packaged and transported in accordance with DOE O 460.1A and DOE O 460.2.	Shipment of LLW offsite.- <b>TBC</b>	DOE M 435.1-1(I)(1)(E)(11)	All transportation of regulated wastes and materials will be defined in a transportation section in the waste management plan which will define the response to all applicable regulations (RCRA, TSCA, DOT, etc.)
	To the extent practicable, the volume of waste and number of shipments shall be minimized.		DOE M 435.1-1(IV)(L)(2)	Same as above.
Transportation of PCB wastes	Must comply with the manifesting provisions at 40 CFR 761.207 through 40 CFR 761.218	Relinquishment of control over PCB wastes by transporting, or offering for transport.- <b>applicable</b>	40 CFR 761.207 (a)	Same as above.
Transportation of hazardous waste offsite	Must comply with the generator requirements of 40 CFR 262.20-23 for manifesting; Sect. 262.30 for packaging; Sect. 262.31 for labeling; Sect. 262.32 for marking; Sect. 262.33 for placarding; Sect. 262.40, 262.41(a) for record keeping requirements; and Sect. 262.12 to obtain EPA ID number.	Off-site transportation of RCRA hazardous waste.- <b>applicable</b>	40 CFR 262.10(h) 401 KAR 32:030	Same as above.
	Must comply with the requirements of 40 CFR 263.11-263.31.  A transporter that meets requirements of 49 CFR 171-179 and requirements of 40 CFR 263.11 and 263.31 will be deemed in compliance with 40 CFR 263.	Transportation of hazardous waste within the United States requiring a manifest.- <b>applicable</b>	40 CFR 263.10(a) 401 KAR 33:010	Same as above.

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**Table 4. Action-specific ARARs and TBC guidance for the NSDD**

Action/medium	Requirements	Prerequisite	Citation(s)	Response
Transportation of hazardous waste onsite	The generator manifesting requirements of 40 CFR 262.20 through 262.32(b) do not apply.  Generator or transporter must comply with the requirements set forth in 40 CFR 263.30 and 263.8 in the event of a discharge of hazardous waste on private or public right-of-way.	Transportation of hazardous waste on a public or private right-of-way within or along the border of contiguous property under the control of the same person, even if such contiguous property is divided by a public or private right-of-way. – <b>applicable</b>	40 CFR 262.20(f) 401 KAR 32:020 Section 1(1)	Same as above.
Transportation of RCRA wastewater to wastewater treatment facility	All tank systems, conveyance systems, and ancillary equipment used to store or transport waste to an on-site NPDES-permitted wastewater treatment facility are exempt from the requirements of RCRA Subtitle C standards.	On-site wastewater treatment units that are subject to regulation under Section 402 or Section 307(b) of the CWA (NPDES-permitted).- <b>applicable</b>	40 CFR 270.1(c)(2)(v) 401 KAR 38:010 Sect. 1(2)(b)(5)	Same as above.
Transportation of hazardous materials	Shall be subject to and must comply with all applicable provisions of the HMTA and HMR at 49 CFR 171-180	Any person who, under contract with a department or agency of the federal government, transports, or causes to be transported or shipped, a hazardous material. – <b>applicable</b>	49 CFR 171.1(c)	Same as above.

ALARA = as low as reasonably achievable  
 ARAR = applicable or relevant and appropriate  
 BMP = Best Management Practices  
 CFR = Code of Federal Regulations  
 DOE = U.S. Department of Energy  
 DOE M = (Radioactive Waste Management) Manual  
 DOE O = (Radioactive Waste Management) Order  
 DOT = U.S. Department of Transportation  
 EDE = effective dose equivalent  
 HMTA = Hazardous Materials Transportation Act  
 HMR = Hazardous Materials Regulations

LLW = low level (radioactive) waste  
 mrem = millirem  
 NPDES = National Pollutant Discharge Elimination System  
 PCB = polychlorinated biphenyl  
 PPE = personal protective equipment  
 RCRA = Resource Conservation and Recovery Act of 1976  
 TBC = to be considered  
 TCLP = Toxicity Characteristic Leaching Procedure  
 TSCA = Toxic Substances Control Act  
 UTSS = universal treatment standards  
 WAC = waste acceptance criteria

