

SECTION C
Draft Performance Work Statement (PWS)

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C.1 CONTRACT OVERVIEW AND OBJECTIVES

C.1.1 BACKGROUND

The Paducah Gaseous Diffusion Plant (PGDP) is located on a Federal reservation in Western Kentucky, approximately 10 miles west of Paducah, Kentucky, and 3.5 miles south of the Ohio River. The plant is situated on approximately 3,423 acres divided as follows:

- Approximately 615 acres within a fenced limited security area;
- Approximately 822 acres of support area surrounding the limited security area; and
- 1,986 acres licensed to the Kentucky Department of Fish and Wildlife as part of the West Kentucky Wildlife Management Area.

Additionally, there are approximately one hundred thirty-three acres of off-site easements primarily associated with incoming raw water lines and pumps from the Ohio River, emergency notification sirens, and environmental sampling stations. Bordering the Paducah Site to the northeast, between the plant and the Ohio River, is the Tennessee Valley Authority Reservation where the Shawnee Steam Plant is located.

The PGDP is a Government-owned uranium enrichment plant that was constructed in the early 1950's and operated by the U. S. Department of Energy (DOE) and its predecessor agencies for manufacturing enriched uranium for the fabrication of fuel assemblies to support commercial and military nuclear reactors and to support weapons development activities. Processing operations are currently terminated, and deactivation and remediation activities are being conducted by the incumbent contractor, but PGDP still includes Hazard Category 2 Nuclear Facilities primarily based on the uranium inventory. Other radioactive materials, such as transuranics, are present and contribute to the hazard categorization of the facilities.

The uranium enrichment program utilizing the gaseous diffusion process produced various hazardous, non-hazardous, and radioactive byproducts. These activities resulted in contamination of equipment, facilities, soil and groundwater with radioactive and hazardous constituents and the generation of various wastes, including those regulated under the Resource Conservation and Recovery Act (RCRA), the Toxic Substances Control Act (TSCA), and the Atomic Energy Act (AEA). These wastes include construction debris; sanitary waste;

Hazardous Waste (HW); radioactive Low-Level Waste (LLW); Mixed Low-Level Waste (MLLW); Transuranic Waste (TRU); and Mixed TRU (MTRU) Waste. Many of these wastes were stockpiled or disposed on-site, which resulted in the site being placed on the National Priorities List (NPL) in 1994. The most significant contaminants are Trichloroethene (TCE) and Polychlorinated Biphenyls (PCB). Approximately 570 Solid Waste Management Units (SWMUs) have been identified and listing may be found in the Paducah Federal Facility Agreement (FFA) Site Management Plan (SMP) and the RCRA Permit.

TCE was discovered in residential wells north of the Paducah Site in 1988. DOE, the Environmental Protection Agency (EPA) and Kentucky entered into an Administrative Consent Order (ACO) under Sections 104 and 106 of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) that requires:

- a. monitoring residential wells potentially affected by contamination;
- b. providing alternative drinking water to residents with contaminated wells as specified by the DOE Action Memorandum for the Water Policy at the Paducah Gaseous Diffusion Plant (DOE/OR/06-1201&D2); and
- c. investigation of the nature and extent of off-site contamination.

The ACO site investigation delineated two off-site groundwater contamination plumes, referred to as the Northwest and Northeast Plumes, and identified several potential on and off-site source areas requiring additional investigation and action. An additional on-site plume has been found to the southwest. In addition, a series of Remedial Investigation/Feasibility Studies (RI/FS) were conducted under the FFA, including the evaluation of all potential major contaminant sources impacting groundwater and surface water. The project continues to evaluate on-going potential sources of contamination. In accordance with these investigations, DOE implemented interim actions that focused on reducing potential risks associated with off-site contamination.

Historically, the four primary areas that have been associated with the groundwater remediation initial response project are: the Northeast and Northwest Groundwater Plumes (Pump and Treat Project) (C.13.1); C-400 Source Remediation (C.13.2); Southwest Plume Sources Remediation (C.13.3); and Burial Grounds Operable Unit (C.15). Although SWMU 4 (C.15.1) is also believed to have contributed to the Southwest Plume, all SWMU 4 groundwater source remediation actions will be conducted as part of the Burial Grounds Operable Unit.

All site cleanup and remediation activities are conducted in compliance with applicable federal, state, and local laws and regulations. The principal regulating agencies are the U.S. Environmental Protection Agency (EPA) Region 4 and the Kentucky Department for Environmental Protection (KDEP). These agencies issue permits, review compliance reports, participate in joint monitoring programs, inspect the facilities and operations, and oversee compliance with the applicable laws and regulations.

The approach to site cleanup is outlined in the Paducah Federal Facility Agreement (FFA), where the cleanup is divided into Operable Units (OUs). These OUs are:

- a. the Decontamination and Decommissioning OU (D&DOU)
- b. the Groundwater OU (GWOU)
- c. the Surface Water OU (SWOU)
- d. the Soils OU (SOU), and
- e. the Burial Grounds OU (BGOU)
- f. the Comprehensive Site-Wide OU (CSOU).

However, the GDP facilities have not been added to the FFA. DOE is evaluating the approaches to decommissioning the GDP facilities and associated slabs, soils, and surface water impoundments.

The Community Relations Plan under the Federal Facility Agreement at the U.S. Department of Energy Paducah Gaseous Diffusion Plant defines public involvement for the environmental remediation program. DOE entered into an FFA with the EPA and the Commonwealth of Kentucky on February 13, 1998. The FFA established one set of consistent requirements for achieving comprehensive site remediation in accordance with the RCRA and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), including stakeholder involvement. Remediation activities are performed in accordance with the requirements of this agreement.

The Paducah Citizens Advisory Board (CAB), a Site Specific Advisory Board chartered by DOE under the Federal Advisory Committee Act, is made up of individuals with diverse backgrounds and interests. It meets monthly to focus on early citizen participation in Environmental Management priorities and related issues at the PGDP. The CAB provides advice on on-going and planned projects at PGDP.

Section 3 155 of Public Law 103- 160, the National Defense Authorization Act

for Fiscal Year 1994, authorized the Secretary of Energy to transfer, for consideration, all rights, title, and interest of the United States in and to personal property and equipment if the Secretary determined that such transfers will mitigate the adverse economic consequences that might otherwise arise from the restructuring of the DOE facility. The Paducah Area Community Reuse Organization (PACRO) is the DOE locally designated entity for the receipt of excess DOE personal property for the purpose of mitigating the adverse economic consequences that might otherwise arise from the restructuring of the DOE facility. PACRO is to coordinate all economic development planning and management efforts that address DOE-related impacts.

PGDP facilities and its ancillary structures and systems are listed in Section J, Attachment J-4, PGDP D&R Facilities/Areas Assignment of Responsibility. In addition to the four (4) large process buildings and the smaller C-310 Purge and Product, the C-315 Tails Withdrawal buildings, the C-360 Toll and Transfer Facility, and C-337-A and C-333-A feed facilities, the remaining structures are support facilities such as a steam systems, electrical switchyards, cooling towers, cleaning and deactivation facilities, water and wastewater treatment plants, maintenance and laboratory facilities, and office buildings. Finally, the buildings are served and connected by an extensive network of utilities, systems, roads, and sidewalks.

The Paducah site currently has three (3) prime contractors and a technical support services contractor that support DOE with ongoing activities. The contractors and their respective summary level of scope are described below:

- a. The Deactivation and Remediation Contractor is responsible for ongoing deactivation, surveillance, maintenance, environmental remediation activities, and site-wide utilities at PGDP;
- b. The Infrastructure Contractor is responsible for site infrastructure, such as roads and grounds, janitorial services, security/classification to include Site Officially Designated Security Authority (ODSA) for DOE interests;
- c. The DUF₆ Contractor is responsible for the operation of the Depleted Uranium Hexafluoride (DUF₆) Conversion Plant and management of DOE UF₆ cylinders; and
- d. The Environmental Technical Services (ETS) contractor provides environmental, technical, and administrative support services directly to DOE.

Table C.1.5-1 General Project Reference Documents*	
Document Number	Title

Table C.1.5-1 General Project Reference Documents*	
Document Number	Title
DOE/OR/07-1707	Paducah Gaseous Diffusion Plant Federal Facility Agreement
DOE/OR/07-2099&D2R7	Community Relations Plan, July 2011
DOE/OR/07-1595&D2	Data and Documents Management and Quality Assurance Plan for Paducah Environmental Management and Enrichment Facilities, September 1998
Office of Environmental Management Memorandum	Policy and Protocol for Office of Environmental Management Operations Activities, March 15, 2012
No document number	Training Reciprocity Agreement Between Portsmouth/Paducah Project Office Prime Contractors (example)
BJC/PAD-688/R1	Cultural Resources Survey for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, March 2006
DOE/OR/07-0107&D2/V2	Methods for Conducting Risk Assessments and Risk Evaluations at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Volume 2. Ecological, August 2010
DOE/LX/07-1292&D2	Site Management Plan, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Annual Revision-FY 2014, February 2014
DOE/LX/07-1301&D2	Site Management Plan, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Annual Revision-FY 2015, March 2015
DOE/LX/07-XXXX&D2	Site Management Plan, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Annual Revision-FY 2016, XXX 2015
	DOE PM Training Website

*Table is not all inclusive applicable regulatory documents.

Any contractual requirements defined in this section of the PWS, including subsections, shall be incorporated and reflected in Section C.2

C.1.2 CONTRACT PURPOSE AND OBJECTIVES

The purpose of this Contract focuses on the continued deactivation of the PGDP facilities and preparing the facilities for future demolition. The DOE and the

Contractor recognize the Paducah Deactivation and Remediation Project contract is a cooperative undertaking that requires both parties to seek innovative approaches to achieve the end objective. The continuation of streamlining and optimizing processes that result in elimination of unnecessary requirements are critical to accomplishing the PWS objectives and targets.

Within the bounds of an acceptable Project Change Control process, the Contractor has the flexibility to implement a project structure and to sequence the work to optimize the project schedule to achieve safe, cost-effective work/cleanup of the site. The Contractor shall meet all regulatory milestone dates. The Contractor is expected to seek ways to reduce cost through negotiated agreements with the regulators and innovative approaches to site clean-up and waste minimization. **No negotiation or agreement shall be made without prior DOE notification and consent. No communication with regulators is authorized without DOE notification.** To achieve the objectives stated below, the Contractor shall use its best efforts and shall cooperate in seeking elimination of as many unnecessary requirements as possible while continuing to maintain compliance throughout performance of this Contract. The objectives of this Contract include the following:

- Achieve continuous cost and process improvements and optimization for activities.
- Safely, securely, and cost effectively transition ongoing activities at the PGDP to minimize necessary S&M and utility O&M under DOE safety bases.
- While supporting continuity of on-going site cleanup operations, identify and eliminate systems, processes, etc. that are no longer necessary to maintain safe configuration of the facilities.
- Reduce systems not directly required to maintain safety and environmental compliance. Identify ways to further reduce requirements to perform the most cost effective approach for operations and S&M.
- Actively pursue activities to re-categorize facilities enabling a minimal level of S&M (e.g., Hazard Category 2 to Radiological Facility).
- Operate support facilities at the capacity necessary to safely support site needs. Develop, finalize and implement approved environmental remediation, demolition, and waste disposal facility CERCLA documents under the Paducah FFA.

- Maintain public and worker safety and health, and environmental protection.
- Reduce the overall DOE Paducah landlord costs.

C.2 DESCRIPTION OF PERFORMANCE REQUIREMENTS

The Contractor has the responsibility for managing, integrating, and executing the work described in this Performance Work Statement (PWS). The Contractor shall provide all personnel, facilities, equipment, materials, services, and supplies to complete the Contract work scope, except for the services and information identified as Government-Furnished Services and Information (GFS&I).

The Contract scope contains both capital and non-capital asset acquisition activities which will be identified as subprojects. Projects/subprojects are to be managed with all applicable requirements of DOE Order 413.3A. The Contractor shall be responsible for the integration and management of all projects/subprojects. The Contractor shall maximize efficient and cost effective methods for completing the work scope using the skill sets of the prime Contractor as well as subcontractors. The Contractor will be the single point of accountability for the Contract activities, safety and quality assurance programs, regulatory and DOE-EM interface, and project management in performance of this Contract including any subcontracts assigned in accordance with the Section H.X, *Assignment and Administration of Subcontracts*.

The Contractor will support obtaining Critical Decision (CD) approval for work to be accomplished during the term of the contract for all capital and operating work.

The Department of Energy (DOE), Portsmouth/Paducah Project Office (DOE-PPPO) is deactivating and remediating the Paducah Gaseous Diffusion Plant. This scope of work defines requirements to be completed during the Period of Performance (POP). The POP immediately follows the Transition Period. Activities required during the POP are detailed below and include activities to continue performing uranium removal activities, perform technetium 99 (⁹⁹Tc) thermal treatment, and continue optimizing facility systems/structures to minimize short-term and long-term Surveillance and Maintenance (S&M) costs. In support of S&M cost reduction efforts, DOE is pursuing various alternatives to construct a new on-site office facility and to permit deactivation of facilities that have historically high S&M costs, such as C-100, C-720, and C-300. The Contractor shall fully support these efforts as part of this performance work statement (PWS). Additionally, the Contractor shall continue implementation of the

Environmental Remediation Program and described in the SMP under the Federal Facility Agreement (FFA) for the Paducah Site. The Contractor shall make every effort to optimize and reduce S&M costs. As the Contractor is able to optimize and drive down S&M costs, it is anticipated that additional stabilization, deactivation and remediation activities will be required during this period. It is expected that these additional activities will be performed consistent with the available funding for each year. The goal of the additional deactivation and remediation activities is to reduce risk and accelerate reduction in long-term S&M costs and future demolition costs.

The PGDP Deactivation and Remediation (D&R) Project encompasses managing approximately 666 structures, properties, or buildings (Section J, Attachment J-4) with approximately 7,500,000, ft² of floor space. The Contractor shall perform necessary Surveillance and Maintenance (S&M) of these facilities and prepare the facilities for future demolition. The Contractor shall provide utilities to itself and other site tenants. The Contractor shall perform Deactivation and Decommissioning (D&D) in accordance with the PWS. The Contractor shall also assist in transfers/assignment of structures, property or buildings to new tenants for purposes of re-use or re-industrialization, as appropriate. The Contractor shall perform all site and facility environmental remediation, and waste management, as outlined in this PWS

The Contractor shall comply with all applicable Federal, State, and local laws and regulations, Executive Orders, DOE Orders (and other types of Directives), Regulatory Permits, Agreements and Orders and Milestones with the regulators (both State and Federal) (See Section J, Attachment J-1, PGDP D&R List of Applicable Laws; Regulations, and Department of Energy Directives). The Contractor shall provide all deliverables to DOE in accordance with all requirements of this Contract and those specifically identified in Section J, Attachment J-3, Summary of Deliverables. Failure by the Contractor to perform the requirements of this Contract, meet regulatory milestones or provide documents of sufficient quality to enable acceptance and/or approval on the first submission may result in negative contractor performance ratings and further action by the Contracting Officer (CO) as allowed for by Section B and other provisions of this Contract.

Contractor Performance And Key Requirements

The Contractor shall furnish all personnel, facilities, equipment, material, services and supplies (except as set forth in this Contract to be furnished by the Government), and otherwise do all things necessary to accomplish work in a

safe, secure (pursuant to 10 Code of Federal Regulations [CFR] 824), integrated, effective and efficient manner. The Contractor shall operate and perform deactivation and S&M activities for the facilities, buildings, trailers, and other structures and facilities (OSF) assigned in Section J, Attachment J-4 transferred from other site contractors as directed by DOE. The Contractor shall continuously assess opportunities to eliminate systems and facilities, and pursue consolidation of operations and personnel work areas whenever/wherever a cost benefit is derived. The Contractor shall be responsible for planning, integrating, managing and executing the programs, projects, operations and other activities as described in this PWS. Concurrent with the deactivation process, the contractor shall remediate and disposition specific areas on the site, perform facility D&D, and operate the site waste storage facilities to include waste disposition.

This contract reflects the application of performance-based contracting approaches and techniques that emphasize results/outcomes and minimize “how to” performance descriptions. The Contractor has the responsibility for total performance under this contract, including determining the specific methods for accomplishing the work. However, the Contractor is required to comply with all applicable Federal, State, and local laws and regulations, Executive Orders, DOE Orders (and other types of Directives), Regulatory Permits, Agreements and Orders and Milestones with the regulators (both State and Federal) (See Section J, Attachment J-1, PGDP D&R List of Applicable Laws; Regulations, and Department of Energy Directives, and Attachment J-17, PGDP Environmental Permits). The Contractor shall provide all deliverables to DOE in accordance with PWS and Section J, Attachment J-3, Summary of Deliverables. Failure by the Contractor to perform scope adequately, meet regulatory milestones or provide documents of sufficient quality on the first submission will result in negative Contractor performance rating and further action by the Contracting Officer (CO) as allowed for by Section B and other provisions of this contract.

The Contractor shall develop, implement and maintain a comprehensive, resource-loaded full contract performance baseline (CPB) as required by Section H.XX and DOE Order (O) 413.3B, and DOE Office of Environmental Management Memorandum “Policy and Protocol for Office of Environmental Management Operations Activities,” where applicable. The Contractor shall perform sufficient design work, characterization, end point identification, regulatory approval, risk reduction, etc. to develop a requirements definition for each subproject to allow for accurate cost estimating, realistic schedule development, and the development of subcontract procurement packages.

The Contractor shall provide general operations oversight and project management functions to enable the safe operation of the site. In addition, the Contractor shall be responsible for the operations, environment, safety, health and quality assurance within its own organization and its subcontractors. The Contractor shall provide site health and safety oversight for DOE, DOE technical support contractors and, at DOE's request, other personnel who are on-site in support of the DOE mission at PGDP (e.g., Kentucky Research Consortium for Energy and Environment (KRCEE) activities). The other major DOE contractors provide health and safety oversight for their activities. Furthermore, training program reciprocity/facility access between site contractors/tenants is required. The Contractor shall also ensure emergency response services are provided and available to all site tenants and shall be responsible for the Emergency Operations Center.

The Contractor shall ensure that its technical approach and execution of work is compliant with the applicable statutory and regulatory requirements and shall annually certify to DOE its compliance with environmental requirements. The Contractor shall comply with and provide DOE with services necessary for its compliance with all applicable federal, state, and local requirements and agreements including the protection and preservation of cultural, historic, or archeological resources. The Contractor shall be responsible for all work necessary to obtain regulatory acceptance including legal/regulatory reviews and comment resolution. The Contractor shall recognize and work within the constraints imposed by this Contract and other regulatory agreements between DOE and regulatory agencies. Regulatory documents include, but are not limited to, all applicable laws, regulations, permits, plans, orders, and agreements.

The Contractor shall maximize efficient and cost effective methods for completing the work scope using the skill sets of the prime contractor as well as subcontractors. In accordance with the Clause at H.XXX, Subcontracted Work, the Contractor shall use firm-fixed price subcontracts to the maximum extent practicable and when in the best interest of the government when subcontracting work.

The Contractor shall integrate all activities with other DOE contractors/tenants in areas of joint interface, such as in coordination of utility lock-out or establishment of work exclusion areas, and shall support DOE with GDP Lease activities, if any. The Contractor shall lead the site's shared site committees and manage the shared site process.

The Contractor shall be the single point of accountability for the Paducah Deactivation and Remediation Project activities, safety and quality assurance programs, regulatory and DOE-EM interface, and project management in performance of this Contract.

If the Contractor submits a deliverable that DOE determines does not comply with the terms of the contract, the Contractor's revision or correction of the document/submittal shall be an unallowable cost (reference H.XXX). This determination shall be at DOE's sole discretion. DOE notes that this does not apply to the overall quality of the document; to the extent all of the contractual requirements are met. Further DOE requires that all submittals to DOE be final documents (even though the Contractor may expect comments from DOE) and shall be signed and certified when applicable so that DOE understands the approving Manager has read and agrees that the deliverable is technically correct, complies with the contract and applicable DOE Orders, and can be implemented without further action.

General End State Requirements

The applicable deliverables are provided in the PWS and Section J, Attachment 3 Summary of Deliverables. The Contractor shall comply with all deliverables dates and all regulatory milestone dates. Regulatory milestone dates can be found in documents such as Federal Facility Agreement (FFA), Site Management Plan (SMP), Agreed Orders, Toxic Substance Control Act (TCSA), and Federal Facility Compliance Agreement (FFCA). Deliverables without specific dates identified shall be established by the Contractor during Contractor Performance baseline (CPB) development and throughout the Contract's period of performance as approved by DOE. Changes to regulatory milestones do not alleviate Contractor responsibility to meet contractual or CPB milestone dates without specific approval by DOE.

It is anticipated that additional facilities, services, and/or deactivation/remediation activities may be required by the Government during the performance of this Contract.

EM.PA.0040.A001.06.DR TRANSITION

A Transition Period precedes the Period of Performance (POP). Transition commences immediately upon issuance of Notice to Proceed (NTP) and shall not exceed 120 days. The NTP may occur simultaneously with the contract award date and the Contractor shall be prepared to fully mobilize when the NTP is

issued. The Contractor shall transition all on-going work scope from the incumbent; transition any subcontract work from the incumbent and complete workforce transition in accordance with the requirements of Section H.X of this Contract.

EM.PA.0040.A001.06.DR.01 Transition

The Contractor shall mobilize its Transition Management Team (comprised of the Program Manager, all other Key Position personnel identified in the Contractor's proposal, and a compliment of Human Resource and Business Services personnel that can immediately begin transition activities) to site not later than 7 days after NTP. The Contractor shall determine the adequate number of Human Resource and Business Services personnel it deems adequate to support transition. The objective of the transition period is to establish safety, operations, business, and human resources operations that will enable the Contractor to deliver DOE expectations on time and within established funding. At a minimum, the Contractor shall:

- a. complete transition of all facilities, facility operations, and environmental permits from the incumbent contractor,
- b. complete due diligence walk downs and assessments of facilities and other areas,
- c. complete modification of existing program documents,
- d. complete acceptance of authorization basis documents,
- e. complete hiring of all required staff,
- f. complete procurement activities for materials, equipment, supplies, parts, and subcontractors required for a seamless transition, and
- g. complete any other actions necessary to enable the Contractor to formally accept responsibility for the entire PWS not later than 120 days after NTP.

Within 48 hours following the NTP, the Contractor shall release on its own website a brief Executive Summary of its offer. The purpose of this Executive Summary is to provide immediate release of relevant information to stakeholders and the public at large.

The Contractor shall submit a Transition Plan for DOE approval 15 days after NTP. The Transition Plan shall include a description of all activities necessary for the Contractor to assume full responsibility for the PWS not later than 120 days after NTP. The Transition Plan shall include a detailed transition schedule with identified critical path. At a minimum the Transition plan shall include: all deliverables; documents; and items that the Contractor

is required to submit to DOE; the planned submittal dates compliant with contract requirements; and the Contractor’s responsible person(s) with his/her contact information. The Contractor is required to give DOE at least 2 weeks to review and comment on all documents submitted during the 120 day Transition Period. The Transition Plan shall also specifically address all actions necessary to complete items C.2.a through C.2.g (above).

Coordination with other site contractors/tenants is required to ensure for continuation of services by the Contractor as identified in the Section J, Attachment J-5, Government Furnished Services and Interface Requirements Matrix. The Plan must ensure there is no loss or degradation of the services that are provided to DOE and its contractors/tenants. Additionally, the Contractor shall resolve and gain DOE acceptance of resolution for all gaps that exist between the Contractor’s transition plan and the incumbent contractor’s operations turn-over plan(s).

The Contractor is responsible for ensuring that all necessary transition activities are identified and completed during the Contract Transition Period.

The Contractor shall put into place any agreements it deems necessary between it and other site contractors or any subcontractors for provision of services. Any agreement that requires DOE consent will be subject to a 21 day review and approval period unless a longer review/approval period is warranted due to the size and complexity of the document.

At a minimum, the Contractor shall provide weekly Transition Status Reports to DOE until Contract transition is completed. The Contractor shall establish routine status meetings with DOE and affected contractors to review Implementation activities and issues.

In accordance with **Section H.XXX**, the Contractor shall submit an Initial Contract Performance Baseline (CPB) that matches the Contractor’s cost proposal within seven days from the NTP (at the CLIN level).

Additionally, in accordance with Section H, the Contractor shall submit an Interim CPB for DOE approval not later than 120 days after the NTP, which provides work planning, measurement, and management details to cover approximately the first 16 months of performance starting from NTP.

Table C.2.EM.PA.0040.A001.06.DR.01-1 Contract Transition Milestones/Schedule	
Milestone	Date
Executive Summary Placed on Website	48 hours after NTP

Table C.2.EM.PA.0040.A001.06.DR.01-1 Contract Transition Milestones/Schedule	
Milestone	Date
Complete mobilization of Transition Management Team	7 days after NTP
Submit Contract Transition Plan	15 days after NTP
Submit Initial CPB	7 days after NTP
Submit Interim CPB	120 days after NTP
Modify all existing regulatory permits to reflect new Contractor	As stipulated by regulation, statute, law, or permit requirements AND prior to conclusion of Transition
Weekly Transition Status Reports	Weekly, through transition

EM.PA.0040.A001.06.DR.02 Implementation

The Contractor shall perform all activities to support transition, including, but not limited to, facility walk-downs, engineering and design, procurement, development of safety authorization basis, programmatic and operational documents and procedures, and assisting DOE in verifying whether transition requirements have been met prior to the end of the transition date.

The Contractor shall perform a due diligence review of facilities and systems. The Contractor will determine the degree of review necessary to enable the Contractor to provide a written declaration to DOE that the Contractor formally accepts responsibility of assigned scope, facilities, and environmental/regulatory conditions.

Table C.2.EM.PA.0040.A001.06.DR.02-1 Contract Transition Implementation Milestones/Schedule	
Milestone	Date
Operational Responsibility Acceptance Declaration	120 days after NTP

EM.PA.0040.A001.06.DR.03 Environmental Compliance Review

The Contractor shall complete a comprehensive environmental compliance due diligence review, certify the results of the review and provide a copy of the report to DOE. At a minimum, this certification shall include:

- a. a list of site conditions that pose a potential compliance risk for DOE and/or the Contractor
- b. a declarative statement, by the Contractor, of acceptance of site environmental conditions, with noted exceptions; and
- c. evidence that all existing site environmental permits (found in Section J, Attachment J-17) have been modified to the Contractor as an operator.

Table C.2.EM.PA.0040.A001.06.DR.03-1 Environmental Compliance Review Milestones/Schedule	
Milestone	Date
Environmental Compliance Review	60 days after NTP

EM.PA.0040.A001.06.DR.04 Material Differences

The Contractor shall identify any material differences in the systems, facilities, waste sites, property and services described in this PWS and actual conditions. The Contractor shall prepare and submit a Statement of Material Differences. The material differences statement provided to DOE must include the contract section(s) that are impacted and specifically identify the sections of the contract that conflict with current site conditions and any/all reference material that the Contractor is relying on. Poor or inaccurate Contractor assumptions do not constitute a material difference.

Table C.2.EM.PA.0040.A001.06.DR.04-1 Material Differences Milestones/Schedule	
Milestone	Date
Material Difference Statement	60 days after NTP

EM.PA.0011.A001.01.DR POLYCHLORINATED BIPHENYLS (PCBs)

PCBs were used extensively in the uranium enrichment process. The lube oil system in the GDP facilities leaked oil that migrates into the ventilation systems and came into contact with PCB impregnated gaskets. Although the lube oil has been removed from the lube oil system, residual lube oil remains in the ventilation system and continues to leak. Additionally, as a result of the shutdown of enrichment operations, water in-leakage (primarily rain intrusion) has resulted in water entering the ventilation system and coming into contact with the PCB impregnated gaskets. These systems occasionally leak due to age, vibration, and thermal cycling. Troughs and a collection

system have been installed under the areas that have a high potential to leak. There are over 16,000 PCB collection troughs (ranging from 4½ to 6 feet in length) installed inside the cascade buildings (e.g. C-310, C-315, C-331, C-333, C-335, and C-337). The cascade buildings cover approximately 6,400,000 square feet of floor space. Lube oils contaminated with PCBs from the gaskets are continuously collected and dispositioned; maintenance of the trough system is ongoing. PCB lube oils that leak or spill are collected, cleaned-up, sampled, and properly disposed.

EM.PA.0011.A001.01.DR.02 Polychlorinated Biphenyls (PCBs) Operations

The Contractor shall perform all activities to:

Perform surveillance and maintenance of the PCB collection and containment trough system including disposition of the collected PCB lube oils/water to the extent necessary. As facilities are shutdown or deactivated the Contractor shall determine how to comply with the TSCA FFCA requirements without daily/weekly/monthly access to the process buildings. Since the lube oil has been removed from the originally installed equipment (still present in lube oil skids supporting P&E pump operations for deposit/holdup removal), the only source of liquids is residual oils from leaks in the ventilation system or water in-leakage through the roofs. The Contractor shall develop and implement a process to mitigate the continued migration of liquids in the ventilation systems.

The Contractor shall clean up, sample, and decontaminate PCB spills and leaks, sample and analyze spill sites (estimated to be 40 small spills per year), and properly disposition the PCBs and PCB contaminated material (e.g., absorbent pads and pigs). This volume is expected to decrease based on mitigating actions taken (see above).

If still required for regulatory compliance, collect quarterly air quality data throughout the cascade buildings, and submit quarterly and annual reports through the end of the Contract. The Contractor shall successfully gain U.S. EPA approval to discontinue or reduce the frequency of sampling and reporting.

As the Contractor implements actions to deactivate and isolate the enrichment facilities, the Contractor shall evaluate the requirements of the Toxic Substance Control Act Federal Facilities Compliance Agreement (TSCA FFCA) and determine how to comply with or modify the agreement in order to minimize cost to DOE and place the facilities in long-term S&M at minimal annual cost to DOE.

Table C.2.EM.PA.0011.A001.01.DR-1 PCB Reference Documents	
Document Number	Title
NA	Compliance Agreement Between the US DOE and the United States Environmental Protection Agency, February 20, 1992
NA	Modification to the Compliance Agreement Between the US DOE and the United States Environmental Protection Agency, September 25, 1997
Conformed Copy (Draft)	Compliance Agreement Between the US DOE and the United States Environmental Protection Agency, In Re: Department Of Energy Facilities: Paducah, Kentucky, Portsmouth, OH, and Oak Ridge, TN
Pending	TSCA FFCA PPPO's Proposal (2015 Revision)

Table C.2.EM.PA.0011.A001.01.DR-2 PCB Milestones/Schedule	
Milestone	Date
Develop and implement a PCB mitigation plan	30 days after Transition
If no longer required, gain U.S. EPA approval to discontinue quarterly air quality reporting or monitoring.	180 days after Transition
UE TSCA FFCA Annual Compliance Agreement Report to the EPA	Annually on July 1

EM.PA.0020.A001.03.DR SAFEGUARDS AND SECURITY

The Infrastructure Contractor is the Officially Designated Security Authority (ODSA) at the Paducah site and considered to be the ODSA pursuant to current DOE directives. As such, it has the primary role for security functions for DOE operations consistent with the scope of the Infrastructure Contract. The ODSA develops and maintains the site security program including the Paducah Site Security Plan (SSP).

The ODSA has the primary responsibility for evaluation of the security posture of the DOE mission at the Paducah Site including, but not limited to asset

identification, threat assessments, and risk assessments/vulnerability analyses. ODSA develops the protective strategy for DOE assets at the Paducah Site on a graded basis in accordance with DOE directives, with input and concurrence from the Contractor. ODSA documents the protective strategy in the SSP including, but not limited to access control, the protection of classified matter, unclassified controlled information (UCI), nuclear material, protective force, personnel security, Security Condition (SECON) measures, and government property. ODSA provides protection requirements to the Protective Force Organization, with input and concurrence from the Contractor, for the protection of DOE assets including classified matter and nuclear materials in accordance with the DOE-approved SSP(s), Orders, regulations, and laws.

All DOE contractors are responsible for conducting operations in accordance with the approved security plans supporting their contract responsibilities consistent with the DEAR Clause 952.204-2, Security, of their contract and applicable DOE directives specified in their contracts.

Table C.2.EM.PA.0020.A001.03.DR-1 Security Programs Reference Documents	
Document Number	Title
Addendum B of the 2014 Site Security Plan	<i>Interim Compensatory Measures for De-leased Non-Conforming Storage of Classified Matter at the Paducah Site, Paducah, Kentucky</i>
NA	Compliance Assessment for Non-Conforming Storage of Classified Matter at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky
	Paducah Site Security Plan (SSP).

EM.PA.0020.A001.03.DR.01 Security Program

Security plans supporting work required by this Contract shall be prepared by the ODSA in consultation with the Contractor, who shall also be a signatory to the documents. The Contractor shall ensure that the Security Plans meet both near term and long term operational needs prior to signature and shall provide sufficient time and coordination with the ODSA to meet Contractor schedules.

The ODSA shall develop, implement, and maintain an Incidents of Security Concern (IOSC) Program and will be notified of all IOSCs at the site or related to the implementation of this Contract. The ODSA is responsible for providing a site consolidated report on IOSCs to DOE Officially Designated Federal Security Authority (ODFSA). The ODSA provides personnel security (e.g., clearance processing) and badging services for DOE Contractors at the site.

The ODSA is responsible for DOE information security at the site including both classified and unclassified sensitive information. The ODSA maintains a Classification Officer and supporting staff for all DOE classification activities at the site. Derivative classifiers are trained and appointed by the ODSA Classification Officer. The Contractor is responsible for providing its own derivative classifiers, as necessary, to support implementation of this Contract.

The Contractor shall perform all activities to:

- a. Comply with site requirements to ensure appropriate levels of protection against: unauthorized access; theft, diversion, loss of custody of special nuclear material; espionage; loss or theft of classified matter or Government property; and other hostile acts that may cause unacceptable adverse impacts on national security or the health and safety of DOE and its Contractor employees, the public, or the environment.
- b. Coordinate all requests for security services through the ODSA.
- c. Ensure operations are fully consistent with all approved security plans applicable to the Contractor programs including, but not limited to facility security, physical security, cyber security, Operations Security (OPSEC), and information security.
- d. Promptly prepare and submit requests for DOE access authorizations for personnel access to classified matter consistent with the provisions of the Contract Security Classification Specification (CSCS) approved for work under this Contract. The ODSA performs the processing of the security clearance applications, and coordinates with the ODFSA.
- e. Provides an information security program commensurate with the ODSA Information Security Program to include types of information available on-site, such as, but not limited to, proprietary, Privacy Act, Unclassified Controlled Information (UCI), Personally Identifiable Information (PII), official use only (OUO), classified and Unclassified Controlled Nuclear Information (UCNI). The Contractor shall

- coordinate all information security programs with the ODSA who shall adjudicate classification issues.
- f. Notifies the ODSA of potential Incidents of Security concern.
- g. Ensure an adequate number of Contractor personnel are designated as derivative classifiers and/or UCNI/ECI (Export Controlled Information) reviewers in support of the Contractor’s project needs.
- h. Comply with ODSA security plans. The Contractor has the responsibility to recognize situations in which it shall need to request or develop security plans and work with the ODSA as appropriate to get those plans in place.
- i. Comply with 10 CFR 824.

