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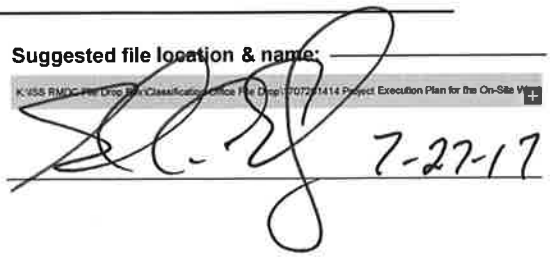

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Project Execution Plan
for the
On-Site Waste Disposal Facility
Initial Infrastructure and Cell 1, 4 and 5 Liner Construction Project
at the Portsmouth Gaseous Diffusion Plant
Piketon, Ohio

OSWDF Capital Asset Project No. 1
Project ID: 15-U-408

U.S. Department of Energy
DOE/PPPO/03-0597&D1

July 2017

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APPROVALS

Project Execution Plan
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Project ID: 15-U-408

U.S. Department of Energy
DOE/PPPO/03-0597&D1

July 2017

Originated: _____ Date: _____

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James M. Owendoff
Acting Assistant Secretary for
Environmental Management

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CONTENTS

FIGURES

TABLES

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ACRONYMS

ACWP	Actual Cost of Work Performed
ANSI	American National Standards Institute
ARARs	applicable or relevant and appropriate requirements
AS	Acquisition Strategy
ASME	American Society of Mechanical Engineers
BAC	Budget at Completion
BCCB	Baseline Change Control Board
BCP	Baseline Change Proposal
BCWP	Budgeted Cost of Work Performed
BCWS	Budgeted Cost of Work Scheduled
BIO	*Basis for Interim Operation of Former Uranium Enrichment Facilities (FUEF) at the Portsmouth Gaseous Diffusion Plant Piketon, OH*
BOD	Beneficial Occupancy Date
CAMs	Control Account Managers
CAPs	Capital Asset Projects
CD	critical decision
CDR	Conceptual Design Report
CE	Chief Executive for Project Management
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFC	Certified for Construction
CFR	Code of Federal Regulations
CO	Contracting Officer
COOP	*Continuity of Operations Plan for Fluor-B&W Portsmouth LLC, Piketon, Ohio*
COR	Contracting Officer's Representative
CPI	Cost Performance Index
CQC	Construction Quality Control
DCP	Design Criteria Package
D&D	Decontamination and Decommissioning
DFF&O	*The April 12, 2010 Director's Final Findings and Orders for Removal Action and Remedial Investigation and Feasibility Study and Remedial Design and Remedial Action, including the July 16, 2012 Modification thereto*
DOE	U.S. Department of Energy
DOJ	U.S. Department of Justice
DSAs	Documented Safety Analyses
DUF_6	depleted uranium hexafluoride
EAC	Estimate at Completion
EIRs	External Independent Reviews
EM	Office of Environmental Management
EM-1	Assistant Secretary for Environmental Management
EMAAB	Environmental Management Acquisition Advisory Board
EMCBC	Environmental Management Consolidated Business Center
EMS	Environmental Management System
EPA	U.S. Environmental Protection Agency
ER	Environmental Remediation
ES&H	environment, safety and health
ETC	Estimate to Complete

ACRONYMS (continued)

EVMS	Earned Value Management System
FBP	Fluor-BWXT Portsmouth LLC
FPD	Federal Project Director
FRA	Functions, Responsibilities, and Authorities
FSS	Facilities Support Services
FUEF	Former Uranium Enrichment Facilities
FY	Fiscal Year
GCL	Geosynthetic Clay Liner
GFS&I	Government-Furnished Services and Items
GML	Geomembrane Liner
HA	Hazard Analysis
ICEs	Independent Cost Estimates
ICRs	Independent Cost Reviews
IGCE	Independent Government Cost Estimate
ILTS	Interim Leachate Treatment System
IMTA	Impacted Material Transfer Area
IPABS	Integrated Planning, Accountability, and Budgeting System
IPT	Integrated Project Team
IPRs	Independent Project Reviews
ISMS	Integrated Safety Management System
ITP	inspection and test plan
KPPs	Key Performance Parameters
LAs	Limited Areas
LCS	Leachate Collection System
LDS	Leak Detection System
LI	Line Item
LTS	Leachate Transmission System
MP	Management Plan
MLTS	Modular Leachate Treatment System
MNS	Mission Need Statement
MR	management reserve
NEPA	National Environmental Policy Act of 1969
Ohio EPA	Ohio Environmental Protection Agency
OPCs	Other Project Costs
OPCB	Operations Program Control Board
OSDC	On-Site Disposal Cell (also known as OSWDF)
OSWDF	On-Site Waste Disposal Facility (also known as OSDC)
PARS II	Project Assessment and Reporting System II
PB	Performance Baseline
PDS	Project Data Sheet
PDRI	Project Definition Rating Index
PEP	Project Execution Plan
PM	Office of Project Management Oversight and Assessments
PMA	Portsmouth Mission Alliance LLC
PMB	Performance Measurement Baseline
PMCS	Project Management Controls System
PME	Project Management Executive

ACRONYMS (continued)

PORTS	Portsmouth Gaseous Diffusion Plant
PPAs	Property Protection Areas
PPPO	Portsmouth/Paducah Project Office
PPRs	Project Peer Reviews
QA	quality assurance
QAP	Quality Assurance Program
QAPD	Quality Assurance Program Description
QC	quality control
RAR	Risk Assessment Report
RCRA	Resource Conservation and Recovery Act of 1976 (as amended)
RFP	Request for Proposal
RMP	Risk Management Plan
RSI	Restoration Services, Inc.
SERs	Safety Evaluation Reports
S&M	surveillance and maintenance
SPI	Schedule Performance Index
SOT	System Operability Testing
SSAB	Site-Specific Advisory Board
TEC	Total Estimated Cost
TPC	Total Project Cost
TSCA	Toxic Substances Control Act of 1976
TSRs	Technical Safety Requirements
USQs	Unreviewed Safety Question
VAC	Variance at Completion
WBS	Work Breakdown Structure
WD RI/FS	*Remedial Investigation and Feasibility Study Report for the Site-wide Waste Disposition Evaluation Project at the Portsmouth Gaseous Plant, Piketon, Ohio*
WD ROD	*Record of Decision for the Site-wide Waste Disposition Evaluation Project at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*
WSHP	Worker Safety and Health Program

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REVISION LOG

Revisions			
Revision Number	**Revision Date**	**Description of Revision**	**Pages Affected**
0	04/2015	Initial Issue	N/A
1	07/2015	Incorporated DOE-PPPO/PORTS comments	All
2	07/2015	Revised Funding Profile provided by DOE-PPPO/PORTS	32, 33
3	08/2015	Revised Funding Profile and changed PME designation	All
4	07/2017	Revised Funding Profile and general rev. for CD-2/3 submission	All

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1 INTRODUCTION

This Project Execution Plan (PEP) identifies the U.S. Department of Energy (DOE) objectives, roles and responsibilities, organization, and controls for the acquisition of an On-Site Waste Disposal Facility (OSWDF), specifically the first three disposal cells within the OSWDF, at the Portsmouth Gaseous Diffusion Plant (PORTS) near Piketon, Ohio. The OSWDF Initial Infrastructure and Cell 1, 4 and 5 Liner Construction Project (hereafter referred to as the OSWDF CAP-1 Project) is the first in a series of Congressional Line Item (LI) Capital Asset Projects (CAPs) which are required to complete the entire OSWDF. This plan also describes how the policies, requirements, and critical decision (CD) responsibilities identified in DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, will be implemented for the OSWDF CAP-1 Project. This plan is intended to be a "living document" that will be updated as the project progresses through the CD process to completion. DOE has commissioned the PORTS Decontamination & Decommissioning (D&D) Prime Contractor, Fluor-BWXT Portsmouth LLC (FBP), to execute the project.

1.1 PROJECT BACKGROUND

The DOE Office of Environmental Management (EM) is responsible for environmental cleanup and legacy waste management activities at PORTS. The overall scope is organized into: (1) Environmental Remediation (ER); (2) waste management; (3) uranium operations (i.e., uranium management and depleted uranium hexafluoride [DUF_6] conversion); and (4) D&D of PORTS.

These projects are managed by the DOE-EM Portsmouth/Paducah Project Office (PPPO) located in Lexington, Kentucky, and its onsite Portsmouth Operations Oversight Group. The mission of the PPPO is to implement EM responsibilities, obligations, and activities within the context of the overall EM mission for reduction and cleanup of the environmental legacy of the nation's nuclear weapons program and government-sponsored nuclear energy research.

The scope of the PORTS D&D Project includes planning, scheduling, and implementation of activities for the safe, regulatory compliant, and efficient remediation of groundwater and soil at PORTS, as well as activities supporting the final disposition of waste generated during the D&D of facilities. Chief among the waste disposition activities are the siting, characterization/analysis, and design/construction of an OSWDF. The OSWDF will support waste disposal from PORTS D&D activities and potentially accept wastes associated with other Portsmouth EM programs including remediation of deferred units.

Overall, OSWDF will include up to twelve disposal cells and associated support facilities. Only ten cells are projected to be necessary to accommodate the estimated five million cubic yards of debris and engineered fill from PORTS D&D activities. The additional two cells (Cell 11 and Cell 12) are designated as contingent (optional) cells. The OSWDF will be designed and constructed to meet the applicable or relevant and appropriate requirements (ARARs), DOE functional requirements, and general design criteria that are identified in the *On-Site Waste Disposal Facility (OSWDF) Design Criteria Package (DCP) Pre-Final Design, Portsmouth Gaseous Diffusion Plant Decontamination & Decommissioning Project, Piketon, Ohio* (DOE 2017a). Additional details of the work scope for the OSWDF and its major components are provided in Sections 1.3 and 4.1.

Construction activities for the entire OSWDF include earthwork, construction of multi-layer liner systems, and construction of multi-layer covers. Waste placement activities in each cell will be performed as operations scope, prior to the construction of each multi-layer cover. The entire OSWDF will be constructed, operated, and covered in a phased approach to align with, and support, D&D activities. Construction for the entire OSWDF is planned for Fiscal Year (FY) 2015 through FY 2038. Due to the extended duration of D&D activities, OSWDF cell construction projects will be ongoing while waste operations are occurring in adjacent cells, as generalized in Figure 1.1. This stepped approach to the disposal cell construction assures timely availability of disposal

volume while allowing for phased authorization and funding over the life-cycle of the OSWDF projects. Figure 1.2 shows the general location of the OSWDF at PORTS.

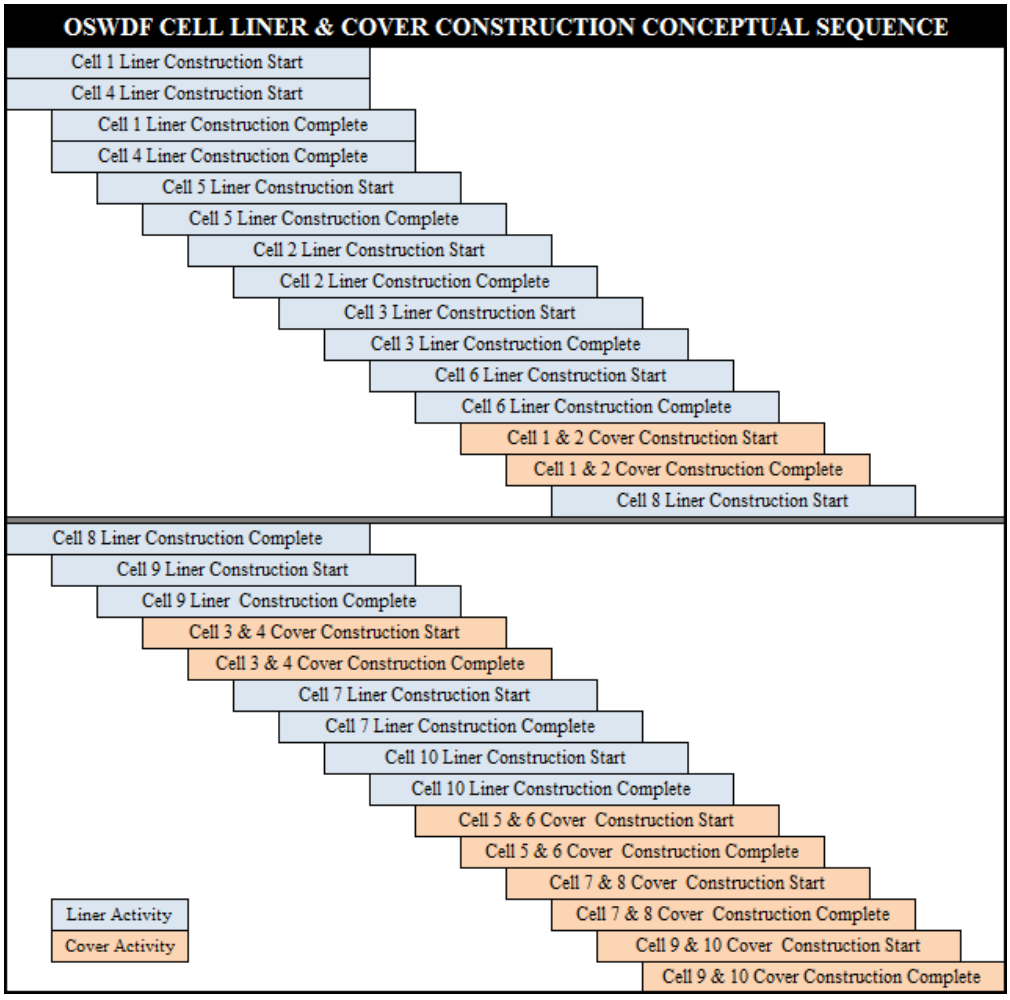

Figure 1.1 OSWDF Cell Liner & Cover Sequence Generalization

The OSWDF CAP-1 Project scope includes the design, construction, and startup of three engineered disposal cells with multi-layer liners and leachate collection, transmission, and treatment systems. Also included in the scope are the minimally required site preparation and support facilities which are required to make the OSWDF CAP-1 Project fully operational. This includes surface water management and treatment systems (e.g., sedimentation ponds and a temporary, modular leachate treatment system), X-114A Outdoor Firing Range D&D, office trailer/laydown areas, and distribution of utilities such as raw water and electrical power. Construction for the OSWDF CAP-1 Project is scheduled for FY 2015 (CD-3A) through FY 2023.

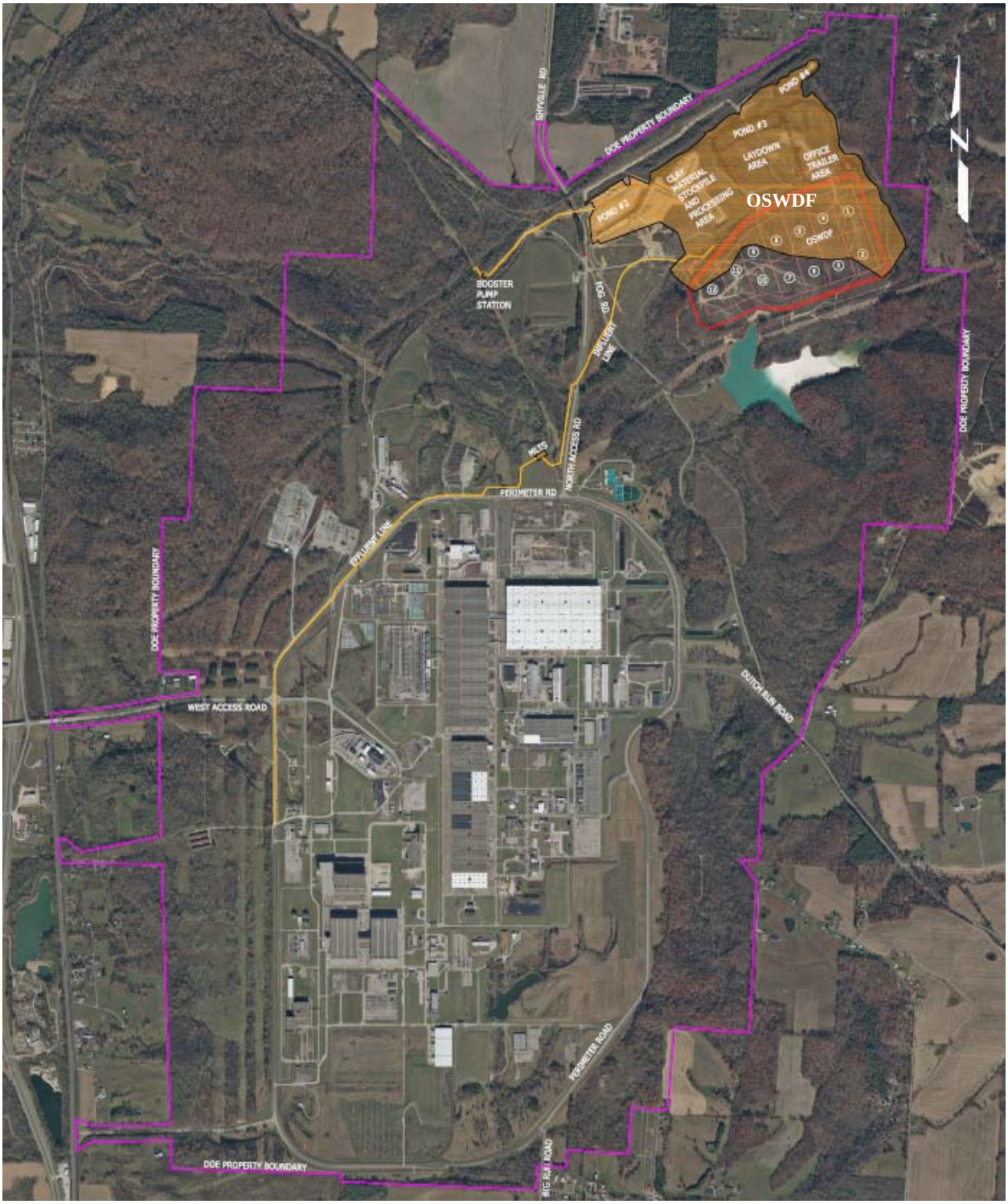

Figure 1.2 OSWDF Location

1.2 JUSTIFICATION OF MISSION NEED AND CRITICAL DECISION APPROVAL

1.2.1 Justification of Mission Need

The Ohio Environmental Protection Agency (Ohio EPA) and DOE have entered into a formal agreement regarding the decision-making process for the D&D of PORTS and its associated waste management. The terms of the agreement between the Ohio EPA and DOE are contained in *The April 13, 2010 Director's Final Findings and Orders for Removal Action and Remedial Investigation and Feasibility Study and Remedial Design and Remedial Action, including the July 16, 2012 Modification thereto* (DFF&O) (Ohio EPA 2012). The DFF&O adopts the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) decision-making process as its framework to define steps for developing technical alternatives for PORTS D&D and waste disposition, and establishes a formal regulatory decision structure for proceeding with such decisions.

Information necessary to select a site-wide disposal alternative for the waste generated under the DFF&O was presented in the *Remedial Investigation and Feasibility Study Report for the Site-wide Waste Disposition Evaluation Project at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (WD RI/FS) (DOE 2014a) in February 2014. This report, after consideration of regulatory agency and community input, provided the information for selection of a preferred alternative for disposition of waste resulting from D&D actions. Ohio EPA conditional concurrence on the WD RI/FS was obtained on April 10, 2014, and final concurrence on October 23, 2014.

On October 28, 2014, Ohio EPA provided concurrence on the *Proposed Plan for the Site-wide Waste Disposition Evaluation Project* (DOE 2014b). The Proposed Plan discussed the alternatives, analyzed/summarized the anticipated preferred cleanup strategy of Alternative 2 (Combination of On-site and Off-site Disposal), and solicited public comment on all alternatives under consideration. The public comment period was followed with issuance of the *Record of Decision for the Site-wide Waste Disposition Evaluation Project at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (WD ROD) (DOE 2015a) in 2015, which documented the OSWDF and off-site disposal as the selected alternative for disposal of the PORTS D&D Project waste.

Additionally, the CD-0 for the PORTS D&D Project was approved on October 7, 2005. Completion of an Alternatives Analysis document, *Alternative Analysis for the Decontamination and Decommissioning Project at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (DOE 2006a) was required to support the follow-on PORTS D&D CD-1. The purpose of the alternatives analysis is to develop viable alternatives to meet the project strategic objectives, evaluate each of the alternatives to a prescribed set of criteria, and provide a preferred alternative that provided the best value to DOE.

The PORTS D&D CD-1 was approved on August 17, 2007. These critical decisions were for the PORTS D&D Project, which incorporated the OSWDF. The CD-1 that was approved in 2007 for the entire D&D Project contained an alternative analysis for on-site versus off-site disposal.