## 8. REFERENCES

- 42 U.S.C. & 7401 et seq. The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986.
- Code of Federal Regulations*, Title 40, Part 300. National Oil and Hazardous Substances Pollution Contingency Plan (NCP).
- DOE (U.S. Department of Energy) 1989. DOE Order 5400.4, *CERCLA Requirements*, U.S. Department of Energy, Washington, D.C.
- DOE 1992. *Federal Facility Agreement for the Oak Ridge Reservation*, DOE/OR-1014. U.S. Environmental Protection Agency, Region IV, Atlanta, GA.; U.S. Department of Energy, Oak Ridge Operations, Oak Ridge, TN; and the Tennessee Department of Environment and Conservation, Nashville, TN.
- DOE 1994a. "Secretarial Policy Statement on NEPA."
- DOE 1994b. *Record of Decision for Interim Action Source Control at the North-South Diversion Ditch, Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/06-1213&D3, U.S. Department of Energy, Paducah, KY.
- DOE 2000. *Annotated Outlines for Documents Required by FFA and CERCLA for Oak Ridge Reservation Sites*, DOE/OR/01-1077/R1, Bechtel Jacobs Company LLC, Oak Ridge, TN.
- DOE 2001a. *Focused Feasibility Study for the North-South Diversion Ditch at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/07-1922&D2, Primary Document, Bechtel Jacobs Company LLC, Paducah, KY.
- DOE 2001b. *Proposed Remedial Action Plan for the North-South Diversion Ditch at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/07-1923&D2, Primary Document, Bechtel Jacobs Company LLC, Paducah, KY.
- DOE 2002. *Record of Decision for Remedial Action at the North-South Diversion Ditch at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/07-1948&D2, Primary Document, Bechtel Jacobs Company LLC, Paducah KY.

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# Comment Response Summary

for the

***Remedial Design/Remedial Action Work Plan for the North-South Diversion Ditch Detention Basin  
at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky  
(DOE/OR/07-2008&D1 issued November 26, 2002)***



Prepared for  
U.S. Department of Energy  
Office of Environmental Management

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**COMMENT RESPONSE SUMMARY**

*Remedial Design/Remedial Action Work Plan for the North-South Diversion Ditch Detention Basin at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky  
(DOE/OR/07-2008&D1 issued November 26, 2002)*

Comment Number	Sect. Page/Para.	Reviewer and Comment	Response
1.	General	Environmental Protection Agency (EPA): (1/24/03) General G1  "No schedule with specific dates is provided for these remedial actions. While some durations are provided, none originate from specific dates. The Federal Facility Agreement clearly requires dates for milestones part of this action, and they should be provided in the revised document."	Agree. Specific schedule and milestone dates agreed to or proposed under the FFA will be provided.
2.	Page ix; ES; Para. 5	EPA: (1/24/03) Specific S1  "This paragraph notes that non-hazardous waste generated from Phase I and II remediation implementation will be disposed in the C-746-U Landfill. Is this landfill currently accepting non-hazardous environmental restoration wastes generated at the PGDP? If not, the current status of the C-746-U Landfill should be defined in this document along with a summary of regulatory requirements to be fulfilled in order to return the landfill to an operational status."	Agree. Will summarize the fact that the landfill currently is not accepting waste, pending regulatory approval of permit modifications and submittal of authorized limits request.
3.	Sect. 3.2; Page 9; Para. 1; Sent. 2	EPA: (1/24/03) S2  "This sentence notes that the detention basin will be capable of handling a 25-year/24-hour storm event. Provide justification for selection of a 25-year/24-hour storm event as the benchmark for sizing of the detention basin. Is this benchmark consistent with other detention basins designed for, or actually constructed at, the PGDP? Provide details regarding other detention basin designs and/or construction."	The NSDD detention basin was sized for a 25-yr/24-hr storm event through the core team process, as documented in an 11/14/00 email received from a state regulator. The 10-year storm would represent a 5.0" rainfall event; the 25-year storm represents an approximate 5.7" rainfall event over 24 hours.  This basin was sized based on the specific requirements for the NSDD project; design details for other basins are not relevant and outside the scope of this document.