Table C.2.EM.PA.0020.A001.03.DR.01-1 Security Programs Milestones/Schedule	
Milestone	Date
Submit the Protective Force SSP section to the ODSA	90 days after NTP and Annually thereafter in a schedule agreed to by the ODSA

EM.PA.0020.A001.03.DR.02 Protective Force Services

The Contractor shall ensure a Protective Force program compliant with DOE Orders, regulations, and laws. Upon transition of the GDP facilities and associated realty from the incumbent contractor, the Contractor shall provide Protective Force services for protection of the DOE site property and projects in accordance with Site Security Plans.

The Contractor shall maintain a trained Protective Force and shall provide all necessary equipment for use by the workforce (e.g. weapons, body armor, and masks). The Contractor shall utilize and maintain site facilities, including training facilities, portals, gates, etc. to implement and maintain compliance with Site Security Plans Plan(s). The Contractor shall develop, in consultation with the ODSA, the Protective Force Section of the SSP and provide it to the ODSA. The Contractor will conduct self-assessments of the Protective Force program and provide self-assessment reports and any resulting corrective action plans to the ODSA for inclusion in the Annual Comprehensive Site Assessment Report submitted to the DOE ODFSA.

The Contractor shall ensure that mitigating actions are in place for any existing non-conforming storage or any newly discovered non-compliant

storage until compliant storage can be achieved. Section J, Attachment 16 lists the existing non-conforming storage areas.

The Contractor shall develop and participate in annual force-on-force exercises. The Contractor shall ensure it is staffed to address the active shooter scenarios for all facilities and areas on the PGDP reservation. The Contractor shall support the Infrastructure Contractor and DUF₆ Contractor routine access into the Limited Area of the Plant in support of their operational needs.

Table C.2.EM.PA.0020.A001.03.DR.02-1 Security Programs Milestones/Schedule	
Milestone	Date
Self-assessments Report of Protective Force program and resulting corrective action plans	12 months after conclusion of Transition and Annually thereafter

EM.PA.0040.A001.01.DR ENVIRONMENTAL MONITORING PROGRAM

EM.PA.0040.A001.01.DR.01 Environmental Monitoring and Reporting

The Contractor shall perform programmatic Environmental Management System functions. This includes an ongoing activity requiring the Contractor to perform environmental monitoring of on-site and off-site air, soils, and water, and to report results to DOE and regulators. This activity includes all activities to maintain, repair, or replace the equipment used in support of this work element.

In order to protect the health and safety of the on-site workforce, the public, and the environment, monitoring of on-site and off-site air, soils, and water is continuously performed. An environmental monitoring program has been established. Agreements with the regulators have been made on the scope of the program. It is DOE's goal to continuously optimize the monitoring requirements through agreements with the regulators; however, the Contractor must obtain DOE and/or regulatory approval as appropriate prior to reducing any monitoring activities.

The Contractor shall perform all activities to:

- a. Coordinate with other site contractors to prepare appropriate transmittals and applications for any new operating and environmental

- permits, agreements, licenses, contracts, etc. for DOE owned/contractor operated facilities, systems, or processes.
- b. Monitor and maintain the structural integrity of the 336 groundwater monitoring wells. Well maintenance includes, but is not limited to, replacing broken concrete pads surrounding the wells; repairing, replacing, extending the outer protective steel casing; repairing, replacing, installing vehicle guard posts around the wells; repairing and replacing casing covers, lock hasps, and hinges on outer protective casings; drilling weep holes in the outer protective casing; and painting the outside of the outer protective casings, including well rehabilitation or replacement, and abandonment as required.
 - c. Monitor all of the site's outfalls, seeps, in-stream surface water locations, and sediment monitoring locations.
 - d. Conduct thermoluminescent dosimeter (TLD) monitoring at an estimated 40 locations; aquatic and other biological monitoring; and landfill surface water and leachate monitoring.
 - e. Manage the C-746-K and C-404 burial grounds in accordance with their O&M/Permit requirements, including conducting monthly inspections and providing corrective maintenance as required. Additionally, the Contractor shall ensure the surface water OU O&M plans are met (e.g., interim corrective measure activities).
 - f. Execute the Water Policy (interim control measure) to include management of license agreements (an estimated 101) with local residents and businesses to supply municipal water and license agreements (an estimated 10) to allow DOE to access and sample off-site monitoring and residential wells.
 - g. Evaluate the available groundwater data and establish the technical and regulatory basis to reduce the size of the Water Policy Box, while maintaining the same level of protectiveness to members of the public. The Contractor shall collect any additional data required to support its technical position. The Contractor shall develop and submit all required regulatory documents for reducing the size of the Water Policy Box. Additionally, upon regulator approval, the Contractor shall implement the reduction, including working with the licensees and the West McCracken Water District to eliminate DOE costs for water services (e.g., both the licenses, as well as the applicable (ratio/portion of the bleed line costs). The Contractor shall ensure that all stakeholders are provided sufficient notice and informed of all changes at least 1 year prior to implementation and that DOE reviews all communications to stakeholders. The Contractor shall gain DOE approval of the technical basis and regulatory submittals prior to

- submittal of any required regulatory documents to the regulatory agencies.
- h. Maintain the license agreement with Kentucky Fish and Wildlife for management of the approximately 1,986 acres of DOE property not in the industrialized portion or buffer area of the plant. (REEMCBCDOE-03-12-0701)
 - i. Operate and maintain the Paducah Data Warehouse. Provide a web-based version for access by regulators, Citizens Advisory Board members, and the public.
 - j. Perform all environmental monitoring tasks necessary to support all site activities, including but not limited to sample collection, and analysis as necessary to prepare and submit reports.
 - k. Monitor all SWMUs in accordance with the RCRA permit.
 - l. Maintain, input, create reports, and complete all other activities necessary to manage environmental data generated by the Contractor's activities and data provided by other site Contractors. Ensure the data is current, complete, and compliant with Contract requirements. This includes management of databases (e.g., Oak Ridge Environmental Information System (OREIS), Geographical Information System (GIS), Paducah Project Environmental Measurement System (Paducah PEMS)) transitioned to the Contractor or included as part of any regulatory agreement(s).
 - m. Provide SWMU notifications for work in all SWMUs at PGDP in compliance with all legal requirements.
 - n. Conduct CERCLA Five Year Reviews in accordance with the Federal Facility Agreement.
 - o. Update, maintain, and comply with the existing Paducah Site Treatment Plan (STP) and obtain DOE approval of the STP is required prior to submittal to the regulators;
 - p. Perform site-wide environmental regulatory management for all site-wide permits, permit applications, and reports; site-wide NEPA documents; site-wide environmental reports, etc.). The Contractor shall administer the site program and provides required environmental information to support regulatory compliance and is responsible for compliance in areas under its cognizance, including NEPA. Provides required air and liquid effluents and near facility environmental monitoring; collects, compiles, and/or integrates air and liquid effluent monitoring data from operations and activities under its control. The Contractor shall collect data, and prepare and submit environmental data to support the Annual Paducah Environmental Reports (Section J, Attachment J-XXX) and integrates its environmental permitting and

regulatory compliance activities with the Paducah-wide permitting and compliance framework.

- q. Perform ambient air monitoring data to verify radionuclide levels in off-site ambient air in accordance with the Paducah Gaseous Diffusion Plant Department of Energy NESHAP Management Plan, BJC/PAD-141, February 2000, or updated version. The Contractor shall collect radionuclide samples surrounding the plant to capture airborne radionuclides emitted from all sources including fugitive and diffuse sources.
- r. Perform air filter screening for development of the annual NESHAP report and reporting in the Annual Site Environmental Report.
- s. Manage the C-613 Sedimentation Basin in accordance with the Operations and Maintenance Plan, including all required sampling and analysis required.
- t. Perform any CAA Title V or associated permit sampling/monitoring and analysis and complete received reports.
- u. Support DOE in the NEPA evaluation process as appropriate.
- v. Review annually and revise as required, to reflect change to site condition, new data, or opportunities to streamline actions in the:
 - i. Environmental Radiological Protection Program (ERPP),
 - ii. National Emission Standards for Hazardous Air Pollutants (NESHAPs) Management Plan,
 - iii. Environmental Monitoring Plan (EMP),
 - iv. Groundwater Protection Program Plan (GWPP),
 - v. Best Management Practices Plan (BMP),
 - vi. Spill Prevention, Control, and Countermeasure (SPCC) Plan,
 - vii. Pollution Prevention/Waste Minimization Plan, and
 - viii. Site-wide Superfund Amendments and Re-authorization Act (SARA).

Table C.2.EM.PA.0040.A008.01.DR.01-1 Environmental Monitoring and Reporting¹ (per Fiscal Year)					
Type	Runoff from waste facilities ²	LLW	TSCA	MLLW	Other
QTY	900,000 ft ³	25,000 ft ³	1500 ft ³	2000 ft ³	1000 ft ³

¹The quantities identified in this PWS are based upon current approximations; actual quantities may vary. Runoff volumes include volumes from the sedimentation collection basins and the landfill sedimentation basin. Leachate volumes are not included in the Runoff volume. Leachate volumes are presented in section C.17. Any material differences identified by the contractor shall be reported to DOE. DOE will only consider requests for equitable adjustment (REA) for deltas of plus or minus 15% of quantities presented in this table.

²This includes runoff from the C-746-U Landfill Sedimentation Basin.

Table C.2.EM.PA.0040.A008.01.DR.01-2 Environmental Monitoring and Reporting Reference Documents	
Document Number	Title
PRS-ENM-0034 Volume I	Paducah Site Annual Site Environmental Report for Calendar Year 2006, September 2008
PRS-ENM-0034 Volume II	Environmental Monitoring Results, Annual Site Environmental Report, Calendar Year 2006, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, September 2008
Commonwealth of Kentucky Permit Number KY0004049	Kentucky Pollutant Discharge Elimination System Permit Number KY0004049 for the Paducah Gaseous Diffusion Plant/U.S. Department of Energy Outfalls Under, McCracken County, Kentucky
Commonwealth of Kentucky Permit Numbers 073-00045, 073-00014, 073-00015	C-746-U, C-746-S and C-746-T Landfills Solid Waste Permits
REEMCBCDOE-03-06-0710, REORDOER-3-93-0700	License Agreements between DOE and the Kentucky Department of Fish & Wildlife Resources for Paducah Gaseous Diffusion Plant Deer Bow Hunts and Paducah Gaseous Diffusion Plant Wildlife Development
Permit Number KY8-890-008-982	Kentucky Division of Waste Management Hazardous Waste Management Facilities Permit
REEMCBCDOE-7-08-0xxx (example)	License (Single Purpose: Groundwater Monitoring Wells, Sampling, Furnishing Municipal Water to Grantor)
Dated March 13, 2006; signed by DOE May 9, 2006	Tennessee Valley Authority – Shawnee Fossil Plant – Paducah Gaseous Diffusion Plant Letter of Agreement
PRS-ENM-0024	Environmental Monitoring Plan, Fiscal Year 2008, Paducah Gaseous Diffusion Plant, Paducah, Kentucky
PRS-PROJ-0003	Bayou Creek And Little Bayou Creek Revised Watershed Monitoring Plan, Paducah Gaseous Diffusion Plant, Paducah, Kentucky; Kentucky Pollutant Discharge Elimination System Permit Number KY0004049, November 2006

Table C.2.EM.PA.0040.A008.01.DR.01-2 Environmental Monitoring and Reporting Reference Documents	
Document Number	Title
PRS/PROJ/0025	Monitoring Well Maintenance Implementation Plan For The Paducah Gaseous Diffusion Plant, Paducah, Kentucky, February 2008
Dated December 2007	KPDES Agreed Order
Permit Number KY8-890-008-982	Kentucky Division of Waste Hazardous Waste Management Facilities Permit
PRS-PROJ-0006	Groundwater Assessment Plan for the C-746-U Landfill at the Paducah Gaseous Diffusion Plant Paducah, Kentucky, Permit Number 073-00045, Agency Interest No. 3059
DOE/LX/07-0117&D1	CERCLA Five-Year Review, November 2008
PRS-ENM-0031/R2	C-404 Landfill Source Demonstration Paducah Gaseous Diffusion Plant, Paducah, Kentucky, August 2007
DOE/OR/06-1201&D2	Action Memorandum for the Water Policy at the Paducah Gaseous Diffusion Plant Paducah, Kentucky, June 1994
PRS/ENM/0037	Spill Prevention, Control, and Countermeasure Plan for the DOE Paducah Site, McCracken County, Kentucky, February 2008
PRS/PROG/0015/R1	Pollution Prevention/Waste Minimization Program Plan for the U.S. Department of Energy Paducah Remediation Project, February 2008
BJC/PAD-691/R1	Cultural Resource Management Plan for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, March 2006

EM.PA.0040.A001.02.DR PUMP AND TREAT OPERATIONS

TCE was discovered in residential wells north of the Paducah Site in 1988. DOE, the EPA and Kentucky entered into an Administrative Consent Order under Sections 104 and 106 of CERCLA that requires:

- a. monitoring residential wells potentially affected by contamination;
- b. providing alternative drinking water to residents with contaminated wells as specified by the DOE Action Memorandum for the Water Policy at the Paducah Gaseous Diffusion Plant (DOE/OR/06-1201&D2); and

c. investigation of the nature and extent of off-site contamination.

The Administrative Consent Order site investigation delineated two off-site groundwater contamination plumes, referred to as the Northwest and Northeast Plumes, and identified several potential on and off-site source areas requiring additional investigation and action. An additional on-site plume has been found to the southwest of the Paducah site. In addition, a series of Remedial Investigation/Feasibility Studies (RI/FS) were conducted under the FFA, including the evaluation of all potential major contaminant sources impacting groundwater and surface water. The project continues to evaluate on-going potential sources of contamination. In accordance with these investigations, DOE implemented interim actions that focused on reducing potential risks associated with off-site contamination.

The Southwest, Northwest, and Northeast Plumes all have TCE and ⁹⁹Tc contaminants. Interim remedial actions were developed to mitigate and control the spread of highest concentration portion of the Northwest and Northeast plumes. To implement these two interim remedial actions, two pump-and-treat facilities have been installed. The Northwest Interim Record of Decision was signed in 1993, and the Northeast Interim Record of Decision was signed in 1995. Both of these systems have been optimized and/or upgraded since the original RODs and have subsequent Explanation of Significant Differences.

Table C.2.EM.PA.0040.A001.02.DR-1 Pump and Treat Operations Reference Documents	
Document Number	Title
DOE/OR/06-1201&D2	Action Memorandum for the Water Policy at the Paducah Gaseous Diffusion Plant Paducah, Kentucky, June 1994
DOE/OR/06-1143&D4	Record of Decision for Interim Remedial Action of the Northwest Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, July 1993
DOE/OR/07-1727&D2	Remedial Investigation Report for Waste Area Grouping 6 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, May 1999
DOE/LX/07-0339&D1	Remedial Action Work Plan for the Northwest Plume Interim Remedial Action Optimization at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, May 2010

Table C.2.EM.PA.0040.A001.02.DR-1 Pump and Treat Operations Reference Documents	
Document Number	Title
DOE/LX/07-0359&D1	Postconstruction Report for the Northwest Plume Optimization at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, January 2011
DOE/LX/07-1280&D2	Remedial Action Work Plan for Optimization of the Northeast Plume Interim Remedial Action at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, August 2013
DOE/OR/06-1143&D4	Record of Decision for Interim Remedial Action of the Northwest Plume, July 1993
DOE/OR/06-1356&D2	Record of Decision for Interim Remedial Action at the Northeast Plume, June 1995
DOE/OR/07-1253&D4/R5	Operation and Maintenance Plan for the Northwest Plume Groundwater System Interim Remedial Action at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, September 2010
DOE/OR/07-1535&D3/R4	Operation and Maintenance Plan for the Northeast Plume Containment System Interim Remedial Action at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, August 2013

EM.PA.0040.A001.02.DR.01 Pump and Treat Operations

The Contractor shall perform all activities to:

- a. Operate and maintain the two installed groundwater pump-and-treat facilities in accordance with the approved operations and maintenance plans to control the highest concentration portion of the Northeast and Northwest Groundwater Plumes until regulatory approval is attained to cease operations, including preparation, completion and submittal of any applicable regulatory documents;
- b. Sample and monitor the three plumes, and conduct analyses to determine the effectiveness of and the need for continued operation of the pump-and-treat system;

- c. Continue and complete the optimization of the Northeast Plume Pump and Treat System consistent with regulatory agencies negotiated agreements and strategies, as specified in the 2015 Dispute Resolution on the Northeast Plume Pump and Treat System Optimization. The incumbent contractor is responsible for the regulatory documents and field work associated with the installation of the transect wells, including sampling of the transect wells. Once the quarterly sampling is completed (by the incumbent contractor) for the new transect wells, the Contractor shall develop and issue a report and develop a presentation for the regulators on the findings. The Contractor shall revise the D2/R1 RAWP and issue the D2/R2 RAWP to DOE for internal review, and then to the regulators for review and approval of the 2 extraction wells and additional monitoring wells (up to 14) and all associated field work required to optimize the NE Plume Pump and Treat System. The Contractor shall drill and Install/construct the 2 extraction wells and additional monitoring wells consistent with the approved D2/R2 RAWP. Additionally, the Contractor shall procure and install an additional Alternate Treatment Unit (ATU) similar in size and capacity to the existing unit. Installation shall include installation of all components necessary for the operation of the optimized NE Plume Pump and Treat System, including piping, control boxes, logic systems, assembled programming, electrical wiring. The Contractor shall develop and submit an O&M Plan for both DOE review and regulatory review. The Contractor shall develop all necessary procedures, conduct all necessary training and perform system testing to ensure optimized system is fully operational. The Contractor shall develop a Post-Construction Report, both D0 and D1, for submittal to the regulators. The Contractor shall operate the system with less than 5% downtime. The Contractor shall prepare all CERCLA documents supporting the remediation of the burial grounds including RAWP, Technical Reports, and Operations and Maintenance Plan, and all required CERCLA documents needed to implement the optimization, and actively assist in obtaining regulatory approval. This includes all applicable field work and analytical work necessary to support development or implementation of CERCLA documents; and
- d. Prepare an updated TCE and ⁹⁹Tc plume map with current date every two years (currently odd years), including documentation showing how the map has changed and the data/information used to generate the maps.

Table C.2.EM.PA.0040.A001.02.DR.01-1 Pump and Treat Operations Milestones/Schedule	
Milestone	Date
Update TCE and ⁹⁹ Tc plume map	To DOE: April 15, 2019 To the Regulators: June 15, 2019
Update TCE and ⁹⁹ Tc plume map	To DOE: April 15, 2021 To the Regulators: June 15, 2021
Submit NE Plume Pump and Treat Optimization	8/31/2017
Submit Transect Well Data to Regulators	8/31/2017
Complete all Field Work (including construction, testing, waste disposal, and demobilization) and begin full scale operation	8/31/2018
Submit D1 O&M Plan to Regulators	2/28/2018
Submit D1 Post-Construction Report to Regulators	11/30/2018
Update TCE and ⁹⁹ Tc plume map	To DOE: April 15, 2023 To the Regulators: June 15, 2023
Update TCE and ⁹⁹ Tc plume map	To DOE: April 15, 2025 To the Regulators: June 15, 2025
Update TCE and ⁹⁹ Tc plume map	To DOE: April 15, 2027 To the Regulators: June 15, 2027

EM.PA.0040.A001.07.DR PROJECT MANAGEMENT SUPPORT

The Contractor shall provide all project support activities and resources on-site during the entire POP of this Contract. These support resources include, but are not limited to, the Program Manager, the project management team, and associated support office (e.g., Administrative, QA, HR, Business, Project Controls, Safety, Nuclear Safety, etc.).

EM.PA.0040.A001.07.DR.02 Project Planning & Integration Support

EM.PA.0040.A001.07.DR.02.01 Project Planning, Integration and Interface

The Contractor shall be responsible for assisting DOE in the planning and integration of the ongoing and planned PGDP deactivation and remediation activities. The Contractor shall manage and host routine

standing integration meetings, with representatives of all Contractors, to address common issues and de-conflict issues. An example process is the “Shared Site Process” prepared and managed by the incumbent Contractor.

The Contractor shall establish, appropriately document, and manage interfaces in accordance with the Section J, Attachment J-5, Government Furnished Services and Interface Requirements Matrix.

The Contractor shall ensure that Long-Term Stewardship (LTS) issues are considered in the planning and execution of the activities described in this PWS to:

- a. ensure the site’s successful transition to future LTS, and
- b. assist DOE with LTS planning, transition coordination, and communication with all involved parties, including local stakeholders and regulators.

The Contractor shall ensure that issues associated with the transfer or leasing of land, facilities, and other assets from DOE to other parties are considered in the planning and execution of the PWS.

The Contractor shall coordinate and interface with other site contractors while performing the work in accordance with Section J Attachment J-5, Government Furnished Services and Interface Requirements Matrix. The attachment identifies the key specific tasks and services that require interface and coordination with other site entities.

EM.PA.0040.A001.07.DR.02.02 Regulatory Planning

The Contractor shall provide DOE with its expert knowledge and services to support DOE’s interaction with regulators, including independent facilitation services, the development and implementation of regulatory strategies, and the public comment process related to required regulatory documents and agreements.

The Contractor shall provide regulatory strategies/planning for re-aligning the site’s D&D activities with currently planned and completed remediation activities, logically sequencing and integrating that work to be protective of safety, health, and the environment while maintaining an overall effective

approach. The Contractor shall also develop innovative and unique regulatory approaches to executing the work in this PWS and in the out-years, in order to achieve the same levels of clean-up in a more cost effective manner.

EM.PA.0040.A001.07.DR.02.03 Support to DOE

The Contractor shall provide on-site services including, but not limited to, management, public affairs including Paducah Site Citizens Advisory Board (CAB) support, business administration (e.g. Contracting, procurement, financial and accounting), legal, human resources, training, and program management. Additionally, the Contractor shall perform all activities to:

- a. Support DOE in responding to Congressional, regulatory and other requests for documents and information; examples of such include: Freedom of Information Act requests; Privacy Act requests; and litigation document requests served upon DOE and its current and former prime contractors. Support shall include, but not be limited to, preparation for briefings, public presentations, and search, review, and reproduction of documents. The Contractor shall ensure all external briefing materials and public presentations are of the highest professional quality to market the current and planned project achievements. The Contractor shall ensure that sufficient time is allotted for DOE (including Headquarters) to review and comment on any external briefing materials and public presentations. External briefing materials and public materials shall first be approved by DOE.
- b. Support DOE in the development of internal presentations, budgets, staff development, and other related services.
- c. Provide and support routine (monthly) public site tours of the PGDP facilities and projects, including busing U.S. citizens into the site/limited area, providing presentation/handout materials and communicating the status of the project.
- d. Host public/stakeholder meetings working sessions, as needed, to support high interest topics and to educate the community about the work at the site.

- e. Support DOE in preparation of presentations and conducting presentations to the Paducah CAB's monthly meetings as directed.
- f. Provide administrative services pertaining to public affairs. These shall include, but not be limited to, development of a project/site external communication strategy to market the current and planned project achievements to DOE's stakeholders, including local and state government and congressional representatives.
- g. Ensure that all environmental regulatory documents have received adequate legal review for sufficiency, accuracy and strategic impacts before being submitted to DOE and then to the regulatory agencies.
- h. Support DOE efforts with regard to site real property transfer, site reindustrialization/reutilization activities, and with regard to site reindustrialization/reutilization activities and with regard to Natural Resource Damage Assessments.
- i. Provide joint legal support to DOE in connection with legal or regulatory proceedings at DOE's request.
- j. Support Contract Implementation at the beginning and transition at the end of the Contract.
- k. Provide central locations and receptacles for the collection and delivery of site mail by the Infrastructure Contractor.
- l. External review and support to DOE involves providing support during audits and assessments by entities having oversight responsibility for PGDP Deactivation and Remediation Project and its contractors. These entities include:
 - i. Defense Nuclear Facilities Safety Board (DNFSB);
 - ii. Government Accountability Office (GAO);
 - iii. DOE Office of Inspector General (OIG); and
 - iv. Other governmental and DOE organizations.
- m. Support the DOE, and the DOE Environmental Technical Services (ETS) Contractor in hosting staff from auditing and assessing organizations, providing required presentations, responding to information requests, and providing required subject matter experts to respond to questions and information requests.
- n. Support DOE in interfacing with DNFSB, as needed, by:

- i. providing support for the preparation of DOE responses to DNFSB issues and recommendations that affect this Contract,
 - ii. cooperating with the DNFSB and providing access to work areas, personnel, and information, as necessary, and
 - iii. maintaining a document process in accordance with the CRD M 140.1-1B, Interface with the DNFSB (or current version).
- o. Support DOE in interfacing with GAO, OIG, and other governmental and DOE oversight activities by:
 - i. cooperating with assessors and auditors, and providing access to work areas, personnel, and information and
 - ii. providing support during audits and assessments, including delivering information within a specified time, arranging briefings, preparing presentation materials, maintaining a record of documents provided in response to requests, and making this record available to DOE as requested.
- p. Provide knowledgeable single points-of-contact for each of the following: DNFSB; OIG, GAO, and other assessing governmental and DOE oversight organizations (including the DOE Office of Enforcement).
- q. Support efforts to construct a new office building at the site. Efforts may include the use of third party financing or Energy Savings Performance Contracts (ESPC).
- r. The Contractor shall provide training to DOE and the technical support contractor required to access/enter its facilities, including respirator training, asbestos awareness, and other specialized training.

EM.PA.0040.A001.07.DR.03 Project Management

The Contractor shall perform all activities to develop and maintain a project management work control system compliant with Reporting Requirements (July 2012), Section H and FAR 52.234-4, Earned Value Management

System (May 2014). Additionally, the Contractor shall prepare, submit and maintain a life-cycle plan (scope, cost and schedule) representing planned site work scope from the end of this contract through final D&D/Remediation completion and the site is transferred to the DOE Office of Legacy Management. The Contractor shall be aware of and manage changes to the life-cycle baseline.

The Contractor shall ensure the CPB remains aligned with the Contract terms to include scope, cost and schedule. The Contractor shall ensure timely response to Contract modifications and declaration of changed conditions, through the submission of Contract change proposals and/or baseline change requests to maintain alignment of the CPB with the Contract. The Contractor shall provide all management and technical information to:

- a. Support the budget formulation activities including, but not limited to, emerging work items list; budget formulation inputs (including Integrated Priority List), budget update submissions, budget scenario development, and budget presentations (such as public and regulatory briefings, etc.);
- b. Develop and submit Annual Spend Plans, Monthly Spend Plan Reports, Full Time Equivalent (FTE) staffing projections, and other similar reporting information;
- c. Meet the data requirements of the DOE Integrated Planning, Accountability and Budgeting System;
- d. Support audits, evaluations, and external technical reviews; and
- e. Support other DOE project performance assessments and information needs.

All project management information developed under this contract shall be provided electronically or be electronically accessible by DOE. In support of the Paducah Integrated Site-wide Federal Lifecycle Baseline, the Contractor shall also provide the interim and full CPB information to the ETS Contractor, or other DOE prime contractor, as designated.

Table C.2.EM.PA.0040.A001.07.DR.03-1 Project Management Milestones/Schedule	
Milestone	Date
Full CPB aligned to contract value	6 months after NTP
Life Cycle Plan	9 months after NTP

EM.PA.0040.A001.07.DR.04 Environment, Safety, Security, Health & Quality

EM.PA.0040.A001.07.DR.04.01 Safety Programs

The Contractor shall perform all activities to:

- a. Conduct all activities required for compliance with applicable laws, regulations, permits, agreements and Orders, and DOE Directives including those listed in Section J, Attachment J-1. In accordance with Section H.XXX, Integrated Safety Management System (ISMS) and Environmental Safety and Health (ES&H) Program, the Contractor's programs shall be operated as an integral, but visible, part of how the Contractor conducts business. This includes, but is not limited to: prioritizing work planning and execution; establishing clear ES&H priorities; allocating resources to address programmatic and operational considerations; and correcting non-compliances and addressing all hazards for all facilities, operations, and work. The Contractor shall ensure that cost reduction efforts and efficiency efforts are fully compatible with ES&H performance.
- b. Take all actions necessary to preclude serious injuries and/or fatalities; keep worker exposures and environmental releases as low as reasonably achievable and below established limits; minimize the generation of waste; maintain or increase protection to the environment; and maintain or increase public and worker safety and health.
- c. Submit a Chronic Beryllium Disease Prevention Program consistent with 10 CFR 850 for DOE review and approval. A study has been completed characterizing the levels of Beryllium within the site (BJC/PAD-581) and shall be considered by the Contractor in the development and implementation of a Chronic Beryllium Disease Prevention Program. This program shall encompass DOE and PGDP Contractors. The Contractor shall be the Site Chronic Beryllium Coordinator.
- d. Ensure adequate access to health programs/ambulatory care, and beryllium and radiation worker health surveillance programs. These services are required to assess, monitor, record data, and provide medical support for current site workers who are or may be exposed to radiological and hazardous materials.
- e. Maintain a trained workforce necessary for performance of this Contract. The Contractor shall accept other training modules as equivalent to their own and assure reciprocity for, at a minimum, all

Portsmouth/Paducah Project Office (PPPO) Contractors. The Contractor shall also complete site-specific training (provided by the Infrastructure Contractor) necessary for site access, including but not limited to, Consolidated Annual Training, Radiation Worker I and II, General Employee Training, Annual Security Refresher, Workplace Violence Prevention, Diversity Awareness, Employee Conduct Training, Business Ethics/Standards of Conduct, and Fire Extinguisher Training, DOE Orders/Work Smart Standards and ISMS. The Contractor shall be responsible for any job specific training necessary to implement the PWS activities.

- f. Establish a training program for implementation of a compliant program in accordance with DOE Order 426.2 requirements and all applicable laws and regulations in support of the work performed under this Contract. The Contractor shall track its employees training status and notify employees of training needs (this includes training provided by other site contractors). Training records shall be maintained and retrievable for current employees. The Contractor shall coordinate with other site contractors to consolidate training modules, where practicable. The Contractor shall ensure that its training program is configured/managed so the personnel who do not have the necessary training (e.g., not trained, not requalified, etc.) are prohibited from performing the work that requires the training.
- g. Perform work in accordance with 10 CFR 851. The Contractor's safety program requirements shall include hazard analyses, work permits (as applicable), industrial hygiene monitoring, and trained safety professionals. The Contractor shall manage and perform work in accordance with a documented worker safety and health plan approved by DOE prior to commencement of work.
- h. Prepare an Activity Specific Health and Safety Plan and Job Hazards Analysis as needed as part of the overall project safety program. Copies of these documents will be provided to DOE for information.
- i. Provide safety and health Personal Protective Equipment for the Contractor, DOE employees, and DOE's ETS Contractor. The Contractor shall be responsible for the subsequent decontamination and disposal of such PPE.
- j. The Contractor shall develop and implement a process to ensure site personnel adhere to posted speed limits. SPOs shall not be used to enforce speed limits.

- k. Provide investigations and support for ES&H issues/effects resulting from the historical “Work for Others Program” (work for non-DOE entities (sponsors) on a fully reimbursable basis in accordance with DEAR 970.5217-1). The Contractor may encounter materials and historical information that references a “Work for Others Program”; these materials may include classified information. The potential implications shall be addressed consistent with security requirements.
- l. Provide non-emergency spill contamination, clean-up, and other post-emergency response activities. Spills could include, but not be limited to, diesel fuel, oils containing PCBs, and radioactive contamination.
- m. Provide programmatic and oversight support to other DOE support personnel/contractors (e.g., technical support contractors, Kentucky Research Consortium for Energy and Environment demonstration projects on DOE property) as requested by DOE.
- n. Manage the Site-wide Integrated Lockout & Tagout Program and ensure lock-out/tag-out is properly coordinated with other site contractors. The Contractor shall implement a compliant lock-out/tag-out program in accordance with DOE-STD-1030-96 and all applicable regulations. Each of the site’s contractors is required to participate in this Site-wide Integrated Lockout & Tagout Program.
- o. Provide medical screening of the DOE employees and DOE’s ETS Contractor if required to enter the work areas and meet the requirements of the Worker Safety and Health Program (10 CFR 851), or Radiological Protection Program (10 CFR 835).
- p. The Nuclear Safety Program shall be described in safety basis documents in accordance with 10 CFR 830, Nuclear Safety Management. The Contractor shall be responsible for implementing and maintaining any necessary safety basis documents. The Contractor shall develop and implement a Nuclear Criticality Safety (NCS) Program/Procedure compliant with DOE O 420.1C. The Contractor shall ensure proper implementation of Nuclear Criticality Safety Program on an annual basis by performing annual surveillances as required by ANSI/ANS-8.19, *Administrative Practices for Nuclear Criticality Safety* (required by DOE O 420.1C).
- q. The Contractor shall comply with 10 CFR 830 and have programs and procedures that implement the requirements. The Contractor shall review the incumbent contractor’s safety basis documents, and accept, modify, or develop, as necessary, for compliance

performance per DOE Order requirements and all applicable laws and regulations. To support new or changed operations, the Contractor shall revise or develop documented safety analysis and safety basis documentation compliant with 10 CFR 830 and DOE STD 1027. The Contractor shall obtain DOE approval of the safety basis documents prior to implementation. The Contractor shall update and maintain the safety basis documents in a manner that supports the work required by the Contract and consistent with DOE Orders and applicable requirements. The Contractor shall perform and document a Natural Phenomenon Hazard (NPH) analysis for the entire site, in accordance with DOE Standard 3009 and revise its AB to reflect the results of the analysis. The Contractor shall transmit the results of the NPH analysis to DOE and all of the other site contractors. Additionally, the Contractor shall comply with and implement all actions specified in DOE Office of Health, Safety, and Security (HSS) Operating Experience memo OE-1: 2013-01, April 2013. The incumbent contractor has not taken any action to comply with OE-1: 2013-01.

- r. The Contractor shall review the incumbent contractor's procedures, program and performance documents, and accept, modify, or develop, as necessary, for compliance performance per DOE Order requirements and all applicable laws and regulations. The Contractor shall also develop and implement a work planning and control process in accordance with DOE O 412.1A, Work Authorization System, for Contract activities in support of acceptance of turnover of the GDP Facility. The Contractor shall eliminate all blue-sheeted (i.e. revised or adopted) procedures and performance documents and implement procedures and performance document in compliance with DOE Orders no later than 90 days after transition is completed.

