Ownership matrix

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1.0 PURPOSE

Washington River Protection Solutions, LLC (WRPS) is responsible for the execution of the Tank Operation Contract (TOC) for U.S. Department of Energy (DOE), Office of River Protection (ORP). This TOC Project Execution Management Plan (PEMP), formerly referred to as the TOC Project Execution Plan, covers all project activities necessary to execute the TOC in support of ORP-0014, "Radioactive Liquid Waste Stabilization and Disposition Project (Tank Farm Project)."

The purpose of this PEMP is to describe the WRPS project management strategy, approach, policies, and methods in compliance with the requirements in DOE O 413.3B, “Program and Project Management for the Acquisition of Capital Assets;” the “Policy and Protocol for Office of Environmental Management Operations Activities,” Mustin, T. 2012; and DOE O 430.1C, “Real Property Asset Management.” In addition to these requirements documents, WRPS uses the best practices for project management provided in DOE Guides (DOE G 413.3 1-21) and DOE Financial Management Handbook.

2.0 PROGRAM DESCRIPTION

2.1 History

The Hanford Site sits on 586 square miles of shrub-steppe desert in Washington State. It is the world’s largest environmental cleanup project. Between 1943 and 1987 the site was used to produce plutonium for the bomb that brought an end to World War II and to meet the challenges of the “Cold War.”

The DOE present mission at the Hanford Site is environmental cleanup. The DOE is restoring the Columbia River Corridor and transitioning the Central Plateau to long-term waste storage/treatment operations. The DOE has two Federal offices at Hanford, the DOE Richland Operations Office (DOE-RL) and the DOE Office of River Protection (DOE-ORP).

The DOE-RL is responsible for nuclear waste and facility cleanup as well as the overall management of the Hanford Site. DOE-RL’s mission is to restore the Columbia River Corridor and transition the Hanford Central Plateau. The DOE-ORP is responsible for cleanup of Hanford Site tank waste. DOE-ORP’s mission is to store, retrieve, and treat Hanford’s tank waste and close the tank farms to protect the Columbia River. Each Office oversees separate contracts held by private companies.

The River Protection Project (RPP) was established by DOE to safely manage, retrieve, and dispose of the high-level mixed radioactive waste stored in underground tanks in the 200 Area of the Hanford Site. The DOE-ORP manages the RPP contract. The RPP is composed of two contracts the TOC DE-AC27-08VR14800 and the Waste Treatment and Immobilization Plant (WTP) contract. DOE-ORP awarded the TOC to WRPS with a Notice to Proceed (NTP) transmitted on July 3, 2008.

The Hanford Site Tank Farms contain approximately 57 million gallons of radioactive and mixed waste in 177 aging underground storage tanks. This radioactive and mixed waste is the result of more than four decades of reactor operations and plutonium production for the primary purpose

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1 All acronyms found in this document are listed in Attachment A.
of national defense. The waste systems and infrastructure that provide storage are aging and pose a threat to the environment. The solution to this problem is to safely and cost-effectively retrieve, process, and immobilize the waste. Then the Hanford Site Tank Farms must execute the compliant closure of the tank farm system so that it no longer poses a threat to the environment. Figure 1 depicts the simplified version of the proposed storage, treatment and disposal process.

Figure 1. Hanford Tank Farm Closure Simplified Flow Diagram.

2.2 Challenges

There are several challenges that WRPS faces with the implementation of the TOC. The challenges include the retrieval of approximately 57 million gallons of radioactive and chemical hazardous waste. Once the waste has been retrieved, permanent closure of the tanks is another challenge. At the WTP, the retrieved, conditioned, blended, and transported waste will go through vitrification. Because of the large volume of Low-Activity Waste (LAW), additional capacity will be needed to supplement the WTP LAW pretreatment capability and must be provided by the TOC. The TOC is building the Low-Activity Waste Pretreatment System (LAWPS) to provide supplemental parallel LAW waste delivery to the vitrification facility. The LAWPS schedule provides for early delivery of LAW waste to the vitrification facility resulting in earlier waste treatment, vitrification, and storage. This supplemental LAW treatment capability will be needed to successfully accomplish vitrification and ensure acceptable disposition of all primary and secondary waste.
3.0 MANAGEMENT STRUCTURE AND RESPONSIBILITIES

3.1 Structure

The organizational structure, functions, responsibilities and authorities associated with the line of authority for TOC project management are represented in Figure 2. The official TOC organizational breakdown is shown in TFC-CHARTER-01.

Figure 2. TOC Management Structure.

3.1.1 Tank Operations Contract Integrated Project Teams

The TOC Presidents Office is comprised of the Deputy Project Manager and three major organizations, Chief Operations Officer, Project Support Services, and One System. These organizations report directly to the Office of the President. Project Operations is comprised of Production Operations, Tank Farms Projects, SST Retrievals, SST Closure and Interim Measures, Organizational Performance Improvement, and Maintenance.

The Project Support Services organization includes, Workforce Resources, Business Operations, Project Integration, External Affairs and the Employee Concerns Program. The One System Organization, includes the Chief Technology Office, One System Operations, and EPC Project
Execution. General Counsel, Environmental, Safety, Health & Quality (ESH&Q), and Internal Audit and Ethics Compliance report directly to the Office of the President.

**Responsibilities of the TOC IPT include:**

- Supporting the DOE-ORP Manager, the Assistant Manager, and the Federal Project Directors
- Implementing the TOC project execution strategy
- Ensuring all project interfaces are identified, completely defined, and managed to completion
- Executing all work in accordance with the established performance measurement baseline (PMB);
- Aligning support functions such as Project Management, Integrated Safety Management, ESH&Q, Security and Emergency Services, Procurement, External Affairs, and Interface Management to support the TOC project
- Protecting the workers, public, and environment while performing TOC activities
- Integrating technical, cost and schedule baselines into a complete management system to ensure all risks are managed
- Providing clear accountability, performance measurements and reporting at the TOC project level
- Planning for frequent, open communication with DOE-ORP, regulators, and stakeholders.

4.0 **IMPLEMENTATION OF DOE PROJECT MANAGEMENT ORDERS AND POLICY**

4.1 **DOE O 413.3B, “Program and Project Management for the Acquisition of Capital Assets”**

The ORP Tank Farm Project, ORP-0014, is a large operations project managed in compliance with DOE O 413.3B for capital asset acquisition projects. WRPS complies with DOE O 413.3B and the fifteen Contractor Requirements Documents (CRD) listed in Attachment 1 to the Order. The CRDs are listed in Attachment B of this PEMP. WRPS utilizes the project management principles detailed in Appendix C of DOE O 413.3B as the framework for successful project execution.

4.2 **DOE O 430.1C, “Real Property Asset Management”**

This order identifies requirements and establishes reporting mechanisms and responsibilities for real property asset management. Acquisition of real property assets through construction must be planned and accomplished to meet program mission projections. DOE O 430.1C defines the acquisition of real property assets of up to $10 million as General Plant Projects (GPP). GPPs are miscellaneous minor new construction projects of a general nature. These projects provide for
design and/or construction and improvements to land, buildings, and utility systems and may include replacement or additions to roads and general area improvements.

4.3 Policy and Protocol for Environmental Management Operations Activities

This document defines the processes and reporting requirements for the conduct of miscellaneous Operations Activities associated with the cleanup and disposal of nuclear and chemical waste which is the residual of the cold war nuclear weapons programs. Operations activities include all work associated with removing liquid waste and residual materials from storage tanks in support of final closure.

5.0 SCOPE OF WORK

The Tank Operations Contract DE-AC27-08RV14800 was established and awarded to WRPS to provide safe, compliant, cost-effective, and energy-efficient services to further the DOE-ORP mission. WRPS has the responsibility for determining the specific methods and approaches for accomplishing all work.