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**COMMENT RESPONSE SUMMARY**  
**Remedial Design/Remedial Action Work Plan for the North-South Diversion Ditch Detention Basin at the**  
**Paducah Gaseous Diffusion Plant, Paducah, Kentucky**  
**(DOE/OR/07-2008&D1 issued November 26, 2002) (continued)**

Comment Number	Sect. Page/Para.	Reviewer and Comment	Response
4.	Sect. 3.4; Page 10; Para. 6; Sent. 1	EPA: (1/24/03) S3  "There appears to be a typographical error within this sentence, should read 'BJC will conduct post-excavation soil sampling activities ...?'"	Agree. Text will be modified as appropriate.
5.	Sect. 4; Page 11; Last Sent.	EPA: (1/24/03) S4  "This sentence states that Phase II excavation work will begin after disposal options have become available. Provide explanation as to why viable disposal options for Phase II excavation are not currently available. In the event that disposal options do not become readily available after the completion of Phase I work, will a protracted delay in the start of Phase II activities impact the operation or maintenance of the planned Phase I detention basin?"	Phase II waste disposal is dependent on availability of the C-746 U Landfill, as detailed in the ROD.  Any delays in the implementation or completion of Phase II remediation will not impact the operation or maintenance of the detention basin (see Comment #8 below regarding O&M plan).
6.	Sect. 4; Page 12; Table 1	EPA: (1/24/03) S5  "Several potential deviations from expected conditions are listed within this table. Will all of the contingency plan activities outlined in this table be included in the scope(s) of work issued to subcontractors for the project so that delays do not occur if identified deviations are encountered during implementation?"	Scope of work for the remediation subcontractor is adequate to address the potential deviations without resulting in significant schedule delays associated with contracting.
7.	Sect. 4; Page 13; Figure 5	EPA: (1/24/03) S6  "This figure is not completely legible due to poor reproduction, and the 'days' scale across the top of the schedule is not clear. Either provide a legible copy of the schedule as currently formatted, or re-format so all elements of the schedule are legible."	Agree. Figure will be modified as appropriate.

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**COMMENT RESPONSE SUMMARY**  
*Remedial Design/Remedial Action Work Plan for the North-South Diversion Ditch Detention Basin at the  
 Paducah Gaseous Diffusion Plant, Paducah, Kentucky*  
 (DOE/OR/07-2008&D1 issued November 26, 2002) (continued)

Comment Number	Sect. Page/Para.	Reviewer and Comment	Response
8.	Sect. 6; Page 15; Last Sent.	EPA: (1/24/03) S7  "Within this sentence, reference is made to the NSDD operations and maintenance plan. Has this plan already been prepared and if not, when will the plan be prepared? This plan should specifically address the O&M of the planned detention basin since a delay in the start of Phase II activities related to disposal options may require operation of this basin for a longer than anticipated period of time."	The standard distribution of the D0 O&M Plan was performed January 27, 2003. The plan, as drafted, addresses O&M of the detention basin, which is intended to remain in operation following completion of the NSDD remedial action.
9.	Sect. 7; Page 19; Table 3	EPA: (1/24/03) S8  "The response provided for the action/medium Presence of floodplain as defined in 10 CFR 1024.4(i), Citation(s) 10 CFR 1022.3(a), indicates that construction activities will not occur within the 100-year floodplain. Revise text to indicate which floodplain is being referenced in this response (Ohio River, Bayou Creek, etc). Also provide same revision for Citation(s) 10 CFR 1022.3(c) and (d) in the same action/medium section."	Agree. Text will be modified as appropriate.
10.	Sect. 7; Page 21; Table 3	EPA: (1/24/03) S9  "The response provided for the action/medium Location encompassing aquatic ecosystem as defined in 40 CFR 230.3(c), Citation(s) 40 CFR 230.10(a), is not complete (i.e., The ECP will detail storm water protection and). Revise text to include remainder of text intended to be included in this response."	Agree. Text will be modified as appropriate.

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**COMMENT RESPONSE SUMMARY**  
*Remedial Design/Remedial Action Work Plan for the North-South Diversion Ditch Detention Basin at the  
 Paducah Gaseous Diffusion Plant, Paducah, Kentucky*  
 (DOE/OR/07-2008&D1 issued November 26, 2002) (continued)