Table C.2.EM.PA.0040.A001.07.DR.04.01-1 Safety Programs Reference Documents	
Milestone	Date
DOE HSS memo OE-1: 2013-01, April 2013	DOE Health, Safety, and Security (HSS) Operating Experience memo, Improving Department of Energy Capabilities for Mitigating Beyond Design Basis Events

Table C.2.EM.PA.0040.A001.07.DR.04.01-2 Safety Programs Milestones/Schedule
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Milestone	Date
Submit a Chronic Beryllium Disease Prevention Program consistent with 10 CFR 850	90 days after NTP
Submit a Worker Safety and Health Program Plan	90 days after NTP
Submittal of Nuclear Criticality Safety Program	75 days after NTP
Submit revised Safety Basis documents	90 days after NTP
Annual Safety Basis document submittal to DOE for approval	Annually from date of initial DOE approval
Eliminate all blue-sheeted procedures and performance documents	90 days after conclusion of transition

EM.PA.0040.A001.07.DR.04.02 Integrated Safety Management

The Contractor shall develop and implement an ISMS Program that complies with the Section I Clause DEAR 970.5223-1, Integration of Environment, Safety, and Health into Work Planning and Execution. The Contractor's ISMS program shall ensure all work is performed safely and in a compliant manner that assures the workers, public, and environment are protected from adverse consequences. The Contractor shall also establish performance measures, objectives, and commitments (PMOC's) as required by DEAR 970.5223-1. PMOC's shall be submitted annually for DOE approval.

The ISMS program shall include an Operating Experience (e.g., lessons learned) program that is compliant with DOE Orders. The Operating Experience program shall be structured to identify and apply available lessons in safety, quality and performance to this project as well as to capture, document, and provide lessons learned from this project for future application by others.

The Contractor shall prepare an ISMS Description; including PMOC's to implement the Contractor's ISMS within 90 days after NTP. The ISMS Description shall identify how the Contractor will maintain compliant and safe operations by integrating safety and health into all activities including environmental compliance. The initial ISMS Description must be approved by DOE prior to facility turnover.

The ISMS program shall integrate DOE O 436.1, Departmental Sustainability. In accordance with DOE O 436.1, the Contractor shall develop and implement Site Sustainability Plans (SSP) and an Environmental Management System (EMS) Plan. These plans shall include recycling and pollution prevention. The Contractor shall be the Environmental Management Systems designated site coordinator.

To continuously improve the ISMS, the Contractor shall perform annual ISMS effectiveness reviews and submit a report documenting the status of the ISMS program to DOE along with any changes needed to the ISMS Description. In addition, the ISMS program shall be subject to a verification review and approval by a DOE chartered ISMS verification team within 120 days of the NTP.

Table C.2.EM.PA.0040.A001.07.DR.04.02-1 Integrated Safety Management Milestones/Schedule	
Milestone	Date
Submit ISMS Description	90 days after NTP
Submit SSP and EMS	90 days after NTP
Submit Contractor's ISMS Verification Review and Report	120 days after NTP
Submit ISMS Annual Effectiveness Review and Report	Annually after the Contractor's ISMS Verifications Review and Report
Submit PMOCs	120 days after NTP, Annually there after

EM.PA.0040.A001.07.DR.04.03 Radiological Protection Program

The Contractor shall develop and implement a Radiation Protection Program (RPP) compliant with the requirements specified in 10 CFR 835 and DOE Order 458.1 (the Environmental Radiation Protection Program (ERPP) is addressed in **C.X**). The confirmation of the review and any changes shall be submitted to DOE for approval. Management of radioactive sources onsite or any other radioactive source the Contractor is responsible for shall be fully compliant with the RPP and DOE requirements upon possession or management of the sources.

The Contractor shall implement and maintain radiological programs that include all dosimetry, data, and records necessary to demonstrate

compliance with the required radiological monitoring and to verify the adequacy of site radiological control programs in protecting the health and safety of workers, the public, and the environment. The Contractor shall provide and distribute radiation dosimetry (e.g., Thermoluminescent Dosimeters/Personal Nuclear Accident Dosimeters) and bioassays as required by 10 CFR 835 for its employees and site visitors including radiological surveys as needed for its work.

The Infrastructure Contractor shall perform calibration and maintenance of all field monitoring and surveying equipment as required by 10 CFR 835. This does not include laboratory or laboratory-like equipment that would be used to measure swipes or samples. The Infrastructure Contractor shall maintain the Paducah External Dosimetry Program, Paducah Internal Dosimetry Program, Paducah Radiological Instrumentation Program, and the Paducah Radiological Records Program and provide dosimetry and bioassay sampling as a Government Furnished Service. Determinations of dosimetry requirements and evaluation of dosimetry or radiological data is not a GFSI and shall be performed by the Contractor. The Contractor's RPP shall be consistent with the Paducah site programs.

Table C.2.EM.PA.0040.A001.07.DR.04.03-1 Radiation Protection Program Milestones/Schedule	
Milestone	Date
Submittal of the Radiation Protection Program	60 days after NTP

EM.PA.0040.A001.07.DR.04.04 Emergency Management & Fire Protection Program

The Contractor shall maintain and manage the Paducah Site Emergency Management Program Plan in compliance with the DOE order requirements. Per DOE O 151.1D, Comprehensive Emergency Management System, the Contractor shall implement comprehensive emergency management requirements, as they apply to the site/facility/activity, commensurate with the hazards present. General requirements shall include the implementation of a Comprehensive Emergency Management System designed to:

- a. Minimize the consequences of all emergencies involving or affecting facilities and activities (including transportation operations/activities);

- b. Protect the health and safety of all workers and the public from hazards associated with site operations and those associated with decontamination, decommissioning, and environmental restoration;
- c. Prevent damage to the environment; and
- d. Promote effective and efficient integration of all applicable policies, recommendations, and requirements, including Federal interagency emergency plans. An exemption for two-level (site area emergency and alert) emergency classification (versus a three-level required by DOE O 151.1D) was generated by DOE in 2014. The Contractor shall modify the program to come into full compliance with DOE Order 151.1D, eliminating the exemption 24 months after transition. All procedures, Authorization Basis documents, program documents, and other implementing documents shall be modified.

Activities shall include, but are not limited to the following:

- a. Provide initial and refresher Emergency Operations Center (EOC) and Joint Public Information Center (JPIC) training for DOE and DOE Prime Contractors/Subcontractors as needed. Develop and implement a site wide emergency exercise/drill program in compliance DOE Orders, with support from other DOE Prime Contractors/Subcontractors as needed.
- b. Ensure sufficient resources are available to provide emergency response compliant with DOE Orders for the entire site, (Fire Operations, Emergency Squad, Emergency Operations Center, & Joint Public Information Center) including capabilities of: fire, rescue, technical rescue, HAZMAT, medical response at the Advanced Life Support (ALS) level, and the capability to notify employees and offsite personnel of an emergency to facilitate safe protective actions. Ensure the proper identification, categorization/classification, notification, and reporting of emergencies to the DOE Paducah office, PPPO Manager, the Headquarters Emergency Operations Center and other organizations in accordance with applicable DOE policies and requirements.
- c. Ensure recovery procedures are available that include termination of emergency, and the dissemination of information to Federal, State, and local organizations regarding the emergency and possible relaxation of public protective actions; planning for decontamination actions; establishment of a recovery organization;

development of reporting requirements; and establishment of criteria for resumption of normal operations.

- d. Within 4 years after NTP, the Contractor shall relocate the PGDP Emergency Operations Center (EOC) and the Plant Shift Superintendent (PSS) Office from C-300 Central Control Room to a DOE approved alternate location such as the newly constructed on-site office facility. A minimum of one site wide drill or exercise in the new EOC must be conducted prior to shut down of existing C-300 emergency operations center capabilities.

The Contractor shall maintain and update documentation establishing Emergency Planning Zone; Hazard Surveys, Emergency Planning Hazard Assessments (EPHA), and Emergency Plans that document comprehensive emergency management programs; and Emergency Readiness Assurance Plans. The Contractor shall also maintain and update Emergency Action Levels (EALs) and protective actions, review and implement EALs and protective actions from other contractors/subcontractors.

The Contractor shall integrate emergency public information planning with the maintenance of the Paducah Site Emergency Plan. The Contractor shall maintain a coordinated off-site emergency management interface with state, and local organizations responsible for off-site emergency response and protection of the public and submit copies of all Mutual Aid Agreements and contracts for offsite assistance annually to DOE-PPPO. The Contractor shall gain DOE concurrence prior to entering into or modifying any Mutual Aid Agreements (e.g., Letters of Agreement, or Memorandums of Understanding) and contracts. The Contractor shall contract for hospital services instead of relying on Mutual Aid Agreements.

Maintain an Emergency Readiness Assurance Program that meets the requirements of DOE Order 151.1D and provides assurances that emergency plans, implementing procedures, and resources are adequate and sufficiently maintained, exercised, and evaluated, and that improvements are made in response to identified needs.

The Contractor shall implement and manage a site-wide (covering the other site tenants/contractors) Fire Protection Program that complies with Contractor Requirements Document (CRD) O 420.1C, National Fire Protection Association (NFPA) and OSHA 1910.146.

The Contractor shall provide site-wide (involving site tenants/contractors) active fire protection system inspections, testing and maintenance, fire investigations, and fire department and emergency response. Fire protection system inspection, testing and maintenance shall include a fire protection system impairment strategy. Fire protection systems in facilities shall be inspected, tested and maintained in accordance with National Fire Protection Standards until the facility is shutdown, does not have routine occupancy, and has the fire load eliminated or reduced to minimum possible levels.

The Contractor shall be responsible for providing a Fire Protection Plan and Fire Hazard Analyses (FHA). A Baseline Needs Assessment (BNA) shall be prepared including details regarding Contractor emergency response capabilities including mission responsibilities, personnel, apparatus, equipment, facilities, programs, incident reporting, etc.

It is recognized that the size and capability of emergency response, including fire protection, programs and facilities are dependent on operational activities at the site. The Contractor shall develop these programs/documents with automatic triggers that eliminate requirements as the status of the GDP facilities moves toward shutdown and isolated status.

The Contractor shall maximize the use of local community medical, fire/emergency response where overall cost-effective to respond in a timely and effective manner. The Contractor shall develop a detailed plan and gain input from local emergency response and fire departments to eliminate the on-site fire and emergency response organizations/capabilities (this does not include emergency preparedness functions, e.g., EOC). The emergency response capabilities shall be transferred to an off-site provider within 3 years after contract transition. Emergency response services shall be transitioned to off-site service provider in the local community. The Contractor may, upon approval by DOE, utilize grants, equipment and realty transfers to the local community, or other merchants to ensure compliance with DOE Orders for adequate services. If the local emergency response capability is deemed insufficient, appropriate compensatory measures shall be implemented to address baseline needs until corrected by the local community.

<p>Table C.2.EM.PA.0040.A001.07.DR.04.04-1 Emergency Management & Fire Protection Program Reference</p>

Documents
<i>Letters of Assistance</i>
City Of Paducah
McCracken County
Paducah-McCracken County Office Of Emergency Management
McCracken County Sheriff's Department
Federal Bureau Of Investigation
Kentucky State Police
Mercy Regional Emergency Medical Services
PHI Air Medical
St. Mary's Hospital Lifeflight
Vanderbilt University Medical Center Lifeflight
Purchase District Health Department
United States Department Of The Army Explosive Ordnance Disposal
West McCracken County Fire District
<i>Memorandum Of Understandings</i>
Lourdes Hospital
Western Baptist Hospital
<i>Mutual Aid Agreements</i>
Lone Oak Fire Department
Paducah Fire Department
<i>Memoranda of Agreements</i>
Coroner (No existing agreement)(Required by DOE G 151.1-4)

Table C.2.EM.PA.0040.A001.07.DR.04.04-2 Emergency Management & Fire Protection Program Milestones/Schedule	
Milestone	Date
Fire and Emergency Services Off-Site Support Implementation Plan	1 year after NTP
Transfer Emergency Response services to a local community provider.	3 years after conclusion of Transition
Submittal of recommendations from Effectiveness Review of Medical, Fire and Emergency Response Services	1 year after services are transitioned to off-site provider(s)
Relocate EOC to new location	4 years after conclusion of Transition
Completion of Contractor Readiness Assessment for Emergency Management Program	105 days after NTP
Submittal of the Emergency Readiness Assurance Plan	Annually Before September 30 th

Table C.2.EM.PA.0040.A001.07.DR.04.04-2 Emergency Management & Fire Protection Program Milestones/Schedule	
Milestone	Date
Submittal of Paducah Site Emergency Management Program Plan and other required secondary documentation such as EALs, EPHAs, Hazard Surveys, etc.	60 days after NTP
Submittal of Fire Protection Plan and Fire Hazard Analysis	90 days after NTP
Submittal of Emergency Management and Fire Protection Baseline Needs Assessment	60 days after NTP
Mutual Aid Agreements and Contracts	120 days after NTP and Annually or as changed thereafter

EM.PA.0040.A001.07.DR.04.05 Quality Programs

The Contractor shall comply with 10 CFR 830, other regulations affecting Quality Assurance (QA) and DOE O 414.1D and implement a DOE-approved Quality Assurance Program (QAP) in accordance with the EM Quality Assurance Program, EM-QA-001, Revision 1 dated June 11, 2012, prior to commencement of work affecting nuclear safety. The Contractor shall, at a minimum, annually review and update the QAP as appropriate. The confirmation of the review and any changes shall be submitted to DOE for approval.

The Contractor's QAP shall describe the overall implementation of the EM QA requirements and shall be applied to all work performed by the Contractor (e.g., research, design/engineering, construction, operation, budget, mission, safety, and health). The Contractor shall ensure it maintains a robust Suspect/Counterfeit Items Program.

American Society of Mechanical Engineers NQA-1, 2008, *Quality Assurance Requirements for Nuclear Facility Applications*, and addenda through 2009 shall be implemented as part of the Contractor's QA Program for work affecting nuclear safety, consistent with EM-QA-001, Rev.1. The required portions of NQA-1 to be implemented include: Introduction, Part I, and as applicable portions of Part II. NQA-1 Parts III

and IV are to be used as guidance for the Contractor’s QAP and implementing documents.

In accordance with H.XXX, the Contractor shall develop and implement a comprehensive Issues Management System for the identification, assignment of significance category, and processing of safety-related issues identified within the Contractor’s organization.

Table C.2.EM.PA.0040.A001.07.DR.04.05-1 Quality Programs Milestones/Schedule	
Milestone	Date
Submittal of the Quality Assurance Plan	90 days after NTP
QAP Review and Update	Initial update due 1 year after conclusion of transition, and annually thereafter

EM.PA.0040.A001.07.DR.04.06
 Quality System for Nondestructive Assay Characterization (QSNDA)

The incumbent contractor has developed and implemented a Nondestructive Assay (NDA) Program that is compliant with DOE Order 414.1D, U.S. Department of Energy Quality Assurance. The Contractor shall comply with QSNDA requirements *DOE/PPPO/03-0235&D0, U.S Department of Energy Portsmouth/Paducah Project Office Quality System for Nondestructive Assay Characterization*. This program is capable of measuring waste drums of trapping media generated from the deposit/holdup removal program (5.5 wt% U²³⁵) and characterizing cells/piping and identifying deposits/hold-up to a level that supports the implementation of the NCS crit-incredible limits for the process equipment following in-situ chemical deposit/holdup removal (20 wt% U²³⁵).

The Contractor shall ensure that all NDA programs comply with DOE Order 414.1D, not just those performing the NDA of trapping material, piping, and cells.

The Contractor shall review this program for acceptance and carry-on the program during the performance of this PWS.

Table C.2.EM.PA.0040.A001.07.DR.04.06-1 QSNDA Reference Documents	
Document Number	Title

Table C.2.EM.PA.0040.A001.07.DR.04.06-1 QSNDA Reference Documents	
Document Number	Title
DOE/PPPO/03-0235&D0	U.S Department of Energy Portsmouth/Paducah Project Office Quality System for Nondestructive Assay Characterization

EM.PA.0040.A001.07.DR.11 Real and Personal Property Management

Administration of the real and personal property program is the responsibility of the Infrastructure Contractor including managing an automated database of all personal property actions related to acquisition, use and disposition. The Infrastructure Contractor is also responsible for managing the property inventory, databases, disposition operations, and providing input to FIMS and the Property Information Database System.

The Contractor shall provide new or updated data to the Infrastructure Contractor for input into FIMS for all facilities assigned under this Contract. The Contractor shall be responsible for ensuring FIMS data is accurate and up to date throughout Contract period of performance for assigned facilities. The Contractor shall provide FIMS data to the Infrastructure Contractor and shall support the annual FIMS data verification, including correcting any findings.

The Contractor shall provide annual updates to the information contained in the PPPO Ten Year Site Plan, and provide support for review and resolution of comments. The Contractor is expected to be the information source authority for the facilities as assigned under this contract, and able to respond to DOE requests for information on real property under its control.

The Contractor shall interface with the PACRO to transfer eligible excess personal property per the PACRO/DOE Property Transition Agreement.

The Contractor shall develop and implement a Property Transfer Plan to transfer real property to another party prior to the end of the POP. The Contractor should target at least 500 acres for transfer, and should utilize the PACRO to facilitate this effort. The Contractor shall support additional property transfers as requested.

The Contractor shall manage all assigned Government-owned accountable and non-accountable personal property in accordance with the requirements listed below and 41CFR101 and 41CFR109:

- a. Control classified equipment and material in accordance with DOE O 471.6, "Information Security,"
- b. Control high risk property in accordance with DOE Personal Property Letter 970-3, Rev.1, dated February 3, 1998, and
- c. Destruction or "rendering useless" of any component, equipment, and material, which are both surplus to the DOE and identified in the Nuclear Suppliers Group Trigger List or are nuclear weapon component or weapon-like components, is the responsibility of the Contractor.

This includes establishing a system to track the assignment and status of high risk property specifically assigned to the Contractor. Prior to providing property to the Infrastructure Contractor for disposition, the Contractor shall characterize the property, maintain characterization records and provide those records at the time of property transfer to the Infrastructure Contractor.

The Contractor shall work with the Realty Officer or other assigned real estate personnel and receive concurrence or approval prior to executing any real property actions on behalf of this Contract. All Contractor real estate actions shall be accomplished in accordance with the DOE O 430.1B, Real Property Asset Management.

The Contractor shall work with DOE Property Manager, Fleet Manager and Realty Officer and provide the property and vehicle reports in accordance with Section J, Attachment J-1, List of Applicable Laws, Regulations and DOE Directives, and Section J, Attachment J-3, Summary of Contract Deliverables.

Table C.2.EM.PA.0040.A001.07.DR.11-1 Real and Personal Property Management Milestones/Schedule	
Milestone	Date
Submit the FIMS data for site facilities to the Infrastructure Contractor	August 15 and annually thereafter
Property Transfer Plan	90 days after transition
Reports of loss, damage, periodic physical inventory data and inventory, & final inventory for Contract completion	1 year after transition and annually thereafter

Motor Vehicle Fleet Reports (FAST)	1 year after transition and annually thereafter
Transfer excess acreage to the community	End of POP

EM.PA.0040.A001.07.DR.12 Automated Supply Pilot Project

Historically, projects at PGDP manage large inventories of consumable and parts. Cost and efficiency, however, are not optimized because: inventory is often lost; costs have not been adequately allocated to users/projects costs, and large volumes of inventory is warehoused (which requires operational costs of facility management and maintenance) instead of receiving items “just-in-time” for users.

In an effort to improve efficiency and reduce logistical cost, the Contractor shall plan and implement a Pilot Project to automatically distribute consumables and parts in support of field activities, (e.g., facility maintenance, vehicle maintenance, operations, and/or small construction projects) from one primary equipment distribution center. The common terminology for this commercially available technology is “Industrial Vending”.

The Contractor shall select one equipment distribution center to install “Industrial Vending System(s)”. The period for performance of this pilot project begins on day one after transition and continues for 27 (twenty-seven) months. The pilot study shall be divided into three phases.

Phase 1 starts at day one after the Transition Period is complete and concludes after 12 months. The Phase 1 scope includes planning, data collection relative to conventional distribution methods in the planned pilot study area(s) (for comparative analysis of automated distribution data), training/familiarization of site personnel with the “Industrial Vending” equipment and procedures procurement of an “Industrial Vending” technology provider, and deployment of the equipment to provide the automated distribution capability at the beginning of Phase 2.

Phase 2 begins immediately after Phase 1 for a period of one year. The Contractor shall use the Phase 2 period to gather cost data and efficiencies to compare the “Industrial Vending” performance of the automated equipment against conventional distribution systems currently in use at the PGDP.

Phase 3 is 90 days in duration and begins immediately following Phase 2. At the end of Phase 3, the Contractor shall deliver, to DOE, a detailed report,

comparing conventional equipment/parts distribution methods and “Industrial Vending”, including efficiencies (if any), cost benefits (if any), and recommendation(s) for future application of the Industrial Vending technology/process.

Table C.2.EM.PA.0040.A001.07.DR.12-1 Automated Supply Pilot Project Milestones/Schedule	
Milestone	Date
Complete Phase 1 of Automated Supply Pilot Project	1 year after completion of Transition
Complete Phase 2 of Automated Supply Pilot Project	2 years after completion of Transition
Complete Phase 3 of Automated Supply Pilot Project	2 years 3 months after completion of Transition

EM.PA.0040.A001.07.DR.13 Asset Recovery and Recycling

EM.PA.0040.A001.07.DR.13.01 Asset Recovery and Recycling

For all activities, the Contractor shall maximize use of recycling excess materials and equipment to reduce project costs in accordance with DOE O 436.1. The Contractor shall support DOE’s reindustrialization and asset re-utilization activities at the site.

The Contractor shall actively recycle all non-contaminated recyclable: batteries, rubber, paper, glass, plastics, and metals and work with local and regional recyclers and with PACRO to maximize cost effectiveness. The Contractor shall also establish recycling collection points on-site for other site tenants and members of the public to recycle these materials. The Contractor shall not release, for unrestricted use, any scrap metal from DOE radiological areas into commerce (Memorandum of “Release of Surplus and Scrap Materials”, from Secretary Bill Richardson, dated July 13, 2000). Also, the Contractor shall not release, for unrestricted use, volumetrically-contaminated metal into commerce (Press Release “Energy Secretary Richardson Blocks Nickel Recycling at Oak Ridge”, dated January 12, 2000). The Contractor shall comply with DOE policies that are developed to address or update the suspension or the moratorium. The Contractor shall provide a Recycling Program Plan within six (6) months of NTP. The plan shall include volumes of regulated materials.

Table C.2.EM.PA.0040.A001.07.DR.13.01-1 Asset Recovery and Recycling Milestones/Schedule	
Milestone	Date
Asset Recovery and Recycling Program Plan	180 days after transition, then updated annually

EM.PA.0040.A001.07.DR.13.02 Nickel Ingots

The Contractor shall store and maintain approximately 10,000 tons of volumetrically contaminated unclassified nickel ingots and containers of classified nickel scrap stored on the C-746-H4 pad. The Contractor shall develop strategies, including options for the sale of 10,000 tons of nickel and other recyclable metals and materials stored at Paducah. The Contractor shall act as DOE’s agent for identifying and negotiating for reclamation and resale of the nickel, as well as, other valuable assets recovered as part of execution of this PWS. The Contractor shall implement asset and recovery activities as directed by the CO in accordance with C.3.2.4, Asset Recovery and Recycling.

Tasks include, but are not limited to:

- a. evaluate disposition options of nickel ingots and any other nickel from the cascade facilities;
- b. once authorized, implementing the approved option for disposition of nickel and other recyclable metals and materials including allocating costs in unique charge code(s) to allow for recovering of costs from release of these materials, and
- c. if sale is selected, assisting DOE in completing the sale and disposition of the classified nickel and other recyclable metals and materials.

Table C.2.EM.PA.0040.A001.07.DR.13.02-1 Nickel Ingots Milestones/Schedule	
Milestone	Date
Evaluate disposition option of nickel ingots and any other nickel from the cascade facilities	3 years after Transition

EM.PA.0040.A001.07.DR.14 Energy Efficiency

The Contractor shall assist DOE through direct participation and other support in achieving DOE's energy efficiency goals and objectives in electricity, water, and thermal consumption, conservation, greenhouse gas reduction, climate control, and savings, including goals and objectives contained in Executive Order 13693, Planning for Federal Sustainability in the Next Decade. The Contractor shall maintain and update, as appropriate, its documents to include detailed plans and milestones for achieving site-specific energy efficiency goals and objectives. The Contractor shall maximize the use of Energy Savings Performance Contracts and Utility Energy Services Contracts. The Contractor will implement the Transformation Energy Action Management (TEAM) Goals and Initiatives and report the progress on achieving these goals and initiatives in the Ten Year Site Plan, semi-annually to EM HQ, and upon request. At a minimum, the following initiatives shall be pursued:

- a. All purchases of office equipment shall be ENERGY STAR or DOE Federal Energy Management Program top 25th percentile. All new construction and major renovations shall be evaluated to achieve Leadership in Energy and Environmental Design (LEED) Gold certification where cost beneficial.
- b. Decrease water consumption where practical, in all applicable buildings, trailers, and other structures and facilities.
- c. Develop Green purchasing program and incorporate Executive Order 13693 into new subcontracts.
- d. Increase energy efficiency by adding meters to buildings that meet the Department's cost-benefit analysis guidelines. Even on non-metered buildings, pursue energy savings opportunities such as fluorescent lighting, low flow shower heads, programmable thermostats, more efficient insulation, and other energy saving projects.
- e. Transition all fleet vehicles to alternative fuel as vehicles are replaced. Pursue plug-in hybrid electric vehicles where economically and operationally practical.
- f. Develop a Toxicity Reduction Plan. Develop toxicity reduction objectives and targets. Monitor ozone depletion substances, recovery, and recycling.
- g. Develop a plan to continually reduce greenhouse gas emissions by reducing energy use and cost, then finding renewable or alternative energy solutions.

**Table C.2.EM.PA.0040.A001.07.DR.14-1
Energy Efficiency Milestones/Schedule**

Milestone	Date
Develop and implement an Energy Efficiency Plan that incorporates all requirements of Executive Order 13693	90 days after conclusion of Transition

EM.PA.0040.A001.07.DR.15 Records Management

The Contractor shall manage all records (regardless of media) generated/received in the performance of the Contract, including records obtained from a predecessor contractor (if applicable), in accordance with the Paducah Infrastructure Contractors Records Management Program, 44 U.S.C. 21; 44 U.S.C. 29; 44 U.S.C. 31; 44 U.S.C. 33; 44 U.S.C. 36; 36 CFR Chapter XII, Subchapter B, *Records Management*; DOE Order 243.1B, *Records Management Program*; and any other DOE requirements as directed by the CO. The Contractor shall gain the approval of the Infrastructure Contractor for any of its Record Storage Areas (active records) and the methodology and process for handling records. These functions include, but are not limited to, tasks associated with creating, receiving, maintaining, storing, protecting, scheduling and dispositioning inactive records (including emails) to the Infrastructure Contractor; managing classified records (if applicable), records management data calls by NARA and DOE-HQ, and responses to requests related to the Freedom of Information Act (FOIA), the Privacy Act, The Energy Employee Occupational Illness Compensation Program (EEOICPA), the former worker medical screening program, the Chronic Beryllium Disease Prevention program, congressional inquiries and legal discoveries.

The Contractor shall ensure records classified as Quality Assurance records under American National Standards Institute (ANSI)/American Society of Mechanical Engineers (ASME) National Quality Assurance (NQA)-1 are categorized appropriately and managed in accordance with NQA-1 and 36 CFR Chapter XII, Subchapter B, and are maintained for traceability to the applicable item, activity or facility.

The Contractor shall ensure that records that contain personal information retrieved by name or another personal identifier are categorized and maintained in Privacy Act Systems of Records, in accordance with FAR 52.224-2, "Privacy Act" and DOE Order 206.1, "DOE Privacy Program".

Except for those defined as contractor-owned (in accordance with Department of Energy Acquisition Regulation (DEAR) 970.5204-3, "Access to and Ownership of Records," see Section I), all records (see 44 U.S.C. 3301 for the statutory definition of a record) acquired or generated by the Contractor in the performance of this Contract including, but not limited to, records from a predecessor contractor (if applicable) and records described by the Contract as being maintained in Privacy Act Systems of Records shall be the property of the Government.

The Contractor shall turn over inactive records within 30 days of going from active to inactive (in all formats, including email) to the Paducah Infrastructure Contractor in electronic format in accordance with the Paducah Infrastructure Contractor's Records Management Program. The process shall include, but is not limited to the following activities:

- a. Schedule records in accordance with the NARA-approved DOE Records Disposition Schedules,
- b. Transmit record(s) in acceptable format. Transfer shall include back-up data and drafts (if applicable) to adequately document the work performed,
- c. Perform 100 percent validation of all transfers to ensure:
 - i. Optical character recognition for text-based and text-mixed files to allow for digital indexing,
 - ii. All text and markings are clear and legible,
 - iii. All pages are machine-readable, or marked as "poor quality original,"
 - iv. Pages are oriented/aligned, without scanning offsets,
 - v. Classification markings are clear and legible, and
 - vi. No security settings (e.g., encryption, passwords, and//or permissions) are included/embedded that would prevent opening, viewing, or printing a record.
- d. For permanent records, ensure lossless file compression technique is used,
- e. All embedded fonts are identified publically as being legally embeddable in a file,
- f. Classified documents may be processed electronically only if the computer systems meet classified security requirements are available to properly process them.

- g. Incorporate controls into electronic information systems and integrate them into the Infrastructure Contractor’s electronic recordkeeping system that is external to the information system itself in accordance with 36 CFR Part 1236, Electronic Records Management, and
- h. Photographs and audio/video shall be processed and digitally captured compliant with the requirements of 36 CFR Part 1237.

The Contractor shall ensure all records identified for inclusion in the administrative record are turned over to the Infrastructure Contractor for the inclusion in the Paducah Environmental Information Center in both hard copy and electronic format within 30 days of generation. The Contractor shall review any existing open administrative record project files and ensure the documents are appropriate and take necessary actions to correct any omissions or remove items that have been included in error.

The Contractor shall prepare, revise, submit for DOE approval, and execute an approved Records Management Plan, Vital Records Inventory, and Records Management Close-out/Transition Plan consistent with the Paducah Infrastructure Contractor’s Records Management Program, and records management regulations.

The Contractor shall not transfer any inactive records to the subsequent Paducah Deactivation and Remediation Project Contractor. The Contractor shall certify to DOE that all documents transferred to the subsequent Contractor contain no records, unless they are active records managed and stored in an approved records storage area.

Table C.2.EM.PA.0040.A001.07.DR.15-1 Records Management Milestones/Schedule	
Milestone	Date
Records Management Plan	60 days after NTP
Vital Records Inventory	120 days after NTP
Records Management Close-out/Transition Plan	180 days prior to end of the POP
Contractor Document Certification	14 days prior to end of the POP

EM.PA.0040.A001.07.DR.16 Continuity Program

The Contractor shall develop implement, and update, as necessary, a Site Wide Continuity of Operations (COOP) Program per DOE Order 150.1. The

Contractor shall develop and implement a COOP Implementation Plan or Business Recovery Plan that documents the COOP Program. DOE approval of the Plan is required. The COOP program is designed to:

- a. Assist the Department in continuing to accomplish Departmental mission essential functions (MEFs), primary mission essential functions (PMEFs), and essential supporting activities (ESAs);
- b. Be integrated with other Paducah contractor organizations and the Emergency Management Program; and
- c. Address preparedness and response to epidemic and pandemic events.

EM.PA.0040.A001.07.DR.17 DOE Consolidated Audit Program

The DOECAP is a consolidated audit program with DOE complex-wide participation that conducts annual audits of analytical environmental laboratories and commercial treatment, storage, and disposal facilities (TSDFs) that have contracts or agreements to provide services to DOE. DOECAP audits are performed on behalf of, and with the participation of, sites throughout the DOE complex. The six DOECAP laboratory audit areas include Quality Assurance Management Systems and General Laboratory Practices, Data Quality for Organic Analyses, Data Quality for Inorganic and Wet Chemistry Analyses, Data Quality for Radiochemistry Analyses, Laboratory Information Management Systems and Electronic Data Management, and Hazardous and Radioactive Materials Management. The seven DOECAP TSDF audit areas include Quality Assurance Management Systems, Sampling and Analytical Data Quality, Waste Operations, Environmental Compliance/Permitting, Radiological Control, Industrial and Chemical Safety, and Transportation Management.

The Contractor shall perform all activities to:

- a. Provide at least one qualified candidate to participate as audit team members in as many as four TSDF and five Lab DOECAP audits each year, (a total of nine candidates that may be the same individual(s) so long as no audit schedule is impacted), as requested by DOE.
- b. Perform pre-audit activities, including but not limited to, requesting and reviewing pre-audit information from the audited facilities and participating in conference calls.

- c. Perform audit activities, including lead auditor activities during laboratory audits.
- d. Perform post-audit activities, including but not limited to, completing and issuing audit reports and notifying the audited facility of acceptance of the proposed CAP.
- e. Perform work in accordance with applicable DOECAP policies and procedures

EM.PA.0040.A001.07.DR.18 Project Close-out and Completion

The Contractor shall provide all necessary support for a smooth transition/turnover at the end of the Contract. Six (6) months prior to the expiration of the Contract, the Contractor shall submit the Contract Close-out Plan for DOE approval. The Contract Close-out Plan shall include all remaining administrative matters necessary to close out the Contract after the POP, including, but not limited to: resolution of remaining and open agreements, resolution of remaining and open litigation; audit of indirect costs; remaining records disposition required by the Government; or any other activities required by the Contract. The Plan shall identify if the costs are direct or indirect and how they will be charged. Contract closeout activities shall be completed within 180 days after the end of the POP, with the exception of the required accounting and auditing functions.

90 days prior to the end of the POP, the Contractor shall submit to DOE, a comprehensive environmental compliance report demonstrating compliance with all applicable environmental regulatory requirements.

One hundred and twenty (120) days prior to the expiration of the contract, the Contractor shall submit a detailed Contract Completion Transition Plan. The Contract Completion Transition Plan shall include the approach the Contractor will take to ensure the successful transfer of responsibility in the following areas, to a follow-on Contractor at the end of the POP:

- a. transition of all facilities, facility operations, and environmental permits to the follow-on contractor
- b. support due diligence walk downs of facilities and other areas
- c. transfer of existing program documents to include deactivation and environmental remediation services
- d. transfer of authorization basis documents,

- e. transitioning of staff,
- f. transferring procurement activities for materials, equipment, supplies, parts, and subcontractors required for a seamless transition,
- g. destruction of all non-records that are not desired by the incoming Contractor, and
- h. transfer of all records to the Infrastructure Contractor Records Management Center, in accordance with this contract.