The OSWDF is necessary to provide a cost-effective, reliable waste disposal location for the safe disposal of an estimated five million cubic yards of debris and engineered fill from the PORTS D&D Project. The entire series of projects that are required to complete the OSWDF are identified in the Tailoring Strategy (Section 3) of this plan.

1.2.2 Critical Decision History

During FY 2005, a Mission Need Statement (MNS) was prepared for the PORTS D&D Project. The MNS summarized the results of pre-conceptual planning and was approved by James Rispoli, Assistant Secretary for EM, on September 30, 2005. The first CD point, *Approve Mission Need*, CD-0, *Mission*

Need Statement for the Decontamination and Decommissioning of the Portsmouth Gaseous Diffusion Plant (DOE 2005) was approved by Clay Sell, Deputy Secretary of Energy, on October 7, 2005.

With CD-0 approval, the PORTS D&D Project entered the Definition Phase, which authorized PPPO to conduct the necessary analyses and evaluations to further define the project for CD-1, where alternative concepts based on user requirements, risks, costs, and other constraints were analyzed to arrive at a recommended alternative. This analysis was accomplished to ensure that the recommended alternative met the required performance, scope, schedule, and cost goals of the project. The documents developed during this phase provided the detail necessary to establish a range for the project cost and schedule which led to CD-1 approval on August 17, 2007, *Approval of Critical Decision-1 Alternative Selection and Cost Range for the Decontamination and Decommissioning of the Portsmouth Gaseous Diffusion Plant* (DOE 2007a).

Because of the complexity of the components of the PORTS D&D Project, a decision was made to pursue separate CD-0 and CD-1 approvals for each of the major PORTS D&D sub-projects. The OSWDF CAP-1 Project is the first of these D&D subprojects. The planning and engineering phases for the OSWDF CAP-1 Project were more mature than is typically assembled for a CD-1 submittal due to the need for a preliminary design in order to obtain a regulatory decision. On August 28, 2015, a combined CD-0/1/3A approval was obtained for the OSWDF CAP-1 Project, which included the scope of only the Cell 1 Liner and all infrastructure to make the entire OSWDF fully operational, with a Total Project Cost (TPC) range of $242,000,000 to $350,000,000. This included authorization of $78,400,000 for CD-3A scope to begin site preparatory activities.

Following CD-0/1/3A approval for the OSWDF CAP-1 Project, funding received to-date has been considerably lower than planned. This reduction, coupled with lower anticipated future funding, has resulted in the delay of the first D&D debris waste placement in the OSWDF from FY 2021 to FY 2025, thus impacting the schedule of demolition of the first Gaseous Diffusion Plant process building (i.e., X-326). A realignment strategy was developed to recover some of the first waste placement schedule in the OSWDF by deferring a portion of the infrastructure that supports future OSWDF cells. This realignment strategy optimized and re-sequenced completion of the first three OSWDF cells, which would allow demolition of X-326 to begin in FY 2022. Based on the realignment strategy, the revised scope of the OSWDF CAP-1 Project adds the Cell 4 and Cell 5 Liners (from the OSWDF CAP-2 Project) with a temporary Modular Leachate Treatment System (MLTS) and defers the infrastructure which supports future cells. The realigned OSWDF CAP-1 Project only maintains the minimally required infrastructure which includes significant cut/fill earthwork to level over 100 acres for site access and laydown areas, sedimentation ponds, office trailer/parking areas, and clay processing. The remaining infrastructure supporting future cells is being deferred (from the OSWDF CAP-1 Project) and becomes the scope for the OSWDF CAP-2 Project consistent with the activities needed for the D&D of the next process building. The deferred infrastructure scope includes the site-wide Interim Leachate Treatment System (ILTS), the Impacted Material Transfer Area (IMTA), the dedicated IMTA haul road and Fog Road overpass, and other associated miscellaneous structures. The realignment strategy results in the most advantageous outcome for optimal sequencing for completing the Cell 1, 4, and 5 Liners and initiating X-326 Process Building demolition. The realignment strategy was concurred with by the Acting Assistant Secretary for Environmental Management (EM-1) on March 17, 2017. The approved OSWDF CAP-1 Project CD-3A scope will not be affected by this realignment and will be completed within the OSWDF CAP-1 Project as originally approved.

1.3 PROJECT DESCRIPTION

The OSWDF will occupy approximately 320 acres on the DOE PORTS reservation. The OSWDF disposal cells will cover approximately 100 acres within the OSWDF footprint. The remaining 220 acres will include

the laydown, stockpile, and storage areas; sediment and surface water detention ponds; water management facilities; access control facilities; haul roads; and administrative offices, parking, and other support facilities.

The OSWDF CAP-1 Project includes design, construction, and startup of three engineered disposal cells with multi-layer liners, and leachate collection, transmission, and treatment systems. Also included are the minimally required support facilities and services (e.g., raw water and electrical services) to begin waste placement operations. The OSWDF will be designed and constructed to meet the ARARs, DOE functional requirements, and the general design criteria that are identified in the *On-Site Waste Disposal Facility (OSWDF) Design Criteria Package (DCP) Pre-Final Design, Portsmouth Gaseous Diffusion Plant Decontamination & Decommissioning Project, Piketon, Ohio* (DOE 2017a). The general layout for the OSWDF CAP-1 Project is shown in Figure 1.3.

The major components of the OSWDF CAP-1 Project are:

1. **OSWDF Site Preparation Activities.** Site preparation activities include:

- **D&D X-114A Outdoor Firing Range.** The X-114A Outdoor Firing Range was used by PORTS Protective Forces to achieve and maintain their qualification with firearms. It is located entirely within the footprint of the planned OSWDF support area and has undergone D&D as a result of this project. Deactivation activities included characterization, hazardous materials abatement, utility isolation, and waste management. Also included in the scope was the demolition of the X-114A Outdoor Firing Range

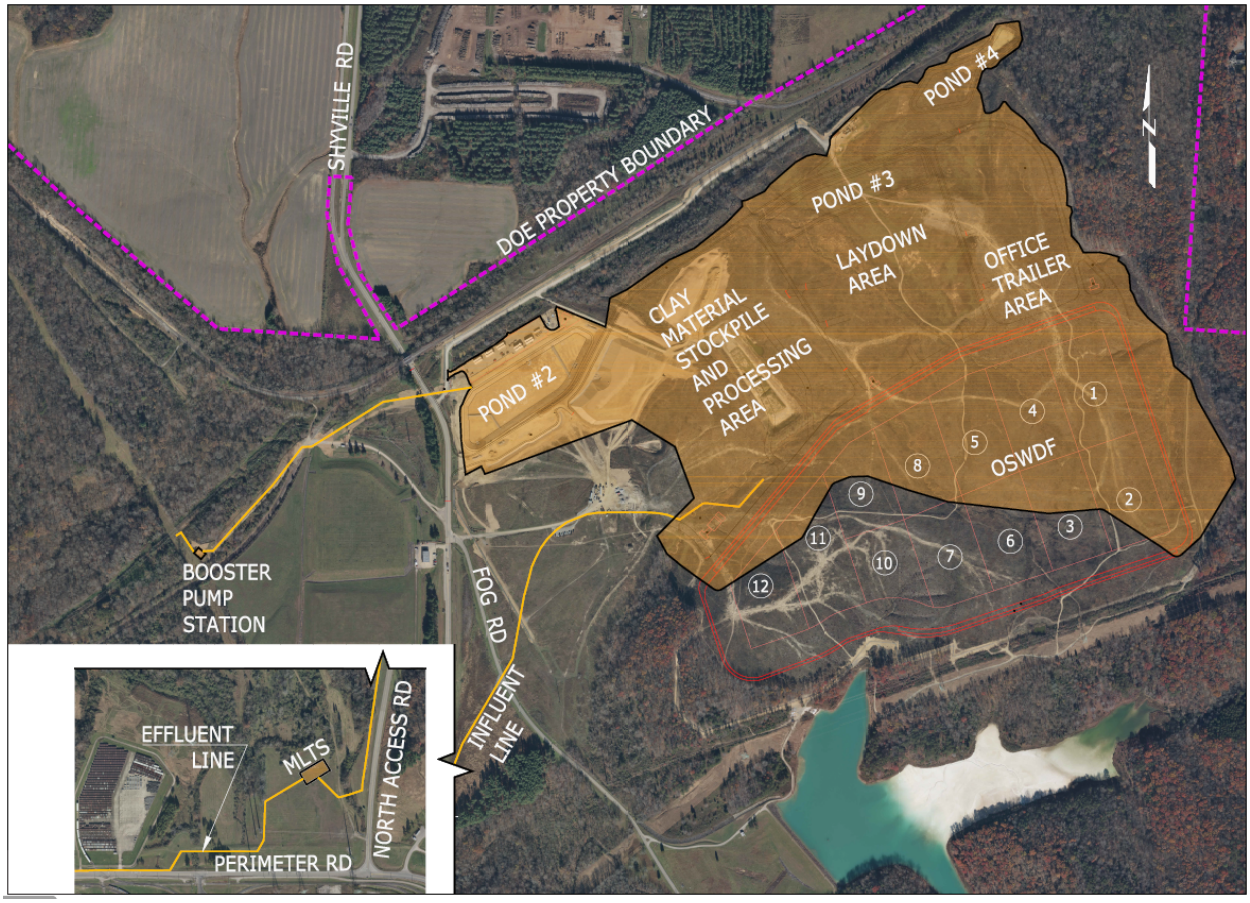

Figure 1.3 OSWDF CAP-1 Project General Layout

and its supporting structures, and excavation of residual (incidental) soils associated with the facility's foundations, slabs and underground features.

- **Earthwork.** Prepare the site for construction of the OSWDF and support facilities. Included is: land surveying, subsurface utility surveying, clearing, grubbing, installation of erosion and sediment control measures (e.g., Sedimentation Pond Nos. 2, 3, and 4), and surface water management features. Earthwork will also be required including both soil and rock excavation/removal and the placement of fill material where necessary.

- **Support Facilities.** Includes the construction and installation of site access roads; the separation of public roads from support roads; extension of plant site utilities to the construction/operations area; office trailers; access control systems and fencing; stockpile, storage, and laydown areas; and other minimally required facilities.

2. **Construction of Cell 1, 4, and 5 Liners and Leachate Management Systems.** The liner and leachate management systems will collect and treat leachate generated within the Cell 1, 4, and 5 Liners. The liner system will be constructed using both soil and geosynthetic components as shown on Figure 1.4 and will include a Leachate Collection System (LCS) drainage layer and Leak Detection System (LDS) drainage layer. The LCS and LDS layers will discharge into the Leachate Management System that will include valve houses, a North Leachate Transmission System (LTS), and a temporary, Modular Leachate Treatment System (MLTS) for the liner system.

After construction completion of the Cell 1 Liner, startup of operations (i.e., beneficial occupancy) will begin with the placement of the protective layer and select impacted material (i.e., operational activities not included in the OSWDF CAP-1 Project) into the disposal cell as the remaining liners (Cells 4 and 5) are constructed. Although clean material could be used for the protective layer, select impacted material is currently planned to be used for placement of the protective layer during operations. As shown in Figure 1.4, impacted material/debris will be placed above the liner system and below a final cover system, which will be constructed at a later date for each pair of cells under a separate LI/CAP.

1.4 KEY PERFORMANCE PARAMETERS

A list of Key Performance Parameters (KPPs) for the OSWDF CAP-1 Project is provided below in Table 1.1. Validation of KPPs will be accomplished by continuous Construction Management oversight, and a Construction Quality Assurance Certification Report stamped and signed by a Professional Engineer registered in the state of Ohio.

Table 1.1 Key Performance Parameters and Project Completion Criteria

Key Performance Parameters
1. Design and construct a low-level waste disposal cell liner (Cell 1) of at least 7 acres (multi-layer liner) that includes a 3-foot clay barrier, secondary geosynthetic liner layer, leak detection layer, primary geosynthetic liner layer, and leachate collection layer.
2. Design and construct a low-level waste disposal cell liner (Cell 4) of at least 6.5 acres (multi-layer liner) that includes a 3-foot clay barrier, secondary geosynthetic liner layer, leak detection layer, primary geosynthetic liner layer, and leachate collection layer.
3. Design and construct a low-level waste disposal cell liner (Cell 5) of at least 6.5 acres (multi-layer liner) that includes a 3-foot clay barrier, secondary geosynthetic liner layer, leak detection layer, primary geosynthetic liner layer, and leachate collection layer.
4. Design and construct a North Leachate Transmission System (LTS), and a Modular Leachate Treatment System (MLTS) with a minimum design flow of 50 gpm and max. design flow of 100 gpm.

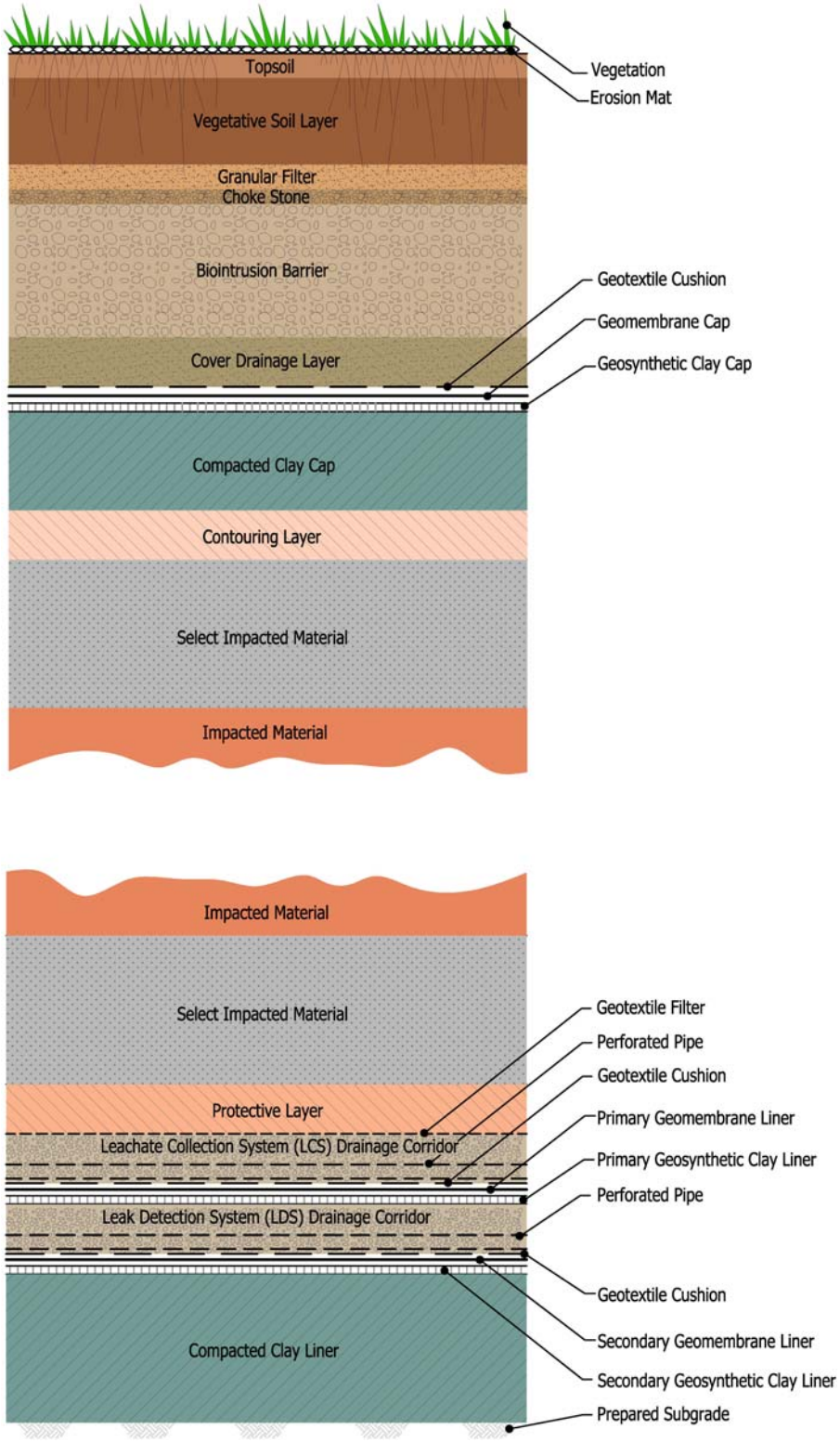

Figure 1.4 Typical OSWDF Liner and Final Cover (Cap) System

2 MANAGEMENT STRUCTURE AND INTEGRATED PROJECT TEAMS

The OSWDF CAP-1 Project is funded and sponsored by DOE-EM. The Assistant Secretary for EM will serve as the Project Management Executive for the project, with delegated acquisition authority for non-major system projects with total project costs from $100M up to $400M, and Performance Baseline Change approval authority, including associated prerequisite documentation for changes below the Chief Executive for Project Management approval level for non-major system projects with total project costs up to $400M. A Federal Project Director (FPD) has been appointed to provide federal oversight and engage the expertise of an Integrated Project Team to effectively manage and execute the project in accordance with DOE Order 413.3B. Authority and responsibility delegation is depicted in Figure 2.1.

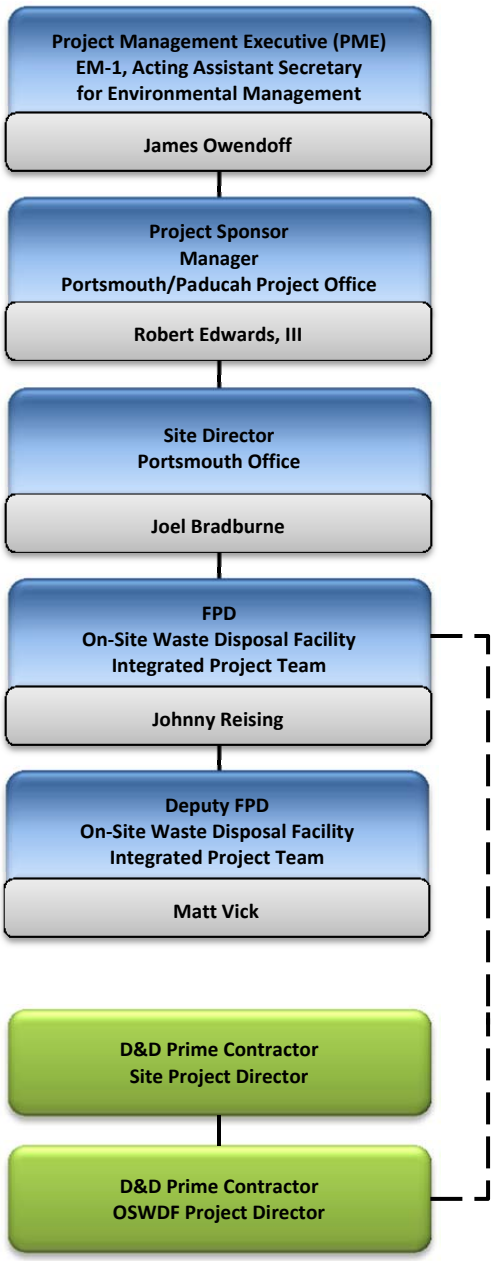

Figure 2.1 OSWDF CAP-1 Project Authority and Responsibility Flow Down

2.1 FEDERAL ORGANIZATIONAL STRUCTURE

The *U.S. Department of Energy Portsmouth/Paducah Project Office Management Plan* (MP, DOE 2015d), which wholly incorporates the Integrated Safety Management System Description and PPPO Functions, Responsibilities, and Authorities (FRA) documents, contains the environment, safety, and health (ES&H) requirements necessary for achieving integrated safety management while implementing the EM mission. The MP provides the current project management description of the PPPO organization; therefore, the roles and responsibilities for project management activities are not restated in this document. The MP is supplemented with an updated PPPO organizational chart and task assignments and a listing of DOE directives, policies, and regulations included in the MP. Although the cited directives or regulations provide implementation expectations and will be the primary source for ensuring compliance, the PPPO Manager may issue further clarifying policies, plans or procedures to identify the implementing process for the requirements.

Line authority, responsibility, and accountability for management assessment of contractor activities flow from EM to the PPPO Manager. The PPPO Manager is responsible for the day-to-day assessment of all program operations, including ES&H. The PPPO Manager is responsible for integrating and coordinating ES&H activities at the sites. The PPPO Manager maintains an awareness of all significant ES&H issues and is responsible for assuring safe operations of institutional facilities and ES&H infrastructure. The PPPO MP provides the process for the assignment of responsibility and the delegation of authority from the PPPO Manager to the PPPO staff. Roles and responsibilities identified in the MP recognize the development of IPTs. This also reflects support that PPPO obtains from external organizations. Where a programmatic functional lead has been established within PPPO, the PPPO functional lead can draw upon available matrixed support within PPPO or located in external support organizations to fulfill DOE responsibilities. This approach optimizes available resources to accomplish the overall PPPO and project missions.