The TOC scope of work includes three classifications of projects. Capital Asset (includes Line Item), General Plant and Operations Activities. All TOC projects are implemented following the Contractor Requirements Documents and principles and practices listed in DOE O 413.3B, using a tailored approach, which involves ensuring the appropriate degree of rigor of DOE requirements based on the project size, risk, complexity and cost. Classification of individual projects will comply with DOE-ORP: 16-TF-0034, “Designation of Tank Operations Contract Project Classifications.” (April 5, 2016)

6.0 PROJECT MANAGEMENT EXECUTION APPROACH

6.1 Project Management Strategy

All activities are performed under a comprehensive project management strategy that:

- Uses Integrated Safety Management System (ISMS) as the work execution approach
- Embeds ESH&Q in each work area
- Fortifies the site nuclear safety culture
- Applies inspection, testing, analysis and acceptance criteria (ITAAC) to maximize successful project operations integration and minimize rework
- Promotes effective use of craft labor, protégés, and other small businesses.
- Applies DOE O 413.3B project management techniques
- Implements a proven strategic business model to ensure consistency and high performance in their projects
Establishes Earned Value Management System (EVMS) as the tool for measuring and ensuring project performance in accordance with American National Standards Institute/Electronic Industries Alliance (ANSI/EIA)-748-C, “Earned Value Management Systems”

- Applies regulatory strategies that support early tank closure and waste immobilization
- Develops an approach that complies with the authorization basis and supports cost-effective work area execution
- Applies a robust project turnover and operational readiness approach to meet DOE O 425.1D, “Verification of Readiness to Start Up or Restart Nuclear Facilities,” requirements and support project closeout
- Embraces and deploys baseline technologies and applies existing and proven innovations that are faster, less expensive, and of equal or greater safety in accordance with TFC-PLN-90.

### 6.2 Project Management Approach

The nature of the TOC necessitates a project management approach that provides managers with the tools, processes, resources, and flexibility to successfully deliver their work scope within budget and schedule. The project management approach is based on AECOM and DOE sites’ best practices. Specifically, WRPS utilizes a proven strategic business model developed to ensure consistency and high performance in projects world-wide. WRPS utilizes past management experience from similar successful projects to plan, safely execute, and control work on the TOC. WRPS executes all projects in accordance with TFC-PRJ-PM-C-02. For projects with Technology Development content guidance is provided in TFC-PLN-90 and TFC-PRJ-TD-C-01 which will be used in parallel to this plan and TFC-PRJ-PM-C-02. WRPS focuses on the following elements to fortify their project management approach:

- Fundamental project management principles as detailed in Appendix C of DOE O 413.3B.
- Applies a tailored approach to project management to assure the appropriate degree of rigor is applied to reflect the cost, risk, schedule and complexity of the project.
- Integrates risk management into every project activity resulting in early risk identification, reduction, and mitigation
- Incorporates lessons learned from federal and commercial projects.

### 6.3 Project Types

Projects managed under the TOC contract fall into two major types of work; High Hazard Operations (HHO) and Engineering, Procurement and Construction (EPC). The term HHO typically denotes heavily regulated activities performed in, or in close proximity to, hazardous and radiological contaminated locations. Other projects including facility installations and upgrades, technology development and information technology are also executed using the HHO process.
EPC projects conducted by the TOC are brownfield operations which involve the design and construction of new facilities for processing, handling, storage and disposition of waste. WRPS is currently developing an EPC project execution process based on the AECOM strategic business model, a method proven to successfully deliver EPC projects.

6.4 Project Classifications and Categories

Cost, schedule, risk, and complexity are used to categorize and tailor Tank Farm projects. This allows for a systematic application of project management principles, processes, and tools to be applied to each project. This process is mandatory for all projects and is described in TFC-PRJ-PM-C-03.

The TOC project categorization and tailoring process involves the following steps:

- Determine whether the project type is an HHO or an EPC
- Determine, based on the project characteristics and size, whether the project is classified as a Capital Asset, General Plant or Operations Activity
- Review project scope in accordance with TFC-PRJ-PM-C-03, and select the project category based on size, cost, risk and complexity.

The following are descriptions are examples of the type of work associated with each category:

- **Category 1**: Category 1 activities typically have high complexity, high to very high risk and last multiple years in duration. They require an extensive amount of planning and coordination between multiple organizations to develop performance baselines and accomplish project objectives and goals. These activities can have significant impact on the facility safety basis. They can require design and construction, and involve multiple systems, which require an integrated start-up. Typically these activities require an operational readiness review to begin operations.

- **Category 2**: Category 2 activities typically have medium to high complexity and medium to high risk. They usually last from one to three years in duration. They require a focused amount of planning and coordination between multiple organizations to develop performance baselines and accomplish the project’s objectives and goals. These activities generally involve relatively minor impact on the facility’s safety basis. They can require design and construction, and a system start-up. This category may require a management self-assessment or readiness assessment to begin operations.

- **Category 3**: Category 3 activities typically have low to medium complexity and low to medium risk. They have a relatively short duration of months to years. They are typically considered non-routine work and simple modifications (design managed modifications), which require a system and/or plant outage. This category of activity typically requires a higher level of planning and coordination by the facility work management team. These activities are considered integral components of the established performance baselines.
• Category 4: The Work Area Managers (Level 1-2) has the authority to determine whether a Category 4 activity will be conducted as a project or an operational activity. This decision will be documented and transmitted to the Project Management Office (PMO) Manager. These activities consist of routine operational or maintenance work. This category also includes normal plant evolutions (such as jumper change outs and high volume transfers) and facility support activities. Typically, work scope is well defined and performed by facility and/or site workers using standard work documents (e.g., work packages) and is managed using project principles. These activities are integral components of established performance baselines.

7.0 PROJECT MANAGEMENT CORE DOCUMENTS

7.1 TOC Project Execution Management Plan

On February 4, 2009, the DOE-ORP approved the WRPS PEMP, Revision B (Contract Deliverable C.3.1.1-1). The WRPS PEMP is updated annually. The PEMP outlines the approach for managing and controlling activities necessary to execute TOC Project ORP-0014, and all associated projects.

7.2 Project Controls System Description

TFC-PLN-147 complies with the requirements of DOE O 413.3B and ANSI/EIA-748-C (13.1.1). The TOC PCSD describes the management processes and controls that are used to implement EVMS, manage and control work, and complete contract requirements. The PCSD also describes:

• The baseline development process and the hierarchy of documents that are used to describe and maintain the TOC Project PMB.

• The process WRPS intends to use for earned value management, change control, configuration control, and document control.

• The organizational breakdown structure (OBS), including roles and responsibilities of each major organization and identification of key management personnel

• A list of project software WRPS proposes to use for project control.

7.3 Interface Management Plan

The TOC Interface Management Plan (IMP) (TFC-PLN-102) is part of the TOC PEMP. The purpose of the TOC IMP is to outline the requirements in the Contract related to the Interface Management program and to define the execution/portfolio management strategy the TOC applies to meet these requirements in support of TOC projects. This includes the technical, administrative, and regulatory interfaces among DOE-RL, DOE-ORP, Prime Contractors or other DOE contractors that provide a service to the TOC. This plan is based on establishing and maintaining the interfaces outlined in the Hanford Site Services and Interface Requirements Matrix (J.3 Matrix) found in Contract No. DE-AC27-08RV14800, the Tank Operations Contract.