The Contractor shall work with the incoming Deactivation and Remediation Project Contractor to align transition activities and to support a smooth transition. Any areas that the Contractor believes are being missed shall be brought to DOE's attention

Table C.2.EM.PA.0040.A001.07.DR.18-1 End of Contract Performance Milestones/Schedule	
Milestone	Date
Contract Close-out Plan	180 days before end of POP
Contract Completion Transition Plan	120 days before end of POP
Environmental Compliance Report	90 days before end of POP

EM.PA.0040.A001.07.DR.19 Pension and Benefit Administration

The Contractor shall become a sponsor/participating employer in the East Tennessee Technology Park Pension Plan for Grandfathered Employees (ETTP MEPP), the East Tennessee Technology Park Multiple Employer Welfare Arrangement (ETTP MEWA), and other existing benefit plans. The requirements associated with this responsibility are set forth in **Section H.X**, Special Provisions Applicable to Workforce Transition and Employee Compensation: Pay and Benefits. UCOR is the lead sponsor of the ETTP MEPP.

The Contractor shall perform the premium remittance (employer cost share) and employer reporting duties for the inactive population of eligible former Remediation Contractor employees (e.g. Retirees, Displaced Workers, COBRA, and Long-Term Disability). Under the UCOR's prime contact with the DOE, UCOR has the responsibility to administer MEPP/MEWA Pad/Ports benefits, however, the funds will be provided to UCOR through this contract.

EM.PA.0040.A001.07.DR.20 Nuclear Materials Control and Accountability

The Contractor shall manage and implement the site’s Nuclear Materials Control and Accountability (NMC&A) Program. The Contractor shall comply with DOE Orders and optimize the cost-effectiveness of the program for all accountable quantities of nuclear material on the Paducah site, and for use by other site contractors. The Contractor shall, in consultation with the ODSA, ensure the NMC&A Section of the SSP is correct and provide changes to the ODSA.

The Contractor shall:

- a. Provide a single, integrated NMC&A Plan for use by Paducah site contractors performing NMC&A activities;
- b. Manage and conduct a centralized NMC&A Program for all accountable quantities of nuclear material on the Paducah site;
- c. Perform NMC&A activities include warehousing, surveillance, characterization, planning, brokering, packaging, consolidation, preparation, and shipping of the inventory of depleted, normal and enriched Nuclear Materials;
- d. Be responsible for the final disposition, as directed by DOE, of all remaining Nuclear Material inventory including product and waste. The dispositioning of the Nuclear Material Product includes, but is not limited to, relocation to other DOE sites or DOE contractors for storage/programmatic use and/or sale to the private sector and/or disposal; and
- e. Provide necessary reports and information to support DOE-HQ Nuclear Materials Management and Safeguard System.

Table C.2.EM.PA.0040.A001.07.DR.20-1 NMC&A Milestones/Schedule	
Milestone	Date
Submittal of NMC&A Program Plan	90 days after NTP and Annually thereafter
Submit the NMC&A SSP Section to the ODSA	90 days after NTP and Annually thereafter in a schedule agreed to by the ODSA

EM.PA.0040.A001.07.DR.21 Communications and Information Technology

A Local Area Network (LAN), Wide Area Network (WAN), and Wireless Local Area Network (WLAN) configured to allow multiple users will be provided for the Contractor's use at Paducah. The Contractor will have to furnish secured connectivity to any off-site facilities. The Infrastructure Contractor will perform maintenance and repair of all installed external connectivity. The system will be configured to allow separation of multiple users and provide basic operating software sufficient to allow input into DOE data systems. Computer support will be provided by the Infrastructure Contractor and will include network administration, customer service support, help desk support, servers for the Paducah Data Warehouse, computer repairs, and cyber security and basic security such as SPAM, adware, and spyware protection. Customer service support includes unpacking, installation, testing and removal of Personal Computers (PCs) and related components and software installation, removal, or upgrades as necessary; ensuring operability between PCs and peripheral devices, the LAN, WAN, and WLAN; and providing personal interface in assessing user needs through personal visits and telephone.

The Contractor shall install any additional ports necessary to support its own activities if a sufficient number of ports are not available in the work location. If additional facilities are brought on to house personnel (e.g. trailers) that are not sufficiently equipped, the Contractor is responsible to run lines, wire trailers, install ports and to perform any necessary preliminary work for connection to the site LAN or WAN. Any requests for additional computing resources either hardware or software must be submitted to DOE for approval including justification and detailed explanation of costs.

The Contractor is responsible to provide only peripheral activities related to the telephone system for its own personnel (i.e. individual phone unit replacements, and working with the Infrastructure Contractor for moving office phone numbers). If additional facilities are brought on to house personnel (e.g. trailers) that are not sufficiently equipped, the Contractor is responsible to run lines, wire the facilities, install phone systems and to perform any necessary preliminary work for connection to the site phone system.

The Infrastructure Contractor holds the license for the Federal Communications Commission (FCC) digital narrow band radio frequencies being used. The Infrastructure Contractor provides the narrow band radio frequency, the tower, transmission and radio repair services. At Paducah most of the radios are Enhanced Access Communication Systems (LPE-200)

portable 800 MHz compliant with the narrow band frequency. Approximately 350 narrow band frequency radios are available for use by the Contractor. Additional radios may be available upon request. Cell phones and other communication devices will not be provided and are the responsibility of the Contractor. Subcontractors are responsible for providing their own radios meeting the narrow band frequencies and subject to the Infrastructure Contractor's guidelines and oversight.

EM.PA.0040.A002.04.DR WASTE OPERATIONS

EM.PA.0040.A002.04.DR.01 Waste Operations

The Contractor, to the extent necessary to comply with regulatory and DOE requirements, shall operate and maintain a compliant Waste Management Program. Waste is considered disposed of when it has been shipped to, and accepted for final disposition at, a properly licensed and permitted disposal site. The Contractor shall avoid generating waste from any operations within the PWS with no pathway for disposal. The Contractor shall take all reasonable actions to minimize waste generation and to preclude the generation of TRU and MTRU wastes from any operations within the PWS. The Contractor shall obtain DOE approval prior to generation of TRU or MTRU waste. The Contractor shall assist DOE in evaluating disposal site alternatives (e.g., cost/benefit analyses, NEPA documentation).

The Contractor shall utilize any facilities available for cost-effective storage and processing to comply with nuclear safety requirements (e.g., storage of fissile waste). However, the contractor shall try to maximize the use of SSAs, SAA, and 90 Day Storage Areas, while minimizing the need to keep and process waste in waste storage facilities.

The Contractor shall compliantly manage, characterize, process, and package all waste generated during this Contract. The Contractor shall also be responsible for dispositioning all waste generated or received prior to 90 days before this Contract expires. This includes final characterization, packaging, labeling, and final disposition of all acceptable waste (e.g. not sanitary waste) from the Infrastructure Contractor, TVA (primarily expected to be hazardous), or that which was left behind by the incumbent contractor. Waste generated and in process for disposition by previous contractors is expected to exist. The Contractor shall disposition the wastes from the previous contractors. For all activities, the Contractor shall maximize use of recycling excess materials and equipment to reduce project costs.

Waste generated from environmental remediation activities using the CERCLA process (in accordance with Executive Order 12580, Superfund Implementation) shall comply with the substantive requirements of DOE O 435.1 (and subsequent revision e.g., DOE O 435.1A), Radioactive Waste Management, DOE M 435.1-1, Radioactive Waste Management Manual, and any other substantive requirements, as specified in the CERCLA ARARs for the projects.

The Contractor shall enter into a co-generator agreement with DOE. The Contractor shall manage the generated CERCLA Project wastes, including all secondary wastes, such that; waste disposal is not delayed until after the completion of the remediation/removal activity, waste disposal is completed within 45 days of the remedial/removal process, and waste disposal is completed prior to submittal of the D1 RACR or D1 Completion Notice to DOE.

All waste management activities shall meet the appropriate waste acceptance criteria for approved waste disposition/disposal options. The Contractor, in compliance with DOE M 435.1-1 requirements, shall prepare exemption requests for use of non-DOE treatment, storage, and disposal facilities, which includes lifecycle cost analysis for disposition (non-DOE treatment, storage, or disposal) options considered. The Contractor has access to the National ID/IQ Treatment and Disposal contracts as needed for the execution of waste management activities.

The Contractor shall develop, submit, and maintain a Waste Management Plan in accordance with DOE M435.101 and obtain DOE approval. The Waste Management Plan should reflect an integrated overarching approach to waste management that minimizes generation, maximizes recycling and reuse, and moves the site toward elimination of waste processing and storage at the PGDP as early as possible.

The Contractor shall ensure operations of storage and treatment areas or facilities and comply with all permits, orders, and regulatory requirements. The Contractor shall, to the extent possible, minimize the number of facilities and waste/materials in storage.

The Contractor shall establish accounting system and baseline (i.e., CPB) such that 100% of all Waste Operations costs (fully burdened) are distributed to the projects generating the wastes and utilizing these services, other than those cost directly associated with the management and disposition of: 1) the

previous contractor's wastes (90 Day inventory), and 2) TVA or other site contractors.

The Contractor may distribute the S&M and associated regulatory compliance activities required for having the facilities to either the S&M WBS or WBS where project management support is captured in lieu of allocating the costs to the projects that are generating the wastes.

The Contractor shall perform all activities to:

- a. Operate and maintain the waste storage facilities identified in Table C.17-1 in compliance with applicable permits, restrictions, and DOE contract to the extent required to support the Contractor's work scope. Any facilities not required or effective for operations shall be compliantly placed into STANDBY mode and DOE concurrence gained prior to deactivation shutdown.
- b. The Contractor shall continue any waste determination efforts regarding De-Listing Waste and as described within the 2003 Agreed Order Site-Wide Contained-In determinations.
- c. Comply with the agreement with the Tennessee Valley Authority (TVA) Shawnee Fossil Plant for DOE to accept certain ⁹⁹Tc contaminated waste associated with the PDGP ⁹⁹Tc groundwater plume.
- d. It is anticipated that waste generated during the execution of this Contract shall require treatment prior to final disposition. Subject to regulatory requirements to meet the waste acceptance for disposal, treatment services may be performed on-site, off-site, or at other DOE
- e. The contractor shall also develop and maintain summary information for Nevada National Security Site on waste stream life-cycle projections planned for treatment facilities
- f. The Contractor shall perform all activities associated with the characterization, packaging, handling and hauling/transportation of waste to various facilities. This includes the transport to off-site and on-site treatment and/or storage facilities and off-site and on-site disposal facilities. All packaging and transportation practices shall be in accordance with applicable Federal, state, and local regulations and requirements. In addition, the Contractor shall:
 - i. Consider DOE-negotiated tender for transportation services.
 - ii. Procure necessary packaging and carrier services for transport to/from treatment facilities and to disposal facilities;

- iii. Make the appropriate requests and gain approval from the DOE ODSA for classified shipments;
- iv. Develop appropriate transportation plans, including transportation security plans, for various waste types, obtain appropriate transport permits, and coordinate with DOE as appropriate; and
- v. Receive and manage the disposal certificates for all wastes shipped off-site.

Table C.2.EM.PA.0040.A002.04.DR.01-1 Waste Storage Facilities							
Building Number	Building Title	FT ²	Bldg. Description	Waste Type			
				RCRA	RCRA/ TSCA	TSCA	LLW
C-733	Waste Oil and Chemical Storage Facility	4,224	Covered structure enclosed by a wall on one side and fencing on the other sides. This building is RCRA permitted and holds the flammable/ignitable hazardous material. Several large tanks are here for batching/transfer operations.	X	X		X
C-746-H3	Storage Area	56,150	Concrete slab for 90-day storage of RCRA material. Two clean shell structures are located on the pad for storing LLW and solid waste.	X			X
C-746-Q	Hazardous and Low-Level Waste Storage Facility	33,165	Prefabricated metal building that stores RCRA and LLW. Material that requires nuclear criticality storage is located here. Some USEC waste is stored in the building.	X	X	X	X
C-746-V	Waste Staging Area	10,000	Outside gravel pad. LLW and solid waste is temporarily stored here.				X
C-752-A	Waste Storage Facility	43,600	Prefabricated metal building used for operations and storage of waste. This building is permitted for RCRA storage and treatment. The southeast corner of the building has a structure for waste treatment that can be isolated from the rest of the building and hooked to air containment systems. Treatment for wastewater occurs here by activated carbon or a low capacity ultraviolet light system. The building is also used for sorting and packaging waste.	X	X	X	X
C-746-B1	Staging	71,000	Waste staging area west of				X

Table C.2.EM.PA.0040.A002.04.DR.01-1 Waste Storage Facilities							
Building Number	Building Title	FT ²	Bldg. Description	Waste Type			
				RCRA	RCRA/ TSCA	TSCA	LLW
	Area		C-746-A. Gravel pad used to store scrap metal, pallets, etc. for size reduction prior to going for disposal.				
C-759	Staging Area	124,893	Gravel pad for waste staging and processing				X
C-760	Pad	104,822	90-day accumulation area				X
C-761	Staging Area	71,046	Gravel pad for waste staging and processing				X
C-757	Solid and LL Waste Processing	10,000	Waste management staging & processing				X
C-754	Low Level Waste Storage	7872	Sprung Structure				X
C-746-Q1		16,335	This unit is part of the C-746-Q facility designed to manage both solid and liquid hazardous wastes. Wastes are stored in containers. This unit currently is permitted for the crushing of light bulbs and for chemical treatment of hazardous wastes in containers.	X	X		X

LLW = low-level waste

RCRA = Resource Conservation and Recovery Act of 1976

TSCA = Toxic Substances Control Act of 1976, Public Law 94-469, October 11, 1976, 15 USC Section 2622

Source: DOE/LX/07-0035&D1, Scoping Document for CERCLA Waste Disposal Alternatives Evaluation

Remedial Investigation/Feasibility Study at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, April 20

Table C.2.EM.PA.0040.A002.04.DR.01-2 Waste Operations Reference Documents	
Document Number	Title
	2003 Agreed Order Site-Wide Contained-In Determinations Agreement with Tennessee Valley Authority (TVA) Shawnee Fossil Plant for DOE to accept Certain ⁹⁹ Tc contaminated wastes

Table C.2.EM.PA.0040.A002.04.DR.01-3 Waste Management Operations Milestones/Schedule	
Milestone	Date
Submit Waste Management Plan	90 days after NTP
Complete disposition of wastes remaining from previous contractors and TVA	180 days after transition

EM.PA.0040.A002.04.DR.02 Bulk Radiological Survey/Detection Systems

The Contractor shall acquire, install and operate one or more commercially available bulk radiological survey/detection system. The Contractor shall develop and implement all operating procedures for these systems. The Contractor shall ensure these systems comply with DOE Order 414.1D, U.S. Department of Energy Quality Assurance and QSNDA requirements *DOE/PPPO/03-0235&D0, U.S Department of Energy Portsmouth/Paducah Project Office Quality System for Nondestructive Assay Characterization*. These systems shall meet the following performance criteria:

- a. The system(s) shall be configured to successfully bulk survey equipment, and materials removed from radiological areas for free release, and
- b. The system(s) shall be configured to successfully bulk survey waste packages slated for disposal at the C-746-U landfill for compliance with Authorized Limits.

The Contractor shall implement a QA process to ensure the validity and acceptability of the resulting data. The Contractor shall also work with DOE to permit release or disposal of the bulk measured/surveyed items based on procedural and regulatory adherence. The Contractor shall maximize the use of the systems to process wastes to the C-746-U landfill and removal of items for free release, including transfer to PACRO. Calibration and maintenance of these systems are not GFSI.

Table C.2.EM.PA.0040.A002.04.DR.02-1 Bulk Radiological Survey/Detection Systems Milestones/Schedule	
Milestone	Date
Gain DOE approval of the ability of the system to meet the performance criteria	18 months after NTP
Deploy the systems into the field	24 months after NTP

EM.PA.0040.A002.05.DR LANDFILL OPERATIONS

The Paducah Site has one 60-acre RCRA Subtitle D landfill (approximately 22 acres are permitted for disposal) that is currently operational and is designated as the C-746-U landfill. The landfill waste acceptance criteria prohibits the

disposal of classified, hazardous, or LLW. However, waste with residual radioactive material within authorized limits may be disposed in the C-746-U landfill. The location of the landfill is outside the security fence. Five of 23 cells within the C-746-U landfill are currently active. The landfill has a capacity to accept an estimated 1.96 million cubic yards of waste, and currently contains an estimated 300,000 cubic yards. C-746-S and C-746-T are two closed landfills that are currently permitted.

EM.PA.0040.A002.05.DR.01 Operate the Landfills

The Contractor shall perform all activities operate and maintain the three landfills (C-746-U, C-746-S, and C-746-T) in accordance with Kentucky regulations, DOE requirements (e.g., authorized limits), closure and post-closure requirements, and the operating permit, to include but not limited to, the following:

- a. Accept waste (including waste from other site contractors or TVA) that meets the requirements of the permit.
- b. Operate and maintain the leachate collection and treatment systems at C-746-U and C-746-S (Note C-746-T does not have a leachate collection system). Collect, characterize, transport, treat as necessary, and discharge all leachate, (including leachate from any new cells constructed/operated) estimated at 825,000 gallons of leachate annually (five year trending average) from the C-746-U Cells 1-5 (798,000 gallons) and C-746-S (27,000 gallons) at an approved wastewater treatment facility. C-746-U leachate is collected and pumped into leachate storage tanks. Leachate from C-746-S is collected in a sump and transferred into tanker trucks where it can be transferred to the leachate storage tanks. Leachate is treated in the C-746-U leachate treatment system Treatment of the leachate (transferred via tanker trucks) at C-615 is allowed by the site's various permits when the C-746-U treatment system is unavailable or leachate treatment demands exceeds the C-746-U treatment system capacity (such as during maintenance or discharges into outfall 19),
- c. Be named as the operator on the permit for the C-746-U, C-746-S and C-746-T landfills, the RCRA permit, and the KPDES permit. If this work is subcontracted out, the Contractor shall remain named as the operator. Additionally, the Contractor shall be designated as the waste generator and responsible for making waste determinations at the site.

The Contractor shall enter into a RCRA co-generator agreement with DOE consistent with the existing agreement at the Paducah Site.

EM.PA.0040.A002.05.DR.02 Design and Construct Cells 6-9

The Contractor shall perform all activities to start and complete construction of C-746-U Cells 6-9. The Contractor may be required to complete gaining regulatory approval of the permit modification necessary to allow cell construction.

Table C.2.EM.PA.0040.A002.05.DR.02-1 Design and Construct Cells 6-9 Milestones/Schedule	
Milestone	Date
Complete construction of cells 6-9	24 months after transition

EM.PA.0040.A002.05.DR.03 Design and Construct Cells 10-13

The Contractor shall perform all activities to start and complete the design and associated permit modification for C-746-U Cells 10-13. The Contractor shall gain regulatory approval of the permit modification necessary to allow cell construction. Start and complete construction of C-746-U Cells 10-13.

Table C.2.EM.PA.0040.A002.05.DR.03-1 Design and Construct Cells 10-13 Milestones/Schedule	
Milestone	Date
Complete construction of cells 10-13	6 years after transition

EM.PA.0040.A002.05.DR.04 Outfall Reconfiguration

The Contractor shall perform all activities to start and complete the design, permit modification (gaining regulatory approval), construction, and all associated actions necessary to physically separate Outfall 19 and Outfall 20, allowing discharges from both Outfalls simultaneously.

Table C.2.EM.PA.0040.A002.05.DR.04-1 Outfall Reconfiguration Milestones/Schedule	
Milestone	Date
Complete physical separation of Outfall 19 from Outfall 20 (including regulatory approval of all required permit modifications)	36 months after transition

EM.PA.0040.A002.10.DR OSWDF OPERATION

EM.PA.0040.A002.10.DR.01 Operation of OSWDF

If constructed, the Contractor shall complete any required regulatory documents and operate the OSWDF in accordance with OSWDF O&M Plan and all applicable requirements.

EM.PA.0040.A004.04.DR SOILS REMEDIATION

EM.PA.0040.A004.04.DR.01 Soils Remediation

The scope of this project includes an RI/FS BRA, remedy selection, and implementation of any necessary response actions for the 63 SWMUs/AOCs listed in Section J, Attachment J-15 SWMUs and OU Lists. Sites are included in this OU based on the expectation that they primarily pose a direct contact threat to on-site industrial workers and likely are not a migration threat to groundwater or surface water. The project has incorporated results from previous actions and sitewide evaluations/surveys. Results of the Soils OU RI will be used in scoping for and completion of the baseline ecological risk assessment conducted under the SWOU. SWMUs/AOCs that have been determined to be inaccessible during the development of the RI/FS Work Plan/Report will be addressed as part of a subsequent action (e.g., shutdown for the Soils and Slabs OU). As of this date, 25 SWMUs/AOCs will be addressed. These 25 SWMUs/AOCs are listed in Section J, Attachment J-15 SWMUs and OU Lists under the Soils and Slab OU. It should be noted that SWMU 99 and SWMU 225 have been subdivided in two separate SWMUs. SWMU 99A (C-745 Kellogg Building Site—Cylinder Yard) will be addressed as part of the Soils and Slab OU. SWMU 99B (C-745 Kellogg Building. Site Septic Tank/Leach Field), SWMU 225-A (OS-14), and SWMU 225-B (Contaminated Soil Area near C-533-1 DMSA OS-14) will be addressed as part of the Soils OU. It also should be noted that SWMU 12 (C-747-A UF4 Drum Yard) has been placed in the No Further Action section of Section J, Attachment J-15 SWMUs and OU Lists.

Based on the information contained in the Soils Operable Unit Remedial Investigation (RI), the Contractor shall develop and submit the D1 Feasibility Study to the regulatory agencies and all subsequent CERCLA documents supporting the remediation of all of the SWMUs identified in the RI. The

documents include, but are not limited to, the Proposed Plan, Record of Decision, Remedial Design Work Plan, and the Remedial Design Report. In the event a Remedial Design Investigation is required, the Contractor shall complete all associated documentation and field work including sampling, analysis of samples, and waste disposal. All submittal shall be in compliance with the FFA and consistent with the SMP. The Contractor shall actively assist in obtaining regulatory approval of all CERCLA documents. The initial deliverables submitted to DOE shall be of sufficient quality, depth, thoroughness, and format to support DOE approval.

Table C.2.EM.PA.0040.A004.04.DR.01-2 Soils Remediation Milestones/Schedule	
Milestone	Date
Submit the D1 Feasibility Study to the regulatory agencies	June 1, 2025
Submit the D1 Proposed Plan to the regulatory agencies	December 1, 2025
Submit the D1 Record of Decision to the regulatory agencies	June 1, 2026
Submit the D1 Remedial Design Work Plan to the regulatory agencies	July 1, 2026
Submit the D1 Remedial Design Report to the regulatory agencies	July 1, 2027

Table C.2.EM.PA.0040.A004.04.DR.01-1 Soils Remediation Reference Documents	
Document Number	Title
DOE/LX/07-0120&D2/R1 March 2010	Work Plan for the Soils Operable Unit Remedial Investigation/Feasibility Study at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky
DOE/LX/07-0358&D1 July 2011	Soils Operable Unit Remedial Investigation Report at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky
DOE/LX/07-0358&D2/R1 February 2013	Soils Operable Unit Remedial Investigation Report at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky
DOE/LX/07-0358&D2/R1/A1 July 2015	Addendum to the Soils Operable Unit Remedial Investigation Report at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky

Table C.2.EM.PA.0040.A004.04.DR.01-1 Soils Remediation Reference Documents	
Document Number	Title
DOE/LX/07-2306&D1 July 2015	Soils operable Unit Remedial Investigation 2 Report at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky
DOE/LX/07-0120&D2/R2/A1/R1 August 2014	Addendum to the Work Plan for the Soils Operable Unit Remedial Investigation/Feasibility Study at the Paducah Diffusion Plant, Paducah, Kentucky, Remedial Investigation 2, Sampling and Analysis Plan

EM.PA.0040.A005.02.DR SOUTHWEST PLUME SOURCES REMEDIATION

EM.PA.0040.A005.02.DR.02 SWMUs 211 A&B Remediation

The Contractor shall complete the installation the Bio-Remediation delivery system and monitoring system, including monitoring wells at SWMUs 211a and 211b needed to implement long-term monitoring of the source areas. The Contractor shall implement the Bio-Remediation remedy as specified in the applicable CERLCA documents. The Contractor shall complete the RACR for SWMUs 211a and 211b and implement long-term monitoring. The incumbent Contractor will complete none of the installation, but will complete the design and RAWP. The Contractor shall perform all activities supporting the long-term monitoring of the Southwest Plume Sources, including sampling and analyses necessary to: demonstrate the effectiveness of the treatment; the development and submittal of all regulatory documents and reports; and compliance waste disposal. All wastes generated up to 90 days prior to the end of the Contract must be disposed of prior to the end of the period of performance.

As a result of the successful completion of the active treatment of the three SW Plume Sources (SWMU 211a, and SWMU 211b) the contractor shall perform long-term monitoring of the source areas. All data shall be included in the 5-Year Site Review, the FFA Semi-annual Report, and in the CERCLA. The initial deliverables submitted to DOE shall be of sufficient quality, depth, thoroughness, and format to support DOE approval.

Table C.2.EM.PA.0040.A005.02.DR.02-1 SWMUs 211 A&B Remediation Reference Documents	
Document Number	Title

Table C.2.EM.PA.0040.A005.02.DR.02-1 SWMUs 211 A&B Remediation Reference Documents	
Document Number	Title
DOE/LX/07-0186&D1	Focused Feasibility Study for the Southwest Groundwater Plume Volatile Organic Compound Sources (Oil Landfarm and C-720 Northeast and Southeast Sites) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, July 2009
DOE/LX/07-0365&D2/R1	Record of Decision for Solid Waste Management Units 1, 211-A, 211-B, and Part of 102 Volatile Organic Compound Sources for the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, March 2012
DOE/LX/07-1268&D2/R2/A1	Addendum to the Remedial Design Work Plan for Solid Waste Management Units 1, 211-A, and 211-B Volatile Organic Compound Sources for the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Sampling and Analysis Plan, February 2015
DOE/LX/07-1276&D2/R1	Remedial Design Report <i>In Situ</i> Source Treatment Using Deep Soil Mixing for the Southwest Groundwater Plume Volatile Organic Compound Source at the C-747-C Oil Landfarm (Solid Waste Management Unit 1) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, September 2013
DOE/LX/07-1287&D2	Remedial Action Work Plan for <i>In Situ</i> Source Treatment by Deep Soil Mixing of the Southwest Groundwater Plume Volatile Organic Source at the C-747-C Oil Landfarm (Solid Waste Management Unit 1) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, December 2013
DOE/LX/07-1287&D2/A1/R1	Revised July 2014
DOE/LX/07-1288&D2	Final Characterization Report for Solid Waste Management Units 211-A and 211-B Volatile Organic Compound Sources for the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, December 2013
DOE/OR/07-1727&D2	Remedial Investigation Report for Waste Area Grouping 6 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, May 1999

Table C.2.EM.PA.0040.A005.02.DR.02-1 SWMUs 211 A&B Remediation Reference Documents	
Document Number	Title
DOE/OR/07-1737&D0	Final Remedial Action Report for Waste Area Grouping (WAG) 23 and Solid Waste Management Unit 1 of WAG 27 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, June 1998
DOE/OR/07-1777&D2	Remedial Investigation Report for Waste Area Grouping 27 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, June 1999
DOE/OR/07-2180&D2/R1	Redlined Site Investigation Report for the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, June 2007
DOE/OR/07-2223&D2	Proposed Plan for Trichloroethene Sources to the Southwest Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky: (1) Solid Waste Management Unit 1, (2) C-720 Building Area, and (3) Part of Solid Waste Management Unit 102, June 2010
KY/ER-4	Results of the Site Investigation Phase I, at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, CH2M HILL, Southeast, Inc., Oak Ridge, TN, March 1991
KY/SUB/13B-9777CP-03/1991/1	Results of the Site Investigation, Phase II, at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, April 1992
DOE/LX/07-1287&D2/A1/R1	Revised July 2014
BJC/PAD-506.	BJC (Bechtel Jacobs Company LLC) 2003. <i>Contaminant Migration from SWMU 1 and the C-720 Area at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky</i>
	COE (U.S. Army Corps of Engineers) 2012. <i>In Situ Thermal Treatment Using Large-Diameter Auger Soil Mixing and Zero-Valent Iron Results</i> , ITSI Gilbane, Lakewood, CO
DOE/OR/07-1777&D2	DOE 1999a. <i>Remedial Investigation Report for Waste Area Grouping 27 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky</i>
DOE/OR/07-1845/D1	DOE 2000b. <i>Data Report for the Sitewide Remedial Evaluation for Source Areas Contributing to Off-Site Groundwater Contamination at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky</i>
DOE/OR/07-1857&D2,	DOE 2001a. <i>Feasibility Study for the Groundwater Operable Unit at Paducah Gaseous Diffusion Plant, Paducah, Kentucky</i>

Table C.2.EM.PA.0040.A005.02.DR.02-1 SWMUs 211 A&B Remediation Reference Documents	
Document Number	Title
DOE/OR/07-2180&D2/R1	DOE 2007. <i>Site Investigation Report for the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky</i>
DOE/LX/07-0186&D2	DOE 2010. <i>Focused Feasibility Study for the Southwest Groundwater Plume Volatile Organic Compound Sources (Oil Landfarm and C-720 Northeast and Southeast Sites) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky</i>
DOE/OR/07-2223&D2	DOE 2010b. <i>Proposed Plan for Trichloroethene Sources to the Southwest Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky: (1) Solid Waste Management Unit 1, (2) C-720 Building Area, and (3) Part of Solid Waste Management Unit 102</i>
DOE/LX/07-0186&D2/R2	DOE 2010c. <i>Focused Feasibility Study for the Southwest Groundwater Plume Volatile Organic Compound Sources (Oil Landfarm and C-720 Northeast and Southeast Sites) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky</i>
DOE/LX/07-0186&D2	DOE 2010d. <i>Memorandum of Agreement for Resolution of Informal Dispute for the Focused Feasibility Study for the Southwest Plume Volatile Organic Compound Sources (Oil Landfarm and C-720 Northeast and South East Sites) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky</i>
DOE/LX/07-0362&D2	DOE 2011a. <i>Revised Focused Feasibility Study for Solid Waste Management Units 1, 211-A, and 211-B Volatile Organic Compound Sources for the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky</i>
DOE/LX/07-0363&D2/R1	DOE 2011b. <i>Revised Proposed Plan for Solid Waste Management Units 1, 211-A, 211-B, and Part of 102 Volatile Organic Compound Sources for the Southwest Groundwater Plume at the at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky</i>
DOE/LX/07-0348&D2/R1	DOE 2011c. <i>Site Management Plan, Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Annual Revision-FY 2011</i>
DOE/LX/07-0365&D2/R1	DOE 2012. <i>Revised Record of Decision for Solid Waste Management Units 1, 211-A, 211-b, and Part of 102 Volatile Organic Compound Sources for the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky</i>
DOE/LX/07-1268&D2/R2	DOE 2012a. <i>Remedial Design Work Plan for Solid Waste Management Units 1, 211-A, and 211-B Volatile Organic Compound Sources for the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky</i>

Table C.2.EM.PA.0040.A005.02.DR.02-1 SWMUs 211 A&B Remediation Reference Documents	
Document Number	Title
DOE/LX/07-0350&D1	DOE 2012b. <i>Remedial Design Support Investigation Characterization Plan for the C-747-C Oil Landfarm and C-720 Northeast and Southeast Sites at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky</i>
DOE/LX/07-1276&D2/R1	DOE 2013. <i>Remedial Design Report In Situ Source Treatment Using Deep Soil Mixing for Southwest Groundwater Plume Volatile Organic Source at the C-747-C Oil Landfarm (Solid Waste Management Unit 1) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky</i>
DOE/LX/07-1288&D2	DOE 2013b. <i>Final Characterization Report for Solid Waste Management Units 211-A and 211-B Volatile Organic Compound Sources for the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky</i>
DOE/LX/07-1292&D2/R1	DOE 2014. <i>Site Management Plan Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Annual Revision—FY 2014</i>
DOE/LX/07-1268&D2/R2/A1	DOE 2015. <i>Addendum to the Remedial Design Work Plan for Solid Waste Management Units 1, 211-A, and 211-B Volatile Organic Compound Sources for the Southwest Groundwater Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky</i>
	EPA 1998. <i>Federal Facility Agreement for the Paducah Gaseous Diffusion Plant</i> , U.S. Environmental Protection Agency, Region 4, Atlanta, GA, February 13.
KY/E-150	MMES (Martin Marietta Energy Systems) 1992. <i>Report of the Paducah Gaseous Diffusion Plant Groundwater Investigation Phase III</i>

Table C.2.EM.PA.0040.A005.02.DR.02-2 SWMUs 211 A&B Remediation Milestones/Schedule	
Milestone	Date
D1 Remedial Action Completion Report(s) for SWMUs 211a and 211b	January 31, 2018. <i>Note: Dates must be consistent with the latest approved version of the FFA SMP.</i>

EM.PA.0040.A005.03.DR C-400 SOURCE REMEDIATION

TCE was discovered in residential wells north of the Paducah Site in 1988. DOE, the EPA and Kentucky entered into an Administrative Consent Order under Sections 104 and 106 of CERCLA that requires:

- a. monitoring residential wells potentially affected by contamination;

- b. providing alternative drinking water to residents with contaminated wells as specified by the DOE Action Memorandum for the Water Policy at the Paducah Gaseous Diffusion Plant (DOE/OR/06-1201&D2); and
- c. investigation of the nature and extent of off-site contamination.

The Administrative Consent Order site investigation delineated two off-site groundwater contamination plumes, referred to as the Northwest and Northeast Plumes, and identified several potential on and off-site source areas requiring additional investigation and action. An additional on-site plume has been found to the southwest of the Paducah site. In addition, a series of Remedial Investigation/Feasibility Studies (RI/FS) were conducted under the FFA, including the evaluation of all potential major contaminant sources impacting groundwater and surface water. The project continues to evaluate on-going potential sources of contamination. In accordance with these investigations, DOE implemented interim actions that focused on reducing potential risks associated with off-site contamination.

The Southwest, Northwest, and Northeast Plumes all have TCE and ⁹⁹Tc contaminants. A preliminary study has been completed on the viability of utilizing natural attenuation as a final remedy. The preliminary study showed that aerobic degradation is occurring in the Regional Gravel Aquifer.

EM.PA.0040.A005.03.DR.01 C-400 Phase IIb

The C-400 Cleaning Building has historically been found to be a major source of TCE in the Northwest and Northeast Plumes. TCE and other related Volatile Organic Compounds (VOC) have been found in the vadose zone from the surface down to the water table. Concentrations of TCE up to 11,055,000 µg/kg in the soil have been found. Concentrations of TCE in groundwater in the C-400 area have been recorded as high as 1,400,000 ppb. Significant quantities of TCE have been released to the environment.