The roles and responsibilities for project management activities associated with the OSWDF CAP-1 Project, as depicted in Fig. 2.1, are as follows:

Assistant Secretary for Environmental Management (EM-1)

- Provides policy direction to PPPO.
- Performs PME responsibilities as may be delegated, including CD approval, Performance Baseline (PB) Change approval, and appropriate documentation approvals for all EM Non-Major System Projects with total project costs from $100M up to $400M.

Manager, Portsmouth/Paducah Project Office

- Serves as the Project Sponsor for the OSWDF CAP-1 Project.
- Selects and approves (as delegated by the PME) the Federal Project Director for capital asset projects.
- Maintains external relations with federal, state, local, and tribal governments; private and scientific organizations; congressional and other elected officials; stakeholders; etc.
- Serves as the line manager reporting to EM-1 for the execution, integration, and evaluation of EM programs at the sites (i.e., Portsmouth and Paducah).
- Implements DOE policy regarding procurement and administration for the execution of all EM operational, maintenance, and program activities at the sites and executes those contracting activities delegated by the Head of Contracting Activity for all EM facilities and programs at the Portsmouth and Paducah sites.
- Serves as the Senior Project Office authority with respect to all EM activities at the Portsmouth and Paducah sites.
- Develops, approves, and implements policies, programs, procedures, and management systems

for the coordination and implementation of EM federal and contractor programs at the Portsmouth and Paducah sites, including implementation of PPPO policies and procedures.
- Ensures all technical support services necessary to enable PPPO to carry out its mission and responsibilities; approves the use of resources by PPPO.
- Carries out and exercises all authorities delegated by DOE Orders and federal regulations with respect to EM activities at the Portsmouth and Paducah sites.
- Ensures that the mission of the PPPO gives priority to safety, health, and environmental protection through integrated safety management.
- Serves as the EM interface with the Lead Program Secretarial Office for the Portsmouth and Paducah sites.
- Ensures PPPO compliance with DOE equal employment opportunity and affirmative action programs.
- Serves as the Contracting Officer (CO) and delegates responsibilities for contracts issued to PPPO through the EM Consolidated Business Center (EMCBC); prepares, awards, administers, and closes out contracts and financial assistance instruments; directs, coordinates, and monitors PPPO Prime Contractors' procurement management.
- Ensures establishment of a project-level Baseline Change Control Board (BCCB), chairing the BCCB, and as chair, approving or concurring in baseline changes; if the approved change is the result of a PB deviation (i.e., deviation to the PB rather than a routine change to the PMB), informs the PME of the approval (for CAPs with a TPC greater than $100M) and coordinates endorsements to EM-1/PME for review and approval for changes beyond the PPPO Manager threshold authority value.

Portsmouth Site Director
- Establishes site policy by developing and implementing site documents.
- Defines site objectives and technical scope, schedule, and cost.
- Manages site resources, including establishing PORTS life-cycle baseline costs.
- Establishes and implements project management systems.
- Provides technical direction to the IPT and oversees and manages the line-management organization.
- Ensures project work is conducted in accordance with applicable DOE directives, commercial best practices, institutional standards, regulations, requirements, procedures, and safety practices, especially ES&H and quality assurance (QA) requirements.
- Ensures stakeholders are involved in PORTS life-cycle baseline planning.
- Defines appropriate standards and requirements commensurate with risks in performance of the site work scope.
- Integrates and manages the timely delivery of Government-Furnished Services and Items (GFS&I) and government approvals, including initiating CD requests and providing support to EM and the Office of Project Management Oversight and Assessments (PM) in their performance of Independent Cost Estimates (ICEs), Independent Cost Reviews (ICRs), Independent Project Reviews (IPRs)/Project Peer Reviews (PPRs), and External Independent Reviews (EIRs).
- Presents CD briefings at review meetings, and responds to comments, questions, or concerns raised at the meetings.
- Oversees site cost, schedule, and technical performance, performance measurement systems, project status review, and regular communication with project participants.
- Ensures preparation of site reports and approval of all reporting.
- Serves as the Contracting Officer's Representative (COR) as designated by the CO.

Federal Project Director
- Approves the Portsmouth Oversight Operations Group OSWDF IPT Charter.
- Leads the IPT in execution of the project.

- Serves as the single point of contact for Federal and contractor staff for all matters relating to project execution.
- Establishes project policy by developing and implementing project documents.
- Defines project objectives and technical scope, schedule, and cost.
- Manages project resources, including establishing baseline costs and completing the project within budget and on schedule.
- Establishes and implements project management systems.
- Provides technical direction to the IPT and oversees and manages the line-management organization.
- Ensures project work is conducted in accordance with applicable DOE directives, commercial best practices, institutional standards, regulations, requirements, procedures, and safety practices, especially ES&H and QA requirements.
- Ensures stakeholders are involved in project life-cycle baseline planning.
- Defines appropriate standards and requirements commensurate with risks in performance of the project work and monitors the contractors' risk management efforts.
- Ensures the safe performance of contractor-executed work and that all aspects of the work meet specified requirements.
- Manages the timely delivery of GFS&I and government approvals, including initiating CD requests and providing support to EM and the PM in their performance of IPRs and EIRs.
- Prepares necessary CD documents.
- Prepares CD briefings and supports Portsmouth Site Director at review meetings, and responds to comments, questions, or concerns raised at the meetings.
- Maintains project cost, schedule, and technical performance via the reporting systems, performance measurement systems, project status review meetings, and regular communication with project participants.
- Ensures project scope, cost, and schedule impacts of a proposed change are realistically estimated and fully identified in a Baseline Change Proposal (BCP) and supporting documentation submitted to the BCCB.
- Ensures preparation of project reports and approval of all reporting.
- Monitors progress through report analysis, field inspections, and performance evaluation, and implements corrective actions to resolve problems and conflicts.

2.2 INTEGRATED PROJECT TEAM STRUCTURE

The PORTS Integrated Project Team (IPT) structure is a hierarchal and tiered approach for successfully managing operational activities and CAPs in support of the PORTS D&D mission. The IPT structure satisfies and endorses the requirements and principles addressed in DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, and DOE Guide 413.3-18, *Integrated Project Teams Guide*. In addition, the IPT structure takes advantage of the experiences gained and lessons learned from prior IPRs and EIRs.

The concept embodied in the IPT structure is continuity, synergy, and integration embedded both horizontally and vertically throughout the IPT structure. The IPT structure: (1) permits flow-down and feedback of timely information, (2) drives responsibility and accountability at the project level for real-time decision-making, and (3) enables DOE senior level management to oversee and monitor project accomplishments and issues, including any decision-making required above the sub-project and/or project level. The PORTS IPT structure fosters communication across project teams and provides for the identification and integration of lessons learned.

Figure 2.2 represents the PORTS IPT structure in support of the PORTS OSWDF mission.

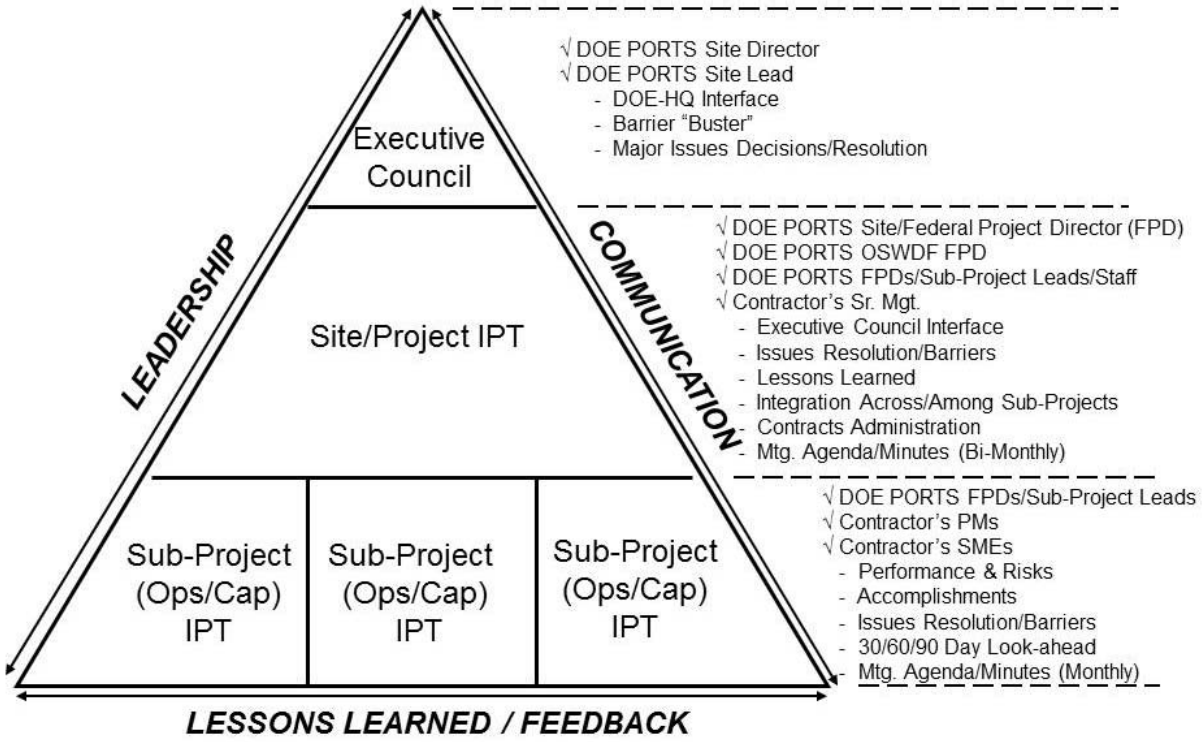

Figure 2.2 PORTS IPT Structure

2.3 OSWDF INTEGRATED PROJECT TEAM

The objective of the OSWDF IPT is to bring together diverse subject matter expertise to support successful development and execution of the project. The OSWDF IPT has been established and will remain in effect through CD-4.

The IPT consists of the FPD, Federal staff assigned by the PORTS site office, and matrixed staff from other DOE PPPO organizations assigned to perform key functions and tasks in support of the project along with PORTS D&D Contractor and PORTS Environmental Technical Services Contractor personnel as needed to support the project. The IPT members provide technical expertise and assistance in support of achieving project objectives. The IPT members, their functions, and primary areas of competency are shown in Table 2.1.

Table 2.1 OSWDF CAP-1 Integrated Project Team

CORE IPT (FEDERAL STAFF)		
Name	**Function**	**Competency**
Joel Bradburne	Executive Council; FPD – D&D Program; Site IPT Lead; COR	Program/Project Management
Johnny Reising	FPD – OSWDF; IPT Lead for OSWDF	Project Execution
Matt Vick	Deputy FPD – OSWDF	Project Execution Infrastructure General Engineer
Judson Lilly	FPD – D&D Projects (Process Buildings); IPT Lead for D&D; Alternate COR	Project Execution
Jeremy Davis	IPT Lead for Waste Management	Project Execution
Kristi Wiehle	IPT Lead for ER and Regulatory Compliance	Regulatory Compliance
Amy Lawson	Team Lead, Consent Decree/Consent Order	ER/Project Execution
Greg Simonton	IPT Lead for Investment Recovery, Public Outreach, SSAB	Project Execution Stakeholder Interface
Tom Hines	Nuclear Safety	Nuclear Safety Oversight
Richard Mayer	Safety Systems	Safety Systems Oversight
Jeremy Davis	Facility Representative	Project/Field Oversight
Joel Bradburne (Acting)	Team Lead, Project Controls	Project Execution
Robert Henry	Security	Safeguards and Security Oversight
Jason Sherman	Legal Council	Legal/Environmental
Shelley Hanie-Sparks	Finance and Budget	Business Management
R.J. Bell/ Marcella Wolfe	CO/Contracts	Contract Management
Carla Buckler	Administrative	Office/IPT Administration
CORE IPT (NON-FEDERAL STAFF)		
Support Role		
DOE Environmental and Technical Services Contractor (Owner's Representative) – Technical Lead		
D&D Contractor – Site Project Director, Environmental Remediation Director, OSWDF Project Director, and OSWDF Design/Construction/Operations Managers – Technical Lead		
Facilities Support Services Contractor – Technical Lead		

Consistent with DOE Guide 413.3-18A, *Integrated Project Team Guide for Formation and Implementation*, the IPT has been structured to ensure the ratio of federal to contractor personnel is kept to a reasonable balance. However, IPT meetings are open for all project participants to attend. Additional contractor and subcontractor representatives may be included as the project evolves. IPT roles and responsibilities are described in the *Portsmouth Onsite Waste Disposal Facility (OSWDF) Project Integrated Project Team Charter at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (DOE 2015b).

2.4 D&D PRIME CONTRACTOR PROJECT ORGANIZATION

Project execution is the responsibility of the D&D Prime Contractor under the guidance of the FPD. The project organization is structured to flow down the responsibility, accountability, and authority to execute the work effectively and efficiently. The D&D Prime Contractor organization chart is presented in Figure 2.3.

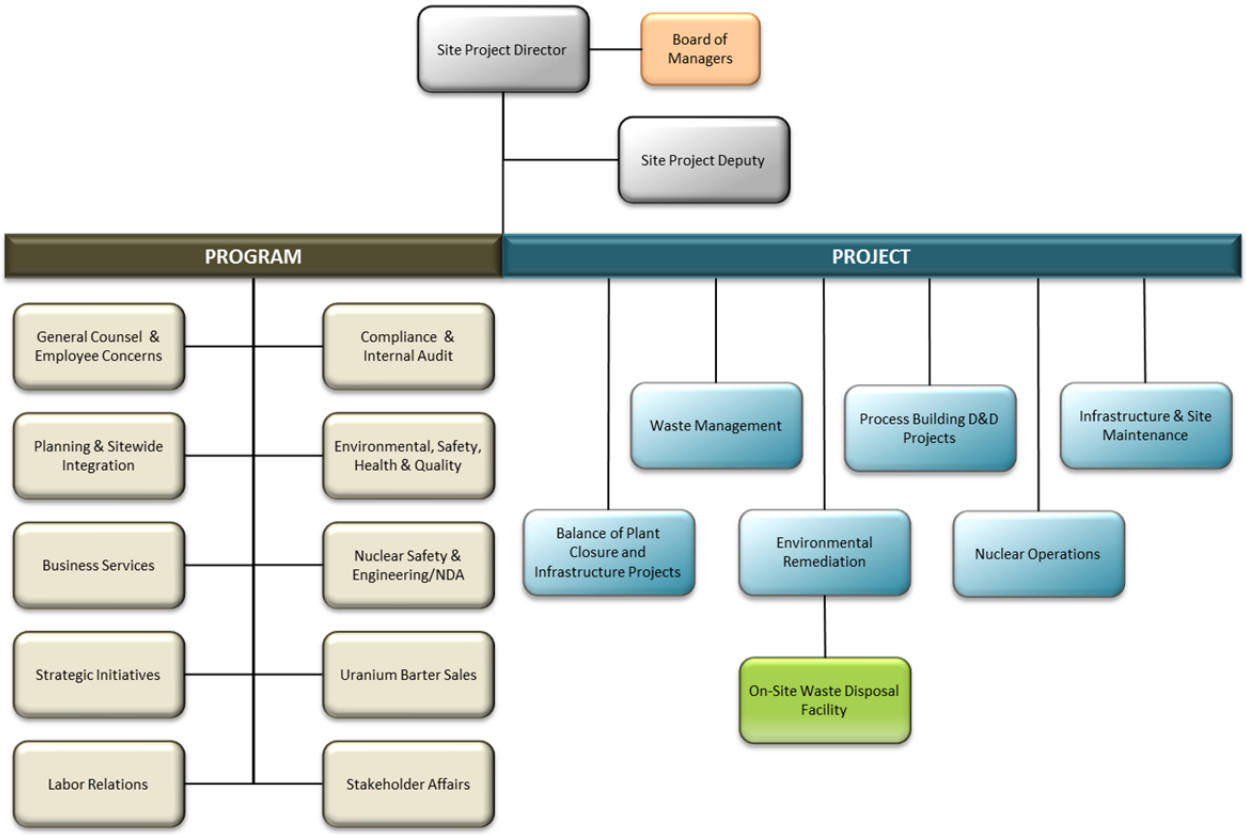

Figure 2.3 D&D Prime Contractor Organization

The D&D Prime Contractor OSWDF Project Director reports to the FPD, Johnny Reising. The Project Director will be responsible for the successful administration and management of all project activities and will interface with the FPD and IPT to ensure that project execution is successful. The OSWDF CAP-1 Project organization is presented in Figure 2.4.

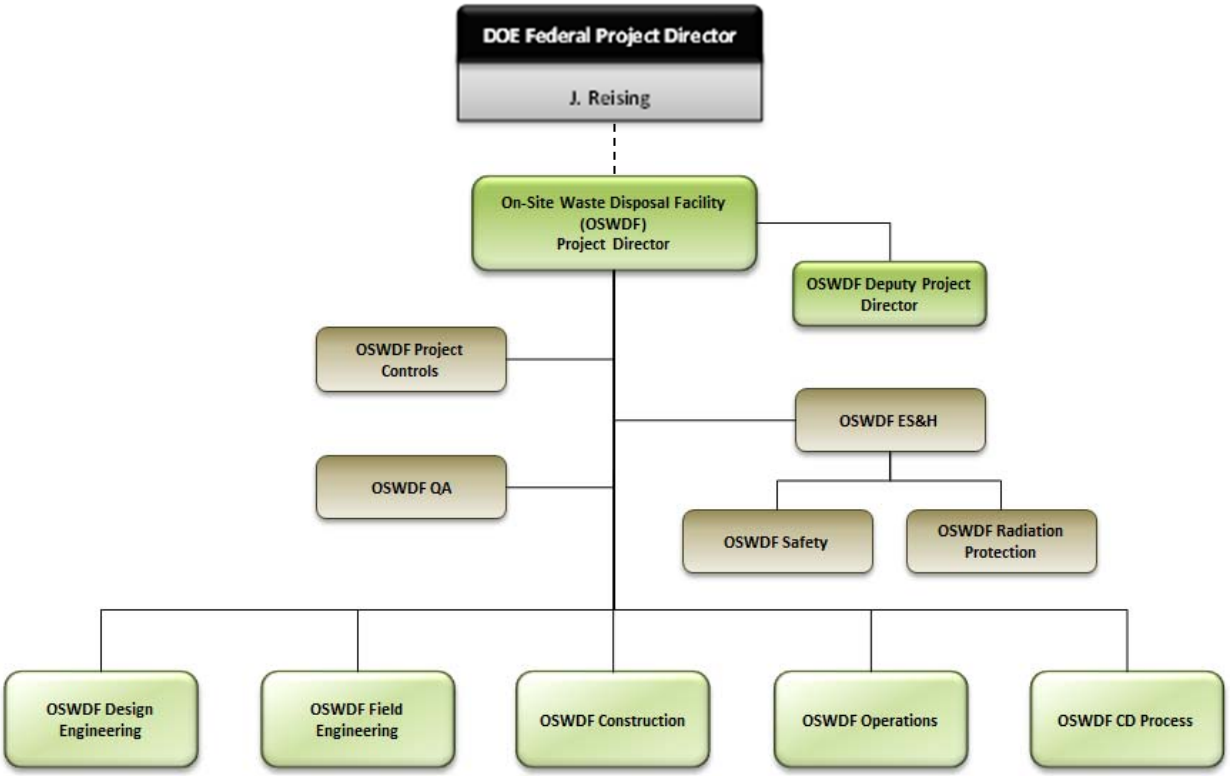

Figure 2.4 OSWDF CAP-1 Project Organization

The OSWDF CAP-1 Project is further organized under Control Account Managers (CAMs) reporting to the D&D Prime Contractor OSWDF Project Director. These personnel head either execution or support organizations aligned to the Work Breakdown Structure (WBS). Each organization has clearly defined roles and responsibilities to ensure effective and efficient project execution. CAMs with responsibilities for managing the work scope within their assigned task areas report to the D&D Prime Contractor OSWDF Project Director.

OSWDF Design Engineering and Field Engineering are responsible for assisting the D&D Prime Contractor OSWDF Project Director with the execution of the technical aspects of the project. The lead engineer and other engineering subject matter experts will manage configuration and implementation of design requirements, along with development of design packages.

OSWDF Construction/Startup is responsible for constructability reviews during design, procurement of contractors, oversight of contractors in the field, construction of all OSWDF facilities to approved plans and specifications, and project startup/turnover to waste placement operations.