8.0 PROJECT BASELINE
The WRPS project baseline ensures the establishment and integration of scope, cost and schedule baselines. These baselines are the product of the initial definition of the scope requirements, milestones and schedule, cost estimates, budgeting, work authorization, and cost accumulation processes. These integrated baselines provide the basis for control and measurement of progress and performance throughout the project. Performance is measured against the project baselines and variations from these baselines are analyzed, reported, and controlled during the life of the project. There are three baselines and they are Scope Baseline, Schedule Baseline and Cost Baseline.

8.1 **Scope Baseline**

The scope baseline contains significant project technical goals and characteristics. It describes a product that meets the DOE-ORP’s functional performance requirements and ensures operability and maintainability of the final product. The TOC, supported by the other defining documentation, identifies the actual DOE-ORP and WRPS approved scope baseline for the project.

8.2 **Schedule Baseline**

The schedule baseline establishes the durations, sequences, and interdependencies of project activities for accomplishing the project milestones. The contract supported by the PEMP and other defining documentation defines the DOE directed project milestones that the internal milestones and detailed schedules support.

8.3 **Cost Baseline**

The cost baseline establishes the estimated cost of executing the project in accordance with the scope and schedule baselines. The DOE-ORP cost baseline (total project cost) includes the contract price and DOE contingency. The contractor cost baseline is established at the contract price level, which includes the contract budget base and profit/fees. The contract budget base minus management reserve is the PMB. The PMB is the cost baseline against which the Earned Value Management System (EVMS) tracks progress and performance.

9.0 **PROJECT INTEGRATION AND MANAGEMENT**

9.1 **Integrated Safety Management System**

TFC-PLN-41 discusses the WRPS ISMS policies, programs, processes, and implementing mechanisms. It also references lower tier documents containing the detailed integration of ESH&Q into work planning and execution. WRPS achieved ISMS readiness on September 10, 2009.

The strategy for implementing the TOC ISMS is through the use of approved site-wide programs. These ISMS site-wide programs meet the DOE and WRPS shared objectives, principles, and functions to accomplish specific work at specific facilities. This system and process establishes company-level, division-level, and program-specific procedures that ensures a consistent, disciplined site approach to safety while performing work. The Environment, Safety, and Health (ESH) programs are incorporated into the work through the same site-wide process contained in the ISMS. As TOC task requirements are identified, methods of compliance are employed to address the hazards of specific activities through the project phases.
9.2 Systems Engineering

The systems engineering (SE) process supports project management in clearly defining the project mission, managing system functions and requirements, establishing bases for informed decision making, and verifying that products and services meet project needs. Additional information on the system engineering process can be found in the TFC-PLN-03. The SE process focuses on defining project needs and required functionality early in the pre-conceptual development cycle. The SE documents and validates requirements, and then proceeds with solution syntheses and verification through operation and decommissioning. TOC tasks use a SE approach in defining the mission need and then evaluating and selecting preferred alternatives. Preparation of a project-specific Systems Engineering Management Plan is optional depending on the size, complexity, and risk of the project.

9.3 Configuration Management

Configuration Management identifies, documents, and controls the design baseline of the products, processes, structure system and components contractually required. TFC-PLN-23 establishes the requirements for configuration management. With successful implementation of configuration management, equipment is identified and documented in sufficient detail to maintain configuration control throughout its designed life.

9.4 Value Engineering

Value engineering (VE) is an organized effort to analyze the functions of systems, equipment, facilities, services, and supplies to achieve the essential functions at the lowest life cycle cost. VE also focuses on meeting required performance, reliability, quality, and safety. DOE requires VE to be performed on capital projects and property asset acquisitions greater than $5M. This is a federal requirement that comes from Public Law 104-106, “National Defense Authorization Act for Fiscal Year 1996;” OMB Circular A-131, “Value Engineering;” DOE O 430.1C, “Real Property Asset Management;” and DOE O 413.3B, “Program and Project Management for the Acquisition of Capital Assets.” For purposes of the TOC, value analysis and evaluation, value management and value control are considered synonymous with VE and are used interchangeably.

VE is implemented using a tailored approach. Engineering evaluates process system alternatives for compliance. Acceptable alternatives are then evaluated on a life-cycle cost basis, including costs of risks (risk management and residual risk values). The goal is to ensure that each project selects the best alternative(s) to pursue to completion. Alternative studies are conducted commensurate with project factors such as complexity, visibility, uncertainties, and technology. In applying this guidance to the preparation of an alternative study, the project manager is responsible for performing the tailoring of principles and practices to the specific characteristics of the project.

9.5 Reliability, Availability, Maintainability (Including Human Factors)

An important part of the SE approach used by the TOC project includes reliability, availability, and maintainability analysis, including human factors engineering. The project’s objectives focus on reducing the potential for human error in system operation and ensuring system safety, operational efficiency, ease of maintainability, and reliability. In meeting these objectives,
specific areas of focus are listed below. These processes are incorporated into the WRPS task designs, when required.

- Examining regulations and codes to identify those with human factors engineering implications.

- Deriving requirements and specifications, which consider human physical and cognitive capabilities and limitations.

- Ensuring reliability, availability, maintainability, and human factors engineering considerations are adequately reflected in specific training programs.

9.6 Inspection, Testing, Test Evaluation, Project Turnover Acceptance and Startup

WRPS uses the appropriate acceptance, test, evaluation and startup methods that align with the project or activity type. The method chosen is also based on safety significance, size, complexity, and risk factors that apply to the work. The methods must also comply with applicable state and federal laws/regulations associated with the task or work activity. WRPS has chosen to apply a proven commercial nuclear Inspection, Testing, Analysis and Acceptance Criteria (ITAAC) approach to integrate these activities throughout the life of the project. All new projects implement the ITAAC process unless the requirement is waived by agreement between the Chief Engineer and the Project Manager.

Project turnover encompasses the orderly turnover of structures, systems, components, supporting documents, and deliverables from the design and construction phases. Project turnover verifies completion of documentation to provide the assurance that equipment, systems, and facility upgrades are ready for acceptance by the operations organization. Turnover activities include development of update data for the safety equipment compliance database and work management systems, and development of instrument lists, spare parts lists, and project as-built drawings matrices. The turnover process also encompasses the transfer of facilities to WRPS by other site contractors and the transfer of facilities from WRPS to other site contractors. Project Closeout Reports are required for all Category 1, 2 and 3 projects and sub-projects. The level of detail in Project Closeout Reports will be determined by the size and complexity of each project or sub-project. Lessons learned sessions are required and must be documented for all TOC projects.

Readiness reviews are conducted when required by DOE O 425.1D. WRPS readiness reviews are developed and formalized through the existing Startup Notification Report process in TFC-PLN-16.

9.7 Quality Assurance

DOE-ORP and WRPS Quality Assurance (QA) procedures are responsive, using a graded approach, to the requirements of DOE O 414.1D, “Quality Assurance,” DOE Safety Rule 10, Code of Federal regulations (CFR) 830 Subpart A, “Quality Assurance Requirements,” and American Society of Mechanical Engineers (ASME) NQA-1, “Quality Assurance Requirements for Nuclear Facility Applications,” as specified in the TOC. The WRPS QA program includes policies, plans, manuals, and procedures for defining a quality program in accordance with ASME NQA-1. It should be noted that other company-level manuals and procedures are linked to the WRPS QA Program Description TFC-PLN-02. These company-level manuals and procedures provide additional guidance and requirements for accomplishing specific tasks or
activities (e.g., engineering, procurement, records management, etc.). Any deviations to the WRPS QA program are documented in project records. Those documents describing activities affecting quality are reviewed for approval by the WRPS Quality department to ensure compliance with current procedures.

9.8 Training

Training programs have been developed for WRPS. These programs establish training requirements for personnel and verify that they are met and maintained. The training program also ensures that the training requirements address ongoing training needs as the project progresses from the design phases through commissioning.