An interim Record of Decision selecting Electrical Resistance Heating (ERH) was signed in August 2005. Additionally, a Remedial Design Support Investigation (RDSI) was completed in August 2006 further defining the location of TCE Dense Non-Aqueous Phase Liquid (DNAPL) source material near C-400. Additional remedial actions may be necessary to complete removal of TCE sources. This may include utilization of other technologies and the development and submittal of additional CERCLA documents.

The C-400 IRA was completed in two Phases. Phase I focused on two treatment areas; one on the southwest corner of the C-400 area and one in 11th Street east of C-400. Phase II focuses on a treatment area in the southeast corner of the C-400 area. As a result of lessons learned during Phase I operations, specifically the inability to adequately heat the deep RGA, Phase II was further divided into two sub-phases; Phase IIa and Phase IIb. Phase IIa utilized electrical resistance heating (ERH) in the Upper Continental Recharge System (UCRS) and upper Regional Gravel Aquifer (RGA). The target depth of treatment for ERH in Phase IIa was 20 to 60 feet below ground surface (bgs). Phase IIb is to use an alternate treatment method approved by the FFA parties through appropriate CERCLA documentation for *in situ* chemical treatment approximately 55 to 95 feet bgs. Phase I and Phase IIa are complete.

In 2015, DOE completed a treatability study for implementation of steam treatment in the Phase IIb region. Utilizing the results of the Treatability Study, the incumbent Contractor completed a revision to the ROD to select Steam Treatment for the Phase IIb region. The Contractor shall complete all applicable CERCLA documentation for Phase IIb, including the 30%, 60%, 90%, CFC design packages, the RAWP, a post construction report, and a RACR. The RACR shall include the results of all phases of the C-400 source remediation activities (Phase I, Phase IIa, and Phase IIb). The initial deliverables submitted to DOE shall be of sufficient quality, depth, thoroughness, and format to support DOE approval.

The Contractor shall perform all activities to complete the ongoing remediation of the C-400 sources (Phase IIb), including but not limited to, design, construction, testing, and operation of the treatment system, sampling and analyses necessary to operate and demonstrate effectiveness of the treatment, shutdown and removal of the treatment system (including any components remaining in place from Phase IIa), development and submittal of all regulatory documents and reports, demobilization, site restoration and compliant waste disposal. All wastes excavated or generated during this project and all site restoration and demobilization activities shall be completed prior to submitting the D1 RACR to the regulatory agencies. All wastes excavated or generated up to 90 days prior to the end of the Contract must be disposed of prior to the end of the period of performance.

As a result of the successful completion of the active treatment of the C-400 Groundwater Sources (Phase I, Phase IIa, and Phase IIb) the Contractor shall perform long-term monitoring of the source areas. All data shall be

included in the FFA Semi-annual Report and the CERCLA 5 Year Site Review.

Table C.2.EM.PA.0040.A005.03.DR.01-1 C-400 Phase IIb Reference Documents	
Document Number	Title
DOE/LX/07-0005&D2/R1	Remedial Design Report, Certified for Construction Drawings and Specifications Package, for the Groundwater Operable Unit for the Volatile Organic Compound Contamination at the C-400 Cleaning Building at the Paducah Gaseous Diffusion Plant Paducah, Kentucky, July 2008
DOE/LX/07-0031&D2/R1	Construction Quality Control Plan for the Interim Remedial Action for the Volatile Organic Compound Contamination at the C-400 Cleaning Building at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, October 2008
DOE/OR/07-2113&D2	Final Report Six-Phase Heating Treatability Study at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, March 2004
DOE/OR/07-2150&D2/R2	Record of Decision for Interim Remedial Action for the Groundwater Operable Unit for the Volatile Organic Compound Contamination at the C-400 Cleaning Building at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, July 2005
DOE/OR/07-2151&D2/R2	Land Use Control Implementation Plan: Interim Remedial Action for the Groundwater Operable Unit for the Volatile Organic Compound Contamination at the C-400 Cleaning Building at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, February 2008
DOE/OR/07-2211&D2	Remedial Design Support Investigation Characterization Plan for Interim Remedial Action for the Volatile Organic Compound Contamination at the C-400 Cleaning Building at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, December 2005
DOE/OR/07-2214&D2	Remedial Design Work Plan for the Interim Remedial Action for the Volatile Organic Compound Contamination at the C-400 Cleaning Building at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, December 2005
DOE/OR/06-1201&D2	Action Memorandum for the Water Policy at the Paducah Gaseous Diffusion Plant Paducah, Kentucky, June 1994

Table C.2.EM.PA.0040.A005.03.DR.01-1 C-400 Phase IIb Reference Documents	
Document Number	Title
DOE/LX/07-1260&D1	Technical Performance Evaluation for Phase I of the C-400 Interim Remedial Action at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, August 2011
DOE/LX/07-1263&D1	Revised Proposed Plan for the Volatile Organic Compound Contamination at the C-400 Cleaning Building at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, December 2011
DOE/LX/07-1271&D2/R3	Remedial Action Work Plan for Phase IIa of the Interim Remedial Action for the Volatile Organic Compound Contamination at the C-400 Cleaning Building at the Gaseous Diffusion Plant, Paducah, Kentucky, October 2013
DOE/LX/07-1272&D2/R1	Remedial Design Report, Certified for Construction Design Drawings and Technical Specifications Package, for the Groundwater Operable Unit for the Phase IIa Volatile Organic Compound Contamination at the C-400 Cleaning Building at the Gaseous Diffusion Plant, Paducah, Kentucky, August 2012
DOE/LX/07-1285&D2	Operations and Maintenance Plan for Phase IIa of the Interim Remedial Action for the Volatile Organic Compound Contamination at the C-400 Cleaning Building at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, June 2013
DOE/LX/07-1294&D2	Treatability Study Work Plan for Steam Injection, Groundwater Operable Unit, at Paducah Gaseous Diffusion Plant, Paducah, Kentucky, February 2014
DOE/LX/07-1295&D2/R1	Treatability Study Design, Design Drawings and Technical Specifications Package for the C-400 Interim Remedial Action Phase IIb Steam Injection Treatability Study at Paducah Gaseous Diffusion Plant, Paducah, Kentucky, July 2014
DOE/OR/07-1727&D2	Remedial Investigation Report for Waste Area Grouping 6 at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, May 1999
DOE/OR/07-1857&D2	Feasibility Study for the Groundwater Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, August 2001

Table C.2.EM.PA.0040.A005.03.DR.01-1 C-400 Phase IIb Reference Documents	
Document Number	Title
PPPO-02-392-08, dated March 24, 2008	Resolution of the Environmental Protection Agency Letter of Non-concurrence for the Site Investigation Report for the Southwest Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, (DOE/OR/07-2180&D2) and Notice of Informal Dispute, dated November 30, 2007
DOE/LX/07-0004&D2/R2/A1	Remedial Action Work Plan for the Interim Remedial Action for the Volatile Organic Compound Contamination at the C-400 Cleaning Building at the Paducah Gaseous Diffusion Plant Paducah, Kentucky, November 2010
####	Phase I Completion Report
####	Phase IIa Completion Report
####	Phase IIb Treatability Study
####	Phase IIb ROD Revision (if any)

Table C.2.EM.PA.0040.A005.03.DR.01-1 C-400 Phase IIb Milestones/Schedule	
Milestone	Date
30% Design Package	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.
60% Design Package	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.
90% Design Package	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.
D1 RAWP	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.
Begin field construction (actual field work does not include mobilization)	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.

Table C.2.EM.PA.0040.A005.03.DR.01-1 C-400 Phase IIb Milestones/Schedule	
Milestone	Date
D1 RACR	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.

EM.PA.0040.A005.10.DR.01 C-400 Building Subsurface Groundwater Source Investigation

RESERVED.

EM.PA.0040.A006.01.DR SURFACE-WATER REMEDIATION

EM.PA.0040.A006.01.DR.01 Surface-Water Remediation

The scope of this project includes an RI/FS (Baseline Risk Assessment (BRA)), remedy selection, and implementation of any necessary response actions for on- and off-site areas, including Bayou Creek, Little Bayou Creek, and Outfalls 001, 002, 008, 009, 010, 011, 012, 013, and 015, as well as scoping for and completion of a baseline ecological risk assessment for PGDP. The Surface Water Remedial Action includes evaluation of all areas located inside the limited area draining to Bayou and Little Bayou Creeks to the Ohio River, including those areas previously addressed in the SWOU Removal Action. The timing and sequence of any remedial actions will require coordination with ongoing plant operations to prevent recontamination and consideration of ongoing permitted discharges. The SWOU will address contaminated media (e.g., surface water and sediments) associated with ditches and creeks as part of the RI/FS consistent with the NCP and EPA guidance. Even though remediation of Outfalls, 005, 006, 017, and 019 and their associated ditches is not planned until later, data associated with them (e.g., creek data upstream and downstream of the point of discharge, Kentucky Pollutant Discharge Elimination System (KPDES) monitoring data, and information on ecological receptors) will be included in the RI/FS and sitewide baseline ecological risk assessment associated with the SWOU during the pre-shutdown phase.

RESERVED

Table C.2.EM.PA.0040.A006.01.DR.01-1 Surface Water Remediation Reference Documents	
Document Number	Title
DOE/LX/07-0361&D2/R1 June 2012	Work Plan for the Surface Water Operable Unit Remedial Investigation/Feasibility Study at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky

EM.PA.0040.A007.04.DR SWMU 4

There are several on-site burial grounds that are being investigated as part of the Burial Grounds Operable Unit. Known contaminants include, but are not limited to, heavy metals, TCE, radioactive materials, and PCBs. The burial grounds may be contributing sources of TCE contamination to the Southwest and Northwest Dissolved Phase Plumes. These burial grounds contain various waste forms that include, but are not limited to radiologically contaminated (uranium, ⁹⁹Tc, etc.) dry active waste, debris, drummed sludges, metals, classified components, and excess equipment. The burial grounds at SWMU 4 has a soil cover (not a cap) and covers an area of approximately 286,700 ft².

EM.PA.0040.A007.04.DR.01 SWMU 4 CERCLA Action

As a result of discussions with regulatory agencies, DOE implemented additional sampling activities for SWMU 4. The incumbent Contractor will complete the sampling activities and development and submittal of the associated Remedial Investigation Report Addendum. The Contractor shall complete and submit the D1 Feasibility Report to the regulators and all subsequent CERCLA documents. Further, the Contractor shall implement the remedy selected in the ROD (assumed to be excavation with subsequent subsurface TCE remediation) and complete all field work within this period of performance.

Though the final remedy will not be determined until the ROD is finalized for SWMU 4, the assumption is that SWMU 4 will be excavated. Some wastes may meet the waste acceptance criteria for the C-746-U landfill. Other wastes will be disposed off-site or in the on-site CERCLA Cell. In addition, the assumption is that SWMU 4 also requires treatment within or below the buried waste for VOCs (TCE/TCA).

The Contractor shall prepare all CERCLA documents supporting the remediation of the burial grounds including proposed plan, Record of

Decision, and all subsequent CERCLA documents needed to implement the selected remedial action, and actively assist in obtaining regulatory approval. This includes all applicable field work and analytical work necessary to support development or implementation of CERCLA documents.

The Contractor shall complete all fieldwork, including all actions associated with remediation of sources that may be contributing to the Southwest Groundwater Plume. The Contractor shall ensure that all wastes (including any sampling media maintained at on-site or off-site laboratories) are disposed (received and accepted at an off-site disposal facility, or placed in an On-site disposal facility). The Contractor shall ensure all site restoration activities and demobilization activities are complete. The Contractor shall complete and submit a Remedial Action Completion Report (RACR). The Contractor shall ensure that all waste is disposed prior to completing or submitting the RACR to the regulatory agencies.

The initial deliverables submitted to DOE shall be of sufficient quality, depth, thoroughness, and format to support DOE approval. Personnel are required to obtain security clearances (Q Clearance) when performing work activities in the SWMU 4 areas.

Table C.2.EM.PA.0040.A007.04.DR.01-1 SWMU 4 CERCLA Action Milestones/Schedule	
Milestone	Date
Submit the D1 FS to the regulatory agencies	8/15/2017
Submit the D1 PP to the regulatory agencies	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.
Submit the D1 ROD to the regulatory agencies	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.
Submit the D1 RDWSP to the regulatory agencies	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.
Submit the D1 RDR to the regulatory agencies	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.

Table C.2.EM.PA.0040.A007.04.DR.01-1 SWMU 4 CERCLA Action Milestones/Schedule	
Milestone	Date
Submit the D1 RAWP to the regulatory agencies	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.
Start Field Work (defined as removing first cubic yard of soil, not mobilization of subcontractor/equipment)	10/1/2020
50% Field work completion	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.
Submit the D1 RACR to the regulatory agencies	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.

EM.PA.0040.A007.03.DR SWMUS 5&6

There are several on-site burial grounds that are being investigated as part of the Burial Grounds Operable Unit. Known contaminants include, but are not limited to, heavy metals, TCE, radioactive materials, and PCBs. The burial grounds may be contributing sources of TCE contamination to the Southwest and Northwest Dissolved Phase Plumes. These burial grounds contain various waste forms that include, but are not limited to radiologically contaminated (uranium, ⁹⁹Tc, etc.) dry active waste, debris, drummed sludges, metals, classified components, and excess equipment. The burial grounds at SWMUs 5 and 6 have a soil cover (not a cap). The SWMUs cover an area of approximately 197,400 ft², 13,500 ft², respectively.

EM.PA.0040.A007.03.DR.01 SWMUs 5&6 Pre-ROD CERCLA Action

For SWMUs 5&6, DOE issued a Proposed Plan (D2) in July 2013. EPA provided conditional approval of Proposed Plan (D2) in October 2013. Kentucky provided conditions for its approval as well. DOE invoked Formal Dispute regarding USEC conditions which was resolved in 2015. The Contractor shall complete and submit the D1 ROD. All submittals shall be in compliance with the FFA and consistent with the SMP. The Contractor shall

actively assist in obtaining regulatory approval of all CERCLA documents up to and including the Record of Decision (ROD). The initial deliverables submitted to DOE shall be of sufficient quality, depth, thoroughness, and format to support DOE approval. All Post-ROD activities are part of the Capital Asset Project. Personnel are required to obtain security clearances (Q Clearance) when performing work activities in the SWMU 5 and 6 areas.

Table C.2.EM.PA.0040.A007.03.DR.01-1 SWMU 5&6 Pre-ROD CERCLA Action Milestones/Schedule	
Milestone	Dates
Submit the D1 FS to the regulatory agencies	8/15/2017
Submit the D1 PP to the regulatory agencies	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.
Submit the D1 ROD to the regulatory agencies	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.

EM.PA.0040.A007.02.DR SWMUS 2&3

There are several on-site burial grounds that are being investigated as part of the Burial Grounds Operable Unit. Known contaminants include, but are not limited to, heavy metals, TCE, radioactive materials, and PCBs. The burial grounds may be contributing sources of TCE contamination to the Southwest and Northwest Dissolved Phase Plumes. These burial grounds contain various waste forms that include, but are not limited to radiologically contaminated (uranium, ⁹⁹Tc, etc.) dry active waste, debris, drummed sludges, metals, classified components, and excess equipment. The burial grounds at SWMU 2 has a soil cover (not a cap) and covers an area of approximately 32,000 ft². SWMU 3 (C-404 RCRA landfill) has a Subtitle C RCRA cap, though it has no subsurface liner, and is approximately 1.2 acres.

EM.PA.0040.A007.02.DR.01 SWMUs 2&3 Pre-ROD CERCLA Action

Based on the information contained in the Burial Grounds Operable Unit Remedial Investigation (RI) and Feasibility Study (FS), the Contractor shall develop and submit the D1 Proposed Plan to the regulatory agencies and all subsequent CERCLA documents supporting the remediation of SWMUs 2 and 3, up to and including the Record of Decision. All submittals shall be in compliance with the FFA and consistent with the SMP. The Contractor shall actively assist in obtaining regulatory approval of all CERCLA documents up to an including the Record of Decision (ROD). The initial deliverables submitted to DOE shall be of sufficient quality, depth, thoroughness, and format to support DOE approval. All Post-ROD activities are part of the Capital Asset Project.

Table C.2.EM.PA.0040.A007.02.DR.01-1 SWMU 2&3 Pre-ROD CERCLA Action Milestones/Schedule	
Milestone	Date
Submit the D1 Proposed Plan to the regulatory agencies	September 30, 2022
Submit the D1 Record of Decision to the regulatory agencies	December 31, 2022

EM.PA.0040.A007.10.DR SWMUS 7&30

There are several on-site burial grounds that are being investigated as part of the Burial Grounds Operable Unit. Known contaminants include, but are not limited to, heavy metals, TCE, radioactive materials, and PCBs. The burial grounds may be contributing sources of TCE contamination to the Southwest and Northwest Dissolved Phase Plumes. These burial grounds contain various waste forms that include, but are not limited to radiologically contaminated (uranium, ⁹⁹Tc, etc.) dry active waste, debris, drummed sludges, metals, classified components, and excess equipment. The burial grounds at SWMUs 7 and 30 have a soil cover (not a cap). The SWMUs cover an area of approximately 240,900 ft² and 128,000 ft², respectively.

EM.PA.0040.A007.10.DR.01 SWMUS 7&30 Pre-ROD CERCLA Action

Based on the information contained in the Burial Grounds Operable Unit Remedial Investigation (RI) and Feasibility Study (FS), the Contractor shall develop and submit the D1 Proposed Plan to the regulatory agencies and all subsequent CERCLA documents supporting the remediation of SWMUs 7 and 30, up to and including the Record of Decision. All submittals shall be in

compliance with the FFA and consistent with the SMP. The Contractor shall actively assist in obtaining regulatory approval of all CERCLA documents up to an including the Record of Decision (ROD). The initial deliverables submitted to DOE shall be of sufficient quality, depth, thoroughness, and format to support DOE approval. All Post-ROD activities are part of the Capital Asset Project.

Table C.2.EM.PA.0040.A007.10.DR.01-1 SWMU 7&30 Pre-ROD CERCLA Action Milestones/Schedule	
Milestone	Date
Submit the D1 Proposed Plan to the regulatory agencies	September 30, 2023
Submit the D1 Record of Decision to the regulatory agencies	February 28, 2024

EM.PA.0040.A007.11.DR BALANCE OF BURIAL GROUND OPERABLE UNIT (BGOU)

There are several on-site burial grounds that are being investigated as part of the Burial Grounds Operable Unit. Known contaminants include, but are not limited to, heavy metals, TCE, radioactive materials, and PCBs. These burial grounds contain various waste forms that include, but are not limited to radiologically contaminated (uranium, ⁹⁹Tc, etc.) dry active waste, debris, drummed sludges, metals, classified components, and excess equipment. The burial grounds at SWMU 145 have a soil cover (not a cap), sits on top of SWMUS 9 and 10, and covers an area of approximately 44 acres. Additionally, indications of buried materials/items exist below the C-746-B1 Pad. This potential burial ground has not yet been investigated.

EM.PA.0040.A007.11.DR.01 Balance of BGOU Pre-ROD CERCLA Actions

Based on the information contained in the Burial Grounds Operable Unit Remedial Investigation (RI) and Feasibility Study (FS), it was determined that additional investigatory work was required to be able to adequately characterize SWMUs 9, 10 and 145. The Contractor shall develop and submit a D1 Remedial Investigation (RI) Work Plan and subsequent RI Report to the regulatory agencies that supports the remediation of SWMUs 9, 10, and 145. The Contractor shall complete all associated documentation and field work associated with the RI Investigation, consistent with the RI Work Plan including sampling, analysis of samples, and waste disposal. All

submittals shall be in compliance with the FFA and consistent with the SMP. The Contractor shall actively assist in obtaining regulatory approval of all CERCLA documents. The initial deliverables submitted to DOE shall be of sufficient quality, depth, thoroughness, and format to support DOE approval.

The Contractor shall ensure that all wastes (including any sampling media maintained at on-site or off-site laboratories) are disposed (received and accepted at an off-site disposal facility, or placed in an on-site disposal facility). The Contractor shall ensure all site restoration activities and demobilization activities are complete. The contractor shall also begin the development of any subsequent CERCLA documents (e.g., Feasibility Study)

Table C.2.EM.PA.0040.A007.11.DR.01-1 Balance of BGOU Pre-ROD CERCLA Actions Milestones/Schedule	
Milestone	Date
Submit the D1 RI Work Plan to the regulatory agencies	March 31, 2026
Submit the D1 RI Report to the regulatory agencies	July 1, 2027

EM.PA.0040.A008.01.DR STABILIZATION AND DEACTIVATION

EM.PA.0040.A008.01.DR.01 Stabilization

The Contractor shall perform stabilization, as appropriate, to ensure the GDP uranium processing facilities are in a safe configuration with minimal S&M activities required until decommissioning begins and shall be addressed as part of the Contractor’s Stabilization and Deactivation Plan. In general “stabilization” refers to the early stages of the deactivation process when nuclear and hazardous materials are removed from the facility, shutting facility systems down, de-energizing equipment in preparation for long-term S&M, completely isolating (i.e. “air gapping”) the facility from site utilities, removal of all fire loading, and preparing the facility for long-term surveillance awaiting demolition.

Upon successful completion of Deposit/Hold-up removal and ⁹⁹Tc thermal treatment activities in the uranium processing buildings (C-310, C-310-A, C-315, C-331, C-333, C-333-A, C-335, C-337, C-337-A, C-360) the Contractor shall complete the removal and disposition of any remaining lube oils, Freon,

or other hazardous materials and complete the shutdown and isolation of the facilities, supporting long-term S&M. The Contractor shall complete the performance of the necessary facility stabilization and deactivation activities including, but not limited to, the following:

- a. Evaluate and determine the need for the continued safety requirements for monitoring and/or maintaining systems; and
- b. Perform deactivation and/or verification activities that support facilities stabilization, per DOE O 420.1C, Facility Safety and contractor safety basis documentation.

Additionally, the Contractor shall remove the fire loading from each of the facilities. Consistent with the (Transitional Hazard Facility Analysis (THFA), all fire systems shall be deactivated or configured in a manner that eliminates the need for freeze protection. Modification of facilities to eliminate the need to provide fire suppression is an acceptable approach. This requires the Contractor to submit all supporting documentation and authorization basis changes for deactivation of the fire suppression systems in these facilities. The Contractor shall isolate and air gap all of the utilities supporting/feeding the uranium process buildings.

Table C.2.EM.PA.0040.A008.01.DR.01-1 Stabilization Milestones/Schedule	
Milestone	Date
Isolation of utilities and deactivation of the fire suppression system in C-337, C337-A, C-360, C-333/C-333-A	Per the Contractor’s approved baseline, not to exceed 5 years
Isolation of utilities and deactivation of the fire suppression system in C-331, C335, C-310, C-315	Per the Contractor’s approved baseline, not to exceed 10 years

EM.PA.0040.A008.01.DR.02 Limited Area Modification Project

Modify the Limited Area Bounding (e.g., physical fence or similarly compliant perimeter technology/structure) to only those areas where classified materials are stored, implementing an “Islands of Security” concept as illustrated in Figure C.6-1 . The island boundaries illustrated in Figure C.6-1 are conceptual in nature. The Contractor shall develop and implement an island of security approach that minimizes the security footprint of the site that is

compliant with DOE security protocols referenced in DOE Orders DOE O 471.6 Chg. 1, *Information Security*, and DOE O 473.3, *Protection Program Operations*. The Contractor shall work with the Infrastructure Contractor to complete this action and then transfer any new Limited Area fences to the Infrastructure Contractor for S&M, including provision of all required data necessary to permit update of the Site Security Plan. The Infrastructure Contractor shall not perform S&M for perimeter technology, facility walls, or other barriers other than limited area fences. The Contractor shall obtain ODSFA concurrence of all plans or design packages for reconfiguration of the Limited Area prior to implementation. The Contractor shall also ensure HSPD-12 Automated Access Control for entry into the “former” Limited Area which will become a Property Protection Area (PPA) with the modification of Limited Area boundaries. As part of GFSI, the Contractor shall have access to three (3) MAC Portals for personnel access (two of which are currently installed and one is in storage). The Contractor shall ensure each Island of Security has at least one vehicle access point to allow for routine and emergency ingress/egress. Each vehicle access point shall incorporate an automated emergency vehicle access mechanism to allow off-site responders to meet DOE response times. Sufficient personnel access points must exist to permit efficient personnel access so as not to create delays for personnel in accessing specific areas. Currently there are **XXX** classified repositories and, as a result of differing standards between the Nuclear Regulatory Commission (NRC), (the regulating agency responsible for the impacted locations until October 2014) and the DOE (the agency which assumed responsibility in October 2014), there are multiple locations of non-conforming storage existing at the PGDP. These locations are managed under compensatory actions described in Addendum B of the 2014 Site Security Plan, *Interim Compensatory Measures for De-Leased Non-Conforming Storage of Classified Matter at the Paducah Site, Paducah, Kentucky*.

All non-conforming storage areas identified at the PGDP site are located in facilities and/or acreage within a Limited Area. (Specific details of each location are available in Section J, Attachment 16, Non-Conforming Classified Storage Areas).

The Contractor shall consolidate security materials and equipment for the purpose of ensuring that all non-conforming storage conditions are eliminated from outside the boundaries of newly established Security Islands. Additionally, the Contractor shall complete any required risk assessments necessary to support storage of classified matter currently identified as non-conforming, to preclude having to relocate those items to the new Limited

Area Islands of Security, or to establish larger or additional Islands of Security. The Contractor may establish Limited Areas which comply with DOE Orders DOE O 471.6 Chg. 1, *Information Security*, and DOE O 473.3, *Protection Program Operations*. The Contractor shall establish a metric to demonstrate progress toward reducing the number of nonconforming storage areas through consolidation or upgrading to compliant storage. In conjunction with establishment of Security Islands, the Contractor shall remove all “other” non-PPA/Limited Area fencing from within the “former” Limited Area. Fence removal requires that all fence material, supporting posts/poles, and structural concrete are/is completely removed, and the area is left flush with surrounding geography. Exceptions to removal of structural concrete are: supports in roadways; supports in sidewalks; supports in building foundations; or supports in other permanent structures as approved by DOE.

The Contractor shall consider the timing of waste emplacement in the On-Site Waste Disposal Facility (OSWDF) and the need for fill material in conjunction with the Contractor’s development and implementation of the Islands of Security. The Contractor shall consider use of soils from the former scrap metal yards in the Northwest corner of the site (e.g., C-747-A, C-746-C, C-746-C1, C-746-E, C-746-E1, C-746-P, and C-746-P1) in conjunction with the soils surrounding the C-746-A slab for fill material. The Contractor shall ensure that implementation of the Islands of Security concept takes this into consideration. All evaluations and decisions shall be made considering overall lifecycle costs to DOE.

The Contractor shall gain DOE approval to declassify gaseous diffusion technology. The Contractor shall develop any and all necessary technical, programmatic, and security (including, but limited to, non-proliferation and economic objectives and risks) related bases, risk assessments and justifications necessary to satisfactorily demonstrate that the gaseous diffusion technology at the PGDP no longer requires protection as a classified technology. All related submittals shall be made to the ODSFA and properly managed in accordance with existing DOE Orders and classification guides.

Table C.2.EM.PA.0040.A008.01.DR.02-1 Limited Area Modification Project Milestones/Schedule	
Milestone	Date
Develop and obtain DOE approval of a metric for reduction of nonconforming storage areas	30 days after conclusion of transition

Table C.2.EM.PA.0040.A008.01.DR.02-1 Limited Area Modification Project Milestones/Schedule	
Milestone	Date
Complete modifications of LA fencing to create Security Islands and successfully transfer S&M responsibilities to the Infrastructure Contractor.	2 years after conclusion of transition
Remove all non-PPA/LA fencing	3 years after conclusion of transition

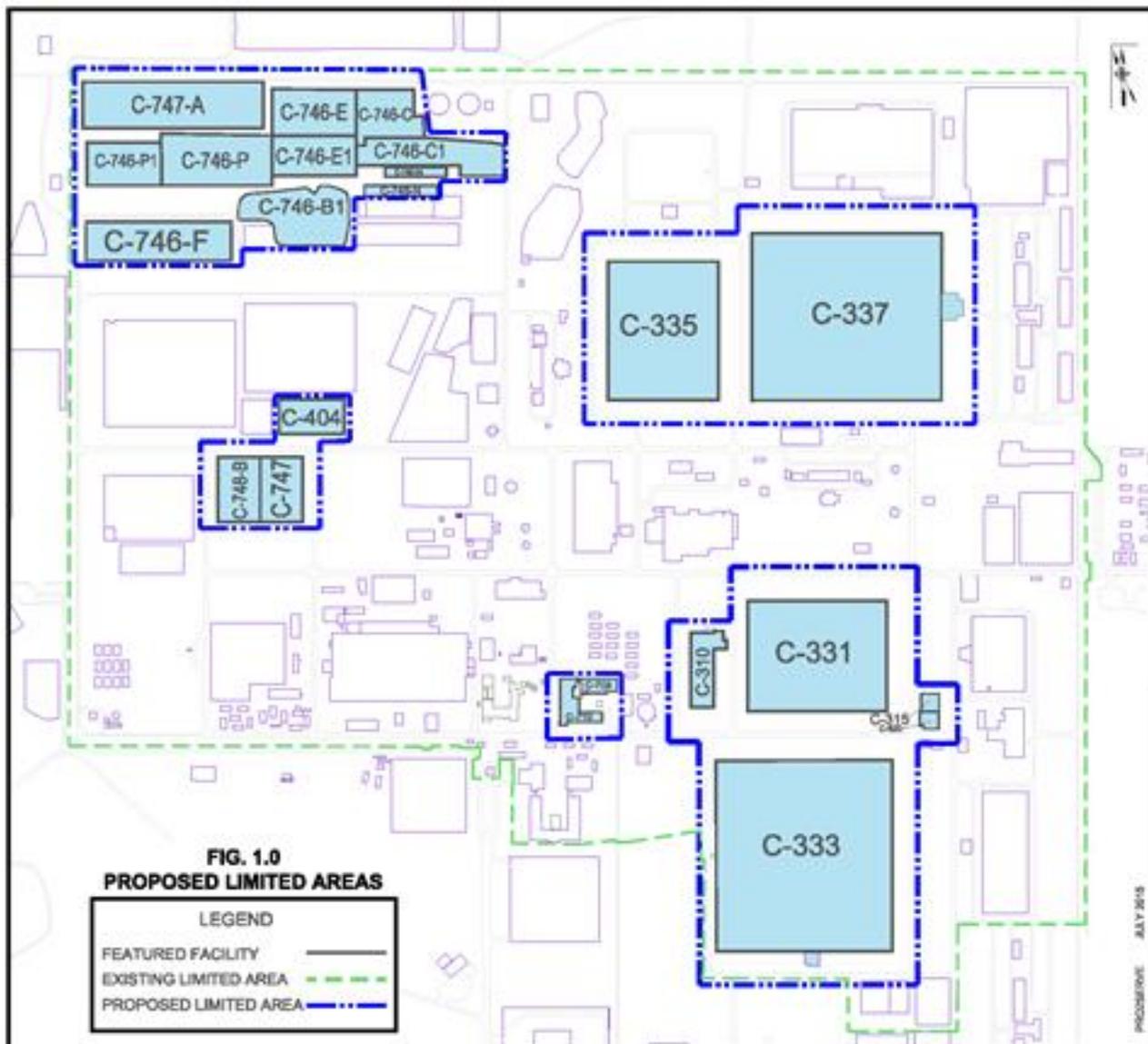


Figure C.6-1, Security Islands: Representative of a potential set of "Security Islands" the Contractor shall consider. Other configurations will be considered by DOE. Any modification of the suggested LA Islands however, must include a clear rationale in the technical proposal and a demonstrated cost benefit in the cost proposal.

EM.PA.0040.A008.01.DR.03 R-114 Freon

The Contactor shall manage, inspect, and disposition, the existing R-114 inventory. Historically, PGDP has maintained approximately 8.5 million pounds of R-114 Freon on site. The bulk of the R-114 Freon contained in the Process Buildings (C-310, C-331, C-333, C-335, and C-337) coolant systems in the process equipment (e.g., drain tanks, condensers, etc.). Additionally, there are 15-18 rail cars on-site containing approximately 2-3 million pounds (total) of R-114. The incumbent contractor has provided up to 20 ISO containers and up to 19 tanker railcars (for on-site storage only). Some of the R-114 Freon has been removed from the C-337 Building and from the C-333 Building. Additionally, the incumbent contractor may have removed R-114 Freon from other process buildings. The Contractor shall perform any regulatory required inspections, which may include leak checks and level checks to ensure the rail cars and ISO containers are not leaking to the atmosphere. The railcars are not DOT compliant.

The incumbent contractor, consistent with the Secretary of Energy’s directives pertaining to the reuse/recycling of materials/chemicals , issued an Expression of Interest regarding the potential avenues/opportunities for R-114 Freon processing, evaluated the submittals, issued an RFP and awarded a contract to disposition the R-114 Freon. The Contractor shall accept assignment for all such contracts and continue disposition of the R-114 Freon. The Contractor shall assure that all of the R-114 Freon at the Paducah Site is completely dispositioned no later than 3 years after Transition. This includes any and all R-114 Freon rejected for recycling/reprocessing.

Table C.2.EM.PA.0040.A008.01.DR.03-1 R-114 Freon Milestones/Schedule	
Milestone	Date
Disposition all Paducah Site R-114 Freon	3 years after Transition

Table C.2.EM.PA.0040.A008.01.DR.03-2 R-114 Freon Reference Documents	
Document Number	Title
NA	Hatton e:mail May 12, 2015 to vendors, subject: “ <i>Request for an Expression of Interest – R-114</i> ” with one Attachment (EOI)

Table C.2.EM.PA.0040.A008.01.DR.03-2 R-114 Freon Reference Documents	
Document Number	Title
INSERT DISPOSITION AGREEMENT NUMBER	Disposition Agreement

EM.PA.0040.A008.01.DR.04 Deposit/Holdup Removal

The Contractor shall perform deposit/holdup removal activities to ensure the GDP uranium processing facilities are in a safe configuration with minimal S&M activities required until decommissioning begins. The criteria for successful deposit/holdup removal is to disposition nuclear materials in uranium processing facilities a manner that presents a “crit-incredible” condition and that when the facility is eventually decommissioned that the resulting waste is compliant with applicable waste acceptance criteria for an on-site CERCLA Cell (e.g., the OSWDF).

The PGDP enrichment facility consists of 1820 stages by design. The stages are arranged in two cascades. The cascade buildings are designated as C-331 (400 stages), C-333 (480 stages), C-335 (400 stages), C-337 (480 stages) and C-310 (60 stages). The C-331 and C-333 stages are placed in series to form what is known as the “Lower Cascade” and similarly the C-335 and C-337 stages are placed in series to form the “Upper Cascade”. The Uranium Hexafluoride (UF₆) enriched product and lighter molecular weight gases are separated and removed in the C-310 facility. The depleted UF₆ is removed in the C-315 facility which does not contain operating stages.