The D&D Prime Contractor OSWDF Project Director and CAMs will ensure appropriate and qualified personnel from the D&D Prime Contractor support organizations are assigned to support project execution. Support organizations include, but are not limited to, project controls, nuclear safety engineering, safety, QA, environmental compliance, facility and power operations, procurement, engineering, and construction.

2.5 PROJECT INTERFACES AND STAKEHOLDERS

Project Interfaces

The following list identifies site contractors with whom the project is expected to interface during the execution of the OSWDF CAP-1 Project. Site planning activities have identified the support required and the timing of the support from each. Both DOE and the D&D Prime Contractor through the Planning and Sitewide Integration organization are responsible to ensure adequate interface and integration with site contractors so project activities can be executed effectively.

- **Environmental and Technical Services Contractor:** DOE's Environmental and Technical Services Contractor provides contractor oversight support and technical and administrative services to the PPPO at the PORTS site.
- **Facilities Support Services Contractor:** The Facilities Support Services (FSS) Contractor is responsible for supporting certain facility services assigned by DOE, including surveillance and maintenance (S&M) activities, site security (except certain physical security activities), road and grounds maintenance, janitorial services, information technology, real and personal property inventory and disposition, environmental safety and health, pollution prevention services, and sanitary waste disposition.
- **Depleted Uranium Hexafluoride (DUF_6) Conversion Facility Contractor**: DOE's DUF_6 Conversion Facility Contractor is responsible for operations associated with the DUF_6 Conversion Facility, including surveillance and maintenance of the DUF_6 cylinders, and environmental compliance and monitoring activities associated with the operation of the DUF_6 Conversion Facility.

Stakeholders

The following list identifies some of the stakeholders with whom the project is expected to interface during planning and execution of the OSWDF CAP-1 Project. Project personnel will plan proactive communication and interface with project stakeholders to ensure the stakeholders understand the scope and purpose of the project and gain applicable approvals to implement the project if required.

- **U.S. Environmental Protection Agency:** The U.S. Environmental Protection Agency (EPA) Region V involvement is required by the CERCLA regulatory process for regulatory requirements not regulated through the state agencies (e.g., Toxic Substances Control Act of 1976 [TSCA]).
- **U.S. Fish and Wildlife/Ohio Department of Natural Resources:** The U.S. Fish and Wildlife Service and the Ohio Department of Natural Resources were involved in the bat mist net survey conducted for the federally endangered Indiana Bat (*Myotis sodalis*) and the Northern Long-Eared Bat. The Long-Eared Bat was proposed for federal listing under the Endangered Species Act.
- **Ohio Environmental Protection Agency/Ohio Department of Health:** The Ohio EPA is the primary environmental remediation regulator at PORTS.
- **DOE PPPO/PORTS**
- **DOE Office of Legacy Management**
- **National Nuclear Security Administration**

- **Waste Disposition Sites:** Waste Management coordination will include DOE approved waste disposal sites, such as Nevada National Security Site, for off-site waste shipments.
- **Portsmouth EM Site-Specific Advisory Board (SSAB):** The Portsmouth EM SSAB is a stakeholder's board that provides advice and recommendations to the DOE on EM activities (i.e., ER, D&D, and Waste Management) and related issues at the PORTS site.
- **Southern Ohio Diversification Initiative**
- **Elected Officials**
- **PORTS Employees**
- **Adjacent Fence Line Neighbors**
- **General Public**

3 TAILORING STRATEGY

DOE manages CAPs, like the OSWDF CAP-1 Project, in accordance with DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*. DOE Order 413.3B requires a Tailoring Strategy be prepared and either included in the PEP, or placed in a separate document prior to CD-1 approval. Under DOE Order 413.3B, tailoring is necessary for the efficient delivery of projects, but does not imply the omission of requirements that are appropriate to a specific project's requirements. Tailoring is intended to facilitate the completion of the project within scope, cost and schedule, and must be appropriate for the project considering the risk, complexity, visibility, cost, safety, security, and schedule.

Appendix C, page C-22 of DOE Order 413.3B specifies:

> "Tailoring may involve the consolidation or phasing of CDs, substituting equivalent documents, graded approach to document development and content, concurrency of processes, or creating a portfolio of projects to facilitate a single CD or AS [Acquisition Strategy] for an entire group of projects. Tailoring may also include adjusting the scope of IPRs and EIRs, delegation of acquisition authority and other elements."

The Tailoring Strategy for the OSWDF CAP-1 Project incorporates the following elements from DOE Order 413.3B.

1. **Substituting Equivalent Documents**: Prior to CD-1 approval, DOE Order 413.3B requires that both a Conceptual Design and a Conceptual Design Report (CDR) be completed. For CD-1 purposes only, the OSWDF CAP-1 Project will utilize the Conceptual Design and *Conceptual Design Report for the Decontamination and Decommissioning Project at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (DOE 2006b) that was approved by the Acquisition Executive in 2007, plus a stand-alone supplement to the CDR, *Supplemental Conceptual Design Report for the Decontamination and Decommissioning Project at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (DOE 2015c), which documents the conceptual design in the WD ROD.

   The CDR incorporated the various alternatives from the *Alternative Analysis for the Decontamination and Decommissioning Project at the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (DOE 2006a), which selected on-site disposal as the preferred alternative for disposal of D&D waste. The Conceptual Design for the OSWDF is presented in Section 9.16 of the CDR and contains conceptual drawings and specifications. It also identifies four sites as candidate locations for the OSWDF on the PORTS reservation. The CDR concludes that the final location for an OWSDF will be determined by the regulatory approval process with public participation. That regulatory process has been ongoing since 2007, and has now culminated in the issuance the WD ROD for the OSWDF. The location identified in the WD ROD is one of the four candidates identified in the CDR. In order to support the regulatory approval process, the design of the OSWDF progressed significantly since the CDR, and to document that for CD purposes, a CDR supplement was developed. Separate Preliminary and Final Design 'Reports' will not be prepared for the OSWDF CAP-1 Project. As a substitute, design 'packages' will be prepared for regulatory approval in accordance with the D&D DFF&O process.

2. **Adjusting the scope of IPRs and EIRs**: For CD-1 approval, neither an IPR nor an EIR was required. However, the Order does require that, prior to CD-1 approval for projects with a Total Project Cost (TPC) > $100M, the DOE-PM will develop an ICE and/or conduct an ICR, as it deems appropriate. For the OSWDF CAP-1 Project, several ICEs and ICRs have been previously completed by DOE PPPO. PM will conduct an ICE for CD-1/3A and CD-2. However, based on

the maturity of the design for the regulatory approval process and timing of the CD-1/3A ICE, it is anticipated that the CD-1/3A ICE will be able to be supplemented by a subsequent ICR or condensed ICE of the preliminary design by PM to support validation of the PB for CD-2.

Various ICEs and ICRs have been conducted on the PORTS D&D Project and the OSWDF since 2006, and these are summarized below.

a) The U.S. Army Corps of Engineers completed an ICE and ICR for the PORTS D&D Project in 2006 to support CD-1 approval (DOE 2006c, d, e).
b) The DOE EMCBC Office of Cost Estimating and Project Management Support completed an Independent Government Cost Estimate (IGCE) for the Request for Proposal (RFP) for the OSWDF construction and operation during the D&D Prime Contractor's contract base and option periods (DOE 2014c).
c) In 2015, the DOE EMCBC completed an ICGE review of the RFP for the OSWDF construction and operation during the D&D Prime Contractor's base period.
d) In 2015, DOE-PM developed an ICE in support of a CD-0/1/3A approval for the OSWDF CAP-1 Project.

Additionally, design reviews performed by the Ohio EPA pursuant to the D&D DFF&O are considered equivalent to satisfy the independent design review requirements in DOE Order 413.3B.

3. Phasing of CDs: DOE Order 413.3B states that for some projects, it may be appropriate to phase the work into smaller, related, complete and useable projects. In addition, a recent EM correspondence, *Policy for Office of Environmental Management for Reclassification of Large Capital Asset Projects into Smaller Projects* (DOE 2014d), allows CAPs to be phased or disaggregated into smaller more manageable projects.

Phasing for the OSWDF will be consistent with both DOE Order 413.3B and Policy, and will allow the overall scope to be organized into a series of smaller, manageable projects each of which are complete and individually useable. The OSWDF will be phased into six (6) planned and two (2) optional LI/CAPs as shown in Figure 3.1. The phasing will minimize the time horizon for each project, reduce the project risk exposure for successful project completion, and allow for timely authorization of each LI/CAP to support construction activities during the life-cycle of the PORTS D&D Project consistent with funding projections. Each OSWDF LI/CAP is currently planned to submit individual CD documentation. For the first OSWDF LI/CAP (CAP-1/Initial Infrastructure and Cell 1, 4 and 5 Liner Construction), a combined CD-2/3 approval will be obtained. Combined CD-1/2/3 documentation is currently planned to be submitted for the remaining OSWDF LI/CAPs; however, the planned CD phasing may be modified as the OSWDF Project progresses, if warranted by overall PORTS D&D Project needs and/or funding.

DOE Order 413.3B allows for long-lead item procurements and early site preparation activities that are necessary to be performed prior to CD-2. Activities such as site preparation work, site characterization, limited access, and safety and security issues (i.e., fences) are often necessary prior to CD-2, and may be pursued as long as project documents such as a Project Data Sheet (PDS) requesting Project Engineering and Design and/or construction funds and funding approvals are in place. CD-3A approval was sought and approved on August 28, 2015 to initiate long-lead item procurements and site preparation activities for the OSWDF CAP-1 Project.

Due to funding limitations, the regulatory process, and the need to advance site preparatory activities (e.g., earthwork) in advance of liner construction, it is necessary to phase the design process for the OSWDF CAP-1 Project. The design(s) for the OSWDF CAP-1 Project has been subdivided into major subsystems (i.e., OSWDF [e.g., the multi-layer liner subcomponents] and

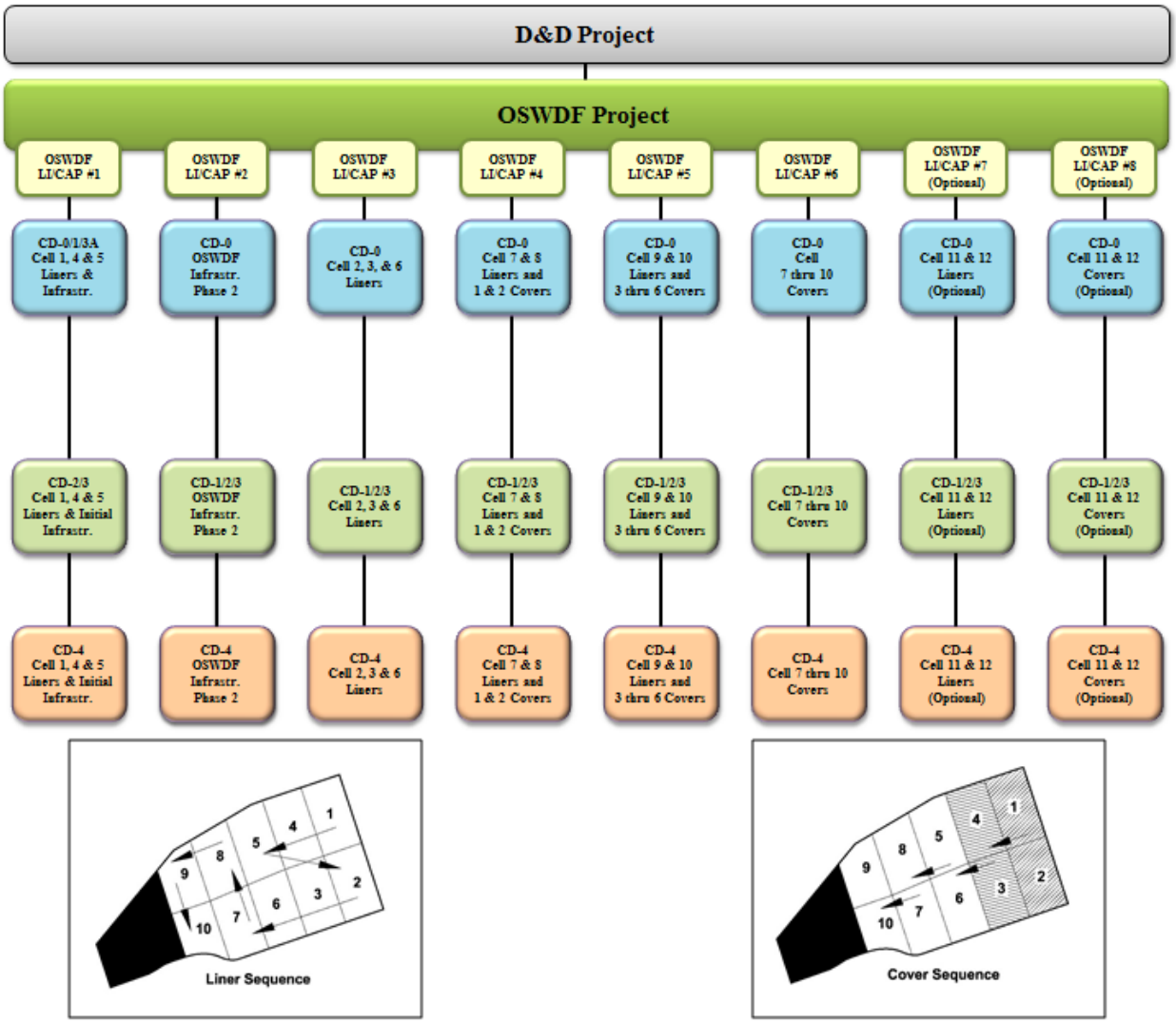

Figure 3.1 OSWDF CD Phasing Strategy

ILTS/MLTS). Consequently, the final designs for the subsystems will be completed at various points in time during the system development process. The designs for all subsystems will be sufficiently mature to develop a point estimate prior to CD-2/3 approval (e.g., OSWDF Pre-Final [90%] Design and ILTS Intermediate [60%] Design). However, it will be necessary to obtain CD-2/3 approval prior to the completion and regulatory approval of all the final designs (i.e., 100%) for the subsystems so that construction funds can be requested and authorized to complete major site preparatory activities in advance of and in preparation for liner construction within schedule and the project's funding profile. After CD-2/3 approval and prior to construction, the design for the subsystem to be constructed will be progressed to a point of sufficient maturity (e.g., certified-for-construction) to obtain bids and quotes for procurement and construction.

CD-4 is the achievement of the project completion criteria (i.e., KPPs) defined in this document (i.e., PEP) and marks the completion of the project's execution phase. The approval of CD-4 is predicated on the readiness to operate and/or maintain the system, facility, or capability. Transition and turnover does not necessarily terminate all project activity. In some cases, as for the OSWDF CAP-1 Project, it marks a point known as Beneficial Occupancy Date (BOD) in which the Operations organizations assume responsibility for starting operations and maintenance. For the OSWDF CAP-1 Project, after the Cell 1 Liner has been constructed and readiness to operate has been obtained (e.g., for the MLTS), it will be transitioned and turned over to the OSWDF Operations organization (i.e., BOD; start of operations and maintenance / non-CAP-1 operations) to begin placement of the protective layer and waste (e.g., select impacted material and debris) into the cell while the remaining cells (i.e., Cell 4 and 5 Liners) are constructed. Separate BODs will occur for Cells 4 and 5 after they have been constructed if not combined with Cell 1. A CD-4 approval will then be sought at the end of the project (i.e., construction of Cell 5 Liner) marking the conclusion of the execution phase and achievement of the project completion criteria (i.e., KPPs) following completion of all construction activities for the OSWDF CAP-1 Project.

4 INTEGRATED BASELINE

At this stage of the project cycle, an Integrated PB has been developed and defines the technical scope (i.e., requirements), schedule, and cost for the OSWDF CAP-1 Project. The TPC exceeds $100M; therefore, the requirements of DOE Order 413.3B are applicable, and an EIR of the PB will be required prior to CD-2/3 approval. The scope, schedule, and cost for this stage of the project are outlined below.

4.1 SCOPE

The scope of the OSWDF CAP-1 Project includes the design, construction, startup, turnover to operations, and other activities (including D&D of X-114A Outdoor Firing Range) that are required to complete a disposal cell that satisfies all technical and regulatory requirements.

As identified in Section 3, the entire OSWDF has been phased into six (6) planned projects and two (2) optional LI/CAPs. Table 4.1 lists the key components for each of these phased projects at this conceptual stage.

Table 4.1 OSWDF Key Components

OSWDF KEY COMPONENTS ***(includes Support Facilities)***	**OSWDF PLANNED AND OPTIONAL PROJECTS**								OSWDF Non-CAP/LI Operations
	CAP/LI #1 Initial Infra. & Cell 1,4,5 Liners	CAP/LI #2 OSWDF Infra.. (Phase 2)	CAP/LI #3 Cell 2,3,6 Liners	CAP/LI #4 Cell 7,8 Liners/1,2 Covers	CAP/LI #5 Cell 9,10 Liners/3-6 Covers	CAP/LI #6 Cell 7-10 Covers	*Optional* CAP/LI #7 Cell 11,12 Liners	*Optional* CAP/LI #8 Cell 11,12 Covers	
Security Fencing & Gates	X*	X	X	X	X	X	X	X	
Construction Trailers & Parking*	X*	X							
Laydown & Stockpile Areas for Equipment/Materials	X*								
IMTA		X							
IMTA Haul Road		X							
LTS Pipelines, Monitoring Manholes & Lift Stations	X		X						
Valve Houses	X		X	X	X		X		
ILTS		X							
MLTS	X								
Permanent Leachate Treatment System						X		X	
Raw Water Pipeline and Filling Stations	X*	X							
Air Monitoring Stations	X*	X							
Construction Power	X*	X							
X-114A Outdoor Firing Range D&D	X*								
Earthwork – excavation and/or embankment (fill)	X*	X	X	X	X		X		
Liner-Compacted Clay Liner	X		X	X	X		X		
Liner-Primary & Secondary Geomembrane Liner (GML) and Geosynthetic Clay Liner (GCL) layers	X		X	X	X		X		
Liner-LDS	X		X	X	X		X		
Liner-LCS	X		X	X	X		X		

Table 4.1 OSWDF Key Components (Continued)

OSWDF KEY COMPONENTS *(includes Support Facilities)*	OSWDF PLANNED AND OPTIONAL PROJECTS								OSWDF Non-CAP/LI Operations
	CAP/LI #1 Initial Infra. & Cell 1,4,5 Liners	CAP/LI #2 OSWDF Infra.. (Phase 2)	CAP/LI #3 Cell 2,3,6 Liners	CAP/LI #4 Cell 7,8 Liners/1,2 Covers	CAP/LI #5 Cell 9,10 Liners/3-6 Covers	CAP/LI #6 Cell 7-10 Covers	*Optional* CAP/LI #7 Cell 11,12 Liners	*Optional* CAP/LI #8 Cell 11,12 Covers	
Liner-Protective Layer									X
Liner-Select Impacted Material									X
Cap-Select Impacted Material									X
Cap-Contouring Layer				X	X	X		X	
Cap-Compacted Clay Cap				X	X	X		X	
Cap-GML and GCL Layers				X	X	X		X	
Cap- Cover Drainage Layer				X	X	X		X	
Cap-Biointrusion Barrier				X	X	X		X	
Cap-Granular Filter				X	X	X		X	
Cap-Vegetative Soil Layer and Topsoil				X	X	X		X	
Cap-Vegetation				X	X	X		X	

*Denotes CD-3A planned activity.

Specific requirements and the basis for each requirement are identified in the *On-Site Waste Disposal Facility (OSWDF) Design Criteria Package (DCP), Pre-Final Design, Portsmouth Gaseous Diffusion Plant Decontamination & Decommissioning Project, Piketon, Ohio* (DOE 2017a).

The project does not include facility operations (e.g., waste placement) that will occur following turnover/BOD to Operations.

4.2 WORK BREAKDOWN STRUCTURE

To effectively implement the scope of work, the project will be organized, managed, and controlled using a WBS. Figure 4.1 illustrates the WBS for the OSWDF CAP-1 Project.

This structure is the framework for establishment of the cost and schedule baseline, and is the primary tool used to ensure integration of the cost and schedule. The WBS organizes the scope into a hierarchical structure that contains both control accounts (Level-6) and work packages (Level-7). Activities will be established at the work package level, and will provide the basis for both the cost and schedule baseline. A WBS dictionary will be developed at the work package level to provide further detail of the project scope.