Training and qualification of project personnel is performed in accordance with established training procedures. The training program continuously assesses and evaluates readiness to ensure a trained and qualified work force. The focus of the program and the procedures is to demonstrate that the performance of the tank farm facilities do not create undue risk to employees, the facility, the public and the environment.

9.9 Human Resource Management

Project human resource management includes the processes required to staff a project with a motivated, qualified, and technically competent diverse workforce. In addition to staffing and identifying resource requirements, project human resource management includes budgeting for staffing.

WRPS supports the projects through employee development and mentoring. WRPS employees are provided training opportunities that enable them to perform work safely and efficiently. This is accomplished through continuing education/training programs, qualification and certification, routine and non-routine correspondence, company-sponsored initiative, employee recognition programs, and reward programs.

9.10 Environmental, Safety, Health and Quality Program Activities

Environmental, safety, health, and quality program requirements, activities, and deliverables are integrated with all technical and regulatory aspects of the TOC. This documentation is required to provide the basis for determining applicable requirements and developing an integrated regulatory plan. This document addresses what and when permits and approvals are needed, who is responsible for the permits and approvals, and how issues are resolved. The regulatory activities are incorporated into the integrated engineering design/construction schedule and individual work plans.

The details of these programs and associated requirements are described in the following documents:

- TFC-PLN-02, “Quality Assurance Program Description,” and lower-tier implementing plans and procedures.

9.11 Risk Management
Project risk management is an essential element of every project and is performed in compliance with the PEMP, DOE O 413.3B, and in accordance with the WRPS-57232, “Enterprise Risk and Opportunity Management (EROM) Framework.” TFC-PLN-39 documents the application of the EROM Framework to the River Protection Project mission and program. Line Item and POA category 1 projects document the application of the EROM Framework in respective EROM plans. Category 2 and 3 POAs develop their risk registers using a tailored approach. Category 4 POA risks are documented in the work package.

9.12 Work Authorization and Funding

Work authorizations are provided to the Control Account Managers (CAM) by the Tank Operations Project Manager or their level 1 Managers via approved Baseline Change Requests (BCR). Funding allocation is provided with the project direction notice (PDN) as documented in TFC-PRJ-PC-C-12.

Funding is provided to WRPS via DOE’s annual federal budget process.

10.0 PROJECT CONTROLS SYSTEM

The WRPS Project Controls System, as discussed in TFC-PLN-147, “Project Controls System Description,” implements the WRPS EVMS Policy and provides guidance for the operation of the Project Controls System. The WRPS Project Controls System Description has been developed based on meeting the intent of the 32 guidelines outlined in the American National Standards Institute/Electronic Industries Association (ANSI/EIA)-748, “Earned Value Management Systems,” the industry standard for Earned Value Management, and to satisfy DOE Earned Value Management policies, orders, regulations, guidelines, etc.

10.1 Work Breakdown Structure

A WBS is used for project planning, estimating, scheduling, and performance measurement. The ORP-0014 project WBS structure is in alignment with the TOC FY2009-16 Near Term Baseline which represents the PMB established under the current contract modification.

10.2 Organizational Breakdown Structure

The WRPS OBS assigns organizational responsibility for the TOC project scope. The OBS helps management to focus on establishing the most efficient organization by taking into consideration availability and capability of management and technical staff, including subcontractors, to achieve project objectives (see Section 5.1).

10.3 Project Estimate

Formal project estimates are completed at predetermined points in the project life. The accuracy of the estimates increase as the level of project definition increases and project risks and constraints are better defined. Early in the project, the cost estimates support the recommended alternative and acquisition strategy. As the project matures, parametric estimates and engineering estimates are used to refine the project cost estimate. These estimates are used to assess whether the project’s cost is affordable and also to forecast budget and funding needs.
10.3.1 Contingency

Contingency is the portion of the project budget that is available for risk uncertainty within the project scope. Contingency is included in the Total Project Cost (TPC) and is held by DOE-ORP. Additional information can be found in TFC-PLN-39.

10.3.2 Management Reserve

Management reserve is held by the TOC in a separate account that is not part of the PMB. Management reserve is used to address the impact of realized TOC risk and/or to mitigate known residual TOC risk. WRPS developed a graded risk management approach process that leveraged key elements of DOE G 413.3-7A (e.g., risk planning, identification, assessment, and mitigation identification) to determine an appropriate amount of management reserve. The TOC Project Manager has authority over the TOC management reserve.

10.4 Buy Back Process

WRPS utilizes the Buy Back process as a means to accelerate the TOC work scope. A Buy Back list was implemented during FY2009 and continues to be used throughout the term of the TOC. The Buy Back List is a document that tracks new scopes of work and accelerated scopes of work from the Out-Year Planning Estimate Range (OPER) planned beyond the end of the current project. The Buy Back List captures unfunded scope currently in the baseline or additional scope as directed by DOE-ORP. Items on the Buy Back List can be funded with project under run funds.

10.5 Project Schedule

Development of an integrated schedule with milestone tracking is required for the TOC project. Scheduling facilitates effective planning, statusing, critical path management, and variance analysis. The scheduling process supports the integration of the scope, schedule, and cost objectives. This is done by documenting a logical sequence of work through the creation of relationships and interdependencies that determines total work time and the related critical path. This process ensures that resource planning, performance measurement, and the project objectives are supported. A PMB schedule has been developed for the life cycle of the TOC project and is designated with the file name Summary Life Cycle Schedule–Baseline (SLCS-BL).

10.6 Baseline Change Control

The integrity of the WRPS PMB and the assessment of project performance are dependent on maintaining the validity of the PMB throughout the performance period. To ensure that the PMB remains valid, WRPS maintains a Baseline Change Control (BCC) procedure TFC-PRJ-PC-C-12, which provides a timely, formal, and documented process that:

- Manages and documents changes to project scope, cost, and schedule, cost baseline documents, and the PMB. This prevents modifications to the baseline unless authorized per the change control process. The PMB includes only authorized scope for the project.

- Ensures that scope, schedule, and cost baselines are always processed together to facilitate accurate performance measurements.
• Ensures all budget revisions are reconcilable and traceable to authorized targets and control account budgets.

• Ensures cost effective, accurate, timely, and properly controlled baseline changes are at appropriate levels within the project are based on formal thresholds and limits of authority.

• Accommodates emergency changes.

• Controls retroactive changes.

• Maintains a record log of all BCRs actions in process, approved or declined. The BCR log is maintained in the Tank Farm Reporting system and is under configuration control by the Change Control Administrator.

The BCC authority depends on the magnitude of the change. Authority levels are identified in the Baseline Change Control procedure.

10.7 Change Control Board

The WRPS Project Manager or a delegate manages changes to the TOC Project Baseline using BCRs in accordance with approved change control procedures. A Change Control Board (CCB) is used to ensure the BCRs are reviewed by the right decision makers. The approval levels are established following the guidelines of the WRPS CCB. The CCB is composed of the WRPS Project Manager, Project Integration Manager, Project Operations Manager, Production Operations Manager, Tank Farm Projects Manager, Single-Shell Tank Retrieval & Closure Manager, Prime Contract Manager, Strategic Planning and Technology Manager, Project Controls Manager, and the Baseline Management Manager.

A Project Baseline Change Control Log is kept in the Tank Farm Reporting System. Reallocation and/or use of ORP contingencies (WRPS Management Reserve, and Undistributed Budget) as a result of baseline changes is recorded in the WRPS Program Log. A BCR for new scope must be approved to document the approval of new work. More information on change control can be found in the TFC-PRJ-PC-C-12.

10.8 Baseline Performance Measurement and Reporting
(13.1.6)

Providing timely and accurate project performance and analysis is essential to the successful management of the project. WRPS conducts project performance meetings monthly; more often if it is warranted.