Under Section 4.4 of the Lease Agreement between DOE and USEC, USEC was required to *“remove solid “Greater than Safe Mass” (GSM) deposits, of UO₂F₂/UF₄ to the extent necessary to prevent criticality, using an in-place removal process, such as the chemical fluorination treatment; and ensure that nothing adversely affects the operability of the purge cascade, the coolant, storage systems, HVAC systems, and air filtration systems”*. To comply with the turnover requirements of the Lease Agreement, USEC performed the following activities during the shutdown of operations:

- Isolation of each of the “units” from the remaining process via a series of valves in the process piping

- Evacuation of the Uranium Hexafluoride (UF_6) gas in the equipment and the system flushed with air; and
- Follow-up sampling to assure the individual components contain only minimal amounts of UF_6 .

The majority of the inner surfaces for equipment, piping and valves that have been exposed to UF_6 may have a thin coating of solid uranium hexafluoride, similar to a coating of dust. Additionally, due to the enormous surface area of the uranium process systems, a significant amount of uranium has been chemically and physically absorbed to the inner walls of the piping and cell components. This deposited uranium is referred to as the in process uranium hold-up. There are also uranium deposits caused by wet air leakage. Upon entering the cascade the moisture in the air reacts with UF_6 to form various uranium oxy-fluorides resulting in deposits near the leak, most commonly UO_2F_2 . Removal of the deposit and hold-up (both terms are interchangeable with regard to performing removal activities) materials will facilitate reducing the categorization of the uranium processing facilities from Nuclear Category 2 to Radiological Facilities. This will reduce the long-term surveillance and maintenance (S&M) costs associated with the facilities and subsequent waste characterization and waste disposal associated with D&D activities.

The Contractor shall complete the remaining deposit/hold-up removal for the process equipment and piping associated with the Paducah Gaseous Diffusion Plant (GDP) uranium processing facilities. The overall goal is to complete the uranium removal in the uranium processing facilities as quickly as possible to be able to eliminate criticality safety concerns in each of the production facilities, shut down the CAAS and then to be able to complete air gapping of all utilities and associated support systems, so as to reduce S&M costs. A secondary goal is to be able to avoid additional uranium treatment to meet Waste Acceptance Criteria for an on-site CERCLA Cell (if approved) during D&D activities.

The incumbent contractor designed and delivered ten (10) Portable Cell Treatment Cart Systems which include the Portable Cell Treatment Carts (PCTC), gas sampling and analytical equipment (Test Buggies) that will provide gas analysis and associated support equipment (pumps, temperature/pressure/flow instrumentation, etc.) during in-situ chemical treatment activities of the PGDP process equipment. The Portable Cell Treatment Cart Systems meet the requirements of "Functional Requirements Documents for Portable Cell Treatment Cart Systems for use at the Paducah Gaseous Diffusion Plant" (FRD). The PCTC Systems are provided as GFSI

to the Contractor and shall be used to maximum extent possible. If additional cell treatment systems are deemed necessary to support stabilization approach, the contractor may procure the new PCTCs. The Government shall make all cell treatment system operating procedures and design drawings available 30 days after NTP, upon request.

The incumbent Contractor's Deposit/Holdup Removal Plan and Schedule outlines the overall strategy and approach to deposit/hold-up removal. It also includes details pertaining to the types of facility modifications that may have been made to support these activities.

The Contractor shall perform in-situ chemical treatment and uranium deposit/hold-up removal for the process equipment and valves and process piping associated with the Paducah Gaseous Diffusion Plant uranium processing facilities (C-331, C-333, C-333-A, C-335, C-337, C-337-A, C-310, C-315, and C-360).

As part of deposit/hold-up removal activities, the Contractor shall maximize the use of the PCTC, gas sampling and analytical equipment (Test Buggies) and associated support equipment (pumps, temperature/pressure/flow instrumentation, etc.) during in-situ chemical treatment activities of the PGDP process equipment and associated valves and piping. The Contractor shall remove the deposit and hold-up materials for the following categories of equipment:

- "00" and "000" cells and cells in the C-310 Purge Cascade (including all piping located inside of the boundaries of the cell lock valves.
- Connection piping located outside of the boundaries of the cell lock valves.
- Cells partially connected, have equipment missing, such as compressors and convertors, or have not operated.
- Convertors which were cut out of operating cells (These convertors are stored in various locations within the process buildings and in outside storage areas.
- Chemical traps and associated treatment/support equipment that operated in an UF₆ environment (cold boxes, surge drums, valves, pumps, etc.) containing uranium (use of the PCTC may not be warranted).

The Contractor shall be responsible for completion of all additional design, testing, or operational activities required to ensure effective operations of the

PCTC and Test Buggy system to maximize in-situ chemical treatment of deposits for the cells, associated UF₆ piping, valves, expansion joints, bellows, etc.

The Contractor shall also design, procure, install and test any required PGDP facility modifications necessary to support the deposit/hold-up removal using the PCTC Systems and for regeneration and change-out of NaF trapping material associated with the use of the PCTC Systems. The Contractor shall collect the resulting/ regenerated UF₆ material, handling it as product (on large UF₆ cylinder for transfer to the DUF₆).

The Contractor shall disposition any loose or spare equipment/materials containing fissile (e.g., deposit/hold-up) materials (use of the PCTCs may not be warranted) in the production facilities in order to support the Contractor's ability to deactivate the CAAS that provides coverage in these facilities. The Contractor shall dispose of any fissile equipment and not return the item after the fissile material has been removed, unless agreed to by DOE. Relocation to another on-site facility for storage is not authorized without DOE approval.

In addition, the Contractor shall implement alternative treatment options (mechanical removal, cut and cap for off-site disposal, etc.) for applications that do not lend themselves to the use of the PCTC system, upon approval by DOE.

Completion Thresholds are as follows:

- Chemically treat all UF₆ equipment and piping with a mixture of ClF₃ and F₂ in order to remove residual uranium remaining in the UF₆ systems, unless an alternative treatment methodology is approved by DOE. The treatments will be done utilizing an end point based on the ClF₃ consumption and the UF₆ generation that will maximize the amount of uranium removed; AND
- Removal of uranium to allow the shutdown of the CAAS for the given areas treated; AND
- Removal of uranium to allow the process equipment and piping to be placed in an On-site Disposal Facility (e.g. On-Site CERCLA Cell) without further processing. Assume a target objective of half (50%) of the final Oak Ridge disposal facility waste (i.e., the EMWMF) acceptance criteria; AND

- Removal of uranium to allow the processing facilities to be re-categorized from Category 2 Nuclear Facilities to Radiological Facilities.

The following work elements shall be included as part of the deposit/hold-up removal project:

- Develop any additional protocols (NDA, visual inspections, sampling and testing, statistical analysis, etc.) that will be used to demonstrate that the post treatment condition of the equipment and piping will meet completion thresholds for deposit/hold-up materials removal activities. These protocols need to include identification of specific data that will be collected, how it will be collected and how it will be used to assess post treatment conditions. The data collected will also be needed to support development of final waste acceptance criteria for the process equipment and piping. Collection of NDA or analytical data prior to initial treatment is not required.
- Identify/evaluate removal of unneeded CAAS Clusters once the deposit/holdup removal activities are completed. The evaluation should address serviceability through completion of future D&D activities.

Deposit/Holdup Removal activities are primarily focused on focused on C-310, C-310-A, C-315, C-331, C-333, C-333-A, C-335, C-337, C-337-A, C-360, and the associated process facility tie lines.

In C-746-Q1, there are 14 UF₆ Cold Traps that were removed from the C-410 Feed Plant, packaged into boxes and placed into storage. These cold traps are not expected to contain greater than 0.722 wt% U²³⁵ (NU). However, they are believed to contain elevated levels of Pu and transuranics that require additional radiological controls. Additionally, there are 2 UF₆ Cold Trap stored in C-746-Q1 that were previously stored in C-746-B Doors 1&2 and that are believed to have originated from Oak Ridge and were temporarily used in the PGDP process. The Contractor shall complete disposition of all 16 cold traps. In the event that the PCTC systems are used to support removal of the deposits/hold-up, the Contractor shall assume that any radiological contaminants such as Pu or transuranics are not re-introduced into the process facilities or into the cylinder collecting the regenerated UF₆ from the uranium process facility deposit/hold-up removal. Any such off-spec uranium generated from the cold traps shall be dispositioned as waste.

There are a number of convertors and compressors that have been removed from the process that contain deposits/hold-up. Some of the convertors are located on outside storage pads in addition to being stored within the process buildings. Although these items are no longer connected to the cascade, the Contractor shall ensure in-situ chemical treatment of these components. After successful treatment, these items may remain within the process building for future dispositioning. For those components stored on outside storage pads, they may remain within the process building where treatment occurred for future dispositioning.

The contractor should assume that deposit/hold-up removal completion levels at contract award:

- a. C-360 and the C-360/C-337 tie-line: 90% complete
- b. C-337/C-337-A: 80% complete
- c. C-333 and C-333-A: 25% complete
- d. other process facilities: 0% complete

The Contractor shall complete deposit/holdup removal in all of the uranium processing facilities, including, but not limited to:

- a. removal of all deposits/hold-up to below levels needed to achieve incredibility of criticality and removal/shutdown of CAAS and the WAC for On-site CERCLA Waste Disposal Facility;
- b. disposition of all loose fissile material and equipment (e.g. spare parts, uninstalled equipment, removed equipment);
- c. transfer of any large cylinders generated as part of deposit/hold-up removal to the DUF₆ Contractor;
- d. submit all documentation necessary to support criticality incredibility, including authorization basis changes to downgrade the uranium processing facilities to radiological facilities and gain DOE approval;
- e. deactivate/shutdown the CAAS in the uranium production facilities; and
- f. removal of all deposits/hold-up in the convertors (including any associated process equipment) stored on outside pads and the cold traps stored in C-746-Q/Q1

Table C.2.EM.PA.0040.A008.01.DR.04-1 Deposit/Holdup Removal Reference Documents	
#####	PCTC Design Drawings
#####	Buggy Design Drawings
#####	Deposit Removal Plan and Schedule

Table C.2.EM.PA.0040.A008.01.DR.04-2 Deposit/Holdup Removal Milestones/Schedule	
Milestone	Date
Deposit/Holdup Removal Complete in C-337, C337-A, C-360, and C-360/C-337 Tie-Line	1 year after conclusion of Transition
Deposit Removal/Holdup Complete in C-333, C-333-A and all Tie-lines into C-333	Per the Contractor's approved baseline, not to exceed 10 years
Deposit Removal/Holdup Complete in C-331 and all Tie-lines into C-331	Per the Contractor's approved baseline, not to exceed 10 years
Deposit Removal/Holdup Complete in C-335, C-310 and all remaining Tie-lines	Per the Contractor's approved baseline, not to exceed 10 years
Deposit Removal/Holdup Complete in Outside convertors and C-746-Q/Q1 cold traps	Per the Contractor's approved baseline, not to exceed 10 years

EM.PA.0040.A008.01.DR.05 Technetium (⁹⁹Tc) Thermal Treatment

Technetium-99 (⁹⁹Tc) is a high-yield fission product. Some ⁹⁹Tc accompanies uranium during reprocessing of spent reactor fuel and forms a gas during fluoridation. Hence, recycled uranium is contaminated with ⁹⁹Tc. In the cascade, the relatively light ⁹⁹Tc moves toward the enrichment end. One of the concerns for the Paducah Deactivation and Decommissioning (D&D) phase is the uncertainty of the actual levels of ⁹⁹Tc which will be encountered in the disposition of the process equipment. Considerable amounts of UF₆ were produced at Paducah from reactor return uranium. Estimates have been made that approximately 550 kilograms of ⁹⁹Tc were fed into the PGDP cascade as a contaminant in the UF₆ between 1953 and 1977 (Reference the Smith Report and the PGDP Mass Balance Report).

The typical trace levels of ⁹⁹Tc compounds in the operating GDP's is below the minimum detectable limit for any of the process gas analyzers. Consequently, it cannot be definitively stated which technetium compounds are present in the operational cascades. The only gas phase technetium compound that has been reported to have been detected in the cascade gas stream is the pertechnetyl fluoride, TcO₃F, which was detected in the purge

cascade during treatments to unplug the barrier. The technetium compounds that should be considered as potential cascade vapor phase compounds would consist of TcO_3F , $HTcO_4$, $TcOF_4$, and TcF_6 . The oxides Tc_2O_7 , and TcO_2 , could also possibly exist as condensed species, along with the liquid or solid pertechnetic acid, $HTcO_4$, and the oxyfluoride TcO_2F_3 . (Reference the Simmons Report)

Technetium hexafluoride (TcF_6), technetium oxide tetrafluoride ($TcOF_4$), technetium trioxide fluoride (TcO_3F), and technetium dioxide tri-fluoride (TcO_2F_3) have sufficient volatility to be in the cascade gas streams of an operating gaseous diffusion plant, but TcO_3F is the only compound of technetium to be identified. There are also non-volatile and less volatile compounds such as TcO_2 and $HTcO_4$, respectively. The formation of TcO_2 on steel surfaces is one effect which can retard the release of technetium. The volatile compound TcO_3F has been prepared from the non-volatile solid TcO_2 by use of fluorine at 300 °F (degrees Fahrenheit). (Reference the Simmons Report)

It has been demonstrated at the three former gaseous diffusion plants that technetium can be removed from the process surfaces by heating the metals to sufficient temperatures (i.e., approximately 250 degrees Fahrenheit). The more volatile ^{99}Tc compounds have been removed to a certain extent from process equipment by heating the cell with the cell off stream and the compressors running using air to volatilize the technetium into the gas phase and trapping it using accepted methods standard to the diffusion process. However, due to the limitations of heating the process equipment while it was operating the heat was limited to approximately 250 degrees Fahrenheit and at this temperature complete removal of ^{99}Tc was not accomplished. The heated air is circulated through the converters by the compressors. The volatilized ^{99}Tc is then captured using cold traps, magnesium fluoride or activated alumina. This technique has been done with moderate success at the GDPs to unplug cells and to prepare cells for maintenance thus reducing worker exposure to ^{99}Tc . This method has not been used with a goal of meeting the sites disposal Waste Acceptance Criteria (WAC). The final WAC's for Paducah and Portsmouth Plants have not officially been determined, however, the Oak Ridge Environmental Management Waste Management Facility (EMWMF) ^{99}Tc WAC is 172 pCi/g. Analyses of barrier samples recently removed from converters indicate the concentration of ^{99}Tc is two orders of magnitude above the Oak Ridge WAC.

Since the ^{99}Tc is not completely removed during the cell treatments for uranium deposits removal, the ^{99}Tc will need to be thermally treated to remove it from the equipment in order to meet waste disposal limits. The ^{99}Tc limits are more restrictive than uranium due to the difference in mobility of the compounds of the two elements. The ultimate goal of gas phase decontamination is to remove the technetium to sufficient levels that the radioactive contamination is below the free release levels and/or meet the Paducah WAC once it is established.

EM.PA.0040.A008.01.DR.05.01 Implementation of Thermal Treatment Technology

Upon successful completion of Deposit/Hold-up removal activities in the uranium enrichment buildings (i.e., C-331, C-333, C-335, and C-337) the Contractor shall develop, select and implement an approach to thermally treat the converters (loose and installed) to reduce ^{99}Tc levels to below the OSWDF WAC. The Contractor shall consider the results of the Microwave Technology Full Scale Pilot study in addition to more traditional thermal treatment techniques such as conductive heating (e.g., heaters) or steam purging. The Contractor shall ensure the implemented technique provides the most cost effective approach for the lifecycle.

The Contractor shall address the following requirements during the development, evaluation and implementation of the thermal treatment technique:

- Minimize the potential for redepositing of ^{99}Tc in/on equipment/components during the process.
- Many plant utilities may have been shutdown, air gapped and/or demobilized as a result of Deposit/Hold-up removal completion. The Contractor shall acquire necessary equipment (skid mounted or mobile systems to replace removed utilities), as necessary, to implement the thermal treatment technique and to capture the liberated ^{99}Tc .
- The C-310 Purge Cascade is shutdown and unavailable for use. The Contractor may select to use the PCTCs used for Deposit/Hold-up removal activities as an approach to capturing the liberated ^{99}Tc .

- All waste generated during the treatment process shall be disposed during the period of performance. Wastes shall not be transferred to a subsequent contractor.
- The dose/concentration of the resulting waste (e.g., Magnesium Fluoride trapping media) shall not exceed limits that requires remote handling and shall not exceed limits that prohibit waste shipments or disposal to off-site disposal facilities.
- The Contractor shall remove all temporary power/utilities service, all fire loading resulting from the treatment process, and all actions necessary to complete/return the facility to its shutdown and stabilized configuration.

Table C.2.EM.PA.0040.A008.01.DR.05.01-1 Implementation of Thermal Treatment Technology Milestones/Schedule	
Milestone	Date
Complete Thermal Treatment of C-331, C-333, C-335, and C-337 convertors	Per the Contractor's approved baseline, not to exceed 10 years

EM.PA.0040.A008.01.DR.05.02 Nickel and ⁹⁹Tc Pilot Study and Evaluation

The incumbent contractor initiated activities to investigate the use of microwave technology to thermally treat the ⁹⁹Tc contained in the nickel barrier and subsequently melt the metal nickel for recovery purposes. The goal of this investigation is to determine if the use of microwave technology to in-situ thermally heat and melt the nickel in an installed convertor, allowing the release and capture of ⁹⁹Tc in the barrier is practical. As such, this technology potentially allows for nickel recycling, reduces the weight loading of the convertors, and allows them to be removed during facility demolition. The Contractor may assume scale bench testing was successful.

The Contractor shall continue the investigation of microwave thermal technology for ⁹⁹TC treatment by conducting a full scale Pilot Study and Evaluation. All personnel performing this activity must possess (at a minimum) an "L" Clearance. The treatability/pilot scale study shall be conducted based on parameters that closely simulate the field conditions at PGDP process buildings including the various forms of Tc suspected to

be present (TcO_3F , $HTcO_4$, $TcOF_4$, TcF_6 and oxides Tc_2O_7 , TcO_2) The treatability/pilot scale study shall include the development of the test equipment, procedures, test parameters, sampling, and analysis of data and information (including data on the volatilization temperature of the various Tc compounds).

The Contractor shall issue a report upon completion of the treatability/pilot scale study. The report shall provide DOE with a detailed description of the study, an evaluation of the feasibility data and the associated technology, identification of the advantages and disadvantages of the technology, validation of the results in regards to the technologies ability to meet the goals in regards to ^{99}Tc removal and metal melt, opportunities to enhance the technologies performance, evaluation of the economic viability of the technology in regards to full scale implementation, and a detailed cost and schedule for full scale implementation. The treatability/pilot scale study shall utilize PGDP barrier materials, be constructed to simulate other parameters, variables (including ambient temperature, space limitations, power loading, etc.) and contaminants expected to be encountered in actual field conditions. The treatability/pilot scale study shall specifically address possible in-situ application of the treatment at PGDP. This shall allow the Contractor to determine the economic viability of the technology, and to determine the feasibility of scaling up the technology to accommodate a full size process converter. The full scale Pilot Study and Evaluation must evaluate Microwave Thermal Treatment with the following specific requirements and objectives:

- a. Thermally smelt 100% of classified barrier material to permit declassification. Smelting of other metals (e.g. Copper, Aluminum) within the convertor shall also be demonstrated;
- b. Reduce ^{99}Tc concentrations within the convertor to permit material to be disposed of in an on-site CERCLA Cell (cannot exceed 800 pCi/g);
- c. Remove 95% of the nickel and 95% of the other recyclable metals in the convertor;
- d. Ensures treated convertor is left "in-place" for removal at facility demolition;
- e. Demonstrate capability in a 000 convertor;
- f. Prevent re-deposit of the released ^{99}Tc in other portions of the convertor/cascade;

- g. Capture of the ^{99}Tc using PCTC (or similar/simulated trapping method) with recommendations for improving the trapping process; and
- h. Removal (draining) of smelted metals from the installed convertor to allow for removal of storage elsewhere prior to building demolition;

If subcontracted, the Contractor shall make existing facilities (e.g. C-409 or C-720) and clearly removed process equipment available for the selected party (selected by the previous/incumbent contractor) to perform the full scale testing.

The graph below shows the most recent ^{99}Tc results from barrier sampling and compares it to previous ^{99}Tc profile obtained from barrier samples during the last Cascade Improvement Program during the 1980 timeframe. The ^{99}Tc concentration has decreased significantly when compared to the older sample data. However, there are still concentrations and quantities of ^{99}Tc that appear to be too high for currently projected Waste Acceptance Criteria for a proposed CERCLA OSWDF. The graph also indicates that the ^{99}Tc is not evenly distributed throughout the cascade. There are units where the ^{99}Tc concentration is between 1000 and 10,000 pCi/g and two other areas where the ^{99}Tc concentration has been measured to be above 100,000 pCi/g. The concentration of the ^{99}Tc within each cell will determine the potential disposition of the equipment as shown in the graph. The barrier samples obtained thus far are primarily from the Upper Cascade (C-335 and C-337) where the highest level of technetium is present. Barrier samples are needed from the Lower Cascade (C-331 and C-333) and from the units in the Upper Cascade which were not sampled in 2014 in order to complete the ^{99}Tc profile for the entire cascade. The additional barrier samples need to be obtained and analyzed for ^{99}Tc and Uranium Isotopes by the laboratory.

The Contractor shall collect and analyze at least 1 (one) barrier sample for ^{99}Tc in: C-331 Units 1, 2, &3, C-335 Units 2&3, C-337 Units 2&4 (7 samples total) in order to ascertain the missing data from Figure C.11.2.1-1. The incumbent contractor intends to collect data for C-333 Units 1 through Unit 6. Further, the Contractor shall develop and submit an Evaluation Report documenting the results of the Pilot Study and shall specifically address the viability of the technology to meet the goals and objectives of the Pilot Study; implementing cost and schedule for full-scale deployment; life cycle cost savings; and determine which cells should be

treated with this technology. The Contractor shall also include the results of the barrier sampling (including the data from the incumbent contractor) in the report. The report shall also include an updated graph.

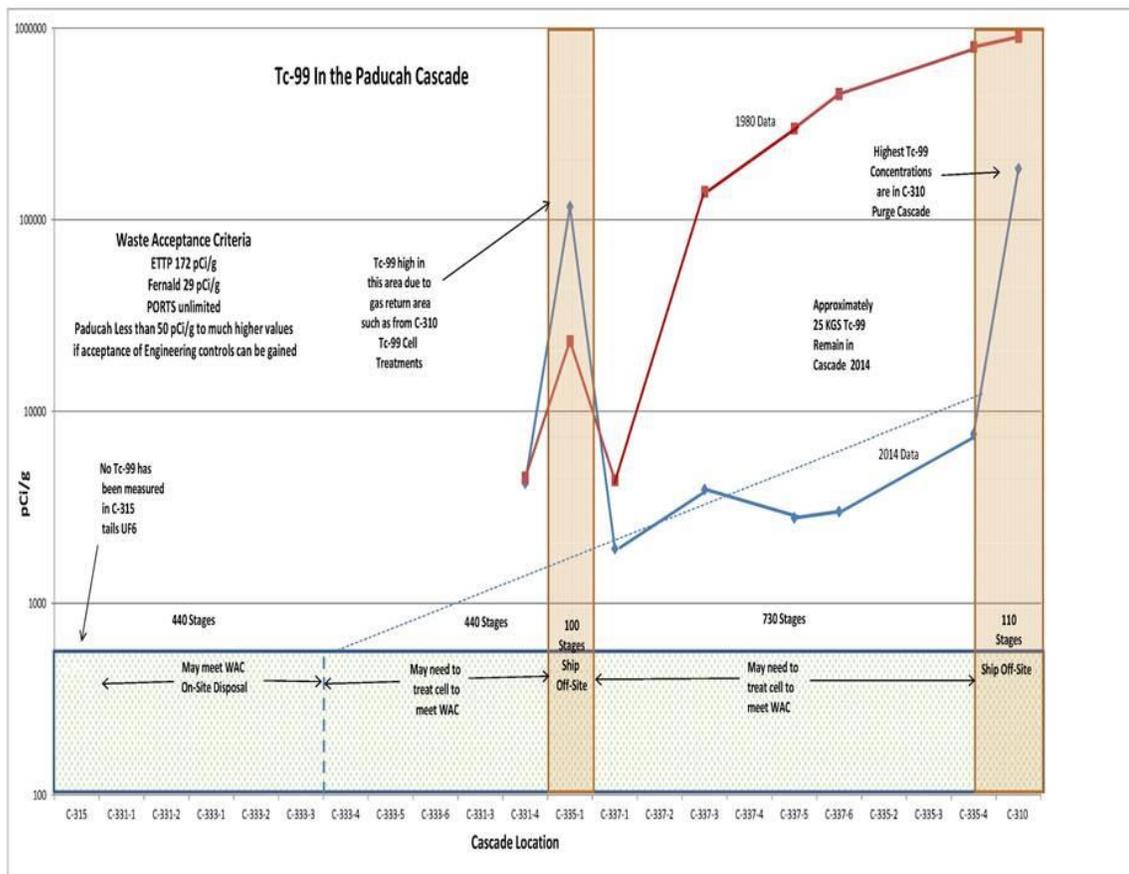


Figure C.7.1.4.1-1 illustrates known ⁹⁹Tc conditions at PGDP process facilities

Table C.2.EM.PA.0040.A008.01.DR.05.02-1 Nickel and ⁹⁹ Tc Pilot Study and Evaluation Reference Documents	
Document Number	Title
KY/L-1239	Historical Impact of Reactor Tails on the Paducah Cascade, R.F. Smith, March 1984
K/TSO-39	An Introduction of Technetium in the Gas Diffusion Cascades
BJC/PDGP-167	Recycled Uranium Mass Balance Project Paducah Gaseous Diffusion Plant Site Report, July 14, 2000
K-TCD-1127	Evaluation of Gas-Phase Technetium Decontamination and Safety Related Experiments during FY 1994. A Report of Work In Progress

Table C.2.EM.PA.0040.A008.01.DR.05.02-1 Nickel and ⁹⁹Tc Pilot Study and Evaluation Reference Documents	
Document Number	Title
	Technetium and the Gaseous Diffusion Complex, Phillip[p Brown August 22, 2012

Table C.2.EM.PA.0040.A008.01.DR.05.02-2 Nickel and ⁹⁹Tc Pilot Study and Evaluation Milestones/Schedule	
Milestone	Date
Complete Full Scale Demonstration of In-situ Thermal Treatment of 000 Convertor	24 months after Transition
Pilot Study Report/Evaluation	30 months after Transition

EM.PA.0040.A008.41.DR SURVEILLANCE AND MAINTENANCE

EM.PA.0040.A008.41.DR.01 Surveillance and Maintenance of Facilities

The Contractor shall perform routine surveillance and maintenance of all DOE-owned facilities assigned to the Paducah Deactivation and Remediation Contractor in FIMS and identified in Section J, Attachment J-4. The Contractor shall perform all S&M activities associated with these facilities through the end of the Contract. While not an all-inclusive list, examples of S&M activities are: system monitoring, routine inspections, calibrations, certifications, corrective maintenance, facility repairs necessary to maintain the integrity of the facility, combustible removal, cleanup of spills/leaks, control of loose contamination and airborne particles, isolation of utilities, etc..

Additionally, the Contractor shall minimize the size/footprint of occupied facilities to the greatest extent practical. The goal of this action is to reduce utility and S&M costs and maximize productivity of personnel. The Contractor shall submit annually a Site Facility Occupational Status Report that documents which facilities are occupied and the plans associated with the unoccupied. The report shall include a plan and schedule to reduce the number of occupied facilities by 20% over the life of the contract while meeting all PWS requirements and tasks. A facility shall be considered occupied, consistent with DOE Orders and the Life Safety Code (NFPA-101), if the facility is occupied by personnel on a regular basis (more than just making rounds or walk-throughs of the facility). If operations are performed in a facility, it shall be considered occupied. The Contractor shall implement

that plan to the extent practical.

The Contractor shall also, to the extent practicable, remove and disposition permanently unoccupied temporary facilities (e.g. trailers) or small structures to preclude degradation that would result in increased cost to DOE. DOE approval is not required prior to implementing such actions. However, CERCLA and other applicable regulatory requirements processes shall be adhered to. Additionally, the Contractor shall maximize the use of PACRO for excessing any such facilities.

The Contractor shall develop, document, and maintain an S&M Program Plan as appropriate for all facilities that are within the Contractor's responsibility.

The S&M activities shall be tailored during the facility life-cycle in accordance with DOE O 430.1B, Real Property Asset Management, and 10 CFR 851, Worker Safety and Health Program. Other areas that may require S&M include closed areas, remediated areas, capped areas (e.g., landfill), open areas, etc.

The Contractor shall provide preventive and corrective maintenance using a graded approach on buildings, trailers and Other Structures and Facilities (OSF) assigned to the Contractor in FIMS and identified in Section J, Attachment J-4. A graded approach is defined as the process of ensuring that actions used to comply with a requirement are commensurate with:

- a. the relative importance of safety and safeguards and security,
- b. the magnitude of any hazard(s) involved,
- c. the life cycle stage of the facility,
- d. the programmatic mission of the facility,
- e. the particular characteristics of the facility,
- f. the relative importance of the radiological and non-radiological hazards, and
- g. any other relevant factor.

The activities include, but are not limited to: carpentry; painting; electrical; winterizations; floor maintenance; plumbing; instrumentation; heating, ventilation, and air conditioning; sheet metal work; and hoisting and rigging.

The Contractor shall ensure that an electronic S&M tracking/work processing software package is used to integrate historical S&M data with S&M work requests for subsequent scheduling. The Contractor shall accept, utilize, and

optimize the incumbent contractor's electronic system. Further, the Contractor shall ensure that no systems, equipment, or items related to safety (including defense in depth) are degraded for more than 30 days without written DOE consent. The Contractor shall ensure that long-lead or critical spares are in on-site inventory where practical. The Contractor shall ensure mitigating actions are put in place within 24 hours of identifying a degraded system, equipment, or item related to safety.

The Contractor shall review the Authorization Basis, the Technical Safety Requirements (TSR), and the defense-in-depth safety related programs and shall present to DOE within 45 days after Transition completion, a comprehensive, itemized list of systems, equipment, and items related to safety (including those items credited for defense-in-depth or other safety related systems). The Contractor shall implement and adhere to the guidance provided in DOE memoranda *Deferred Maintenance Report Recommendations and Implementation Plan, June 25, 2015* and *Deferred Maintenance PPPO-02-2742794-15, March 30, 2015*. The Contractor shall actively work with DOE safety personnel and reach agreement on the list within 60 days after Transition completion. As such, there shall be no deferred maintenance of safety related systems, equipment, or items greater than 30 days without express written consent from DOE.

The Contractor shall perform all S&M activities including, but not limited to, the following:

- a. Minimize and reduce the occupation of facilities to the maximum extent possible;
- b. Maintain the operability of critical equipment such as the criticality accident alarm systems (CAAS), monitor radiological conditions, and check and maintain safety-related items. As facility conditions change, the Contractor shall reduce or eliminate critical equipment or use of critical systems that are no longer required for compliance with DOE requirements.
- c. Perform minimally required facility inspections including equipment and/or structure;
- d. Conduct preventive, predictive, and corrective maintenance actions only necessary to support near-term Contractor or site tenants/contractors operations. As operational activities change, the Contractor shall annually assess if continued preventative, predictive, and corrective maintenance is still warranted.

- e. At the completion of Uranium deposit/holdup removal and ⁹⁹Tc thermal treatment actions in a facility, the Contractor shall ensure that the CAAS and Fire Suppression Systems are no longer required. The Contractor shall modify all applicable safety basis documents of facilities/systems that support elimination of those systems for facilities including, but not limited to, C-337/C-337-A, C-333/C-333-A, and C-360. The Contractor shall actively pursue and justify, from a technical and regulatory perspective, the deactivation of these systems in preparation for D&D.

Table C.2.EM.PA.0040.A008.41.DR.01-1 Surveillance and Maintenance of Facilities Reference Documents	
Document Number	Title

Table C.2.EM.PA.0040.A008.41.DR.01-2 Surveillance and Maintenance of Facilities Milestones/Schedule	
Milestone	Date
Annual Site Facility Occupational Status Report	90 days after conclusion of transition and annually thereafter

EM.PA.0040.A008.41.DR.02 Facility Roofs

The Contractor shall ensure that all Category 2 nuclear facility roofs do not leak. If a leak is discovered the Contractor shall take immediate mitigation action(s) and pursue full repair actions to ensure all temporary repair actions are replaced with permanent repair(s) within 60 days of leak identification. This includes any and all structural aspects of the roofs. Further, the Contractor shall ensure that roof leaks do not impact operational activities (defined as taking any type of action that adjusts the operation from pre-leak condition/configuration, including modifying operator PPE) in non-Category 2 nuclear facilities and permanently repair such leaks within 90 days of identification. Permanent repairs are defined as returning the roof to its original pre-leak configuration or equivalent. The Contractor shall submit a non-Category 2 facility operations roof list to DOE 45 days after Transition. The Contractor shall gain DOE approval of the list within 60 days of Transition.

The Contractor shall assess the integrity of all of the PGDP facility roofs 30 days after Transition and annually thereafter. The Contractor shall provide DOE a report of the integrity (ability to withstand/resist water infiltration) of facility roofs within 30 days of completing its assessment, including the costs and schedule for repair of the roofs. (Note: The cost for roof repair is informational; the Contractor is responsible for funding those repairs.) All repairs shall be completed in a compliant, timely manner and shall prevent water leakage.

Further, the roofs for C-310, C-310-A, C-331, C-333, C-335, C-337, and C-720 were replaced with a fire resistant structural membrane system. These roofs shall be maintained in a sound condition that does not invalidate the warranty of the roofs. In the event leaks are identified, the Contractor shall work with the installer to resolve warranted deficiencies.

Non-Category 2/Category 3 facilities that are: 1) shutdown, 2) do not have routine personnel access, 3) have utilities isolated, and 4) do not have authorization basis requirements associated with facility safety do not require roof maintenance. This does not apply to facilities with structural membrane systems (C-310, C-310-A, C-331, C-333, C-335, C-337, and C-720). The roof structural membrane must be maintained in accordance with warranty requirements.