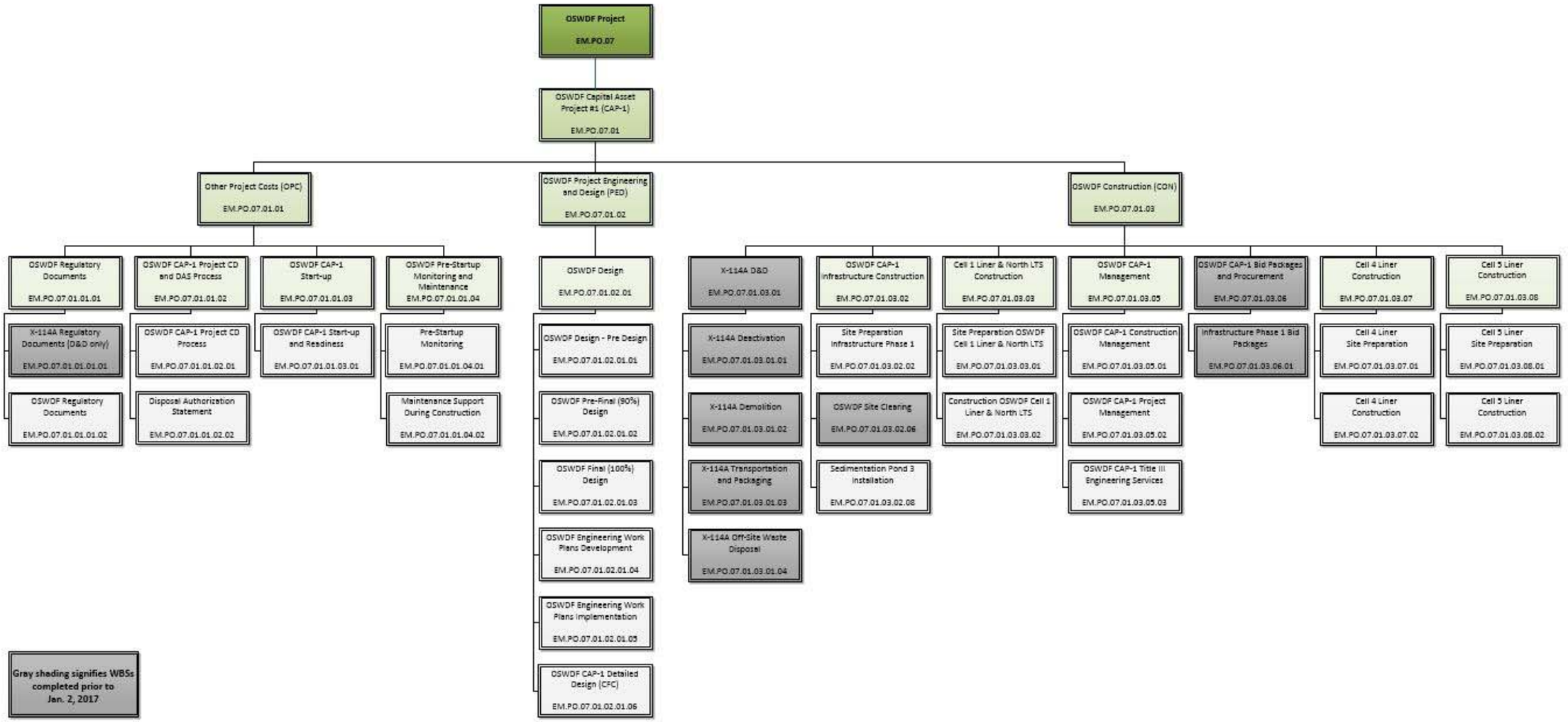

Figure 4.1 OSWDF CAP-1 Project Work Breakdown Structure

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4.3 SCHEDULE BASELINE

A detailed project schedule, which reflects planning at the control account and work package levels, has been established as part of the CD-2 PB. Each control account schedule, its time-phased budget, and the work package earned value techniques will provide the basis for determining earned value during each project reporting period.

The D&D Prime Contractor project team, including the CAMs and Project Controls, will schedule all authorized work to facilitate effective planning, performance tracking, and forecasting of the project. The scheduling process will develop a project baseline schedule that ensures the work is time-phased to meet established milestones and identifies interfaces between activities and other organizations.

The schedule baseline is shaped by the milestones and priorities agreed upon by the IPT. The schedule baseline consists of a group of logically arranged activities with time duration and milestones necessary to accomplish the scope of work. The schedule will be developed to a level of detail sufficient to objectively measure progress.

Key points in the scheduling process include:

- All information relating to time management of the project will be reviewed and will serve as the basis for defining each activity.

- Each element of the project scope, as defined in the WBS, must be supported by an activity, or activities, that result in the completion of that portion of the project scope. Activities will be described uniquely and assigned to a work package.

- Correct and pertinent activity relationships are identified and activities are then sequenced in time. The relationships and sequencing will be conducted independently of resource loading.

Table 4.2 lists the Planned Key Milestones and Events for the OSWDF CAP-1 Project.

Table 4.2 OSWDF CAP-1 Project Planned Key Milestones and Events

Description	Planned Dates (A=Actual)
OSWDF CAP-1 Project CD-0 Approval	August 2015A
Conceptual Design Complete	February 2014A*
OSWDF CAP-1 Project CD-1 Approval	August 2015A
OSWDF CAP-1 Project CD-3A Approval	August 2015A
OSWDF CAP-1 Project Preliminary Design Complete	February 2018
OSWDF CAP-1 Project CD-2/3 Approval	April 2018
OSWDF CAP-1 Project Final Design Complete	November 2018
OSWDF CAP-1 Project Cell 1 Liner BOD	November 2021
OSWDF CAP-1 Project Cell 4 Liner BOD	November 2021
OSWDF CAP-1 Project Cell 5 Liner BOD	November 2022
OSWDF CAP-1 Project CD-4 Approval	August 2023

*OSWDF Conceptual/Preliminary Design was completed as part of the WD RI/FS development prior to CD-0.

4.4 COST BASELINE

The cost baseline (budget) is the anticipated, time-phased sequence of expenditures required to complete the project work scope. The project schedule is integrated with the project estimate at the activity level to provide the basis for the cost baseline.

The cost baseline for the OSWDF CAP-1 Project will include project management & reporting and construction management. Operations (e.g., waste placement) and maintenance of OSWDF Cell 1, 4, and 5 Liners after construction are not included in the project cost.

All cost estimates for the OWSDF are developed in compliance with DOE Guide 413.3-21, *Cost Estimating Guide*. Estimates are classified in accordance with the Association for the Advancement of Cost Engineering International classification matrix. The intent of this classification is to assist in interpretation of the quality and value of the information available to prepare the cost estimate and accuracy levels that can be produced. A Class 5 estimate indicates the lowest amount of project information quality and value and a Class 1 estimate indicates the highest amount of project information quality and value. Each class has a different set of expected accuracy ranges, which define the upper and lower bounds for target costs and account for uncertainty in the predicted costs.

4.4.1 Total Estimated Cost

The OSWDF CAP-1 Project Total Estimated Cost (TEC) is estimated at $247.6M. Table 4.3 provides a cost summary for the project. TEC includes design and construction of the Cell 1, 4, and 5 Liners and associated support facilities (e.g., MLTS). Included within TEC are costs associated with site preparation activities (CD-3A) needed prior to CD-2/3 approval. TEC also includes oversight of subcontractors (e.g., construction management) and design, and project management and reporting during project execution.

4.4.2 Other Project Costs

Other Project Costs (OPCs) are estimated at $16.8M. OPC includes but is not limited to costs associated with development of the project concept; development of the project PB; development of the CD documentation; interface with the various organizations that are impacted or involved with the OSWDF CAP-1 Project; development of operations procedures; operations training; performance of System Operability Testing (SOT); and turnover to operations.

4.4.3 Total Project Cost

The TPC for the OSWDF CAP-1 Project is $264.4M.

TPC totals all project costs, including DOE-held contingency and the turnover to operations. TPC is composed of TEC and OPC. TPC includes all project capital costs as shown in the cumulative cost line in Table 4.3.

4.5 FUNDING PROFILE

The project cost estimates were initially used to develop an unconstrained funding cost (spend) profile for the project. This unconstrained spend profile exceeded the funding profile established for the OSWDF CAP-1 Project. As a result, the unconstrained spend profile was then revised to mitigate the funding deficiency through extension of the baseline schedule (and the use of schedule [cost] contingency) to align the spend profile (TPC) within future funding requests for the project. The distribution of costs in the spend profile differs from the funding profile, because funding must be requested in advance of its planned expenditure. Funding profiles “lead” spending profiles to ensure that sufficient funding is present in the execution year to cover all planned labor and place all subcontracts necessary to execute project scope. Funds required for a subcontract must be present at award. The funding profile ensures that requested funding during each federal budget cycle will be sufficient to cover planned execution year activities. The funding profile (Table 4.4) compares planned capital funding requests for the OSWDF CAP-1 Project against the revised spend profile (or CD-2/3 PB TPC).

Table 4.3 OSWDF CAP-1 Project TPC

Category	Cost ($K)
TEC	
Design	$14,714
Construction	$225,873
TEC Contingency	$7,060
Subtotal TEC	**$247,647**
Other Project Costs (OPCs)	
OPC except D&D	$15,795
OPC D&D	N/A
OPC Contingency	$958
Subtotal OPC	**$16,753**
TPC	**$264,400**

Table 4.4 OSWDF CAP-1 Project Funding Profile and Spend Profile (TPC) Comparison

	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	Total
DOE Funding Profile	**$4,750,118**	**$23,192,272**	**$41,168,000**	**$41,168,000**	**$41,168,000**	**$41,168,000**	**$41,168,000**	**$30,950,000**	**$5,200,000**	**$0**	**$269,932,390**
Carry Over (prior year funds)[1]	$0	$3,010,675	$6,704,718	$8,410,453	$843,488	$1,649,367	$1,881,601	$2,056,633	$5,629,966	$5,609,564	
Carry-in (CR set-aside)	$0	$0	$0	$3,430,667	$3,430,667	$3,430,667	$3,430,667	$3,430,667	$0	$0	
Carry-out (CR set-aside)	$0	$0	-$3,430,667	-$3,430,667	-$3,430,667	-$3,430,667	-$3,430,667	$0	$0	$0	
Total Available Funds (per FY)	**$4,750,118**	**$26,202,947**	**$44,442,052**	**$49,578,453**	**$42,011,488**	**$42,817,367**	**$43,049,601**	**$36,437,300**	**$10,829,966**	**$5,609,564**	
Contract Budget Base	$1,739,443	$18,022,971	$31,597,797	$42,793,546	$35,070,753	$35,597,033	$35,978,870	$26,848,469	$4,789,360	$71,240	$232,509,481
DOE Contingency	$0	$0	$1,000,000	$1,000,000	$1,500,000	$1,500,000	$1,400,000	$956,425	$0	$0	$7,356,425
Contractor Fee	$0	$1,475,258	$2,933,802	$3,941,419	$3,291,368	$3,338,733	$3,364,098	$2,502,440	$431,042	$6,412	$21,284,572
DOE Other Direct Costs (ODCs)	$0	$0	$500,000	$1,000,000	$500,000	$500,000	$250,000	$500,000	$0	$0	$3,250,000
Total Project Cost (TPC)	**$1,739,443**	**$19,498,229**	**$36,031,598**	**$48,734,965**	**$40,362,121**	**$40,935,766**	**$40,992,968**	**$30,807,334**	**$5,220,403**	**$77,651**	**$264,400,478**

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4.6 LIFE-CYCLE COSTS

The life-cycle cost spans the design, development, production, operation, maintenance, and support over the anticipated useful life span of the asset. The OSWDF CAP-1 Project is the first in a series of LI CAP sub-projects for the entire OSWDF. Because additional waste disposal volume for each cell is limited by the inability to increase the height of material placement until all adjacent cells/liners are constructed, the total life-cycle cost is based on the capital and operating costs associated with all OSWDF LI/CAPs during the operational life of the entire OSWDF (i.e., FY 2015 through FY 2038).

Estimated unescalated construction and operations costs for the entire OSWDF are $1,019 million (in FY 2013 dollars). Table 4.5 provides a breakdown of the total unescalated project costs. Direct costs include those for constructing, operating (including waste placement operations and leachate treatment during operation), and closing the OSWDF, leachate treatment systems, support facilities, and a haul road. The life-cycle cost also includes costs for excavating and transporting the contaminated (engineered) fill for the OSWDF and operational costs for off-site waste transportation and disposal. S&M costs are those long-term costs associated with maintaining and monitoring a closed landfill.

The cost estimates are based on the estimating methodology and the technical scope and assumptions for the OSWDF conceptual design described in the WD RI/FS (DOE 2014a). Post-operations S&M costs were also estimated, resulting in an initial $670,000 annual cost in FY 2013 dollars for monitoring and maintenance of the OSWDF, decreasing to $130,000 annually once the passive leachate treatment system is operational. Also included in the life-cycle cost is the operating cost to excavate contaminated (engineered) fill, treat the fill that cannot be disposed in the OSWDF as is, and disposing of 3,900 cubic yards of waste off-site.

A present value evaluation was performed by assuming a 1,000-year monitoring duration. The 1,000-year duration was selected to account for the performance period assessed for the OSWDF. The total present worth cost for the OSWDF is $882 million.

The following are additional assumptions that significantly affect total project costs:

- Fill borrow locations evaluated in the cost estimate are contaminated soil areas, including landfills and underlying soil associated with areas of groundwater contamination. Any ARAR-compliant treatment costs are included.

- Davis-Bacon regulations regarding local prevailing wage rates would be in effect for all construction and operations.

- Profit, fees, overhead, staff size, and management efforts are based on rates consistent with the current D&D Prime Contractor.

- No contingency costs are added to the on-site disposal operations cost estimate.

- No costs for long-term storage and eventual disposal of any wastes not meeting the waste acceptance criteria for on-site or off-site disposal facilities are included.

The costs and schedule are dependent on the funding allocated. As the schedule increases for construction and/or operation of the OSWDF, the total construction and operational costs increase because there are routine costs that are required to operate an OSWDF, regardless of how much waste is disposed.

Table 4.5 Life-cycle Cost Estimate for the Entire OSWDF

Project Cost Item	Cost
UNESCALATED CONSTRUCTION/OPERATIONS COSTS	
Direct Costs for OSWDF:	
Cell Construction	$273,280,000
Infrastructure Construction	$53,660,000
Interim Leachate Treatment System Construction	$4,760,000
Cell Operations	$158,440,000
Waste Transport to Cell	$30,440,000
Off-Site Shipment and Disposal	$154,370,000
Interim Leachate Treatment Operations	$8,490,000
Cell Maintenance during Construction	$1,920,000
Permanent Leachate Treatment System Construction	$740,000
Land Use Controls	$180,000
Total OSWDF Direct Cost	**$686,000,000**
Indirect Costs for OSWDF:	
Regulatory documents	$410,000
Predesign studies	$9,150,000
Remedial design	$34,600,000
Total OSWDF Indirect Cost	**$44,200,000**
Direct/Indirect Costs for Other:	
Recyclables Staging	$14,530,000
Contaminated Fill	$273,990,000
Total Other Direct/Indirect Cost	**$288,500,000**
TOTAL CONSTRUCTION/OPERATIONS COST	**$1,019,000,000**
S&M COSTS	
Long-term S&M Cost—initial annual costs	$670,000
Long-term S&M Cost—eventual annual costs	$130,000
Construction/Operations Cost (Present Worth)	**$868,000,000**
S&M Cost (Present Worth)	**$14,000,000**
TOTAL OSWDF COST (PRESENT WORTH)	**$882,000,000**

4.7 PERFORMANCE MEASUREMENT BASELINE

The OSWDF CAP-1 Project PB is the aggregation of key performance, scope, cost, and schedule parameters. The PB includes the entire project budget defined as the TPC including Contractor fee and DOE Contingency. The TPC includes the contractor's Performance Measurement Baseline (PMB). The PMB is the total time-phased budget against which project performance is measured. It is the schedule for expenditure of the resources allocated to accomplish project scope and schedule objectives and is formed by the budgets assigned to control accounts. The PMB also includes budget for future effort assigned as planning packages to WBS levels, plus any undistributed budget. Management Reserve (MR) is not included in the PMB, but it is included in the TPC.

Technical, cost, and schedule baselines (i.e., PB) for the OSWDF CAP-1 Project will be prepared and submitted with the CD-2 documents. Once approved, the project performance will be measured against the PMB. The baselines will be maintained in accordance with DOE's Change Control Process.

The integration of the planning, scheduling, budgeting, work authorization, and the cost accumulation management processes enable execution of the project against the PMB.

4.7.1 Independent Project Reviews and Annual Reviews

As required by DOE Order 413.3B, project reviews will be conducted at Critical Decision points. Table 4.6 identifies the key reviews. PB reviews are conducted to ensure that the project baseline is complete, traceable, and reasonable in terms of schedules, milestones, and cost estimates. The reviews ensure that scope is adequately detailed at each stage of the project. The reviews will also ensure that priorities and issues can be identified and key performance criteria can be met. Baseline reviews also assess the acquisition strategy/plan, life-cycle costs, and project risks/hazards.

Based on preliminary engineering and cost estimating, the OSWDF CAP-1 Project TPC is >$100M; therefore, a PB EIR is required. PM will conduct the EIR to validate the PB and issue a PB Validation Letter to the Program Secretarial Office that describes the cost, schedule, and scope being validated. In addition, PM will develop an ICE that will support validation of the PB. Note that the FPD may request, authorize, or conduct an IPR/PPR at any time. For planning purposes, an annual review is assumed each year.

Reviews are part of the project management process and are used to assist PPPO, the FPD, and the contractor's upper-level management in understanding project plans and verifying that the project will meet the mission need and can be executed within the established PB. Reviews provide information to help make decisions and demonstrate and confirm project accomplishments at various stages. Reviews are an important project activity and will be included in the project baseline schedule.

Table 4.6 OSWDF CAP-1 Project - Key Reviews

CRITICAL DECISION	REVIEW
CD-1, Approve Alternative Selection and Cost Range	• Project Definition Rating Index (PDRI) Analysis by the FPD to evaluate project o Completed July 2015 • OSWDF CAP-1 Project PPR by EM-53 o Completed September 2015 (final report) • ICE by PM to validate the basis of the preliminary cost range for reasonableness and executability and verify construction readiness for CD-3A activities o Completed September 2015 (final report) • OSWDF CAP-1 Project PPR by PM-10 o Completed July 2016
CD-2/3, Approve Performance Baseline / Approve Start of Construction/Execution	• OSWDF Intermediate/Preliminary (60%) Design Review by Ohio EPA o Completed January 2014 • ILTS/MLTS Intermediate/Preliminary (60%) Design Review by Ohio EPA o Completed July 2017 [ILTS 60%] o Planned February 2018 [MLTS to be included in Pre-Final (90%) Design Review] • PDRI Analysis by the FPD to evaluate project readiness o Planned August 2017 • ICR/Supplemental ICE by PM to support validation of the PB o Planned September 2017 (on-site visit) • PB EIR by PM to validate the PB o Planned November 2017 (on-site visit) • EVMS Certification Review by PM o Planned January 2018 (on-site visit) • CD-2/3 Approval o Planned April 2018 • OSWDF Final (100%) Design Review/Concurrence by Ohio EPA o Planned August 2018 • ILTS/MLTS Final (100%) Design Review/Concurrence by Ohio EPA o Planned November 2018 • Independent Project Reviews/Project Peer Reviews (IPRs/PPRs) o Planned – annually during approximately July of each year
CD-4, Approve Start of Operations	• Readiness to Operate Assessment (MLTS/Cell 1 Liner) to determine if the facility can be occupied from both a regulatory and work function standpoint o Planned October 2020 • CD-4 Approval o Planned August 2023

4.7.2 Earned Value Management System

The Project Management Controls System (PMCS) described in the D&D Prime Contractor's *Project Management Control System (PMCS) for Earned Value Management* will be utilized to support any project that requires compliance with the American National Standards Institute (ANSI)/EIA-748, *Earned Value Management Systems*. The OSWDF CAP-1 Project will be managed using a DOE-certified EVMS. The current D&D Prime Contractor obtained self-certification on September 27, 2012 via *Submittal of EVMS Self-Certification Evidentiary Documentation* (FBP 2012), and is actively working towards DOE certification by PM. Current forecast completion for PM EVMS certification is Second Quarter FY 2018.

The PMCS for EVMS was developed as a toolbox to handle the organizing, planning and scheduling, budgeting, PMB, baseline management, forecasting, and variance reporting requirements of any type of project, regardless of the reporting requirements. EVMS will be used to coordinate work scope, schedule, and cost goals and to objectively measure progress towards achieving those goals. Performance metrics and performance measurement will allow the D&D Prime Contractor to identify current progress and forecast future performance in order to avoid and minimize variance from the PMB. Cost and schedule performance, milestone status, and completed scope are reported by the contractors to DOE using the DOE-approved WBS as the reporting structure: This reporting provides the means for DOE to monitor and control contractor performance.