The Earned Value Management System is used as the basis for project performance measurement. Earned value management processes, along with critical path analysis, are utilized by all levels of management to ensure effective project execution. Data produced by the EVMS is timely and of sufficient quality to provide an effective foundation for management decisions. Performance analysis is a continuous activity. The integrated project scope, schedule, and cost data are gathered and interpreted into project status information. Significant current or potential problems are identified and root causes determined. Alternative courses of action are assessed and corrective action is taken if necessary.
The reporting systems for the project are structured to gather project status information for all management levels (i.e., CAMs through senior WRPS management, WRPS reporting to DOE-ORP, and DOE-ORP reporting to DOE Headquarters). Reports are prepared using performance data from established project control and site business systems to ensure consistent use of approved formats, accuracy, data at the correct level of detail, and commitment to due dates.

Contract performance reports are provided to DOE-ORP at least monthly.

The reports submitted to ORP are in five formats listed below:

- **Format 1** – Provides data to measure cost and schedule performance by summary level WBS. It also provides monthly updates for authorized unpriced work, undistributed budget, and management reserve.

- **Format 2** – Provides cost and schedule performance data by WRPS responsible organization structure.

- **Format 3** – Provides the budget baseline plan against which performance is measured.

- **Format 4** – Provides staffing forecasts for correlation with the budget plan and cost estimates.

- **Format 5** – Provides a narrative report used to explain significant cost and schedule variances as well as other identified contractual problems and topics.

WRPS provides planning, budgeting, and actual performance data input to DOE-ORP. DOE-ORP uses the input to report to DOE Headquarters through the on-line Integrated Planning, Accountability, and Budgeting System (IPABS) Information System. IPABS is the project-based management system that supports the DOE Environmental Management Program.

### 10.9 Variance Analysis

Variance Analysis identifies the deviations from the plan and provides effective analysis of scope, cost and schedule. The results provide management the ability to rapidly and effectively implement corrective actions. The Contract Performance Reports generated from the project control systems provide the CAMs the metrics to assess the performance of their assigned Control Accounts. All metrics are updated monthly and provide management the ability to:

- Assess actual progress, costs incurred, and their comparison to baseline plans

- Identify and analyze significant variances between planned and actual performance, which leads to the initiation of corrective action

- Structure and summarize the status, progress, and analytical data to report to all levels of management

- Assemble and present the information in formal, contractually required reports for submittal to DOE-ORP.
Control Accounts with cost and schedule variances exceeding thresholds for current month and contract to date are required to submit variance explanations for input to the Tank Farm Project Management (TFPM) performance module. The Control Account Manager (CAM) provides an accurate description of the problem. The description focuses on the root cause, rather than symptoms. This analysis includes identifying the cause of the variance, determining the impact on schedule, determining the effect on the Variance at Completion, and specifying the corrective action(s). The variance explanations, impacts, and corrective actions are maintained and archived in the TFPM system. Variance analysis and corrective actions are updated monthly in the TFPM system and are tracked until closed. CAMs are responsible for the monthly status updates for corrective actions.

10.10 Estimates at Completion

The Estimate at Completion (EAC) is a realistic forecast of the final cost of a defined scope of work (lifecycle or contract). Completion can be defined as when the project is finished or at the end of the fiscal year in the case of fiscal year EACs/spend forecasts. The EAC is calculated as the actual cost of work performed (ACWP), plus estimate to complete (ETC). The key to preparation of an EAC is accurately forecasting and phasing the ETC for the remaining work scope within the WBS elements. Fiscal year EACs and contract period EACs are prepared monthly as part of the performance reporting process, unless otherwise directed. The fiscal year EAC is only based on authorized and funded work scope. Fiscal year and contract period EACs are entered in the Tank Farm Project Management module at level 6 of the WBS. Life cycle EACs are prepared at least annually.

In the case of construction projects, at designated times during the life of the Project a comprehensive estimate is developed, such as at completion of conceptual design and completion of final design. The estimate is generally prepared by the design agent and becomes the new project EAC and baseline when a BCR is prepared and approved.

10.11 Monthly Performance Reports

The TOC-PM requires performance reports that address all ORP-0014 project activity. The reports discuss performance, including current and to date costs, variance analysis, safety metrics, technical issues, and corrective actions.

10.12 Quarterly Project Reviews

The TOC-PM provides quarterly project reviews to DOE-ORP. The quarterly project review discusses TOC performance and is presented to the DOE-ORP Manager.

10.13 Annual Performance Report

WRPS maintains a performance scorecard that documents the EVMS performance data for the TOC work scope. The scorecard is formally transmitted to the DOE-ORP at the end of each fiscal year.

11.0 PROJECT REVIEW BOARD
The Project Review Board (PRB), a function of the PMO, supports the TOC by performing detailed, independent, effectiveness and performance-based evaluations of critical projects. The PRB focuses on program and procedure compliance, project management, and overall project health. The PRB provides direct, factual, and unfiltered feedback to the TOC-PM.

12.0 PROJECT EXECUTION PLAN MODIFICATION

Revisions to the operating contract may require that this PEMP and/or the attachments be updated or revised. DOE-ORP approval is required for major changes to this PEMP.

13.0 SOURCES

13.1 Requirements

2. TFC-PLN-02, “Quality Assurance Program Description.”
4. DOE O 413.3B, “Program and Project Management for the Acquisition of Capital Assets.”
5. DOE O 430.1C, “Real Property Asset Management.”

13.2 References

1. 10 CFR 830, Subpart A, “Quality Assurance Requirements.”
2. 48 CFR 970.5223-1, “Integration of Environment, Safety and Health into Work Planning and Execution.”
4. DOE G 413.3-1, “Managing Design and Construction Using Systems Engineering for Use with DOE O 413.3A.”
5. DOE G 413.3-2, “Quality Assurance Guide for Project Management.”
6. DOE G 413.3-3A, “Safeguards and Security for Program and Project Management.”
7. DOE G 413.3-4A, “Technology Readiness Assessment Guide.”
9. DOE G 413.3-6A, “High Performance Sustainable Building.”
10. DOE G 413.3-7A, “Risk Management Guide.”
12. DOE G 413.3-10A, “Earned Value Management System (EVMS).”
13. DOE G 413.3-12, “U.S. Department of Energy Project Definition Rating Index Guide.”
16. DOE G 413.3-16A, “Project Completion/Closeout Guide.”
17. DOE G 413.3-17, “Mission Need Statement Guide.”
19. DOE G 413.3-19, “Admin Change 1, Staffing Guide for Project Management.”
20. DOE G 413.3-20, “Change Control Management Guide.”
22. DOE O 413.3B, “Program and Project Management for the Acquisition of Capital Assets.”
23. DOE O 414.1D, “Quality Assurance.”
24. DOE O 425.1D, “Verification of Readiness to Start Up or Restart of Nuclear Facilities.”
25. DOE O 430.1C, “Real Property Asset Management.”
<table>
<thead>
<tr>
<th>Document Page</th>
<th>TFC-PLN-84, REV E-1</th>
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<tbody>
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<td>Issue Date</td>
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31. RPP-6113, “WRPS Acquisition Plan.”