Comment Number	Sect. Page/Para.	Reviewer and Comment	Response
11.	Sect. 7; Page 23; Table 4	EPA: (1/24/03) S10  "The requirements stated for the action/medium Activities causing radionuclide emissions indicates a public EDE of 10 mrem per year. However, the response states a public EDE to not exceed 100 mrem per year. Is the 100 mrem per year EDE stated in the response a typographical error? If not, why is the dose presented in the planned response an order of magnitude greater than the required 10 mrem per year?"	Agree. Text will be modified to indicate the public EDE is 100 mrem per year.
12.	General	Commonwealth of Kentucky Department for Environmental Protection: Division of Waste Management (KDWM): (1/24/03) General G1  "The Table of Contents cites several appendices that are not included as a part of this document. Documents meeting the descriptions listed in the table were delivered separately. However, these documents are not identified as being appendices of the RAWP. Many of these documents were produced by a BJC subcontractor and appear to be rough drafts (i.e., D0 documents). For instance, the Environmental Safety and Health Plan contains written notes on at least one page, suggesting that this document is an early draft. Incorporated within this document titled 'Waste Management Plan', 'Quality Management Plan', and 'Environmental Compliance Plan.' It is not known whether the Quality Management Plan represents the Quality Assurance/ Quality Control Plan cited as Appendix F in the RAWP. Similarly, it is unknown whether the Waste Management Plan found within the Environmental Safety and Health Plan represents Appendix E of the RAWP. It has always been the Division's position not to provide formal comments for D0 documents. Since the draft status of the aforementioned documents is in question, the Division must reserve comment on these documents until their status is made clear."	The documents provided for review are the appendices to the D1 RD/RAWP (i.e., D1 documents). The revised (D2) RD/RAWP will include plans that have been modified since the D1 submittal. Plans/Appendices that have not changed will be identified, but will not be resubmitted unless additional copies are requested.

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**COMMENT RESPONSE SUMMARY**  
*Remedial Design/Remedial Action Work Plan for the North-South Diversion Ditch Detention Basin at the  
 Paducah Gaseous Diffusion Plant, Paducah, Kentucky*  
 (DOE/OR/07-2008&D1 issued November 26, 2002) (continued)

Comment Number	Sect. Page/Para.	Reviewer and Comment	Response
13.	ES; Page ix; Para. 5	KDWM: (1/24/03) Specific S1  "The last sentence of this paragraph indicates that soil excavated outside SWMU 59 may be used as fill material at locations within the PGDP. DOE must refrain from placing these soils within existing SWMUs or elsewhere without prior approval from the Division. Soils excavated from adjacent to the NSDD should only be used as fill material if they can be demonstrated to have 'no rad added.'"  	Text will be modified to clarify that soils from outside the SWMU will be screened by RADCON personnel prior to release for reuse as backfill in the NSDD and other areas of PGDP, as appropriate.  DOE will interpret approval of the RD/RAWP to constitute approval by the Division for use of this soil, excavated outside SWMU 59, as fill material at PGDP.
14.	ES; Page ix; Last Para.	KDWM: (1/24/03) S2  "In addition to the information in the paragraph, the text should note the following; if material from the NSDD can be demonstrated to have 'no rad added' then DOE, under DOE Order 5400.5, may utilize the material for backfill, etc."  	Text will be modified to clarify that soils from outside the SWMU will be screened by RADCON personnel prior to release for reuse as backfill in the NSDD and other areas of PGDP, as appropriate.
15.	Sect. 2; Page 7, Figure 4; Project Organization	KDWM: (1/24/03) S3  "The Safety and Health Manager identified in the figure should report directly to the Department of Energy Project Manager and not the Subcontractor Manager as noted in the figure."  	The Safety and Health Manager identified in the figure is the subcontractor's ES&H officer, who reports through the subcontractor's Project Manager to the BJC STR as shown.

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**COMMENT RESPONSE SUMMARY**  
*Remedial Design/Remedial Action Work Plan for the North-South Diversion Ditch Detention Basin at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*  
 (DOE/OR/07-2008&D1 issued November 26, 2002) (continued)

Comment Number	Sect. Page/Para.	Reviewer and Comment	Response
16.	Page 12; Table 1; Impact if Deviation Occurs	KDWM: (1/24/03) S4  "The first box in this column states 'Potentially perform limited additional excavation to remove excess levels of residual contamination or implement land use controls and 5 year reviews.' It is not defined here what 'excess levels of residual contamination' means. DOE is reminded that the only way to avoid having to implement LUCs and perform 5-year reviews is to perform clean-up to unrestricted access levels. Unless 'excess levels of residual contamination' refers to all contamination in excess of unrestricted access levels then LUCs and CERCLA 5-year reviews are mandatory, not optional. Modify the statement so that its meaning is clearer."	Text will be revised to clarify residual levels of contamination in excess of industrial surface exposure clean-up levels, and land use controls will be consistent with the NSDD LUCIP.
17.	Page 12; Table 1; Contingency Plan to Manage Uncertainty	KDWM: (1/24/03) S5  "It is unclear which phase of sampling is being referred to in the first box of this column. If this is sampling associated with Activity II then DOE must first consult with the regulatory agencies before a decision can be made as to whether additional excavation will be required. Modify the text as necessary."	Text is consistent with the ROD as written. First block in the column addresses decisions to be made by DOE. Second block addresses decisions requiring consultation between DOE and the regulatory agencies.