This project will use the six traditional elements of an EVMS to measure and report performance:

- Budgeted Cost of Work Scheduled (BCWS),
- Budgeted Cost of Work Performed (BCWP),
- Actual Cost of Work Performed (ACWP),
- Budget at Completion (BAC),
- Estimate to Complete (ETC), and
- Estimate at Completion (EAC).

These six elements are compared and analyzed to identify cost and schedule variances that are then explained in narratives in the periodic status reports:

- BCWP compared with BCWS indicates schedule variance.
- BCWP compared with ACWP quantifies cost variance.
- BAC compared with EAC quantifies a Variance at Completion (VAC), identifying potential cost overruns or under-runs.
- ETC when combined with ACWP, at any point in the project, will give EAC.

In addition, performance indices are developed that provide an indication of performance to date:

- Cost Performance Index (CPI) = BCWP/ACWP
- Schedule Performance Index (SPI) = BCWP/BCWS

For both CPI and SPI, a result greater than 1.0 indicates efficient performance; less than 1.0 is an indication of potential problems or issues with performance.

Variances are analyzed monthly and breached thresholds are reported to DOE and the D&D Prime Contractor management on a monthly basis. *Variance Analysis and Reporting* provides variance thresholds to CAMs to prepare variance analysis for schedule variance, cost variance, and VAC at the

control account level for the current reporting period and cumulative to date in accordance with the PMCS.

Project progress and percent complete will be updated consistent with the predetermined objective and quantifiable performance measurement techniques. This quantifiable percent complete, along with the BAC for each work package will be used to calculate the earned value or BCWP. The BCWP will be compared against the BCWS and ACWP as of the data date to determine the project schedule performance indices, SPI and CPI, respectively. If required, changes will be made to the baseline schedule consistent with the approved PMCS and Baseline Change Control Process.

This baseline will be used to assign and set performance expectations, to clearly codify and communicate how the project scope will be accomplished, and to measure performance. This will ensure that roles and responsibilities are clearly understood, and that accountability for results is established. Proper authority as well as responsibility will be given to responsible managers to ensure they have the ability to succeed. Quantifiable measurement of progress will be implemented to reduce subjectivity in earned value and percent complete evaluation. Project changes will be identified, controlled, and managed through a traceable, documented change control process.

4.8 BASELINE CHANGE CONTROL

Change control will be used to ensure project changes are identified, evaluated, coordinated, controlled, reviewed, approved, and documented. Errors, problems, threats, opportunities, or the availability of new methods or tools can trigger project changes.

Approved project scope, schedule, and cost baselines will be the controlling elements for this project. Controlling changes to these baselines is an inherent element of project management directly related to the risks and uncertainties associated with a project.

Project changes will be identified, controlled, and managed through a traceable, documented, and dedicated change control process as defined in DOE-EM and DOE PPPO standard operating policies and procedures and the PMCS. DOE's Change Control Process provides additional information and guidance on baseline change control. The goals of the change control process developed for this project are as follows:

- Recognize and predict changes,
- Evaluate and understand the impacts of each change,
- Control consequences of change,
- Prevent unauthorized or unintended deviations from approved baselines, and
- Assure that each change to approved baselines is evaluated, reviewed, documented, and approved at the proper level of management.

After the project PMB is established, the D&D Prime Contractor Project Management Team will ensure changes to project scope, cost, and schedule are reviewed, approved and implemented within the DOE-established methodology governing the change control process.

Changes may arise from several conditions, either internal or external in origin. In either case, the authorizing stakeholder will refer to the change control processes and its documented change threshold

criteria. The process must be followed to ensure the review/approval process is used and proper documentation of the change is maintained throughout the life of the project. Establishing a formal change control process ensures all changes are managed in a manner consistent with DOE guidance and is based on the ANSI standard for EVMS, ANSI/EIA-748, *Earned Value Management Systems*, which integrate the cost, schedule, and technical parameters that are affected by each change.

The DOE Project Management staff will establish and maintain formal change control protocol that will ensure the necessary approvals and documentation to manage the project. Baseline changes will be identified, controlled, and managed through the DOE PPPO change control process and the D&D Prime Contractor's change control process. Change control thresholds are identified in Table 4.7.

Table 4.7 Change Control Thresholds

Threshold Description	Change Request Type	Threshold Value	Approval Authority
Total Project Cost	PME	Any change affecting the TPC and requiring PME approval in accordance with DOE O 413.3B	PME
	HQ-Other	Reserved	N/A
	Site	Any year-end update to a project's cost profile which does not affect its TPC	PPPO Manager
Schedule	PME	Any change to the CD-4 date or change in CD phase in accordance with DOE O 413.3B	PME
	HQ-Other	Reserved	N/A
	Site	Any change not affecting the CD-4 date or CD phasing	PPPO Manager
Work Scope	PME	Any change to Key Performance Parameters or Mission Need requiring DOE O 413.3B approval	PME
	Site	Any change to approved ABB scope description not affecting KPPs or mission need	PPPO Manager

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5 PROJECT MANAGEMENT OVERSIGHT

5.1 PROJECT MANAGEMENT APPROACH

Project execution is the responsibility of the FPD under the guidance of the PPPO Manager. DOE has delegated execution of the OSWDF CAP-1 Project scope to the PORTS D&D Prime Contractor.

As described in Section 3, the CD process for the entire OSWDF project has been tailored to include the following:

OSWDF LI/CAP-1 (OSWDF CAP-1 Project)

- One (1) combined CD-0/1/3A (for site preparation activities)
- One (1) combined CD-2/3
- One (1) CD-4 (after completion of Cell Liners 1, 4 and 5)

OSWDF Remaining LI/CAPs

- Five (5) planned CD-0s for LI/CAP-2, LI/CAP-3, LI/CAP-4, LI/CAP-5, and LI/CAP-6
- Two (2) optional CD-0s for LI/CAP-7 and LI/CAP-8 (optional Cell 11 and 12 liners and associated covers)
- Five (5) planned, combined CD-1/2/3s for LI/CAP-2, LI/CAP-3, LI/CAP-4, LI/CAP-5, and LI/CAP-6
- Two (2) optional, combined CD-1/2/3s for LI/CAP-7 and LI/CAP-8 (optional Cell 11 and 12 liners and associated covers)
- Five (5) planned CD-4s
- Two (2) optional CD-4s (optional Cell 11 and 12 liners and associated covers)

The phasing of the OSWDF into smaller, distinct, well-defined projects minimizes the time horizon for each project, reduces the overall risk for successful project completion, and allows for timely authorization of each specific project phase to support construction activities during the life-cycle of the project.

The segregation of the OSWDF into smaller manageable projects is encouraged in DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, providing allowances for combining CD-2 and CD-3 into a single CD-2/3 project phase where design is straight forward with minimal, if any, technical development needed. Since the OSWDF uses existing and proven technology, the individual cell projects meet the subproject criteria for consolidated CD-2/3 phasing.

Preparation of Certified for Construction (CFC) Packages and Title III Engineering will be performed by the OSWDF Engineering Group supported by subcontracted Architect/Engineer services. CFC packages for OSWDF construction (excluding support facilities and utilities) will be based on a regulatory OSWDF design approved by DOE and Ohio EPA. CFC packages for support facilities and utilities will be based on packages approved by DOE and will be submitted to Ohio EPA for information only.

During OSWDF construction, Resident Engineering will be performed by an independent OSWDF Resident Engineering group and will also include the Construction Quality Control (CQC) services. CQC services will be performed by a subcontracted CQC consultant and on-site and off-site testing laboratories. The Resident Engineering group will provide independent oversight and CQC services on OSWDF construction and prepare annual construction certification reports for DOE and Ohio EPA review and approval.

The project will issue smaller subcontracts for work not self-performed by the D&D Prime Contractor. Proposed subcontract services may include:

- Engineering support
- CQC
- Surveying
- GML
- Leak detection
- Onsite and off-site testing
- Laboratory services
- Timber clearing/mulching
- Power line installation
- Raw water line installation
- Access road
- Security fencing
- MLTS/LTS engineering, procurement, and installation
- Geosynthetic liner installation
- Raw water piping hot-tapping
- Raw water piping jack and boring

Subcontracted construction activities may include but are not limited to: clearing, power line installation, construction and record surveying, trailer installation, paving, fencing, MLTS and LTS construction, inspection and acceptance of clay cell liner by the subcontractor for geosynthetic liner construction, and the performance of GML welding.

Outside sources that are sought by the D&D Prime Contractor will only be solicited from qualified firms via RFP. Depending on the nature of the service, selection will be based on technical merit and price considerations, as provided for in the D&D Prime Contractor procurement process.

An integrated team, comprised of members from appropriate support organizations (e.g., safety, QA) will provide input to the RFP to establish the required flowdown requirements for inclusion in the RFP. At a minimum, safety, QA, engineering, contracts, construction management, and nuclear safety (as needed - since OSWDF is a less than Hazard Category 3 nuclear facility) will be involved in the development of the procurement packages and evaluation of the proposals.

Project work must receive authorization from the proper authority. The DOE FPD, through the DOE CO, is responsible for granting authority to perform project work scope for this project. The D&D Prime Contractor prepares the documentation for review by DOE representatives to support the CD authorization process. Upon successful completion of this review, DOE will issue written authorization for the D&D Prime Contractor to perform work consistent with the approved baseline plan.

Once the project work authorization is received from DOE and funding allocations have been made, project work will be performed consistent with the established project scope, schedule and budget as defined in the PMB. The D&D Prime Contractor Project Director will issue the required project work authorization document(s) to allow work to proceed.

5.2 PROJECT REPORTING

Project reporting occurs in two phases: (1) project performance measurement and reporting, including EVMS reporting and (2) EM performance measurement and reporting, which includes summary Earned

Value reporting at the Project Baseline Summary level in the Integrated Planning, Accountability, and Budgeting System (IPABS) and Project Assessment and Reporting System II (PARS II) for CAPs.

EVMS variance analysis and reporting will be conducted on all control accounts which exceed the agreed upon variance threshold values. *Variance Analysis and Reporting*, provides variance thresholds to CAMs to prepare variance analysis for schedule variance, cost variance, and VAC at the control account level for the current reporting period and cumulative to date. Contractor reporting is in the form of a monthly Project Performance Report and a DOE monthly project review. The contractor's monthly reporting is supportive of the DOE monthly project status review conducted between the PPPO Manager/FPD and the contractor senior management team.

Based on preliminary engineering and cost estimating, the OSWDF CAP-1 Project will require monthly PARS II reporting.

5.3 RISK AND OPPORTUNITY MANAGEMENT

Uncertainty and risk are inherent in any project planning, and it is a requirement that they both be evaluated and quantified for DOE CAPs. Uncertainty reflects the reality that, in the planning stages of a project, when engineering is at the conceptual level, estimate quantities and cost, and schedule activity durations are not precisely known. Uncertainty is not dependent on a trigger event; it exists because of lack of precise knowledge. Risk, on the other hand, is when project objectives are affected by a specific event or condition. Mostly, risks are thought of in a negative way and are threats to successful project completion; but, they can also be positive and are opportunities for schedule gain and reduced costs. The following sections outline the approach to risk management for this project.

5.3.1 Risk Management Plan

Development of a responsive Risk Management Plan (RMP) is a DOE directive requirement. DOE requirements are established in DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, and suggested approaches for meeting requirements are provided in DOE Guide 413.3-7A, *Risk Management Guide.* The Portsmouth Operations Oversight Group has developed a RMP that describes how PORTS will manage programmatic and project risk threats and opportunities. The D&D Prime Contractor's risk management planning will be consistent with the DOE risk management process.

The principal guidelines of DOE Order 413.3B are:

- Identify the project mission, scope, assumptions, and management responsibilities
- Describe the risk assessment process followed to identify, quantify, respond to, and track project risks
- Ensure the detail level, scope, timing, and risk analysis are commensurate with the complexity of the project
- Identify when, during the project life-cycle, the risk analysis (identification, quantification, and response) is performed and updated.

Using these principles, DOE has developed the RMP for the entire PORTS D&D Project. As illustrated in Figure 5.1, the RMP will be used, in a tailored approach, for the OSWDF CAP-1 Project**.**

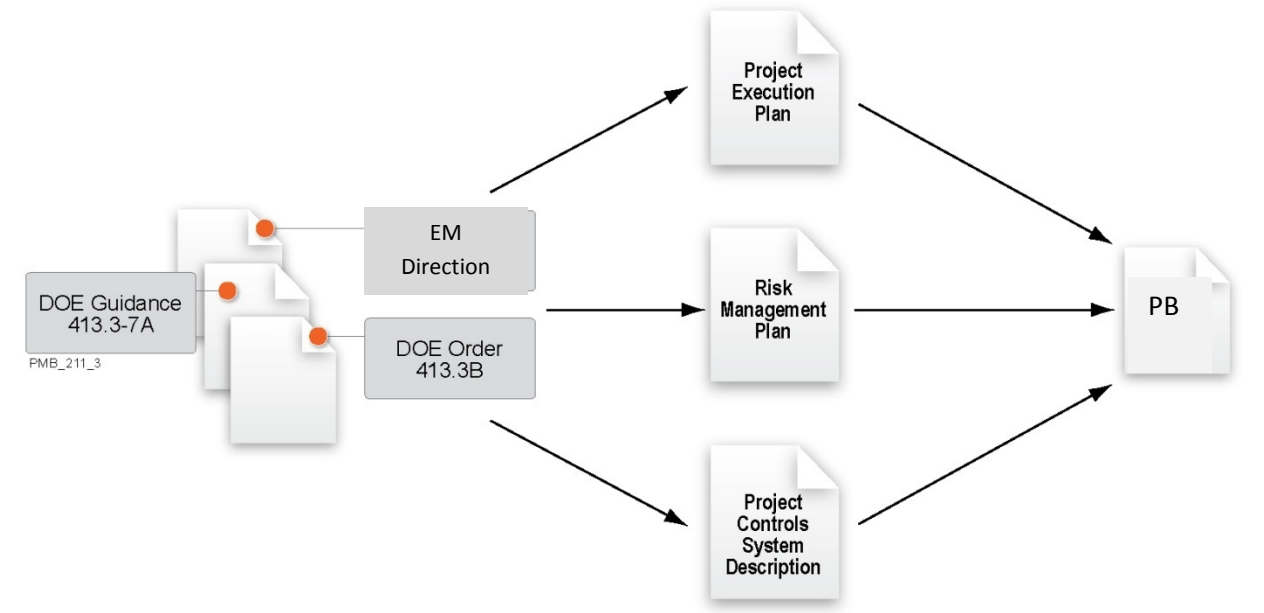

Figure 5.1 Requirements in DOE Orders and D&D Prime Contractor Guidance Concerning Project Risk Management

5.3.2 Risk Assessment Report

The D&D Project RMP is a living document that is used for the identification, assessment, and management of risks. Its use ensures that risk management is integrated into the OSWDF CAP-1 Project execution approach. Implementation of this plan will enhance the probability of achieving budgeted cost and schedule by increasing the opportunities of improved project performance and decreasing the likelihood of cost overruns, schedule delays, and compromises in quality and safety. This continuous process, shown in Figure 5.2, is analogous to the widely used continuous improvement philosophy.

For the OSWDF CAP-1 Project, the D&D Prime Contractor has evaluated risks and prepared a Risk Assessment Report (RAR) for the CD-2/3 submittal. The RAR will include the risk register, risk modeling results and will support the establishment of MR for this project.

Risks transferred to, and accepted by, DOE will become part of the DOE risk register which supports DOE Contingency.

The term “risk” includes both threats and opportunities; opportunities will also be identified and modeled. Potential cost and schedule savings through realization of opportunities offset added cost and/or schedule through realization of threats.

While each PORTS contractor is responsible for the maintenance and analysis for their risks and uncertainties, DOE is responsible for the development and implementation of the site-wide risks analysis and assessment. The OSWDF FPD along with the D&D Prime Contractor OSWDF Project Director and execution team are responsible for identification and implementation of risk mitigating strategies and actions.

As the OSWDF CAP-1 Project moves through its life-cycle, risk events will be reexamined by updating input data and adding new risk items based on additional contract scope or execution changes. This ongoing effort involves the following actions:

- Review existing risks and identify emerging risks
- Identify preferred handling strategies to address individual risks
- Assess individual risks and impacts on cost, probability, and schedule
- Develop alternative approaches to mitigate high and moderate risks
- Coordinate risk management with other programs and/or projects, as applicable

These risk events are separate from estimate uncertainty that is identified, defined, and modeled separately. Risk mitigation activities are part of the OSWDF CAP-1 Project baseline.

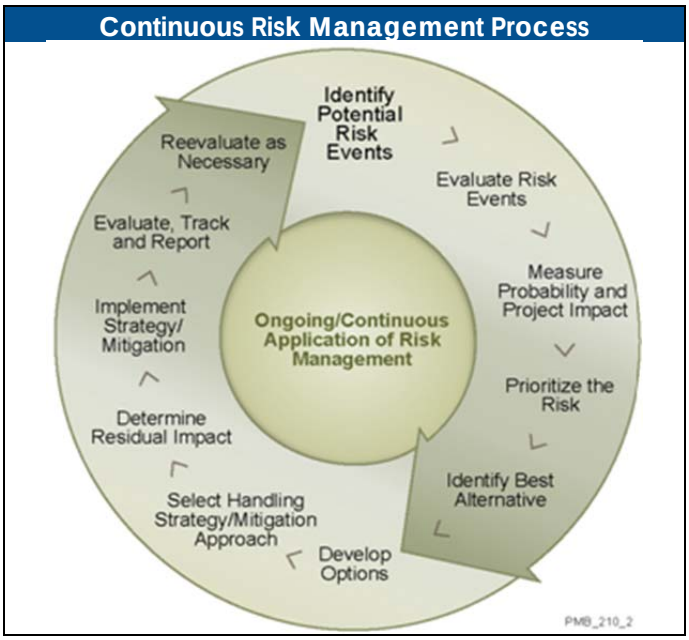

Figure 5.2
Continuous Risk Management Process

5.3.3 Management Reserve and DOE Contingency

A key output from the risk analysis is the establishment of adequate MR for the OSWDF CAP-1 Project. MR includes both estimate and schedule uncertainty, and discrete risk events (Project and Programmatic Risks). Estimate and schedule uncertainty reflect expected variability in the cost estimate and schedule and are not dependent on a trigger event, whereas discrete risks are associated with specific trigger events, which may be internal to the project, or external.

MR will be calculated as the difference between the Contractor's estimated cost and the projected cost at a confidence level defined by the contractor. Similarly, DOE Contingency will be calculated at a confidence level of at least 80 percent. D&D Prime Contractor MR and DOE Contingency will become part of the TPC for the OSWDF CAP-1 Project; contractor MR is included as part of the contract price and DOE Contingency will be funded by DOE.

The use of DOE Contingency will be managed through the DOE change control process allocating contingency to address realized risks. Use of MR will be managed by the contractor through their baseline control process to address realized emerging risks; however, MR cannot be used to resolve past project variances. Both DOE and the D&D Prime Contractor have established change management procedures, thresholds and working Change Control Boards. MR drawdown will be monitored in the Contract Budget Log and reported monthly to DOE.

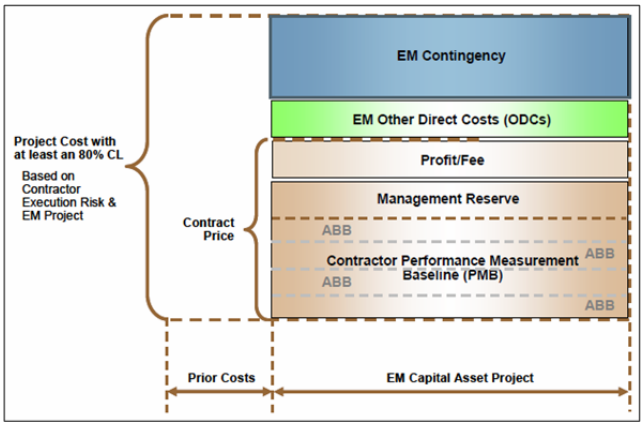

Figure 5.3 Total Project Cost

5.3.4 Risk Management Plan and Risk Assessment Report Revision

The D&D Prime Contractor RMP will be updated annually, concurrent with the Annual Self-Assessment Report, which is a contract requirement. The contractor risk assessment will be evaluated and monitored on a continual basis.

The OSWDF CAP-1 Project risk register will be updated on a monthly basis. Existing risks and mitigations will be statused, and new risks added as required. The D&D Prime Contractor reports on emerging risks at its monthly project reviews.

The RAR, which includes risk modeling, will be updated at least semi-annually, or upon major project events such as a significant realized risk, contract change, or BCP, to assess forecasted MR needs against actual MR remaining. In this way, the OSWDF CAP-1 Project will get regular "health checks". Significant differences between projected MR needs (from the RAR) and actual MR remaining (from the Contract Budget Log) will indicate a need for management attention and action.