32. TFC-BSM-CP_CPR-C-05, “Procurement of Services.”

33. TFC-BSM-CP_CPR-C-17, “Interface Management.”

34. TFC-BSM-IRM_DC-C-07, “Vendor Processes.”

35. TFC-CHARTER-01, “Tank Operations Contractor Charter.”

36. TFC-ENG-DESIGN-C-06, “Engineering Change Control.”

37. TFC-ENG-DESIGN-P-17, “Design Verification.”

38. TFC-OPS-MAINT-C-01, “Tank Operations Contractor Work Control.”


40. TFC-PLN-16, “Operational Readiness Program Plan.”


42. TFC-PLN-41, “Integrated Management System Description.”

43. TFC-PLN-47, “Worker Safety and Health Program.”

44. TFC-PLN-72, “Project and Facility Transition and Closeout Program Plan.”


46. TFC-PLN-102, “TOC Interface Management Plan.”

47. TFC-PLN-123, “Environmental Management System Description.”

48. TFC-PLN-147, “Project Controls System Description.”

49. TFC-PRJ-CM-C-01, “Construction Management.”

50. TFC-PRJ-PC-C-12, “Baseline Change Control.”


52. TFC-PRJ-PM-C-02, “Project Management.”

53. TFC-PRJ-PM-C-03, “Project Categorization and Tailoring.”

54. TFC-PRJ-PM-C-28, “Project Turnover and Closeout/Suspension.”
55. TFC-PRJ-TD-C-01, “Technology Development, Maturation, and Risk Management.”

## ATTACHMENT A – LIST OF ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>ACWP</td>
<td>Actual Cost of Work Performed</td>
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<tr>
<td>ANSI</td>
<td>American National Standards Institute</td>
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<tr>
<td>ASME</td>
<td>American Society of Mechanical Engineers</td>
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<tr>
<td>BCC</td>
<td>Baseline Change Control</td>
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<td>BCR</td>
<td>Baseline Change Request</td>
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<td>CCB</td>
<td>Change Control Board</td>
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<tr>
<td>CD</td>
<td>Critical Decision</td>
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<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
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<tr>
<td>CLIN</td>
<td>Contract Line Item Numbers</td>
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<td>DOE</td>
<td>Department of Energy</td>
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<td>DOE-RL</td>
<td>DOE Richland Operations Office</td>
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<td>DOE-ORP</td>
<td>DOE Office of River Protection</td>
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<tr>
<td>EAC</td>
<td>Estimate at Completion</td>
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<tr>
<td>EIA</td>
<td>Electronic Industries Alliance</td>
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<tr>
<td>EPCC</td>
<td>Engineering, Procurement, Construction, and Commissioning</td>
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<tr>
<td>ESH</td>
<td>Environment, Safety, and Health</td>
</tr>
<tr>
<td>ESH&amp;Q</td>
<td>Environment, Safety, Health &amp; Quality</td>
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<tr>
<td>ETC</td>
<td>Estimate to Complete</td>
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<tr>
<td>EVMS</td>
<td>Earned Value Management System</td>
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<td>FY</td>
<td>Fiscal Year</td>
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<tr>
<td>IMP</td>
<td>Interface Management Plan</td>
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<tr>
<td>IPABS</td>
<td>Integrated Planning Accountability and Budget System</td>
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<td>IPT</td>
<td>Integrated Project Team</td>
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<tr>
<td>ISMS</td>
<td>Integrated Safety Management System</td>
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<tr>
<td>ITAAC</td>
<td>Inspection, Testing, Analysis and Acceptance Criteria</td>
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<tr>
<td>LAW</td>
<td>Low-Activity Waste</td>
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<tr>
<td>NTP</td>
<td>Notice to Proceed</td>
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<tr>
<td>OBS</td>
<td>Organizational Breakdown Structure</td>
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<td>OECM</td>
<td>Office of Engineering and Construction Management</td>
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<td>OPER</td>
<td>Out Year Planning Estimate Range</td>
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<td>ORP</td>
<td>Office of River Protection (Department of Energy)</td>
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<tr>
<td>PBS</td>
<td>Project Baseline Summary</td>
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<tr>
<td>PCSD</td>
<td>Project Control System Description</td>
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<td>PDN</td>
<td>Project Direction Notice</td>
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<td>PEMF</td>
<td>Project Execution Plan</td>
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<td>PMB</td>
<td>Performance Measurement Baseline</td>
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<td>POA</td>
<td>Projectized Operational Activities</td>
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<td>Project Review Board</td>
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<td>RMP</td>
<td>Risk Management Plan</td>
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<td>RPP</td>
<td>River Protection Project</td>
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<td>SE</td>
<td>Systems Engineering</td>
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<td>SLCS-BL</td>
<td>Summary Life Cycle Schedule –Baseline</td>
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<td>SST</td>
<td>Single-Shell Tanks</td>
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<td>TFPM</td>
<td>Tank Farm Project Management</td>
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<td>TOC</td>
<td>Tank Operations Contract</td>
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ATTACHMENT A – LIST OF ACRONYMS (cont.)

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>TOC-PM</td>
<td>TOC Project Manager</td>
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<tr>
<td>TPA</td>
<td>Tri-Party Agreement</td>
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<tr>
<td>TPC</td>
<td>Total Project Cost</td>
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<td>VE</td>
<td>Value Engineering</td>
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<td>WAM</td>
<td>Work Area Manager</td>
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<tr>
<td>WBS</td>
<td>Work Breakdown Structure</td>
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<tr>
<td>WTP</td>
<td>Waste Treatment and Immobilization Plant</td>
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<td>WRPS</td>
<td>Washington River Protection Solutions.</td>
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<tr>
<td>Requirement Number</td>
<td>Actual Requirement Language</td>
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</table>
| 1.                 | Except for firm fixed –price contracts the Contractor shall:  
• Employ an Earned Value System (EVMS) prior to Critical Decision (CD)-2 for projects greater than or equal to $20 million. The system shall be compliant with ANSI/EIA-748C (or as required by the contract) in accordance with contract clause FAR Subpart 52.234-4, EVMS.  
• Self-certify the EVMS prior to CD-3 for projects with a total project cost less than $50 million to determine compliance with ANSI/EIA-748C (or as required by the contract) in accordance with contract clause FAR Subpart 51-234-4, EVMS.  
• Annually conduct a self-surveillance of the EVMS confirming continued compliance with ANSI/EIA-748C (or as required by the contract) in accordance with contract clause FAR Subpart 52-234-4, EVMS. | TFC-PLN-147, TFC-PRJ-PM-C-02 | The PCSD contains a compliance matrix, which identifies EVMS requirements and how the WRPS EVMS meets them. TFC-PRJ-PM-C-02, “Project Management,” requires use of EVMS to measure project execution for all project types. The WRPS PCSD was provided to ORP along with the TOC PEMP for approval and future DOE Office of Engineering and Construction Management (OECM) validation. |
| 2.                 | The Contractor shall submit monthly project performance data beginning no later than three months following CD-2 for projects having a total project cost greater than or equal to $20 million.  
 a. For cost reimbursement contract, required project performance data shall include:  
• ANSI/EIA-748C earned value;  
• Earned value time-phased incremental cost and quantity;  
• Management reserve;  
• Schedule;  
• Variance analysis; and  
• Risk Management data.  
 b. Under a firm fixed-price construction contract, EVM is not mandated by the Government. However, it is not discouraged, if used by a contractor to manage its projects as a standard business practice. Unlike a cost reimbursement contract, firm fixed-price contracts are not subject to adjustment on the basis of the contractor’s cost experience in performing the contract. Management of firm fixed-price construction projects are accomplished through establishment of performance milestones, schedules, and percentage of project completion. For construction contracts, FAR Subpart 52.232-5 governs the payment provision and the data that the contractor must provide to support its estimate of work accomplished. Substantiation includes an itemization of the | TFC-PRJ-PM-C-02, TFC-PLN-84, TFC-PLN-147 | TFC-PRJ-PM-C-02, “Project Management,” requires monitoring of project execution and status reporting in accordance with the TOC PEMP, and PCSD. WRPS will publish monthly performance details for the TOC project. The TOC Project Manager will provide quarterly project reviews to DOE-ORP. Category 1 through 4 projects will provide monthly performance data for the TOC PM. Category 1 projects with a Total Project Cost > $100M will do their monthly status reporting in IPABs after CD 2 approval. WRPS will publish monthly performance details for project 0014. The TOC PM will provide quarterly project reviews to DOE-ORP. |
### ATTACHMENT B – CONTRACTOR REQUIREMENTS DOCUMENT DOE ORDER 413.3B, “PROGRAM AND PROJECT MANAGEMENT FOR THE ACQUISITION OF CAPITAL ASSETS, ATTACHMENT 1” (cont.)