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**COMMENT RESPONSE SUMMARY**

*Remedial Design/Remedial Action Work Plan for the North-South Diversion Ditch Detention Basin at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*  
(DOE/OR/07-2008&D1 issued November 26, 2002) (continued)

Comment Number	Sect. Page/Para.	Reviewer and Comment	Response
18.	Sect. 4; Page 13; Figure 5	KDWM: (1/24/03) S6  "The NSDD Detention Basin Project Schedule presented here is inadequate in that it fails to meet the requirements set forth in Section XV of the FFA. The FFA requires that the RAWP include a <b>'schedule for implementing the selected RA and for submitting a Construction Quality Control Plan, a Post Construction Report, an Operation and Maintenance Plan and a Final Remediation Report.'</b> While the basin project schedule presented in Figure 5 provides durations for field mobilization and remedial action completion, it lacks specific milestone dates for field mobilization start and remedial action field-start. In addition, the schedule neglects to include submittal dates for D1 revisions of the Construction Quality Control Plan, Post Construction Report, Operation and Maintenance Plan, and Final Remediation Report. DOE must provide all required milestones dates in its revised RAWP."	Agree. Applicable schedule milestone dates that are proposed or agreed to under the FFA will be included.
19.	Page 23; Table 4; "Activities causing radionuclide emissions"	KDWM: (1/24/03) S7  "In the Requirements column the statement is made that emissions must be controlled so as to prevent any member of the public from receiving an EDE of 10 mrem/ year. Should this be 100 mrem/ year?"	Text will be modified to indicate the public EDE is 100 mrem per year.

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# Comment Response Summary

for the

## *Environmental Compliance Plan for the North-South Diversion Ditch Excavation and Structure Removal*

*at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*

**(Issued November 26, 2002)**



Prepared for  
U.S. Department of Energy  
Office of Environmental Management

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**COMMENT RESPONSE SUMMARY**

for the  
*Environmental Compliance Plan for the North-South Diversion Ditch Excavation and  
Structure Removal Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Rev. 0  
(issued November 26, 2002)*

Comment Number	Sect. Page/Para.	Reviewer and Comment	Response
1.	Sect. 4.3; Page 4; Para. 2; Sent. 2	U.S. Environmental Protection Agency (EPA): (1/24/03) Specific S1  "This sentence states that emissions from the scrap metal removal and disposal activities must be below 0.1 mrem/yr. The RD/RA Work Plan does not discuss scrap metal removal and disposal as part of the overall project scope. Why is scrap metal removal and disposal referenced in this document? Why does this section of the document not address the NSDD soil that will undergo removal and disposal as described in the RD/RA Work Plan?"	Agree. References to scrap metal removal and disposal have been removed from the document and replaced by discussions of NSDD soil removal and disposal, as appropriate.
2.	Sect. 5.2; Page 7; Para. 1; Sent. 1	EPA: (1/24/03) S2  "The word 'Starndards' in this sentence should be changed to 'Standards.'"	Agree. Correction has been made.
3.	Sect. 5.3; Page 8; Para. 5; Sent. 1	EPA: (1/24/03) S3  "This sentence makes reference to the Scrap Metal Removal and Disposal project. Is this reference an error? If not, provide explanation as to how this project is related to the NSDD project."	Agree. References to the scrap metal project have been removed.
4.	Sect. 9.1; Page 12; Sent. 1	EPA: (1/24/03) S4  "One or more words appear to be missing from this sentence '...are anticipated that list and BJC as co-operators.'"	Agree. Wording has been corrected.

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COMMENT RESPONSE SUMMARY

for the

*Environmental Compliance Plan for the North-South Diversion Ditch Excavation and  
Structure Removal Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Rev. 0*

(issued November 26, 2002) (continued)

Comment Number	Sect. Page/Para.	Reviewer and Comment	Response
5.	Sect. A.3; Page A-4; Para. 4; Sent. 2	EPA: (1/24/03) S5  "The effective dose equivalent value calculated by BJC appears to be missing from this sentence '...effective dose equivalent for the nearest public receptor to be mrem/yr using...'"	Agree. The value has been added to the sentence.

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