5.3.5 OSWDF CAP-1 Project Risk Assessment

The risk level matrix used to evaluate the OSWDF CAP-1 Project risks is shown in Figure 5.4. The cost and schedule impacts are scaled based on a standard percentage of project costs in order to bin the risks as High, Moderate, or Low threats or opportunities. The likelihood of occurrence and risk impact are evaluated according to the risk level matrix. All risks are evaluated to determine if mitigating strategies can be used to reduce or eliminate risk impacts. Moderate and High risks are of primary interest since they pose the greatest project threats.

A preliminary high-level evaluation of the OSWDF CAP-1 Project risks has been performed, identifying latent threats that have the potential to jeopardize the ability of the project to meet the scope requirements within the proposed budget and schedule. Risk probabilities and impacts were analyzed qualitatively by the OSWDF CAP-1 Project team including the FPD, IPT, project management, engineering, construction, and operations. The impacts were tailored for the OSWDF CAP-1 Project to match the life-cycle baseline.

As with most DOE projects, the most significant threat to the OSWDF CAP-1 Project is that of funding availability. Due to the EM Program history of Continuing Resolutions and other funding constraints, funding availability is of primal concern to the success of the OSWDF CAP-1 Project. For the CD-2 submittal, a full RAR has been completed. The RAR will include the risk register, risk modeling results, and will support establishment of DOE Contingency.

		Consequence/Impact				
	Cost	Minimal or no consequence. No impact to Project cost.	Small increase in meeting strategic objectives. Marginally increases costs.	Significant degradation in meeting strategic objectives significantly increases cost	Strategic goals and objectives are not achievable. Additional funding may be required.	Program cannot be completed with current resources. Catastrophic threat to mission need.
	Schedule	Minimal or no consequence. No impact to Project schedule.	Small increase in meeting strategic objectives. Marginally impacts schedule.	Significant degradation in meeting strategic objectives, significantly impacts schedule.	Strategic goals and objectives are not achievable. Additional time may need to be allocated.	Program cannot be completed. Catastrophic threat to mission need.
	Qualitative Quantitative	**Negligible**	**Marginal**	**Significant**	**Critical**	**Crisis**
Probability/Likelihood	**Imminent** >90%	Moderate (3)	**High (4)**	**High (4)**	**High (5)**	**High (5)**
	Very Likely 75% to 90%	Low (2)	Moderate (3)	**High (4)**	**High (4)**	**High (5)**
	Likely 26% to 74%	Low (2)	Low (2)	Moderate (3)	**High (4)**	**High (4)**
	Unlikely 10% to 25%	Low (2)	Low (2)	Low (2)	Moderate (3)	Moderate (3)
	Very Unlikely <10%	Low (1)	Low (2)	Low (2)	Low (2)	Moderate (3)
Consequence/Impact as a Percentage of Project Cost		< 0.5%	0.5% < 1.0%	1.0% < 3%	3% < 10%	> 10%

Figure 5.4 Risk Level Matrix

5.4 ENGINEERING AND TECHNOLOGY READINESS

Standard engineering and technology, to be employed in the design and construction of the OSWDF, is well understood and is commercially applied nationally. No new, untested technologies or technology development are anticipated for successful completion of the OSWDF.

5.5 ALTERNATIVES ANALYSIS AND SELECTION

The KPPs for the OSWDF are based on providing a reliable, cost effective waste disposal location for the safe disposal of D&D waste. The information necessary to select a site-wide disposal alternative for the waste generated was presented in the WD RI/FS.

The three alternatives that were evaluated included:

- Alternative 1 – No Action
- Alternative 2 – Combination of On-site and Off-site Disposal
- Alternative 3 – Off-site Disposal.

All of the alternatives were evaluated with respect to DFF&O and CERCLA criteria. The no-action alternative is not protective and does not meet threshold criteria. Both the on-site and off-site alternatives meet the threshold criteria of protectiveness and compliance with ARARs. Three criteria differentiate the on-site and off-site alternatives. They are transportation risk, duration, and cost.

In addition, the document evaluated several possible locations for on-site disposal.

The Proposed Plan presented the anticipated selection of Alternative 2 – Combination of On-site and Off-site Disposal and was issued to solicit public input. The WD ROD was issued to document the selection of Alternative 2 – Combination of On-Site and Off-site Disposal**.**

Alternative 2 – Combination of On-Site and Off-site Disposal was selected based on advantages in transportation, duration, safety, and cost.

Additionally, the CD-1 that was approved in 2007 for the entire PORTS D&D Project contained an alternative analysis for onsite versus off-site disposal.

5.6 SAFETY AND HEALTH

The project will comply with all applicable Federal, state, and local laws, rules, and regulations in order to ensure the protection of the public, workers, and the environment. These standards/requirements are incorporated into DOE PPPO level and D&D Prime Contractor policies/procedures and flow down to subcontractors.

5.6.1 Integrated Safety Management

DOE Policy 450.4A, *Integrated Safety Management Policy*, requires its contractors to systematically integrate safety into management and work practices at all levels so that missions are accomplished while protecting the public, workers, and the environment. The DOE PPPO and D&D Prime Contractor health and safety programs ensure integration of the ISMS core functions and guiding principles into all project activities. Line management is responsible for safety. Personnel roles and responsibilities are clearly defined within DOE PPPO and D&D Prime Contractor programs and procedures.

The strategy for implementing the ISMS is through the use of approved site-wide programs. These site-wide programs meet the DOE's and the contractor's shared objectives, principles, and functions for tailoring requirements to accomplish specific work at specific facilities. The *U.S. Department of Energy Portsmouth/Paducah Project Office Integrated Safety Management System Description* (DOE 2007b) and

the D&D Prime Contractor's *Integrated Safety Management System* are the primary mechanisms for implementing the objectives, principles, and functions of the ISMS. This system and process establishes Company-level, Division-level, and Program-specific procedures consistent with organizational roles, and ensures a consistent, disciplined site approach to safety while performing work. The ES&H programs are incorporated into the work through the same site-wide process as contained in the ISMS. The current DOE PPPO and D&D Prime Contractor health and safety programs capture the ES&H requirements to which work is performed. Appropriate application (tailoring/graded approach) of these controls is determined through the process of hazard analysis followed by management decisions using site-wide program guidance.

All work will be performed in accordance with the requirements of 10 CFR 851, *Worker Safety and Health Program*. These requirements are implemented through the *U.S. Department of Energy Portsmouth/Paducah Project Office Federal Employees Occupational Safety & Health Plan* (DOE 2006f) and the D&D Prime Contractor's *Worker Safety and Health Program* (WSHP). Construction activities, whether self-performed or subcontracted, will be performed in accordance with the D&D Prime Contractor WSHP. Integrated safety management requirements will flow down to subcontractors. Construction subcontractors will be required to develop Health and Safety Plans for approval by the D&D Prime Contractor prior to starting work on site. The subcontractors will be required to meet all requirements that are flowed down to them in their contracts.

The D&D Prime Contractor ISMS is the overall management system for conducting work under its contract, including subcontracted work. The site-wide ISMS satisfies all requirements of the DOE Policy 450.4A, *Integrated Safety Management Policy*, and the *DOE Acquisition Regulation* (DEAR Part 970) clauses 970.5223-1, *Integration of Environment, Safety, and Health into Work Planning and Execution*, and 970.5204-2, *Laws, Regulations, and DOE Directives*.

The D&D Prime Contractor WSHP utilizes several integrated elements to institutionalize the company's core value for safety. The program elements include:

- Integrated Safety Management, which serves as the framework for performing work safely by analyzing and mitigating hazards based on the defined scope of work and collecting and applying feedback for subsequent evolutions

- Regulatory compliance with 10 CFR 851, *Worker Safety and Health Program*, and the DOE's Orders. The majority of these standards are implemented in the WSHP.

5.6.2 Worker Protection

The Project Team is responsible for providing safe working conditions for all employees and visitors to the project site. Worker safety programs are based on the requirements of 10 CFR 851, *Worker Safety and Health Program*, 29 CFR 1910, *Occupational Safety and Health Standard*, and 29 CFR 1926, *Safety and Health Regulations for Construction*.

In accordance with the requirements of 10 CFR 851, *Worker Safety and Health Program*, the D&D Prime Contractor has developed a WSHP that identifies the safety requirements and processes that will be employed during execution of the project. Subcontractors will be required to comply with all safety requirements established by the D&D Prime Contractor. Subcontractor Health and Safety Plans will be approved by the D&D Prime Contractor.

The core functions and guiding principles of ISMS will be applied during all field work. Prior to the start of construction activities, the D&D Prime Contractor (or subcontractor) will analyze the hazards and identify appropriate work controls. Safety requirements will be discussed during pre-job briefings. Line

managers and workers will ensure that hazard controls are properly implemented during performance of the work. Line managers will ensure that workers are trained and qualified to do their assigned tasks and will clearly communicate and reinforce the concept of stop work authority. Workers and line managers will conduct post-job or periodic analyses of work performance relative to safety to provide feedback for continuous improvement. The project fully adopts these site-wide worker safety programs into its management approach.

5.6.3 Nuclear Safety (Safety Basis)

The D&D Prime Contractor manages and operates PORTS in a manner that ensures there is no undue risk of nuclear and process accidents that could adversely affect the health or safety of employees, the general public, or the environment in accordance with 10 CFR 830, *Nuclear Safety Management*. For all activities, the continued assurance of the capability and capacity for safe operations will remain paramount to protect facilities and the environment from unacceptable risks. Nuclear Safety applies to nuclear and process-related activities and shall be in effect during design, construction, normal and abnormal operations, maintenance, modifications, surveillance, transition, deactivation, and D&D. The intent is not only to prevent accidents, but to make provisions to limit (or mitigate) consequences should accidents occur.

The D&D Prime Contractor utilizes nuclear safety programs to identify and analyze hazards for nuclear, radiological, and non-radiological facilities. The hazards identification and analysis for nuclear facilities are implemented using preliminary hazard screening, hazard and accident analysis, and nuclear criticality safety processes. The resultant analyses are used to develop the appropriate safety basis documents and other associated documents for the facilities. The Unreviewed Safety Question (USQ) Process is used to preserve the safety basis of the nuclear facilities and establishes the level of approval required to make a change at PORTS. The D&D Prime Contractor Configuration Management Program provides the process for managing design-related activities and engineering changes to ensure site configuration is maintained appropriately for nuclear and non-nuclear facilities.

5.6.4 Hazard Analysis

For all work, the D&D Prime Contractor conducts in-depth hazard analyses to aid in the identification of workplace hazards that dictate workplace controls and protective equipment. These analyses identify foreseeable hazards and planned protective measures, address further hazards revealed by supplemental site information (e.g., site characterization data, operational analysis, engineering evaluation, as-built drawings, etc.). The hazard analysis is an integral part of the work planning process and involves all levels of management, supervision, and engineering and, most importantly, the personnel performing the planned work activity.

The basis for the D&D Prime Contractor hazard analysis is rigorous preparation for performing work, tested readiness, and continuous improvement. As the D&D Prime Contractor progresses through the preparations for demolition, a graded approach to nuclear operations to ensure safe D&D consistent with facility nuclear risks will be applied. The incorporation of the Institute of Nuclear Power Operations best nuclear safety practices, such as Safety Conscious Work Environment and Human Performance Improvement initiatives, will assure safe work execution. The execution approach integrates nuclear safety excellence and criticality safety concerns into all work efforts. Safety basis implementation will be led by line managers and their direct reports and be consistent with the requirements of 10 CFR 830, *Nuclear Safety Management, Subpart A, Quality Assurance Requirements*, DOE Order 422.1, *Conduct of Operations*, DOE Order 420.1C, *Facility Safety*, and DOE Order 426.2, *Personnel Selection, Training, Qualification and Certification Requirements for DOE Nuclear Facilities.*

A Hazard Analysis (HA) (FBP 2017) has been prepared, and the OSWDF was determined to be categorized as a less than a Hazard Category 3 Nuclear Facility. The OSWDF, while not considered a

nuclear facility, will have its design and operation appropriately evaluated throughout the various project phases by the aforementioned nuclear safety program elements to provide an adequate level of assurance that the existing nuclear safety basis remains uncompromised at PORTS.

5.6.5 Emergency Services

Emergency, fire, medical, medical transport, hazardous material response, and other services are provided by the Security and Emergency Services organization. Emergency medical services are available for both personal- and work-related medical issues requiring immediate medical attention or treatment beyond first aid.

To provide emergency services, the D&D Prime Contractor aligns emergency response personnel and capabilities with the entire PORTS site and will continue to enhance this philosophy by using the Emergency Operations Center structure, Emergency Response Organization, equipment, and personnel capabilities that support implementation, *RCRA Part B Permit Application Section G - Contingency Plan for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*. This plan and associated addenda are the primary components in defining and directing the D&D Prime Contractor emergency planning and response activities.

Compliance with regulations and DOE Orders is gained through the development and implementation of an Emergency Planning Hazards Survey and Hazards Assessment. This document provides the technical basis for developing and implementing Emergency Action Levels and protective actions.

The D&D Prime Contractor uses a comprehensive exercise and drill program to ensure the emergency response for D&D Prime Contractor events and PORTS site events is fully capable of mitigating the risks associated with internal and external events. The *Emergency Management Program* will continue to rely on the PORTS integrated emergency response plan which serves as the primary site planning and response document and will be directly linked with site-wide processes, including active support of the PORTS annual and periodic exercises.

5.6.6 Continuity of Operations

In response to DOE Order 150.1A, *Continuity Programs*, the D&D Prime Contractor will prepare the *Continuity of Operations Plan for Fluor-B&W Portsmouth LLC, Piketon, Ohio* (COOP), which will be used by managers and employees for the awareness and response to various disruptive scenarios. The COOP identifies the D&D Prime Contractor response to various disruptive events, including epidemic and pandemic events, and includes the recovery and reconstitution of D&D, Waste Management, and ER activities, equipment, and services considered Mission Critical Systems after a disaster. The COOP will be activated in the event of an emergency or situation that threatens to disrupt or restrict normal operations. The COOP can also be activated in anticipation of or in recognition of a possible significant emergency or situation that could impact the ability of the D&D Prime Contractor to perform its essential supporting activities.

The D&D Prime Contractor has established predetermined delegation of authority for decision-making when normal channels of direction are disrupted. This delegation of authority includes clear descriptions of the circumstances under which the delegated authorities would take effect and any limits to the authorities delegated. The D&D Prime Contractor has also established a succession to office with accompanying authorities in the event a disruption renders project managers and supervisor unable, unavailable, or incapable of assuming and discharging their duties and responsibilities.

The COOP will be reviewed and updated annually (as a minimum) to ensure information provided is accurate and up-to-date.

5.7 ENVIRONMENTAL MANAGEMENT

Environmental, safety, and health program activities and deliverables will be integrated with all technical and regulatory aspects of the OSWDF CAP-1 Project. Regulatory activities will be incorporated into the integrated engineering design and construction schedule and individual activity work plans.

5.7.1 Environmental Management System

The D&D Prime Contractor conforms to DOE-directed performance metrics that demonstrate the successful implementation of an Environmental Management System (EMS) at PORTS. The DOE objective is to implement sound stewardship practices that are protective of the air, water, land, and other natural and cultural resources impacted by its operations at PORTS. As such, all activities at PORTS are conducted in compliance with applicable laws and regulations providing for the protection of public health and the environment, to reduce the use of procedures and processes that produce hazardous wastes, and to seek ways to continually improve the performance of activities protective of the environment. The D&D Prime Contractor EMS establishes a consistent site-wide approach to environmental protection through the implementation of an EMS as part of the overall ISMS. The EMS provides for the systematic planning, integrated execution, and evaluation of site activities for (1) public health and environmental protection, (2) pollution prevention, (3) compliance with applicable environmental protection requirements, and (4) continuous improvement of the EMS.

Additionally, the D&D Prime Contractor conforms to the applicable requirements of: International Organization for Standardization Standard 14001, EMS; Executive Order 13148, *Greening of Government through Leadership in Environmental Management*; and DOE Order 436.1, *Departmental Sustainability*.

The project activities are integrated with the D&D Prime Contractor EMS as part of the project structure.

5.7.2 Environmental Monitoring

The D&D Prime Contractor environmental monitoring program is designed to meet state and federal regulatory requirements for radiological and non-radiological programs. These requirements are stated in DOE Order 458.1, *Radiation Protection of the Public and the Environment*, Clean Air Act, [Standards of Performance for New Stationary Sources, also referred to as New Source Performance Standards], National Emission Standards for Hazardous Air Pollutants, CERCLA, Resource Conservation and Recovery Act of 1976 (as amended) (RCRA), Clean Water Act (i.e., National Pollutant Discharge Elimination System), and the National Environmental Policy Act of 1969 (NEPA).

The *Environmental Monitoring Plan for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (DOE 2017c) describes the DOE environmental monitoring programs at PORTS, with the exception of groundwater monitoring. Groundwater monitoring, which also includes related surface water monitoring and residential water supply monitoring, is described in the *Integrated Groundwater Monitoring Plan for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio* (DOE 2015e).

The OSWDF will eventually be incorporated into the existing site-wide environmental monitoring program for implementation as applicable.

5.7.3 Environmental Compliance

It is DOE policy that all activities at PORTS are carried out in full compliance with applicable Federal, state, and local environmental laws and regulations, and with the mandatory requirements in the DOE Policies, Notices, Orders, Manuals, and other directives. Compliance with environmental regulations and with the DOE Orders related to environmental protection is a critical part of the operations at PORTS. Compliance with environmental requirements is assessed primarily by Ohio EPA and EPA.

The OSWDF CAP-1 Project will be incorporated into the existing site-wide environmental compliance programs for implementation as applicable.

5.7.4 National Environmental Policy Act

NEPA is the Federal government's basic charter for assuring the protection and wise use of the "human environment" by Federal agencies. NEPA procedures require that Federal agencies such as DOE, identify and consider the potential environmental consequences of their proposed actions early in the project planning process so that they can make informed, environmentally sound decisions regarding project design and implementation. NEPA program implementation and compliance within the DOE complex is mandated by DOE Order 451.1B, *National Environmental Policy Act Compliance Program*. Guidelines for implementing the procedural provisions of NEPA at PORTS are provided in the D&D Prime Contractor's *National Environmental Policy Act Program Description*.

Under a 2002 DOE Policy issued by Beverly Cook, Assistant Secretary for Environment, Safety and Health, *DOE Policies on Application of NEPA to CERCLA and RCRA Cleanup Actions*, DOE relies on the CERCLA process for review of actions to be taken under CERCLA; no separate NEPA document or NEPA process is ordinarily required. This Policy is reinforced by a 1995 U.S. Department of Justice (DOJ) memorandum from Lois Schiffer, Assistant Attorney General, Environment & Natural Resources Division, which states that DOJ's historic position is that NEPA, as a matter of law, does not apply to CERCLA cleanups and further states that the DOJ would defend DOE's decision at a given site to not apply NEPA as part of the CERCLA cleanup process. As a result, for the OSWDF CAP-1 Project, the CERCLA process, which has been used to achieve the WD ROD for the OSWDF will satisfy all DOE requirements under NEPA.

5.7.5 RCRA/CERCLA/Toxic Substances Control Act of 1976 (TSCA)

CERCLA, also known as Superfund, provides statutory authority for responding to releases of hazardous substances into the environment. RCRA is a statutory program that was developed to regulate hazardous wastes from "cradle to grave". At PORTS, RCRA corrective actions are completed under the authority of the "Ohio Consent Decree" while D&D activities are conducted under the authority of the DFF&O. The DFF&O uses CERCLA as the framework for all investigations, decisions, and implementation of D&D actions. In compliance with DOE Order 451.1B, *National Environmental Policy Act Compliance Program*, PORTS has integrated 'NEPA values' into the associated remedial investigation, baseline risk assessment, and feasibility study documents.

The OSWDF CAP-1 Project will comply with applicable Federal, state, and local environmental requirements and standards compliance demonstration for generation, storage, and treatment of hazardous or mixed waste in accordance with the following:

- RCRA
- CERCLA
- TSCA

Since the OSWDF CAP-1 Project falls under the DFF&O using CERCLA as the framework for all investigations, decisions, and implementation, all regulatory requirements will be addressed via the CERCLA process.

5.7.6 Environmental Permitting

The OSWDF CAP-1 Project will comply with applicable Federal, state, and local environmental permitting requirements, unless exempted under CERCLA. The D&D Prime Contractor will obtain all

permits, as applicable, required for construction and operation of the project and will incorporate the project into existing site-wide permitting programs as applicable.

Prior to land disturbance activities, the D&D Prime Contractor will install erosion and sediment controls in accordance with ARARs.