<table>
<thead>
<tr>
<th>Requirement Number</th>
<th>Actual Requirement Language</th>
<th>WRPS Implementation Document(s)</th>
<th>Language that demonstrates compliance</th>
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<tbody>
<tr>
<td>2. (cont.)</td>
<td>amounts requested, related to the various elements of work required by the contract covered by the payment requested and a listing of the amount included for work performed by each subcontractor under the contract, the total amount of each subcontract under the contract, and amounts previously paid to each subcontractor under the contract. While firm fixed-price construction projects cannot require the regular submission of cost data as with a cost reimbursement contract, successful project and contract execution is highly dependent on well-defined requirements that serve as the foundation upon which performance milestones are developed, accomplished, and evaluated. c. Except for firm fixed-price contracts, the data shall be submitted by the prime contractor electronically by uploading the data into the Project Assessment and Reporting System (PARS II) in accordance with the “Contractor Project Performance Upload Requirements” document maintained by the Office of Engineering and Construction Management (OECM). Unless OEMC has granted a temporary exemption, all requested data shall be submitted timely and accurately. Data shall be loaded into PARS II no later than the last workday of every month. This data shall be current as of the close of the previous month’s accounting period. Ad hoc or periodic reporting by the contractor may be required earlier than CD-2 as specified in the contract.</td>
<td>RPP-6113, TFC-PRJ-PM-C-02, TFC-BSM-CP_CPR-C-05</td>
<td>RPP-6113 describes the TOC acquisition strategy for obtaining materials and services. TFC-PRJ-PM-C-02 refers the project manager to the Project Roadmap which instructs the project manager in step S9 to update the TOC acquisition strategy or develop one (where required). TFC-BSM-CP_CPR-C-05 covers procurement of services and under certain circumstances defined in Federal Acquisition Regulations, requires completion of an Acquisition Planning form regardless of project type.</td>
</tr>
<tr>
<td>3.</td>
<td>For project contracts to be awarded as subcontracts by the Contractor, the Contractor shall develop a written Acquisition Plan, if applicable. The Acquisition Plan shall receive the Contracting Officer’s concurrence</td>
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### ATTACHMENT B – CONTRACTOR REQUIREMENTS DOCUMENT DOE ORDER 413.3B, “PROGRAM AND PROJECT MANAGEMENT FOR THE ACQUISITION OF CAPITAL ASSETS, ATTACHMENT 1” (cont.)

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<tbody>
<tr>
<td>4.</td>
<td>Technical performance analyses and corrective action plans shall be reported to DOE for variances to the project baseline objectives resulting from design reviews, component and system tests, and simulations.</td>
<td>TFC-PRJ-PM-C-02, TFC-PLN-84, TFC-PLN-147</td>
<td>TFC-PRJ-PM-C-02, “Project Management,” requires monitoring of project execution and status reporting in accordance with the TOC PEMP, and PCSD. The TOC PEMP in Section 13.8 states that one purpose of baseline performance measurement and reporting is to support development of corrective actions (when required). The PCSD provides additional reporting direction.</td>
</tr>
<tr>
<td>5.</td>
<td>A critical path schedule and a resource-loaded schedule must be developed and maintained for the project. As a minimum, resource-loaded schedules must contain labor, material and equipment costs to include unit prices and quantities. For firm fixed-price contracts, the total project cost must be included in the resource loaded schedule.</td>
<td>TFC-PRJ-PM-C-02, TFC-PLN-147</td>
<td>TFC-PRJ-PM-C-02, “Project Management,” requires development of a project schedule for each project type. The PCSD describes how TOC schedules are developed and notes that capability exists to identify critical path activities.</td>
</tr>
<tr>
<td>6.</td>
<td>Project technical, cost, and schedule risks must be identified, quantified, and mitigated throughout the life of the project. A Risk Management Plan (RMP) will be developed to cover processes and procedures that will be implemented to address risk assessment (qualitative and quantitative), risk monitoring, risk reporting and lessons learned. The contractors RMP must receive concurrence from DOE in accordance with contract requirements.</td>
<td>TFC-PLN-84, TFC-PRJ-PM-C-02, TFC-PRJ-PM-C-03, TFC-PLN-147, TFC-PLN-39, TFC-PRJ-PC-C-05, TFC-PRJ-PC-C-13</td>
<td>The TOC PEMP Section 11.0 requires every project to perform risk management. TFC-PRJ-PM-C-02, “Project Management,” requires performance of risk management for every project type. The PCSD also discusses how risk management activities interface with project baselines. TFC-PLN-39,” Risk and Opportunity Management Plan,” is the TOC risk management plan and discusses and analyzes TOC level risks. TFC-PRJ-PC-C-13, “Risk and Opportunity Management,” describes the TOC risk management process. TFC-PRJ-PM-C-03, “Project Categorization and Tailoring,” describes project tailoring and requires projects to address how they intend to execute risk management.</td>
</tr>
<tr>
<td>7.</td>
<td>The approved integrated contractor technical, cost and schedule baseline shall be maintained using appropriate change control processes (e.g., Change Control board) as defined in the Project Execution Plan (PEMP).</td>
<td>TFC-PLN-84, TFC-PRJ-PM-C-02, TFC-PLN-147, TFC-PRJ-PC-C-12</td>
<td>The TOC PEMP discusses the development of the TOC project baseline. TFC-PRJ-PM-C-02, “Project Management,” requires development of a project baseline for each project type. The PCSD Further discusses the TOC baseline and baseline change control. TFC-PRJ-PC-C-12, “Baseline Change Control,” is the TOC procedure that governs baseline change request preparation and use of a contractor level change control board.</td>
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<tr>
<td>Requirement Number</td>
<td>Actual Requirement Language</td>
<td>WRPS Implementation Document(s)</td>
<td>Language that demonstrates compliance</td>
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<td>8.</td>
<td>A configuration management process must be established that controls changes to the physical configuration of project facilities, structures, systems, and components in compliance with ANSI/EIA-649A, National Consensus Standard for Configuration Management, and DOE-STD-1073-2003. This process must also ensure that the configuration is in agreement with the performance objectives identified in the technical baseline and the approved quality assurance plan.</td>
<td>TFC-PRJ-PM-C-02, TFC-PLN-23, TFC-ENG-DESIGN-C-06, TFC-ENG-DESIGN-P-17, TFC-BSM-CP_CPR-C-17 TFC-BSM-IRM-STD-02</td>
<td>TFC-PRJ-PM-C-02, “Project Management,” requires all project types to operate under the TOC QA program and to add any additional QA requirements into a PEMP. TFC-PLN-02, “Quality Assurance Program Description,” contains the TOC configuration management requirements, which Projects implement through TFC-ENG-DESIGN-C-06, “Engineering Change Control,” TFC-ENG-DESIGN-P-17, “Design Verification,” and TFC-BSM-CP_CPR-C-17, “Interface Management.”</td>
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<td>9.</td>
<td>A Value Management/Engineering (VM/VE) process shall be used. Annually, contractors shall submit a progress report identifying VE accomplishments to OECM. Refer to DOE O 430.1C, OMP Circular A-131, and PL 104-106.</td>
<td>TFC-PLN-84, TFC-PRJ-PM-C-02, TFC-PRJ-PM-C-03 TFC-ENG-DESIGN-D-17.1</td>
<td>The TOC PEMP in Section 9.4 requires the application of VE using a tailored approach. TFC-PRJ-PM-C-02, “Project Management,” requires project tailoring in accordance with TFC-PRJ-PM-C-03, “Project Categorization and Tailoring.” The project tailoring checklist has an item dealing with the application of VE and provides an opportunity for projects to explain when and how they intend to apply VE, and capture the rationale for their decision.</td>
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<tr>
<td>10.</td>
<td>A Quality Assurance Program must be developed and implemented for the contract scope of work in accordance with DOE O 414.1D, Attachment 1 (CRD) and 10 CFR Part 830, Subpart A. For nuclear-related activities, the applicable national consensus standard shall be ASME NQA-1-2008 (Edition) and NQA-1a-2009 (Addenda).</td>
<td>TFC-PLN-84, TFC-PLN-02, TFC-PRJ-PM-C-02</td>
<td>TFC-PLN-02, “Quality Assurance Program Description” describes the TOC QA program and is compliant with 10 CFR 830, Subpart A and DOE O 414.1C, “Quality Assurance.” TFC-PRJ-PM-C-02, “Project Management,” requires projects to operate under TFC-PLN-02, and to supplement the TOC QA program as necessary by including any additional requirements in a PEMP. In a letter dated September 19, 2011 DOE-ORP directed WRPS to continue to implement NQA-1-2004 (Edition) and NQA-1a-2005 and NQA-1b-2007 (Addenda).</td>
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### Attachment B – Contractor Requirements Document