Table C.2.EM.PA.0040.A008.41.DR.02-1 Facility Roofs Reference Documents	
Document Number	Title
XXXXXXXXXX	Paducah Gaseous Diffusion Plant Roof Report

Table C.2.EM.PA.0040.A008.41.DR.02-2 Facility Roofs Milestones/Schedule	
Milestone	Date
Submit Roof Integrity Assessment	60 days after Transition and annually thereafter

EM.PA.0040.A008.42.DR UTILITIES OPERATIONS

EM.PA.0040.A008.42.DR.01 Utility Operations

The Contractor shall operate and maintain utilities to the extent necessary and ensure utility services are provided to site tenants for the utilities described within this section. The Contractor shall work with the other site tenants/contractors to ensure that decisions to provide these services are based on overall cost effectiveness.

The Contractor shall operate and maintain utilities to the extent necessary and ensure utility services are provided to site tenants for the utilities described within this section. The Contractor shall work with the other site tenants/contractors to ensure that decisions to provide these services are based on overall cost effectiveness. The Site's Nitrogen System Distribution System has been deactivated and all nitrogen is supplied by bottles (Dewars or portable cylinders). Natural gas is provided from off-site via two main utility lines; one to the north that services GDP facilities and one to the south for DUF₆ facilities.

Additionally, the tracking and metering of utilities in Federal Buildings is maintained by Section 103 of the Energy Policy Act of 2005. Since DOE will be performing clean-up operations in portions of the facility for the foreseeable future, the Contractor shall install and track meters for the usage of power, natural gas, water, and other fuels, when repairs are made to the utility service for a building/group of buildings, such that installation of the meters is practicable to DOE annually (unless the facility(ies) is/are actively undergoing or, has completed deactivation).

Table C.2.EM.PA.0040.A008.42.DR.01-1 Utility Operations Milestones/Schedule	
Milestone	Date
List of facility meters	12 months after transition and annually thereafter

**EM.PA.0040.A008.42.DR.02
 Steam, Chilled Water, Compressed Air, & Waste Heat Systems**

The Contractor shall operate and maintain the existing five (5) package boilers units (22,500 pounds/hour each) to meet the site demands, including cell treatment, of up to 100,000 pounds/hour. A connection for a sixth package boiler is available should the Contractor determine that additional steam capacity is required to support the Contractor's operational needs. The

Contractor shall remove the package boilers as demand is reduced site-wide. Table C.2.EM.PA.0040.A008.42.DR.02-1 lists the facilities that use steam (with estimated demand loads) for heating and to support their operations:

Table C.2.EM.PA.0040.A008.42.DR.02-1 Facilities Using Steam and Estimated Load			
Bldg #	Title	Winter lbs/hr	Summer lbs/hr
C-101	Medical	1000	0
C-300	Control	1000	1000
C-310	Product	5000	5000
C-315	Tails/C-620 Air	5000	5000
C-331	Process	7000	7000
C-333	Process	12,500	12,500
C-333-A	Vaporizer	1500	1500
C-335	Process	7000	7000
C-337	Process	12,500	12,500
C-337-A	Vaporizer	1500	1500
C-360	Toll Transfer	5000	5000
C-400	Cleaning	4000	4000
C-409	Stabilization	2000	2000
C-531	Switchyard	1000	0
C-532	Relay House	1000	0
C-533	Switchyard	1000	0
C-535	Switchyard	1000	0
C-536	Relay House	1000	0
C-537	Switchyard	1000	0
C-631	Pump House	500	0
C-633	Pump House	500	0
C-635	Pump House	500	0
C-635-6	Waste Heat Exchange	20,000	0
C-637	Pump House	500	0
C-709/710	Laboratory	1000	1000
C-720	Maintenance	2000	0
C-724	Carpenter Shop	1000	1000
C-750	Garage	1000	0

The Contractor shall ensure that the facilities currently using steam for heating have a replacement heat supply installed if the facility is going to continue to be occupied/operated. The Contractor shall ensure that the ductwork needed to distribute the heating/cooling is properly configured and sized with any replacement heating/cooling supplies. The Contractor shall

develop and submit to DOE the plan and schedule for replacing the heat source to facilities that are going to remain operational. Upon completion of deposit/hold-up removal activities, the Contractor shall discontinue the use/operation of the package boilers and shall demobilize them from the site (re-sale if possible).

Heat and chilled water will still be required for certain facilities that currently utilize the recirculating heat systems (formerly the Waste Heat System tied to the Recirculating Cooling Water System). The Contractor shall operate and maintain these systems until shutdown. The following facilities use chilled water: C-100; C-101; C-102; C-200; C-205; C-300; C-600; C-709; C-710; and C-720. The following facilities use the recirculating heat system to provide heat (including estimated percentage of total load used): C-100 (8%); C-200 (2%); C-400 (39.5%); C-710 (6.5%); and C-720 (44%) buildings; as well as pre-heating boiler feed water (C-635-6) (1%). The Contractor shall ensure that those facilities using chilled water or the recirculating heat system have replacement heating/cooling installed if the facility is going to continue to be occupied/operated. The Contractor shall ensure that the ductwork needed to distribute the heating/cooling is properly configured and sized with any replacement heating/cooling supplies. The Contractor shall develop and submit to DOE the plan and schedule for replacing the heating/cooling service to facilities that are going to remain operational. Upon completion of replacing the heating/cooling services to those facilities, the Contractor shall shut-down the plant chiller (located in C-602) and the heat exchanger east of C-600. The Contractor shall ensure that the replacement of chilled water and shut down of the chiller in C-602 does not adversely impact D&D of the C-600 Complex. The Contractor shall work with the PACRO to excess the heat exchanger.

There are several air compressors of varying age, reliability, and capacity that provide dry compressed air to a plant-wide dry air distribution system. The Contractor shall operate and maintain, as necessary, dry compressed air distribution system and associated air compressors. The Contractor shall shutdown and discontinue use of the plant-wide dry air distribution system. The Contractor shall utilize local air compressors or air compressors within the building to provide any required dry compressed air. No air compressors shall use once-through cooling from the plant/sanitary water system. The air compressors in C-620 and in C-602 shall be shut down.

Table C.2.EM.PA.0040.A008.42.DR.02-2 Steam, Chilled Water, Compressed Air, and Waste Heat Systems Milestones/Schedule	
Milestone	Date
Steam Heat Service Replacement Plans and Schedule	12 months after Transition
Shut down of the Plant Compressed Air Distribution System and air compressors in C-620 and C-602	24 months after Transition
Discontinue use of the Plant Dry Air /Compressed Air System and any air compressors that use once through cooling from plant/sanitary water	24 months after Transition
Complete Installation of the Replacement of Heating/Cooling Services for the Chiller and Recirculating Heat System	30 months after Transition
Complete Installation of Replacement Heat Service for Steam	42 months after Transition
De-mobilize/Re-sell the package boilers	54 months after Transition

Table C.2.EM.PA.0040.A008.42.DR.02-3 Steam, Chilled Water, Compressed Air, and Waste Heat Systems Reference Documents	
#####	REFERENCE STEAM BOILER DESIGN PACKAGE
#####	REFERENCE OPTIMIZATION STUDIES FOR ALL UTILITIES

EM.PA.0040.A008.42.DR.03 Water Systems

The Contractor shall ensure the operation and maintenance of the permitted C-611 Water Treatment Facilities and provide potable and non-potable (process) water to the site’s contractors/tenants. This includes maintenance of associated raw water lines, distribution lines to the individual site facilities, water towers, pump, housings, etc. This raw water treatment process is based on conventional water treatment techniques which include softening,

coagulation, flocculation, sedimentation, and chlorination. Raw water is obtained from the Ohio River through an intake station and pumped through water-softening units at the facility.

The Contractor shall continue to operate the existing on-site water treatment facilities and distribution network until a commercial/community water supplier connects and begins to provide water to the site.

The incumbent contractor has initiated the process to acquire potable water from one of the local water districts which involves running two water lines off site and installing additional infrastructure to supply the PGDP up to 1 million (1,000,000) gallons of water per day. The Contractor shall complete this process and complete all actions, including design, procurement, and construction necessary to place the in-coming water lines from the local water district into service, while minimizing the operation and maintenance of existing on-site water treatment facilities and systems. The Contractor shall develop and submit to DOE a plan and detailed schedule that identifies the facilities/systems to be shutdown and those required to continue to operate after connection to the local water district. The Contractor shall shut down, de-energize, isolate, and drain liquids, from all water treatment facilities/systems (including ancillary systems) no longer required to be operated. The Contractor shall ensure sufficient water capacity remains on-site in support of fire suppression systems and firefighting response actions.

Table C.2.EM.PA.0040.A008.42.DR.03-1 Water Systems Milestones/Schedule	
Milestone	Date
Water Facility Shutdown Plan	12 months after Transition
Complete transition of the Site's sanitary/plant water systems to a local water district.	24 months after Transition
Complete the shut down, de-energization, isolation, and draining of liquids, of the unnecessary facilities/systems (including ancillary/support systems)	30 months after Transition

**Note: Transfer of facilities may involve multiple steps, including lease prior to completing all necessary facility transfer requirements.*

EM.PA.0040.A008.42.DR.04 Electric Power Distribution

In 2015, the site completed the reconfiguration of the site's 14KV power distribution system, allowing the shut-down of the low-side of the C-533, C-

535, and C-537 switchyards. All power currently is distributed out of the C-531 switchyard. A new switchyard to replace C-531 is planned to be constructed east of the C-755 Trailer Complex. The incumbent contractor will complete the design of the 14KV power distribution to by-pass the C-531 Switchyard and connect all site loads to the new switchyard. The Contractor shall complete all actions necessary to construct. The 14KV distribution lines/system by-passing the C-531 Switchyard and tie those lines into the new switchyard and place the new switchyard into service. The Contractor shall ensure as-built drawings are provided. The Contractor shall shut-down the C-531 Switchyard upon completing tie-ins to the new switchyard. The utility responsible for constructing the new switchyard will also be responsible for its operation and maintenance. The Contractor shall maintain and operate the 14KV Power Distribution systems at the site.

The Contractor shall operate and maintain the high side of the site’s four switchyards in accordance with the requirements established by the regional reliability coordinator (TVA), until TVA, EEI, or KU have migrated the 161KV lines away from the switchyards. As TVA, EEI, and KU complete the migration of the 161 KV power lines coming into the site’s four switchyards, the Contractor shall shutdown and isolate the high side of the switchyards and eliminate all power (including any ancillary or station power) and other utility services to the switchyards and associated ancillary facilities. All oils shall be drained and compliantly dispositioned and fire suppression systems shall be deactivated. Upon completion of this activity all C-500 series facilities shall be shutdown, de-energized, drained of liquids, and unoccupied.

The Contractor shall ensure power is provided to all on-site tenants/contractors (does not include commercial power provided to remote areas of the site that are managed by the Infrastructure Contractor). Although the Contractor is not responsible for purchasing power (DOE purchases power), the Contractor shall project the power needs for all site operations (including infrastructure and DUF₆ needs) for a five-year period and update that projection quarterly. The Contractor shall also provide updates as requested.

Table C.2.EM.PA.0040.A008.42.DR.04-1 Electric Power Distribution Milestones/Schedule	
Milestone	Date
Complete construction of the C-531 14KV By-Pass to the new Switchyard	8 months after Transition

Table C.2.EM.PA.0040.A008.42.DR.04-1 Electric Power Distribution Milestones/Schedule	
Milestone	Date
Complete shut-down, isolation, de-energization, and draining of the C-537 and C-535 Switchyards and associated ancillary/support facilities	6 months after EEI and TVA complete re-configuration of the 161 KV lines to migrate away from C-537 and C-535
Complete Tie-in to the new switchyard and take C-531 out of service	2 months after completion of construction of the new switchyard and the C-531 14KV By-Pass
Complete shut-down, isolation, de-energization, and draining of the C-533 and C-531 switchyards and associate ancillary/support facilities	6 months after EEI and TVA complete re-configuration of the 161 KV lines to migrate away from C-531 and C-533.
Quarterly Site Power Projections	The 15 th of January, April, July, and October for each preceding quarter

Table C.2.EM.PA.0040.A008.42.DR.04-2 Electric Power Distribution Reference Documents	
#####	SST 14KV DESIGN PACKAGE
#####	ACTUAL DRAWINGS
#####	FLUOR DOCUMENTS
	TVA North-end Power Reconfiguration 535 and 537
	TVA Power Contract

EM.PA.0040.A008.42.DR.05 Sewage Treatment Systems

The Contractor shall provide sewage handling and treatment (e.g. C-615 Sewage Disposal Plant) services the site’s contractors/tenants. The C-615 Sewage Treatment Plant provides secondary treatment and consists of a, primary and secondary settling basins, trickling filter, sludge digester and settling beds, chlorinator, and contact chamber.

The Contractor shall continue isolation of low use or damaged sewer lines, and transition to the use of contractor supplied self-contained restroom facilities

The Contractor shall assess the capabilities of the on-site sewage collection and treatment systems and facilities for purposes of replacing these facilities through use of more efficient modular treatment systems or use of local community sewage treatment districts. Additionally, the Contractor shall

assess the sites near-term and long-term operational needs as the DUF₆ operations continue, environmental recommendation activities continue and the GDP continues to be deactivated, including the needs of other on-site tenants/contractors). As the sewage facilities and infrastructure have historical radiological contamination, any recommendation provided by the Contractor must ensure no migration of contamination off-site. The Contractor shall prepare an alternatives analysis to replace modify, repair, or supplement the existing sewage treatment system, including existing sewage lines, including innovative approaches to replace or optimize existing sewage collection and treatment systems and facilities. The Contractor shall include dry chemical and other environmentally friendly sewage systems in the alternatives analysis. Further, this analysis shall include all costs necessary to implement and operate the various alternatives. The analysis shall include an evaluation of all of the cost /benefits for each alternative and a schedule of implementing each alternative, including key milestones.

Table C.2.EM.PA.0040.A008.42.DR.05-1 Sewage Treatment Systems Milestones/Schedule	
Milestone	Date
Submittal of the Sewage Alternatives Analysis	48 months after transition

**Note: Transfer of facilities may involve multiple steps, including lease prior to completing all necessary facility transfer requirements.*

EM.PA.0040.A008.43.DR ANALYTICAL LABORATORY

Onsite laboratory facilities C-709, C-710 and associated ancillary facilities will become the responsibility of the Contractor.

EM.PA.0040.A008.43.DR.01 Analytical Laboratory Operations

The operation of on-site analytical facilities to provide analytical laboratory services will be at the discretion of the Contractor. In the event the Contractor performs some analytical services on-site, the services shall be available to other DOE on-site contractors. The Contractor shall ensure costs for services to the Contractor's projects/PWS elements and other on-site contractors are

segregated appropriately, and shall require the Contractor's projects/PWS activities and other site tenants/contractors to pay the fully burdened costs for performance of the analytical analysis/services.

Costs for off-site analytical services shall also be assigned to the applicable projects/PWS activities.

The Contractor shall arrange for and coordinate the disposition of laboratory equipment, chemicals, samples, waste resulting from its services, and any other materials associated with laboratory services. Samples (waste or otherwise) shall be disposed of within six (6) months of the acceptance of the Analytical Laboratory deliverable/data. Samples and/or waste from analytical services provided by the previous contractor may be present and associated with C-709 and C- 710 laboratory facilities and shall be dispositioned within 6 months of transition. The Contractor shall disposition all sources, fissionable/fissile materials, chemicals, other materials, and excess equipment remaining in the facility that the Contractor does not use to support its operation of the Analytical Laboratory (including ancillary facilities). Laboratory chemical and equipment data is available in Section J, Attachment J-2 (D&R Property).

The Contractor shall participate in Performance Evaluation Studies (PES) for its self-performed laboratory services provided through industry standard vendors and/or control programs. The PES programs include, but are not limited to:

- a. Mixed Analyte Proficiency Evaluation Report Program (MAPEP),
- b. American Industrial Hygiene Association and National Institute of Occupational Safety and Health Asbestos Proficiency Testing Programs,
- c. Environmental Resource Associates (ERA) Proficiency Testing Program, and Discharge Monitoring Report – Quality Assurance (DMR-QA) study.

The Analytical Laboratory may also be subject to blind PES submittals at the discretion of DOE.

The Contractor shall submit to on-site audits led by DOECAP or their designees within the DOE and Contractor organizations. Audit teams will typically consist of personnel from the DOECAP, and other DOE contractors. The audits will be performed periodically as identified by the DOECAP.

Within six months of cell treatment completion, the contractor shall complete the following actions:

- a. cease all analytical work in C-710/709 and ensure all required analytical services are provided from off-site services,
- b. disposition all chemicals, recycling or excessing as much as possible,
- c. disposition all fissile material, recycling or excessing as much as possible,
- d. disposition laboratory property offsite, recycling or excessing as much as possible,
- e. transfer (**DO NOT WASTE**) inventory of five (5) MD cylinders to another DOE site or another off-site entity (*These cylinders are unique commodities with documented pedigree used for making standards.*),
- f. dispose of all remaining samples and waste, and
- g. transfer all electronic and non-electronic records to the Infrastructure Contractor (in accordance with EM.PA.0040.A001.07.DR.15).

Table C.2.EM.PA.0040.A008.43.DR.01-1 Analytical Laboratory Operations Milestones/Schedule	
Milestone	Date
Samples and/or waste from analytical services provided by the previous contractor dispositioned	6 months after Transition
Cease all analytical work in C-710/709 and ensure all required analytical services are provided from off-site services	6 months after Deposit/Hold-up Removal Completion
Disposition all chemicals	6 months after Deposit/Hold-up Removal Completion
Disposition all fissile material	6 months after Deposit/Hold-up Removal Completion
Disposition laboratory property offsite	6 months after Deposit/Hold-up Removal Completion
Transfer five (5) MD cylinders	6 months after Deposit/Hold-up Removal Completion
Dispose of all remaining samples and waste	6 months after Deposit/Hold-up Removal Completion
Transfer all electronic and non-electronic records to the Infrastructure Contractor	6 months after Deposit/Hold-up Removal Completion

EM.PA.0040.A009.04.DR FACILITY DEACTIVATION AND DECOMMISSIONING (D&D)

This section of the contract includes both Deactivation and Decommissioning (D&D) activities. Deactivation is defined as: the safe and compliant shutdown of facilities; removal of hazardous materials, chemicals, uranium inventories, fire loading, liquids, and wastes; isolation of all utility/energy sources; shutdown of safety required systems; and other similar activities. Decommissioning is defined as the demolition and removal of the above grade structure. Addressing basements, sumps and other areas to preclude their collecting of liquids or materials after removal of the facility structure are typically part of the decommissioning process.

This work scope shall be considered complete following decontamination, demolition, and disposition of all material associated with the designated facilities. This shall include all site restoration, demobilization activities, and submittal of a final Completion Notification (or Removal/Remedial Action Completion Report if applicable), where appropriate. As funding becomes available, additional facilities may be identified for demolition within the scope of this PWS. The Contractor shall perform appropriate activities to stabilize the area and prevent surface water accumulation in sub-grade structures.

Historically, D&D has been performed 1) under the regulatory authority of CERCLA and 2) under the regulatory authority of all applicable environmental regulations and evaluated in accordance with NEPA. In some cases deactivation was performed (or started) in accordance with all applicable environmental regulations after a NEPA evaluation and then decommissioning (and any recommended activities) was under the regulatory authority of CERCLA. The goal is to implement D&D in the most efficient and regulatory compliant manner, while mitigating any and all hazards. The Contractor shall continue to implement this approach.

The facilities have been maintained to a minimal level to ensure integrity of the structure safety envelope. The facilities exist in various states of repair; asbestos, uranium, heavy metals, and PCBs are the hazards of most concern. Some facilities may have classified material in them.

EM.PA.0040.A009.04.DR.01
 Balance of Plant Generic Engineering Evaluation/Cost Analysis (EE/CA) &
 Action Memo (AM)

The Contractor shall develop, complete, and submit a Generic Removal Notification, Generic Engineering Evaluation/Cost Analysis (EE/CA) and a Generic Action Memo and all subsequent CERCLA documentation necessary to allow D&D of all the site's facilities except C-310, C-331, C-333, C-335, and C-337, (These five process buildings shall have their own CERCLA decision documents). The Generic EE/CA and all subsequent CERCLA documents shall allow DOE and its contractors to perform deactivation work outside of CERCLA (evaluated under NEPA and in accordance with all applicable regulations). However, the Generic EE/CA and subsequent CERCLA documents shall also allow deactivation to occur as part of the CERCLA action. This will be important if a CERCLA OSWDF is operated at the site as non-CERCLA waste cannot be placed into a CERCLA OSWDF.

The initial submittal of all documents shall be of sufficient quality, depth, thoroughness, and format to support DOE concurrence and regulatory approval. The Contractor shall assist in obtaining regulatory approval, including all applicable field and analytical work necessary to support CERCLA documents.

Table C.2.EM.PA.0040.A009.01.DR.01-1 Balance of Plant Generic EE/CA and AM Milestones/Schedule	
Milestone	Date
D1 Generic Removal Notification and Generic EE/CA submitted to the regulatory agencies	5 months after conclusion of Transition
D2 Generic Removal Notification and Generic EE/CA submitted to the regulatory agencies	Per the Contractor's approved baseline and consistent with the FFA schedule logic, and the latest approved SMP
D1 Generic Action Memorandum submitted to the regulatory agencies	Per the Contractor's approved baseline and consistent with the FFA schedule logic, and the latest approved SMP
D2 Generic Action Memorandum submitted to the regulatory agencies	Per the Contractor's approved baseline and consistent with the FFA schedule logic, and the latest approved SMP
D1 Generic RAWP	Per the Contractor's approved baseline schedule and the latest approved SMP.

Table C.2.EM.PA.0040.A009.01.DR.01-1 Balance of Plant Generic EE/CA and AM Milestones/Schedule	
Milestone	Date
D2 Generic RAWP	Per the Contractor's approved baseline schedule and the latest approved SMP.
D1 Completion notification (1 per facility/group of facilities) Deactivated and/or Decommissioned under the Generic EE/CA and Action Memorandum)	Per the Contractor's approved baseline schedule, the latest approved SMP, and no more than 60 days after completion of field work (including waste disposal)
D2 Completion notification (1 per facility/group of facilities) Deactivated and/or Decommissioned under the Generic EE/CA and Action Memorandum)	Per the Contractor's approved baseline schedule, the latest approved SMP, and no more than 60 days after completion of field work (including waste disposal)

Table C.2.EM.PA.0040.A009.01.DR.01-2 Balance of Plant Generic EE/CA and AM Reference Documents	
DOE G 430.1-4	Decommissioning Implementation Guide
#####	Draft Generic EE/CA from efforts with KY and EPA in 2009/2010

EM.PA.0040.A009.04.DR.02 Process Facility CERCLA Documents

The Contractor shall develop, complete, and submit all associated CERCLA documentation necessary to allow D&D of C-310, C-331, C-333, C-335, and C-337. The CERCLA documents shall allow any remaining deactivation to occur as part of the CERCLA action. This will be important if a CERCLA OSWDF is operated at the site as non-CERCLA waste cannot be placed into a CERCLA OSWDF.

The initial submittal of all documents shall be of sufficient quality, depth, thoroughness, and format to support DOE concurrence and regulatory approval. The Contractor shall assist in obtaining regulatory approval, including all applicable field and analytical work necessary to support CERCLA documents.

Table C.2.EM.PA.0040.A009.01.DR.02-1 Process Facility CERCLA Documents Milestones/Schedule	
Milestone	Date

Table C.2.EM.PA.0040.A009.01.DR.02-1 Process Facility CERCLA Documents Milestones/Schedule	
Milestone	Date
Each D1 and D2 CERCLA document proposed by the Contractor	Per the Contractor's approved baseline schedule

EM.PA.0040.A009.04.DR.03 Near-Term Facility D&D

The Contractor shall initiate deactivation of all facilities listed in Table C.2.EM.PA.0040.A009.01.DR.03-1. For those facilities not required to be addressed under CERCLA, the Contractor shall complete deactivation and complete all decommissioning (including demolition) activities. For those facilities addressed under CERCLA, the Contractor shall plan and conduct response actions in accordance with the CERCLA process for all structures. If selected within the Action Memorandum, then demolish all facilities to slab, if applicable, or at-grade components.

The Contractor shall ensure all sub-grade areas, including but not limited to basements, depressions, sumps, etc., shall be backfilled with an approved material suitable to prevent surface water accumulation and groundwater infiltration after all hazards (e.g. environmental, chemical, radiological) have been adequately mitigated to preclude migration of contamination and sufficient sampling to support subsequent environmental investigations. The Contractor shall take all reasonable actions to preclude the collection of water in any such areas during the decommissioning (demolition) phase of the process. Removal may include, but not be limited to, removal or clean-out of the facility equipment, personal property/fixtures, utility service components (including components leading up to the inactive facilities), tanks, sumps, asbestos, LLW, and PCB contaminated items in above-grade and sub-grade areas. The Contractor shall remove any fencing around or adjacent to facilities unless required for security-related purposes (e.g., LA fence, PPA fence) and shall remove all above ground utilities, including support structures, back to the nearest junction/tie-in with "live" utilities. The Contractor shall scabble (or remove) remaining concrete slabs to prevent migration or exposure from radiological or chemical hazards. Sealing and/or using administrative controls to preclude entry (e.g., postings/fencing) is not acceptable.

The Contractor shall evaluate the contents of the facilities for re-use or excessing in accordance with the Contractor's Asset Recovery and Recycling

Program. The Contractor shall maximize the use of PACRO to the extent possible. The Contractor shall also work closely with the Paducah Citizens Advisory Board (CAB) to identify those items of historical interest and shall, where practical, decontaminate and preserve those items for future inclusion in a museum/viewing center.

The Contractor shall complete disposal (received and accepted at an off-site disposal facility, or placed in an on-site disposal facility) of all wastes generated, all site restoration, demobilization activities, submit a final Completion Notification (if applicable), and complete RCRA closure, including all documentation, of the RCRA storage tanks/systems/facilities (if applicable). The Contractor shall actively assist in obtaining regulatory approvals. The Contractor shall ensure that all waste is disposed prior to completing or submitting the Completion Notification (if applicable) to the regulatory agencies. If permitted by the regulatory agencies, a simple Completion Notification may encompass more than one facility.

Completion is defined as completing the demolition (or specified response action), scabbling, all waste disposal, site restoration, demobilization, and submittal of all post demolition reports/documents.

The Contractor shall ensure each building or related groups of buildings is managed as separate WBS sub-element to EM.PA.0040.A009.01.DR.03 in the Contractor's CPB.

Table C.2.EM.PA.0040.A009.01.DR.03-1 Near-Term Facility D&D Milestones/Schedule					
Building Number	Title	Approx. Floor Area (ft ²)	Description	Comments	Completion Date
C-350	Drying Agent Storage	1570	Cylinder block Building	Contains Tanks for Fluorine and Mixed Treatment Gas and the feed station for Chlorine Trifluoride	6/30/2022
C-400	Cleaning Building	116,140	A single story structure with a partial basement. The exterior walls are constructed of poured concrete for the first 8 feet of height with windows and corrugated transite panels on steel framing above. The roof is a typical metal deck flat roof.	Building C-400 houses equipment required to handle decontamination of process equipment. The building also houses several offices, employee facilities, a laundry, and a shutdown closed loop of gaseous diffusion cascade equipment instrumented for testing.	6/30/2020
C-400/ C404	Transfer Line	NA			6/30/2020

Table C.2.EM.PA.0040.A009.01.DR.03-1 Near-Term Facility D&D Milestones/Schedule					
Building Number	Title	Approx. Floor Area (ft ²)	Description	Comments	Completion Date
C-400-A	Emergency Power for Critical Systems	100			6/30/2020
C-400-D	Lime Precip. & Ion Exch. Units	NA			6/30/2020
C-401	Neutralizing Pit	900			6/30/2018
C-403	Pit - Neutralizing Pit	576			6/30/2018
C-407	OSF - Nitric Acid Storage Tank	N/A			6/30/2018
C-409	Building - Stabilization Building	26,797	Single story corrugated metal siding on steel frame building with small mezzanine and a corrugated metal roof.	Building has offices, change houses, stabilization stands, and a cylinder wash area.	6/30/2024
C-410-D	Fluorine Storage Bldg	1526	Concrete and transite sided building with a built-up roof	Contains fluorine storage tanks	6/30/2027
C-410-K	Fluorine Facility	1600	Metal building with corrugated siding and roof.	Facility to feed fluorine into C-410-D	6/30/2024
C-415	Feed Plant Storage	3,672	Steel light frame building	Used for tool cribs/dispensing/control	6/30/2024
C-531-1	Building - Switch House	31,400	The switch house is a two-story heavy reinforced concrete superstructure consisting of a basement and a ground floor. The roof is a typical 4" reinforced concrete deck roof assembly	The C-531 facility is an electrical substation.	6/30/2021
C-531-2	OSF - Switchyard	N/A	An open gravel area with high voltage equipment, transformers, and breakers (ACBs and OCBs)		6/30/2021
C-531-3A	Building - Fire Valve House	144			6/30/2021
C-531-3B	Building - Fire Valve House	144			6/30/2021
C-532	Building - Relay House	7,784	One-story with a full basement, reinforced concrete walls. The roof is a typical 4" reinforced concrete deck roof assembly	Relay House for the C-531 and C-533 substations	6/30/2021
C-533-1	Building - Switch House	37,360	The switch house is a two-story heavy reinforced concrete superstructure consisting of a basement and a ground floor. The roof is a typical 4" reinforced concrete deck roof	The C-533 facility is an electrical substation.	6/30/2021

Table C.2.EM.PA.0040.A009.01.DR.03-1 Near-Term Facility D&D Milestones/Schedule					
Building Number	Title	Approx. Floor Area (ft ²)	Description	Comments	Completion Date
			assembly		
C-533-2	OSF - Switchyard	N/A	An open gravel area with high voltage equipment, transformers, and breakers (ACBs and OCBs)		6/30/2021
C-533-3A	Building - Fire Valve House No. 1	144			6/30/2021
C-533-3B	Building - Fire Valve House No. 2	144			6/30/2021
C-533-3C	Building - Fire Valve House No. 3	144			6/30/2021
C-533-3D	Building - Fire Valve House No. 4	144			6/30/2021
C-535-1	Building - Switch House	28,000	The switch house is a two-story heavy reinforced concrete superstructure consisting of a basement and a ground floor. The roof is a typical 4" reinforced concrete deck roof assembly	The C-535 facility is an electrical substation.	6/30/2019
C-535-2	OSF - Switchyard	N/A	An open gravel area with high voltage equipment, transformers, and breakers (ACBs and OCBs)		6/30/2019
C-535-3A	Building - Fire Valve House No. 1	144			6/30/2019
C-535-3B	Building - Fire Valve House No. 2	144			6/30/2019
C-535-4	Building - Test Shop (Maintenance Office)	480			6/30/2019
C-536	Building - Relay House	7,784			6/30/2019
C-537-1	Building - Switch House	42,140	The switch house is a two-story heavy reinforced concrete superstructure consisting of a basement and a ground floor. The roof is a typical 4" reinforced concrete deck roof assembly	The C-537 facility is an electrical substation.	6/30/2019
C-537-2	OSF - Switchyard	N/A	An open gravel area with high voltage equipment, transformers, and breakers (ACBs and OCBs)		6/30/2019

Table C.2.EM.PA.0040.A009.01.DR.03-1 Near-Term Facility D&D Milestones/Schedule					
Building Number	Title	Approx. Floor Area (ft ²)	Description	Comments	Completion Date
C-537-3A	Building - Fire Valve House No. 1	144			6/30/2019
C-537-3B	Building - Fire Valve House No. 2	144			6/30/2019
C-537-3C	Building - Fire Valve House No. 3	144			6/30/2019
C-537-3D	Building - Fire Valve House No. 4	144			6/30/2019
C-537-4	Building - Test Shop	480			6/30/2019
C-540-A	Building - Oil Pump House	312			6/30/2021
C-540-B	OSF - Oil Storage Tank (Northwest)	N/A			6/30/2021
C-540-C	OSF - Oil Storage Tank (Southwest)	N/A			6/30/2021
C-540-D	OSF - Oil Storage Tank (Northeast)	N/A			6/30/2021
C-540-E	OSF - Oil Storage Tank (Southeast)	N/A			6/30/2021
C-541-A	Building - Oil Pump House	312			6/30/2019
C-541-B	OSF - Oil Storage Tank (Northwest)	N/A			6/30/2019
C-541-C	OSF - Oil Storage Tank (Southwest)	N/A			6/30/2019
C-541-D	OSF - Oil Storage Tank (Northeast)	N/A			6/30/2019
C-541-E	OSF - Oil Storage Tank (Southeast)	N/A			6/30/2019
C-600	Building - Steam Plant	47,424	Single story structure with multiple equipment access platforms, a mezzanine level and a partial basement. The below grade exterior walls are constructed reinforced concrete up to 8' and 3/8" corrugated asbestos siding on structural steel framing to the roof. The roof is a typical metal deck flat roof assembly.	C-600 consists of a control room, the steam plant with its three boilers, and the associated equipment, a maintenance office and a laboratory. Coal bunkers are located above the control room. The low bay area contains air compressors, chilled water systems, and an equipment room. The basement contains an electrical room and a chilled water tank.	6/30/2022
C-601	Building - Nitrogen Generator	2,250	Single story structure with corrugated asbestos siding on structural steel		6/30/2022

Table C.2.EM.PA.0040.A009.01.DR.03-1 Near-Term Facility D&D Milestones/Schedule					
Building Number	Title	Approx. Floor Area (ft ²)	Description	Comments	Completion Date
	Building Addition		framing. The roof is a typical metal deck flat roof assembly.		
C-601-B	OSF - Steam Plant Fuel Storage Tank (South)	N/A	Large steel fuel oil storage tank in a lined earthen berm	Located in same berm as C-601-A tank.	6/30/2022
C-601-C	Building – Fuel Oil Pump house	148	Small metal framed shed with corrugated asbestos siding and roof.		6/30/2022
C-603-E	OSF - Nitrogen Storage Tank (East)	N/A	Steel liquid nitrogen storage tank on concrete pad.		6/30/2018
C-603-F	OSF - Nitrogen Storage Tank (Center)	N/A	Steel liquid nitrogen storage tank on concrete pad.		6/30/2018
C-603-G	OSF - Nitrogen Storage Tank (West)	N/A	Steel liquid nitrogen storage tank on concrete pad.		6/30/2018
C-604	Building - Utilities Maintenance Building	2,400	Single story structure with sheet metal panels on structural steel for the sides and roof.		6/30/2022
C-604-A	Building - Utilities Storage Building	290	Portable wooden storage building with a shingle roof.		6/30/2022
C-606	Building - Coal Crusher Building	1,470	Metal framed building with metal siding and metal roof.		6/30/2018
C-607	Building - Emergency Air Compressor Generator Build	2,000	Single story structure with sheet metal panels on structural steel for the sides and roof.		6/30/2022
C-611-A	Building - Building and Shop Storage	504	Single story structure, metal siding on steel frames with sheet metal roof.		6/30/2027
C-611-A1	Building – Activated Carbon Storage	1600	Single story structure, metal siding on steel frames with sheet metal roof.		6/30/2027
C-611-B	Building - Head House	1,215	Single story structure with reinforced concrete walls and built-up roof.	Contains feed equipment for chlorine cylinders.	6/30/2027
C-611-B1	Building - Polymer Feed System Enclosure	285	Single story structure, metal siding on steel frames with sheet metal roof.		6/30/2027
C-611-C	OSF - Flocculator Basin	N/A	Below grade concrete flocculator basin with some steel structures attached.		6/30/2027
C-611-D	OSF - Settling Basin (NE)	N/A	Reinforced concrete basin with sloped walls.		6/30/2027
C-611-E	OSF - Settling Basin (NW)	N/A	Reinforced concrete basin with sloped walls.		6/30/2027
C-611-F	OSF - Settling Basin (SE)	N/A	Reinforced concrete basin with sloped walls.		6/30/2027