5.8 SOIL DISTURBANCE AND WASTE MANAGEMENT

The location proposed for the OSWDF is outside of known waste management areas. Any area in which soil will be disturbed during construction of the OSWDF will be evaluated to ensure actions are implemented consistent with applicable requirements concerning soil disturbance as stated in the Ohio EPA 1989 Consent Decree and the EPA Administrative Consent Order and to support compliance with applicable environmental laws and regulations, including RCRA and the Clean Water Act. To fulfill these requirements, the D&D Prime Contractor will develop a review and authorization process, *Soil Disturbance*, to ensure that any area planned for disturbance is fully evaluated prior to authorizing soil disturbance.

All waste generated will follow the requirements found in approved Waste Management procedures, which will be flowed down to subcontractors.

5.9 VALUE ENGINEERING AND MANAGEMENT

Value engineering techniques will be used in all phases of the project to achieve the lowest life-cycle cost to accomplish the project technical and functional requirements. According to DOE Guide 413.3-1, *Managing Design and Construction Using Systems Engineering for Use with DOE O 413.3A*, value engineering (also known as value management methodology, value analysis, or value planning) is defined as an organized effort directed at analyzing the functions of systems, equipment, facilities, services, and supplies for the purpose of achieving the essential functions at the lowest life-cycle cost consistent with required performance, quality, reliability, and safety. Value engineering is a method to analyze a project to determine the best value or the best relationship between worth and cost.

Value engineering will be conducted throughout the OSWDF CAP-1 Project through independent reviews of the design packages. The value engineering objectives are to seek the following:

- An evaluation of the OSWDF design from a function/cost standpoint to identify cost-effective design alternatives.
- Alternative design suggestions that may improve performance, construction, and life-cycle costs.
- Suggestions that may potentially improve construction methods or schedules and may introduce flexibility into operations and/or long-term maintenance of the OSWDF.

The recommendations of independent engineering reviews will be evaluated for incorporation into the OSWDF CAP-1 Project design. This process will be documented and the results incorporated into the design no later than the final design package submittal to Ohio EPA.

In addition, other opportunities will be pursued as value engineering is applied for the duration of the project.

5.10 SAFEGUARDS, SECURITY AND VULNERABILITY

5.10.1 Safeguards & Security

The PORTS site has the following designated security areas: General Access Areas, Property Protection Areas (PPAs), and Limited Areas (LAs). The site has automated access controls and Protective Force personnel. Security badges are required to access LAs and PPAs within the site. Personnel, vehicles, hand-carried items, and packages entering and exiting the facility are subject to inspection to deter the unauthorized introduction of prohibited and controlled articles and removal of government assets. The D&D Prime Contractor Protective Force provides armed and unarmed personnel and augments access controls.

DOE assets present within the facilities include Categories III and IV quantities of special nuclear material; attractiveness levels C, D, and E; and DOE property in excess of $5M in value. Nuclear material is controlled on the PORTS site per DOE requirements. Inventory, storage, transfer, reporting, and training requirements have been established. A Nuclear Material Control and Accountability Manager provides oversight for this program and ensures DOE contract requirements are met.

FSS Contractor Cyber Security in conjunction with FSS Contractor Information Technology provides the physical, technical, and administrative controls and risk management processes to ensure the required and appropriate levels of confidentiality, integrity, availability, and accountability are maintained for information stored, processed, or transmitted on electronic systems.

The FSS Contractor provides badge services including processing and issuance of Homeland Security Presidential Directive 12 – badges, visitor badges, temporary badges, and site specific-badges. In addition, the FSS Contractor will process visitor requests, requests for site tours, and other activities requiring access to the site. Requests and justifications for security clearances for assigned personnel are processed and tracked through the FSS Contractor Personnel Security office. Requests for security clearance transfers and extensions will be processed through the FSS Contractor. The FSS Contractor has responsibility for classification and declassification of documents through the site Classification Officer and Derivative Classifiers and Derivative De-classifiers.

The FSS Contractor is also responsible for processing and registration of facility clearances. Companies are processed for a Foreign Ownership, Control, or Influence determination. Additionally, the FSS Contractor provides initial and recurring security training pertaining to site personnel.

A Security Plan (PMA 2017) has been updated that identifies the general Safeguards and Security requirements and security measures that will be implemented during construction, operation, and closure of the OSWDF.

5.10.2 Vulnerability Assessment

DOE Order 413.3B states that prior to CD-2, a Preliminary Security Vulnerability Assessment must be conducted, if applicable, that accounts for the set of applicable safeguards and security requirements, evaluates the methods selected to satisfy those requirements, and addresses any potential risk acceptance issues. The PEP and the PB must be reviewed to ensure that cost, schedule, and integration aspects of safeguards and security are appropriately addressed, all feasible risk mitigation has been identified, and concerns for which explicit line management risk acceptance will be required are appropriately supported.

DOE Guide 413.3-3A, *Safeguards and Security for Program and Project Management*, states that facilities that will be security categories I or II as related to material inventories, roll-up capabilities, and

are not hazard classification categories; contain classified information and/or materials; and/or are DOE 'mission critical' facilities conduct a vulnerability assessment to assess security risks.

DOE Order 470.4B, *Safeguards and Security Program*, states that Safeguards and Security Interest(s) and/or Assets are general terms for any departmental resource or property that requires protection from malevolent acts. It includes, but is not limited to, Federal and contractor personnel; classified information and/or matter; sensitive compartmented information facilities; automated data processing centers; facilities storing, processing, and transmitting classified information and/or matter; vital equipment; special nuclear material; other nuclear materials; certain radiological chemical or biological materials; sensitive unclassified information; or other Departmental property.

Based on the DOE Order requirements for a vulnerability assessment as described above, the OSWDF does not meet the DOE requirements to conduct a vulnerability assessment.

5.11 CONFIGURATION MANAGEMENT

Configuration management is a program that provides a disciplined process that involves both management and technical direction to document the design requirements and the physical configuration of the nuclear facilities. The program ensures that the design, documentation, and physical configuration of the facilities remain consistent and in compliance with the approved safety basis throughout the life-cycle of the facility. The requirement for configuration management is based on the criteria found in DOE-STD-1073-2003, *Configuration Management*, and is invoked by the applicable sections of various DOE Orders, policies, guides, and standards. The project fully adopts this site-wide program into its management approach.

5.12 RECORDS MANAGEMENT/DOCUMENT CONTROL

The D&D Prime Contractor has the requirement to implement a Records Management/Document Control program to capture records created and received through the course of business in a manner consistent with applicable DOE regulations, Orders, and standards. DOE Order 243.1B, *Records Management Program*, is applicable to "contractors that create, receive, use, maintain, disseminate, and/or dispose of DOE records in connection with the performance of DOE-funded tasks or activities."

Records management activities consist of maintaining records from initial creation to final disposition through efficient and systematic control of the creation, receipt, maintenance, use, and disposition of records, regardless of format. These processes are done in compliance with regulatory documents such as DOE Orders, National Archives and Records Administration guidelines, Federal and state laws, and the issued contract.

All project documentation shall be reviewed to ensure compliance with the D&D Prime Contractor's *Records Management and Document Control Plan*. Information copies of records and documents can be retained as desired. All QA records are maintained in accordance with D&D Prime Contractor Quality Assurance Program (QAP) and Federal Records Management Requirements.

Project design input and output documents will be developed and maintained in accordance with D&D Prime Contractor procedures.

The FSS Contractor is responsible for the final stewardship and disposition of records created by the D&D Prime Contractor. The activities performed by the FSS Contractor staff to fulfill the above responsibilities will be executed in accordance with their established procedures and *Records Management Plan* as well as Federal/State/DOE regulations.

FSS Contractor activities for records management will include items such as the following:

- Records Destruction
- Records Transfer
- Records Management
- Record Storage and Archiving

5.13 ENGINEERING

As discussed in Section 5.1, engineering for the OSWDF CAP-1 Project will be performed through the D&D Prime Contractor OSWDF Engineering Group and its Architectural/Engineering subcontractor(s).

5.13.1 Systems Engineering

System engineering is established to ensure operational readiness of systems, to maintain system configuration control, and to support operations and maintenance functions in order to achieve dependable service for systems that are vital to successful operation of hazardous facilities. The program implements various applicable sections of DOE Orders, policies, guides and standards, including the requirement of DOE Order 420.1C, *Facility Safety.*

5.13.2 Design Engineering

Design engineering establishes the requirements and responsibilities for initiation, development, and control of new engineering designs, and modifications to existing designs. The program establishes controls to ensure that new items and processes are designed, or existing designs are modified, using sound engineering and scientific principles and appropriate standards-graded approach consistent with their importance to safety and protection of the environment. The program implements various applicable sections of DOE Orders, policies, guides and standards, and is described in D&D Prime Contractor procedures *Design Control* and *Configuration Management Program Description.*

5.14 QUALITY ASSURANCE

The *U.S. Department of Energy Portsmouth/Paducah Project Office Quality Assurance Program Plan* (DOE 2017d) establishes the QA program requirements for all quality-affecting programs, projects, and activities sponsored by DOE PPPO. DOE PPPO and organizations/contractors supporting PPPO shall implement the applicable requirements of this QAP within their systems for management and control of these activities.

D&D Prime Contractor-performed activities supporting the OSWDF project planning, performance, and management will be compliant with the DOE PPPO-approved, *Quality Assurance Program Description* (QAPD). The QAPD is compliant with the DOE Nuclear Safety Rule 10 CFR 830, *Nuclear Safety Management, Subpart A, Quality Assurance Requirements,* and DOE Order 414.1D, *Quality Assurance*. The QAPD is also the Contractor Assurance Plan which the D&D Prime Contractor uses to comply with DOE Order 226.1B, *Implementation of Department of Energy Oversight Policy*. The QAPD implementation is based upon American Society of Mechanical Engineers (ASME) NQA-1, *Quality Assurance Requirements for Nuclear Facility Applications* (2008, with Addenda through 2009). The QAPD defines appropriate policies, plans, manuals, and implementing procedures for describing and implementing a quality program.

The site QAPD will be fully employed for all activities performed by D&D Prime Contractor employees, including staff-augmented personnel working directly to the D&D Prime Contractor procedures and programs. These activities may include project planning, management, design, evaluation and selection of services and construction subcontractors, subcontractor submittal technical evaluation, procurement, subcontractor oversight, and assessment. No deviations to the QAPD are anticipated for application to this project, and the existing program includes appropriate controls for the anticipated work scope.

The D&D Prime Contractor intends to eventually self-perform many of the work activities. For those activities that are subcontracted, the D&D Prime Contractor subcontractor evaluation and selection process will require the subcontractor to submit a project-specific QA plan for review and approval. The D&D Prime Contractor will specifically identify requirements that the subcontractor QA program must meet, considering the scope of subcontracted activities. The D&D Prime Contractor will also direct the selected subcontractor to flow down all applicable QA requirements to any lower-tier suppliers and subcontractors.

The D&D Prime Contractor QA Organization represents the cognizant quality function for the Project Team. The D&D Prime Contractor self-generated and subcontractor-generated documents prescribing activities affecting quality shall be reviewed and approved, where required by procedure, by D&D Prime Contractor QA to ensure compliance to QAPD requirements and this section of the PEP. Suppliers/subcontractors QA program requirements are specified in applicable procurement documents and D&D Prime Contractor–approved subcontractor QA plans. These documents provide for D&D Prime Contractor review and approval of the suppliers'/subcontractor's QA program as well as independent oversight and assessment of subcontractor and lower-tier subcontract activities as the D&D Prime Contractor deems necessary to ensure full project QA compliance.

The D&D Prime Contractor will oversee and witness design-required quality control (QC) inspections and tests performed by subcontractors on their constructed work. In the event that QC inspections or tests are required to be self-performed, such as for receipt inspection of D&D Prime Contractor -procured items, the D&D Prime Contractor will maintain a fully-qualified inspection function to perform those activities.

5.14.1 Testing and Evaluation

Inspection, testing, and evaluation activities associated with the procurement and construction processes may involve component-level, subsystem-level and system-level inspections and tests. Component-level testing includes receipt inspections and tests and will be performed by qualified QC inspectors. The D&D Prime Contractor maintains a QC organization with inspectors trained and qualified in accordance with a documented program that is consistent with American Society of Nondestructive Testing SNT-TC-1A. These inspectors will perform QC activities on D&D Prime Contractor self-performed work. Subcontractors who procure items or construct subsystems or systems will perform QC inspections in accordance with design specifications using inspectors whose individual qualifications and qualification program are pre-approved by the D&D Prime Contractor.

Subsystem- and system-level testing will be performed in accordance with approved test plans and specifications produced in accordance with design procedures compliant with the QAPD. When the design is produced by a subcontractor to the D&D Prime Contractor, the applicable subcontractor's QA program will be reviewed and approved by the D&D Prime Contractor prior to the accomplishment of design activities. Subcontractor test plans will be formal submittals to the D&D Prime Contractor, requiring review and approval prior to testing. D&D Prime Contractor QA will provide oversight and witnessing of inspection and testing activities in accordance with an inspection and test plan (ITP). This ITP will provide for risk-based graded D&D Prime Contractor oversight based on failure consequences and importance of the inspected or tested item. The grading approach is described in the QAPD and is consistent with DOE Order 414.1D, *Quality Assurance*.

5.15 COMMUNICATIONS MANAGEMENT

The project will use the existing site Public Affairs program to communicate effectively with PORTS site stakeholders and the general public. The D&D Prime Contractor Public Affairs organization will work with DOE to inform key stakeholders (including employees) and the public of PORTS site plans and

activities. Information will be communicated through existing programs such as site employee newsletters and public communiqués.

D&D Prime Contractor Public Affairs will work closely with the DOE PPPO Public Affairs organization, which is the primary point of contact for public inquiries and comments concerning PORTS site activities. D&D Prime Contractor Public Affairs will have regular interface with DOE to share best practices, lessons learned, and recommendations.

As needed, the Public Affairs Manager and staff will support DOE Emergency Response Communications at the PORTS site. The Public Affairs Manager will receive spokesperson training for the PORTS Emergency Response program and will participate in site emergency preparation exercises.

In the event of special circumstances requiring unique external communications activities, the D&D Prime Contractor will work with the project management team and the Public Affairs organizations in the DOE Lexington office and DOE Headquarters to determine the appropriate responses.

5.16 PROJECT REVIEWS

Internal project status reviews may be conducted at any management level within the project, but will primarily be held by the DOE PPPO FPD and D&D Prime Contractor. Status reviews between the DOE PPPO FPD and D&D Prime Contractor will be held at least monthly (more frequently if determined necessary) to provide for discussion of project technical, cost, and schedule progress; performance trends; specific variances to project WBS activities; other issues; and recovery plans implemented to avoid project slips or delays.

As discussed in Section 5.9, independent engineering reviews will be conducted as applicable. Along with these reviews, a constructability review will be conducted to ensure that the design for the OSWDF CAP-1 Project can be constructed using standard construction methods, materials and techniques; the drawings and specifications provide clear, concise information; and that the project can be maintained in a cost-effective manner over the design life.

In addition, formal internal project reviews that use the PDRI will be completed prior to CD-2/3. Annual project peer reviews will be initiated following CD-2 approval.

External reviews will also be performed as discussed in Section 4.7.1.

5.17 TRANSITION TO OPERATIONS

Transition to Operations planning begins during the project conceptual design phase and the transition is finalized during the project execution phase. Transition of the Cell 1, 4, and 5 disposal cells and support facilities includes operating procedures development, operations personnel training, spare parts procurement, construction acceptance and turnovers, management assessment activities, and SOT.

A Project Transition to Operations Plan will be developed during project design and construction. During construction, specified construction acceptance tests and equipment commissioning activities will be performed. The D&D Prime Contractor operating organization and other applicable entities will be included in the oversight and review of these activities**.** Upon completion of construction, acceptance activities will be initiated per D&D Prime Contractor procedure *Facility Turnover and Acceptance*.

The D&D Prime Contractor OSWDF Operations organization will be responsible for operating the Cell 1, 4, and 5 disposal cells and support facilities during SOT. All preparations for the SOT will be initiated prior to construction completion. These preparations include outage activities planning and readiness, operating/testing procedures, operating/testing personnel training, spare parts procurement, and

management assessment. A management self-assessment determination, prior to operational startup and SOT, will be completed per D&D Prime Contractor procedure *Management Self Assessment for Readiness*.

Upon completion of these operating/testing preparations and acceptable management self-assessment, outage activities will be performed and the OSWDF Operations organization will initiate startup and perform the first SOT. At the successful conclusion of the first SOT, the Cell 1 disposal cell and/or support facilities will be partially accepted. After all three liners have been constructed (i.e., Cells 1, 4, and 5), the CD-4 will be submitted for approval.

After operation activity at Cell 1 is complete, a future project (LI/CAP-5) will be requested to cap the cell. Final turnover for long-term stewardship and maintenance of the entire OSWDF will occur with the closure of the last disposal cell constructed and operated to support the PORTS D&D activities. Figure 1.1 in Section 1 depicts the sequence of the Cell Liner and Cell Cap Construction Projects.

5.18 PROJECT CLOSEOUT

Project closeout is the sequence of activities required to complete all remaining project financial matters, satisfy all outstanding contractual requirements, and document the project history. The D&D Prime Contractor has a process for ensuring appropriate actions are initiated and completed to ensure the successful closeout of the project. The OSWDF CAP-1 Project will use the D&D Prime Contractor internal business process and procedures to systematically close out the project after completion.

The completion of project closeout activities is extremely crucial to delivering an unencumbered finished project and ensuring proper records retention. The following list identifies the areas that will be addressed during the D&D Prime Contractor project closeout process:

- Project Completion Notification
- Financial Closeout
- Vendor / Subcontractor Closeout
- Deviations / Change Orders and Finalize the Change Management Log
- Project Invoicing
- Project Payroll
- Initial and Final Closeout Reports (including Lessons Learned)
- Project Records

6. REFERENCES

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D&D PRIME CONTRACTOR POLICIES, PROCEDURES AND GUIDES

Records Management and Document Control Plan
Continuity of Operations Plan
National Environmental Policy Act Program Description
RCRA Part B Permit Application Section G - Contingency Plan for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio,
Emergency Management Program
Soil Disturbance
Configuration Management Program Description
Design Control
Management Self Assessment for Readiness
Worker Safety and Health Program
Variance Analysis and Reporting
Project Management Control System (PMCS) for Earned Value Management
Integrated Safety Management System
Quality Assurance Program Description (QAPD)
Facility Turnover and Acceptance

FSS PROCEDURES

Records Management Plan

DOE GUIDES, ORDERS, POLICIES, AND STANDARDS

DOE Guide 413.3-1	*Managing Design and Construction Using Systems Engineering for Use with DOE O 413.3A*
DOE Guide 413.3-3A	*Safeguards and Security for Program and Project Management*
DOE Guide 413.3-7A	*Risk Management Guide*
DOE Guide 413.3-18	*Integrated Project Teams Guide*
DOE Guide 413.3-18A	*Integrated Project Team Guide for Formation and Implementation*
DOE Guide 413.3-21	*Cost Estimating Guide*
DOE Order 150.1A	*Continuity Programs*
DOE Order 226.1B	*Implementation of Department of Energy Oversight Policy*
DOE Order 243.1B	*Records Management Program*
DOE Order 413.3B	*Program and Project Management for the Acquisition of Capital Assets*
DOE Order 414.1D	*Quality Assurance*
DOE Order 420.1C	*Facility Safety*
DOE Order 422.1	*Conduct of Operations*
DOE Order 426.2	*Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities*
DOE Order 436.1	*Departmental Sustainability*
DOE Order 451.1B	*National Environmental Policy Act Compliance Program*
DOE Order 458.1	*Radiation Protection of the Public and the Environment*
DOE Order 470.4B	*Safeguards and Security Program*
DOE Policy 450.4A	*Integrated Safety Management Policy*
DOE Regulation DEAR, Part 970	*Department of Energy Acquisition Regulation, Part 970, DOE Management and Operating Contracts*

DOE-STD-1073-2003	*Configuration Management*
Executive Order 13148	*Greening of Government through Leadership in Environmental Management*

CODE OF FEDERAL REGULATIONS

29 CFR 1910	*Occupational Safety and Health Standards*
29 CFR 1926	*Safety and Health Regulations for Construction*
10 CFR 830	*Nuclear Safety Management, Subpart A, Quality Assurance Requirements*
10 CFR 830	*Nuclear Safety Management, Subpart B, Safety Basis Requirements*.
10 CFR 851	*Worker Safety and Health Program*

NATIONAL CODES/STANDARDS

ANSI/EIA-748	*Earned Value Management Systems*
ASME NQA-1 – 2008	*Quality Assurance Requirements for Nuclear Facility Applications* (with 2009 Addenda)