**Doe Order 413.3B, “Program and Project Management for the Acquisition of Capital Assets, Attachment 1” (cont.)**

<table>
<thead>
<tr>
<th>Requirement Number</th>
<th>Actual Requirement Language</th>
<th>WRPS Implementation Document(s)</th>
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<tr>
<td>11.</td>
<td>An Integrated Safety Management system must be developed and implemented for the contract scope of work when the contractor is complying with the requirements of 48 CFR 970.5223.1, “Integration of Environmental, Safety and Health into Work Planning and Execution.”</td>
<td>TFC-PLN-41, TFC-PLN-84, TFC-PRJ-CM-C-01, TFC-OPS-MAINT-C-01</td>
<td>TFC-PLN-41, “Integrated Management System Description” describes the TOC ISMS program. The TOC PEMP requires use of ISMS to plan and execute work. TFC-PRJ-CM-C-01, “Construction Management,” describes how the TOC manages construction which requires work control documents to be prepared in accordance with TFC-OPS-MAINT-C-01, “Tank Operations Contractor Work Control.” TFC-OPS-MAINT-C-01, defines the TOC work control processes which include use of ISMS to define hazards and hazard controls and use of hazard controls to execute work safely.</td>
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<td>12.</td>
<td>Contractors performing design for projects shall at a minimum conduct a Conceptual, Preliminary and Final Design Review, in accordance with the PEMP. For nuclear projects, the design review will include a focus on safety and security systems. A Code of Record shall be maintained under configuration control throughout the Critical Decision (CD) process and for the remainder of the nuclear facility’s lifecycle.</td>
<td>TFC-PRJ-PM-C-02, TFC-PRJ-PM-C-03, TFC-ENG-DESIGN-P-17</td>
<td>TFC-PRJ-PM-C-02, “Project Management” requires all project types to go through design development and relies on projects to tailor their approach to design development. TFC-PRJ-PM-C-02 requires development of a PEMP that includes a section to discuss design development. In addition, TFC-PRJ-PM-C-03, “Project Categorization and Tailoring” requires use of a project tailoring checklist to document how projects will develop needed designs along with the rationale for their approach. All designs must go through design reviews in accordance with TFC-ENG-DESIGN-P-17, “Design Verification,” which contains design review checklists, some which focus specifically on safety and security systems.</td>
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### ATTACHMENT B – CONTRACTOR REQUIREMENTS DOCUMENT DOE ORDER 413.3B, “PROGRAM AND PROJECT MANAGEMENT FOR THE ACQUISITION OF CAPITAL ASSETS, ATTACHMENT 1” (cont.)

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<td>13.</td>
<td>For projects including Hazard Category 1, 2, and 3 nuclear facilities or for projects including major modifications thereto (as defined in 10 CFR Part 830), the requirements in DOE-STD-1189, as amended, shall be fully implemented. The following documents must be submitted: Design Strategy (CD1), Conceptual Safety Design Report (CD-1), Preliminary Safety Design Report (CD-2), Preliminary Documented Safety Analysis (CD-3), and Documented Safety Analysis with Technical Safety Requirements (CD-4). For major modifications, the Conceptual Safety Design Report (CSDR) and the Preliminary Safety Design Report (PSDR) may either be separate documents or be subsumed within the Preliminary Documented Safety Analysis. The need to maintain the CSDR and PSDR as separate documents shall be based on the design development phases. Projects with conceptual and/or preliminary design phases shall develop the corresponding safety documentation.</td>
<td>TFC-PRJ-PM-C-02, TFC-PRJ-PM-C-03, TFC-ENG-SB-C-06, Form A-6004-137, Form A-6006-140</td>
<td>TFC-PRJ-PM-C-02, “Project Management,” requires projects to comply with DOE O 413.3B, “Program and Project Management for the Acquisition of Capital Assets” using a tailored approach described in TFC-PRJ-PM-C-03, “Project Categorization and Tailoring.” TFC-PRJ-PM-C-02 directs the reader to the Project Roadmap, which specifies activities and deliverables by project phase for each project type and contains DOE-STD-1189, 2008, &quot;Integration of Safety into the Design Process” deliverables when applicable. TFC-PRJ-PM-C-03 requires use of a project tailoring checklist which includes a requirement for projects/projectized operational activities to address the application of DOE-STD-1189, 2008.</td>
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<td>14.</td>
<td>High performance and sustainable building principles in accordance with EO 13423, Section 2(f), must be applied to the siting, design, construction, and commissioning of new facilities and major renovations of existing facilities. At a minimum, all new construction and major building renovations must meet U.S. Green Building Council’s Leadership in Energy and Environmental Design (LEED) Gold certification absent an approved waiver from the Acquisition Executive. Refer to DOE Order436.1.</td>
<td>TFC-PRJ-PM-C-02, TFC-PRJ-PM-C-03</td>
<td>TFC-PRJ-PM-C-02, “Project Management,” requires projects to comply with DOE O 413.3B, “Program and Project Management for the Acquisition of Capital Assets” using a tailored approach described in TFC-PRJ-PM-C-03, “Project Categorization and Tailoring.” TFC-PRJ-PM-C-03 requires use of a project tailoring checklist which includes a requirement for projects/projectized operational activities to address sustainable building design principles and discuss when they are applicable, how they intend to comply, and the rationale for their decision.</td>
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<td>15.</td>
<td>For non-M&amp;O contracts, the Contractor shall develop a Project Management Plan (PMP) that supports and complements the Federal PEMP and its contract. The PMP shall describe the management methods, organization, control systems and documentation for the project. The PMP shall receive the concurrences of the FPD and the DOE Contracting Officer. If significant changes occur during the project, the PMP shall be revised by the Contractor at the direction of the contracting officer.</td>
<td>TFC-PLN-84</td>
<td>TFC-PLN-84, the TOC PEMP, describes the project management approach, policies and methods to implement the TOC project in accordance with DOE O 413.3B and the contract. TFC-PLN-84 is revised as needed.</td>
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