Table C.2.EM.PA.0040.A009.01.DR.03-1 Near-Term Facility D&D Milestones/Schedule					
Building Number	Title	Approx. Floor Area (ft ²)	Description	Comments	Completion Date
C-611-F1	OSF - Secondary Coagulation Basin	N/A	Concrete basin with metal catwalks and structures above the basin.		6/30/2027
C-611-F2	Building - Chemical Feed	589	Single story structure, metal siding on steel frames with sheet metal roof.		6/30/2027
C-611-F3	Building - Activated Carbon Feed	144	Single story structure, metal siding on steel frames with sheet metal roof.		6/30/2027
C-611-G	OSF - Settling Basin (SW)	N/A	Reinforced concrete basin with sloped walls.		6/30/2027
C-611-H	Building - Filter and Pump Station	13,067	Single story vinyl siding on wood frame structure with a partial basement. Asphalt shingle roof.		6/30/2027
C-611-I	OSF - Clear Well	N/A	Underground storage basin with soil covering.		6/30/2027
C-611-K	OSF - Lagoon	N/A	Abandoned Lagoon		6/30/2027
C-611-O	OSF - Sanitary Water Storage Tank	N/A	185 ft. high 325,000 gallon water tower		6/30/2027
C-611-P	Building - Pump House	902	Metal framed building with corrugated asbestos siding and built-up roof.		6/30/2027
C-611-Q	Building - 36" Raw Water Line Booster Station	392	Block building with corrugated siding and corrugated roof.		6/30/2027
C-611-R	OSF - Water Tank-RCW Fire Water (High Pressure)	N/A	325 ft. high 250,000 gallon water tower	Supplies the sanitary water system.	6/30/2027
C-611-S	Building – CL2 Storage and Feed	1,120	Single story structure, metal siding on steel frames with sheet metal roof.	Contains feed equipment for chlorine cylinders.	6/30/2027
C-611-T	OSF - Booster Pump Station Plant Water	N/A	Underground concrete vault with concrete roof	Contains booster pumps and piping.	6/30/2027
C-611-T01	Trailer - Instrument Maintenance	670	Single wide metal sided trailer.	Office, shower and break area.	6/30/2027
C-611-U	OSF - Softening Facility (West)	N/A	Single story structure, metal siding on steel frames and a built-up roof.	Includes a Large open top steel softener tank.	6/30/2027
C-611-V	OSF - Sludge Lagoon	N/A	Earthen Lagoon		6/30/2027
C-611-V1	OSF - Sludge Lagoon	N/A	Earthen Lagoon		6/30/2027
C-611-W	OSF - Sludge Lagoon	N/A	Earthen Lagoon		6/30/2027
C-611-X	OSF - Softening Facility (East)	N/A	Large open top steel softener tank		6/30/2027

Table C.2.EM.PA.0040.A009.01.DR.03-1 Near-Term Facility D&D Milestones/Schedule					
Building Number	Title	Approx. Floor Area (ft ²)	Description	Comments	Completion Date
C-611-Y	OSF - Recycle Lagoon	N/A	Earthen Lagoon	Has discharge to Bayou Creek	6/30/2027
C-611-Z	OSF - Flocculator Basin	N/A	Below grade concrete flocculator basin with some steel structures attached.		6/30/2027
C-631-1	Building – Pump House	9,700	Single story structure of reinforced concrete and asbestos siding and built-up roof	Building contains pumps, valving, electrical switchgear, control instrumentation, and a chemical feed area. Also contains the HPFW pumps #5 & #6.	6/30/2027
C-631-2	OSF - Cooling Tower	N/A	Redwood cooling tower with plastic fill.		6/30/2019
C-631-3	Pump House (Firewater)	1,196	Below grade concrete building with concrete roof at grade.	Contains the HPFWS pumps #2 & #3 and the HPFW jockey pump. Also has associated electrical equipment.	6/30/2027
C-631-4	Blending Pump House	1,540	Single story metal frame building with asbestos siding and built-up roof.	Building contains pumps, valves and piping.	6/30/2027
C-631-5	OSF - Blending Cooling Tower (West)	N/A	Redwood cooling tower with plastic fill.		6/30/2019
C-631-6	OSF - Blending Cooling Tower (East)	N/A	Redwood cooling tower with plastic fill.		6/30/2019
C-631-10	OSF - Asbestos Crew Storage	N/A	Wooden portable building with asphalt shingle roof.		9/30/2027
C-631-12	OSF - Asbestos Crew Storage	N/A	Wooden portable building with asphalt shingle roof.		6/30/2027
C-631-13	OSF - RCW Equipment Storage	N/A	Wooden portable building with asphalt shingle roof.		6/30/2027
C-631-15	Building – Equipment Storage	192	Wooden portable building with asphalt shingle roof.		6/30/2027
C-632-B	OSF – framework (tank removed)	N/A	Diked concrete pad with saddles for a tank.	Tank has been removed.	6/30/2019
C-633-1	Pump House	10,245	Single story structure of reinforced concrete and asbestos siding and built-up roof	Building contains pumps, valving, electrical switchgear, control instrumentation, and a chemical feed area.	6/30/2027
C-633-2A	OSF - Cooling Tower (South)	N/A	Redwood cooling tower with plastic fill.		6/30/2019
C-633-2B	OSF - Cooling Tower (North)	N/A	Redwood cooling tower with plastic fill.		6/30/2019
C-633-3	Blending Pump House	1,984	Single story metal frame building with asbestos siding and built-up roof.	Building contains pumps, valves and piping.	6/30/2027
C-633-4	OSF - Blending Cooling Tower (North)	N/A	Redwood cooling tower with plastic fill.		6/30/2019

Table C.2.EM.PA.0040.A009.01.DR.03-1 Near-Term Facility D&D Milestones/Schedule					
Building Number	Title	Approx. Floor Area (ft ²)	Description	Comments	Completion Date
C-633-5	OSF - Blending Cooling Tower (South)	N/A	Redwood cooling tower with plastic fill.		6/30/2019
C-633-6	Building – Sand Filter Building	260	Single story metal building with a metal roof and roll up door.	Building contains a large tank and piping	6/30/2027
C-634-B	H2SO4 Storage Tank	N/A	Diked concrete pad with saddles for a tank.	Tank has been removed.	6/30/2027
C-635-1	Building - Blending Pump House	8,505	Single story structure of reinforced concrete and asbestos siding and built-up roof	Building contains pumps, valving, electrical switchgear, control instrumentation, and a chemical feed area.	6/30/2027
C-635-2	OSF - Blending Cooling Tower (North)	N/A	Redwood cooling tower with plastic fill.		6/30/2019
C-635-3	Building - Blending Pump House	1,984	Single story metal frame building with asbestos siding and built-up roof.	Building contains pumps, valves and piping.	6/30/2027
C-635-4	OSF - Blending Cooling Tower (North)	N/A	Redwood cooling tower with plastic fill.		6/30/2019
C-635-5	OSF - Blending Cooling Tower (South)	N/A	Redwood cooling tower with plastic fill.		6/30/2019
C-635-6	Building - Process Waste Heat Utilization Pump House	2,556	Metal metal frame and block building with a below grade section with concrete walls with siding and built-up roof.	Building contains pumps, valves, a tank and piping. Also had a switchgear room.	6/30/2027
C-637-1	Building - Pump House	10,245	Single story structure of reinforced concrete and asbestos siding and built-up roof.	Building contains pumps, valving, electrical switchgear, control instrumentation, and a chemical feed area.	6/30/2027
C-637-2A	OSF - Cooling Tower (South)	N/A	Redwood cooling tower with plastic fill.		6/30/2019
C-637-2B	OSF - Cooling Tower (North)	N/A	Redwood cooling tower with plastic fill.		6/30/2019
C-637-3	Building - Blending Pump House	2,084	Single story metal frame building with asbestos siding and built-up roof.	Building contains pumps, valves and piping.	6/30/2027
C-637-4	OSF - Blending Cooling Tower (North)	N/A	Redwood cooling tower with plastic fill.		6/30/2019
C-637-5	OSF - Blending Cooling Tower (South)	N/A	Redwood cooling tower with plastic fill.		6/30/2019
C-637-6	Sand Filter Building	260	Single story metal building with a metal roof and roll up door.	Building contains a large tank and piping	6/30/2019
C-726	Sandblast Bldg.	2,019	Metal frame building with transite siding	Misc. equipment with dust removal ventilation.	6/30/2027
C-728	Motor Cleaning Facility	1,597	Steel Light Frame	Used for maintenance shops and general motor cleaning	6/30/2019

EM.PA.0040.C002.03.DR
 ON-SITE WASTE DISPOSAL FACILITY (OSWDF) CAPITAL ASSET PROJECT

The DOE estimates a future need for disposal of approximately 3.7 million cubic yards of radioactively contaminated, non-radioactively contaminated, and hazardous material (soil and building debris), including sanitary waste through the end of D&D of the PGDP. The majority of this waste will be disposed of outside of the period of performance of this Contract as it is currently associated with D&D of the GDP. Approximately 2,000 yd³ of these volumes are classified waste.

Table C.2.EM.PA.0040.C002.01.DR-1 Estimated Disposal Volume, by Waste Form, for Waste Disposition Options Project through 2040 in 1000YD ³								
Waste form	LLW	LLW/RCRA	LLW/RCRA/TSCA	LLW/TSCA	RCRA	TSCA	Sanitary	Total
Asbestos	4	1	25	0	0	4	1	33
Concrete	377	1	0	0	0	0	393	771
General Construction Debris	425	3	0	1	0	3	235	667
Other Dry Solids	46	1	5	1	1	1	4	57
Scrap Metal	408	1	0	0	0	4	69	480
Soil	1,286	29	1	0	16	2	376	1,710
Total	2,547	36	31	2	17	14	1,079	3,719

LLW = low-level waste
 RCRA = Resource Conservation and Recovery Act of 1976
 TSCA = Toxic Substances Control Act of 1976, Public Law 94-469, October 11, 1976, 15 USC Section 2622
 Source: DOE/LX/07-0035&D1, Scoping Document for CERCLA Waste Disposal Alternatives Evaluation Remedial Investigation/Feasibility Study at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, April 2008

3.DR.01 OSWDF Cell 1 and Infrastructure

The Contractor shall assume responsibility for all ongoing activities including any and all OSWDF approvals, design, and construction. At the time of transition, the incumbent contractor will have secured a Record of Decision (ROD) and CD 0/1 approval. This project is a Capital Asset Project and all Critical Decision processes shall be completed by the Contractor.

The Contractor shall complete all CERCLA documentations, LFRG presentations and documents, the necessary designs (consistent with the

planned lifecycle waste projections) and the construction of OSWDF Cell 1 and necessary infrastructure during the POP, consistent with the Project Data Sheet and CD-0/1 documentation. A Post-Construction Report shall be submitted at the conclusion of cell construction.

Consistent with the FFA schedules, the Contractor shall prepare regulatory documents including, but not limited to, CERCLA documentation required per the regulatory agreement(s).

The Contractor shall develop the necessary CERCLA documentation, and develop the necessary subsequent work plans and supplemental documents under the agreed-upon CERCLA process.

In addition, the Contractor shall be responsible for developing and coordinating all regulatory documentation necessary to support other activities associated with the onsite waste disposal facility (e.g., sampling, monitoring, waste treatment, disposal, storage).

The Contractor shall:

- a. Prepare, submit, and obtain regulatory approval of the OSWDF Remedial Design Work Plan/Remedial Design Support Investigation. The initial deliverable shall be of sufficient quality, depth, thoroughness, and format to support DOE concurrence and regulatory approval.
- b. Complete the Remedial Design Support Investigation, including any necessary fieldwork to complete the investigation, including any data analysis, modeling, and other reporting necessary to support completion of the OSWDF design.
- c. Prepare and submit the OSWDF Critical Decision Documents (CD-2/3 and CD-3A) to DOE for review and approval. Once finalized and approved, submit all documents to OAPM as necessary. The initial deliverable shall be of sufficient quality, depth, thoroughness, and format to support DOE approval.
- d. Prepare and submit the OSWDF Safety Basis Documentation. The initial deliverable shall be of sufficient quality, depth, thoroughness, and format to support DOE approval.
- e. Prepare and obtain regulatory approval of the Waste Acceptance Criteria for the OSWDF
- f. Prepare, submit, and obtain regulatory approval of the OSWDF 30%, 60%, and 90% Remedial Design Reports, and the CFC Remedial

Design Report, Remedial Action Work Plan, O&M Plan, Post Construction Report, and all other CERCLA documents and supporting documents necessary to complete construction and begin operations of the OSWDF. The initial deliverable shall be of sufficient quality, depth, thoroughness, and format to support DOE concurrence and regulatory approval.

- g. Support and submit documents to support DOE Order 435.1 (LFRG) activities, such as the performance assessment and composite analysis. The initial deliverable shall be of sufficient quality, depth, thoroughness, and format to support DOE approval.
- h. Complete the Remedial Action Work Plan. The initial deliverable shall be of sufficient quality, depth, thoroughness, and format to support DOE concurrence and regulatory approval.
- i. Start and complete construction of Cell 1 and the necessary infrastructure consistent with approved decision.
- j. Complete the Operations and Maintenance Plan. The initial deliverable shall be of sufficient quality, depth, thoroughness, and format to support DOE concurrence and regulatory approval.
- k. Complete the CD-4 package for DOE review and approval.

Table C.2.EM.PA.0040.C002.01.DR.01-1 OSWDF Cell 1 and Infrastructure Milestones/Schedule	
Milestone	Date
Complete 90% Design Review (Cell 1 and Infrastructure)	3 years after transition
Complete CD-2/3 Documentation for DOE HQ Review (Cell 1 and Infrastructure)	3 years after transition
Complete LFRG PA Review and Approval (Cell 1 and Infrastructure)	3 years after transition
Complete D1 Remedial Action Work Plan (Cell 1 and Infrastructure)	Per the Contractor's approved baseline and consistent with the FFA schedule logic, and the latest approved SMP
Complete CD-3A Documentation for DOE HQ Review (Cell 1 and Infrastructure)	Per the Contractor's approved baseline and the latest approved SMP
Start Construction of the OSWDF (Cell 1 and Infrastructure)	3.5 years after transition
Complete Construction of the OSWDF (Cell 1 and Infrastructure)	4.5 years after transition
Submit D1 Post-Construction Report to regulators (Cell 1 and Infrastructure)	4.75 years after transition

Table C.2.EM.PA.0040.C002.01.DR.01-1 OSWDF Cell 1 and Infrastructure Milestones/Schedule	
Milestone	Date
Complete CD-4A Documentation for DOE HQ Review (Cell 1 and Infrastructure)	4.75 years after transition
Submit D1 Operations and Maintenance Plan to regulators (Cell 1 and Infrastructure)	4.75 years after transition

Table C.2.EM.PA.0040.C002.01.DR.01-2 OSWDF Cell 1 and Infrastructure Reference Documents	
Document Number	Title
#####	Dispute Resolution
#####	Proposed Plan
#####	Record of Decision

EM.PA.0040.C002.03.DR.02 OSWDF Cell 2

This project is a Capital Asset Project and all Critical Decision processes shall be completed by the Contractor.

The Contractor shall complete all CERCLA documentations, LFRG presentations and documents, the necessary designs (consistent with the planned lifecycle waste projections) and the construction of OSWDF Cell 2 during the POP, consistent with the Project Data Sheet and CD-0/1 documentation. A Post-Construction Report shall be submitted at the conclusion of cell construction.

Consistent with the FFA schedules, the Contractor shall prepare regulatory documents including, but not limited to, CERCLA documentation required per the regulatory agreement(s).

The Contractor shall develop the necessary CERCLA documentation, and develop the necessary subsequent work plans and supplemental documents under the agreed-upon CERCLA process.

In addition, the Contractor shall be responsible for developing and coordinating all regulatory documentation necessary to support other

activities associated with the onsite waste disposal facility (e.g., sampling, monitoring, waste treatment, disposal, storage).

The Contractor shall, for each cell:

- a. Prepare, submit, and obtain regulatory approval of the OSWDF Remedial Design Work Plan/Remedial Design Support Investigation. The initial deliverable shall be of sufficient quality, depth, thoroughness, and format to support DOE concurrence and regulatory approval.
- b. Complete the Remedial Design Support Investigation, including any necessary fieldwork to complete the investigation, including any data analysis, modeling, and other reporting necessary to support completion of the OSWDF design.
- c. Prepare and submit the OSWDF Critical Decision Documents (CD-2/3 (if needed) and CD-3B) to DOE for review and approval. Once finalized and approved, submit all documents to OAPM as necessary. The initial deliverable shall be of sufficient quality, depth, thoroughness, and format to support DOE approval.
- d. Prepare and submit the OSWDF Safety Basis Documentation. The initial deliverable shall be of sufficient quality, depth, thoroughness, and format to support DOE approval.
- e. Prepare and obtain regulatory approval of the Waste Acceptance Criteria for the OSWDF
- f. Prepare, submit, and obtain regulatory approval of the OSWDF 30%, 60%, and 90% Remedial Design Reports, and the CFC Remedial Design Report, Remedial Action Work Plan, O&M Plan, Post Construction Report, and all other CERCLA documents and supporting documents necessary to complete construction and begin operations of the OSWDF. The initial deliverable shall be of sufficient quality, depth, thoroughness, and format to support DOE concurrence and regulatory approval.
- g. Support and submit documents to support DOE Order 435.1 (LFRG) activities, such as the performance assessment and composite analysis. The initial deliverable shall be of sufficient quality, depth, thoroughness, and format to support DOE approval.
- h. Complete the Remedial Action Work Plan. The initial deliverable shall be of sufficient quality, depth, thoroughness, and format to support DOE concurrence and regulatory approval.
- i. Start and complete construction of Cell 2 and the necessary infrastructure consistent with approved decision.

- j. Complete the Operations and Maintenance Plan. The initial deliverable shall be of sufficient quality, depth, thoroughness, and format to support DOE concurrence and regulatory approval.
- k. Complete the CD-4 package for DOE review and approval.

Table C.2.EM.PA.0040.C002.01.DR.02-1 OSWDF Cell 2 Milestones/Schedule	
Milestone	Date
Complete 90% Design Review (Cell 2)	Per the Contractor's approved baseline and consistent with the FFA schedule logic, and the latest approved SMP
Complete CD-2/3 Documentation for DOE HQ Review (Cell 2)	Per the Contractor's approved baseline, and the latest approved SMP
Complete LFRG PA Review and Approval (Cell 2)	Per the Contractor's approved baseline and consistent with the FFA schedule logic, and the latest approved SMP
Complete D1 Remedial Action Work Plan (Cell 2)	Per the Contractor's approved baseline and consistent with the FFA schedule logic, and the latest approved SMP
Complete CD-3B Documentation for DOE HQ Review (Cell 2)	Per the Contractor's approved baseline and the latest approved SMP
Start Construction of the OSWDF (Cell)	Per the Contractor's approved baseline and consistent with the FFA schedule logic, and the latest approved SMP
Complete Construction of the OSWDF (Cell 2)	Per the Contractor's approved baseline and consistent with the FFA schedule logic, and the latest approved SMP
Submit D1 Post-Construction Report to regulators (Cell 2)	180 days prior to the end of the POP
Complete CD-4B Documentation for DOE HQ Review (Cell 2)	180 days prior to the end of the POP
Submit D1 Operations and Maintenance Plan to regulators (Cell 2)	180 days prior to the end of the POP

EM.PA.0040.C003.01.DR SWMUS 2&3 CAPITAL ASSET PROJECT

EM.PA.0040.C003.01.DR.01 SWMUs 2&3 Post-ROD CERCLA Action

Though the final remedy will not be determined until the ROD is finalized for SWMUs 2 and 3, the assumption is that SWMUs 2 and 3 will be capped (Subtitle C equivalent). The Contractor shall develop and submit all Post-ROD CERCLA documents supporting the remediation of SWMUs 2 and 3 as specified in the ROD. The documents include, but are not limited to, the Remedial Design Work Plan, and the Remedial Design Report. In the event a Remedial Design Investigation is required, the Contractor shall complete all associated documentation and field work including sampling, analysis of samples, and waste disposal. All submittals shall be in compliance with the FFA and consistent with the SMP. The Contractor shall actively assist in obtaining regulatory approval of all CERCLA documents. The initial deliverables submitted to DOE shall be of sufficient quality, depth, thoroughness, and format to support DOE approval.

This project is a Capital Asset Project and all Critical Decision processes shall be completed by the Contractor. The Contractor shall comply with all aspects of DOE Order 413.3B. The Contractor shall prepare and submit the Critical Decision Documents (CD-0/1, CD-2/3 and CD-4) to DOE for review and approval. Once finalized and approved, submit all documents to OAPM as necessary. The Contractor shall also submit a Baseline Change Request to the Contractor's CPB to break the costs in this WBS Element into the OPCs, MR, and TECs as part of the CD-0/1 process. The initial deliverables submitted to DOE shall be of sufficient quality, depth, thoroughness, and format to support DOE approval.

The Contractor shall complete all fieldwork, including all actions associated with remediation of sources that may be contributing to the Southwest Plume. The Contractor shall ensure that all wastes (including any sampling media maintained at on-site or off-site laboratories) are disposed (received and accepted at an off-site disposal facility, or placed in an On-site disposal facility). The Contractor shall ensure all site restoration activities and demobilization activities are complete. The Contractor shall complete and submit a Remedial Action Completion Report (RACR). The Contractor shall

ensure that all waste is disposed prior to completing or submitting the RACR to the regulatory agencies.

Table C.2.EM.PA.0040.C003.01.DR.01-1 SWMUs 2&3 Post-ROD CERCLA Action Milestones/Schedule	
Milestone	Date
Complete CD-0/1 Documentation for DOE HQ Review	Per the Contractor's approved baseline and consistent with the latest approved SMP
Complete CD-2/3 Documentation for DOE HQ Review	Per the Contractor's approved baseline and consistent with the latest approved SMP
Complete CD-4 Documentation for DOE HQ Review	Per the Contractor's approved baseline and consistent with the latest approved SMP
Submit the D1 Remedial Design Work Plan to the regulatory agencies	January 31, 2023
Submit the D1 Remedial Design Report to the regulatory agencies	August 31, 2023
Submit the D1 Remedial Action Work Plan to the regulatory agencies	September 30, 2023
Submit the D1 RACR to the regulatory agencies	September 30, 2026

EM.PA.0040.C010.01.DR SWMUS 7&30 CAPITAL ASSET PROJECT

EM.PA.0040.C010.01.DR.01 SWMUs 7&30 Post-ROD CERCLA Action

Though the final remedy will not be determined until the ROD is finalized for SWMUs 7 and 30, the assumption is that SWMUs 7 and 30 will be capped (Subtitle C equivalent). The Contractor shall develop and submit all Post-ROD CERCLA documents supporting the remediation of SWMUs 7 and 30 as specified in the ROD. The documents include, but are not limited to, the Remedial Design Work Plan, and the Remedial Design Report. In the event a Remedial Design Investigation is required, the Contractor shall complete all associated documentation and field work including sampling, analysis of samples, and waste disposal. All submittals shall be in compliance with the FFA and consistent with the SMP. The Contractor shall actively assist in obtaining regulatory approval of all CERCLA documents. The initial deliverables submitted to DOE shall be of sufficient quality, depth, thoroughness, and format to support DOE approval.

This project is a Capital Asset Project and all Critical Decision processes shall be completed by the Contractor. The Contractor shall comply with all aspects of DOE Order 413.3B. The Contractor shall prepare and submit the Critical Decision Documents (CD-0/1, CD-2/3 and CD-4) to DOE for review and approval. Once finalized and approved, submit all documents to OAPM as necessary. The Contractor shall also submit a Baseline Change Request to the Contractor's CPB to break the costs in this WBS Element into the OPCs, MR, and TECs as part of the CD-0/1 process. The initial deliverables submitted to DOE shall be of sufficient quality, depth, thoroughness, and format to support DOE approval.

The Contractor shall complete all fieldwork, including all actions associated with remediation of sources that may be contributing to the Groundwater Plumes. The Contractor shall ensure that all wastes (including any sampling media maintained at on-site or off-site laboratories) are disposed (received and accepted at an off-site disposal facility, or placed in an On-site disposal facility). The Contractor shall ensure all site restoration activities and demobilization activities are complete. The Contractor shall complete and submit a Remedial Action Completion Report (RACR). The Contractor shall ensure that all waste is disposed prior to completing or submitting the RACR to the regulatory agencies.

Table C.2.EM.PA.0040.C010.01.DR.01-1 SWMUs 7&30 Post-ROD CERCLA Action Milestones/Schedule	
Milestone	Date
Complete CD-0/1 Documentation for DOE HQ Review	Per the Contractor's approved baseline and consistent with the latest approved SMP
Complete CD-2/3 Documentation for DOE HQ Review	Per the Contractor's approved baseline and consistent with the latest approved SMP
Complete CD-4 Documentation for DOE HQ Review	Per the Contractor's approved baseline and consistent with the latest approved SMP
Submit the D1 Remedial Design Work Plan to the regulatory agencies	March 31, 2024
Submit the D1 Remedial Design Report to the regulatory agencies	February 28, 2025
Submit the D1 Remedial Action Work Plan to the regulatory agencies	March 31, 2025

Table C.2.EM.PA.0040.C010.01.DR.01-1 SWMUs 7&30 Post-ROD CERCLA Action Milestones/Schedule	
Milestone	Date
Submit the D1 RACR to the regulatory agencies	September 30, 2026

EM.PA.0040.C011.01.DR SWMUS 5&6 CAPITAL ASSET PROJECT

EM.PA.0040.C011.01.DR.01 SWMUs 5&6 Post-ROD CERCLA Action

Though the final remedy will not be determined until the ROD is finalized for SWMUs 5 and 6, the assumption is that SWMUs 5 and 6 will be capped (Subtitle C equivalent). The Contractor shall develop and submit all Post-ROD CERCLA documents supporting the remediation of SWMUs 5 and 6 as specified in the ROD. The documents include, but are not limited to, the Remedial Design Work Plan, and the Remedial Design Report. In the event a Remedial Design Investigation is required, the Contractor shall complete all associated documentation and field work including sampling, analysis of samples, and waste disposal. All submittals shall be in compliance with the FFA and consistent with the SMP. The Contractor shall actively assist in obtaining regulatory approval of all CERCLA documents. The initial deliverables submitted to DOE shall be of sufficient quality, depth, thoroughness, and format to support DOE approval.

This project is a Capital Asset Project and all Critical Decision processes shall be completed by the Contractor. The Contractor shall comply with all aspects of DOE Order 413.3B. The Contractor shall prepare and submit the Critical Decision Documents (CD-0/1, CD-2/3 and CD-4) to DOE for review and approval. Once finalized and approved, submit all documents to OAPM as necessary. The Contractor shall also submit a Baseline Change Request to the Contractor's CPB to break the costs in this WBS Element into the OPCs, MR, and TECs as part of the CD-0/1 process. The initial deliverables submitted to DOE shall be of sufficient quality, depth, thoroughness, and format to support DOE approval.

The Contractor shall complete all fieldwork, including all actions associated with remediation of sources that may be contributing to the Southwest Plume. The Contractor shall ensure that all wastes (including any sampling media maintained at on-site or off-site laboratories) are disposed (received and accepted at an off-site disposal facility, or placed in an On-site disposal facility). The Contractor shall ensure all site restoration activities and

demobilization activities are complete. The Contractor shall complete and submit a Remedial Action Completion Report (RACR). The Contractor shall ensure that all waste is disposed prior to completing or submitting the RACR to the regulatory agencies.

Personnel are required to obtain security clearances (Q Clearance) when performing work activities in the SWMU 5 and 6 areas.

Table C.2.EM.PA.0040.C011.01.DR.01-1 SWMUs 5&6 Post-ROD CERCLA Action Milestones/Schedule	
Milestone	Dates must be consistent with the latest approved version of the FFA SMP.
Complete CD-0/1 Documentation for DOE HQ Review	Per the Contractor's approved baseline and consistent with the latest approved SMP
Complete CD-2/3 Documentation for DOE HQ Review	Per the Contractor's approved baseline and consistent with the latest approved SMP
Complete CD-4 Documentation for DOE HQ Review	Per the Contractor's approved baseline and consistent with the latest approved SMP
Submit the D1 RDWP to the regulatory agencies	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.
Submit the D1 RDR to the regulatory agencies	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.
Submit the D1 RAWP to the regulatory agencies	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.
Start Field Work (defined as removing first cubic yard of soil, not mobilization of subcontractor/equipment)	10/1/2020
50% Field work completion	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.

Table C.2.EM.PA.0040.C011.01.DR.01-1 SWMUs 5&6 Post-ROD CERCLA Action Milestones/Schedule	
Milestone	Dates must be consistent with the latest approved version of the FFA SMP.
Submit the D1 RACR to the regulatory agencies	As established in the Contractor's CPB and approved by DOE. Dates must be consistent with the latest approved version of the FFA SMP.
Table C.2.EM.PA.0040.C011.01.DR.01-1 SWMUs 5&6 Post-ROD CERCLA Action Reference Documents	
Reference Number	Title

C.3 ABBREVIATIONS AND ACRONYMS

ACL	Alternate Concentration Limit
ACO	Administrative Contracting Officer
ACL	Alternate Concentration Limit
ALARA	As Low As Reasonably Achievable
amsl	above mean sea level
ANSI	American National Standards Institute
ARAR	Applicable or Relevant and Appropriate Requirement
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATSDR	Agency for Toxic Substances Disease Registry
BGOU	Burial Grounds Operable Unit
BNA	Baseline Needs Assessment
BRA	Baseline Risk Assessment
BWMS	Ballard Wildlife Management Area
CAB	Citizens Advisory Board
CCSA	Contractor Cognizant Security Authority
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIF3	chlorine trifluoride
CFY	Contractor Fiscal Year
CLIN	Contract Line Number
CPAF	Cost-Plus-Award-Fee
CO	Contracting Officer
COOP	Continuity of Operations
CSCS	Contract Security Classification Specification
CSM	Conceptual Site Model
CSOU	Comprehensive Site Operable Unit

D&D	Deactivation & Decommissioning
D&R	Deactivation & Remediation
DCAA	Defense Contract Audit Agency
DCO	Designated Contracting Officer
DCOR	Designated Contracting Officer Representative
DEAR	Department of Energy Acquisition Regulation
DPLH	Direct Productive Labor Hour
DMSA	DOE Material Storage Area
DNAPL	Dense Nonaqueous-Phase Liquid
DNFSB	Defense Nuclear Facilities Safety Board
DOC	U.S. Department of Commerce
DOE	U.S. Department of Energy
DQO	Data Quality Objective
DUF6	Uranium Hexafluoride
EEIOCP	Energy Employees Occupational Illness Compensation Program
ELCR	Excess Lifetime Cancer Risk
EM	Environmental Management
EPA	U.S. Environmental Protection Agency
EVMS	Earned Value Management System
FACs	Federal Acquisition Circulars
FAR	Federal Acquisition Regulation
FDO	Fee Determination Official
FFA	Federal Facility Agreement
FHA	Fire Hazard Analyses
FOCI	Foreign Ownership, Control or Influence
FPRA	Forward Pricing Rate Agreements
FPRR	Forward Pricing Rate Recommendations
FS	Feasibility Study
FTE	Full Time Equivalent
FY	Fiscal Year
FOGM	Fuel, Oil, Gas & Maintenance
GAO	Government Accountability Office
GDP	Gaseous Diffusion Plant
GFY	Government Fiscal Year
GWOU	Groundwater Operable Unit
HI	Hazard Index
HQ	Hazard Quotient
HU	Hydrogeologic Unit
IDIQ	Indefinite Delivery Indefinite Quantity
IDW	Investigation-Derived Waste
ISMS	Integrated Safety Management System
KDEP	Kentucky Department of Environmental Protection
KDWM	Kentucky Division of Waste Management
KPDES	Kentucky Pollutant Discharge Elimination System
LLW	Low-Level Waste
MCL	Maximum Contaminant Level
MTRU	Mixed Transuranic Waste
NMC&A	Nuclear Materials Control and Accountability
NCP	National Contingency Plan

NOAEL	No Observed Adverse Effects Level
NPL	National Priorities List
NQA	National Quality Assurance
NRC	Nuclear Regulatory Commission
NSDD	North-South Diversion Ditch
OIG	DOE Office of Inspector General
O&M	Operations and Maintenances
OSWDF	On-Site Waste Disposal Facility
ORFSC	Oak Ridge Financial Service Center
OU	Operable Unit
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PBIs	Performance Based Incentives
PGDP	Paducah Gaseous Diffusion Plant
ppb	Parts Per Billion
ppm	Parts Per Million
PPQ	Past Performance Questionnaire
PRG	Preliminary Remediation Goal
PWS	Performance Work Statement
RACR	Remedial Action Completion Report
RAO	Remedial Action Objective
RBES	Risk-Based End State
RCRA	Resource Conservation and Recovery Act
RGA	Regional Gravel Aquifer
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Studies
RL	Remediation Level
ROD	Record of Decision
RTP	Request for Task Proposal
SI	Site Investigation
SMP	Site Management Plan
SOU	Soils Operable Unit
SWMU	Solid Waste Management Unit
SWOU	Surface Water Operable Unit
99Tc	Technetium-99
TCE	Trichloroethene
TI	Technical Impracticability
TLD	Thermoluminescent Dosimeter
TRE	Toxicity Reduction Evaluation
TRU	Transuranic Waste
TSCA	Toxic Substances Control Act
TSDf	Transport, Storage, and Disposal Facility
TVA	Tennessee Valley Authority
234U	Uranium-234
235U	Uranium-235
238U	Uranium-238
UCRS	Upper Continental Recharge System
UF6	Uranium Hexafluoride
UCNI	Unclassified Controlled Nuclear Information

USEC	United States Enrichment Corporation
USV	Upper Screening Value
VC	Vinyl Chloride
VIPERS	Vendor Inquiry Payment Electronic Reporting System
WKWMA	West Kentucky Wildlife Management Area
WMA	Wildlife Management Area
WMP	Watershed Monitoring Program

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