

**NOT
MEASUREMENT
SENSITIVE**

**DOE G 413.3-16A
10-26-2011**

Project Completion/Closeout Guide

[This Guide describes suggested non-mandatory approaches for meeting requirements. Guides are not requirements documents and are not to be construed as requirements in any audit or appraisal for compliance with the parent Policy, Order, Notice, or Manual.]



U.S. Department of Energy
Washington, D.C. 20585

FOREWORD

This Department of Energy Guide provides nonmandatory approaches for implementing the requirements of DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, dated 11-29-2010, and is for use by all DOE elements. Guides are not requirement documents and should not be construed as such. DOE Guides are part of the Departmental Directives Program and provide supplemental information that may be useful for fulfilling requirements in Orders, Notices, and other regulatory documents.

TABLE OF CONTENTS

FOREWORD	i
INTRODUCTION	1
1.0 TAILORING	3
1.1 Action.....	3
1.2 Discussion	3
2.0 PROJECT PERFORMANCE AND COMPLETION CRITERIA.....	3
2.1 Action.....	3
2.2 Discussion	3
2.3 Guidance	4
3.0 READINESS ASSESSMENT/OPERATIONAL READINESS REVIEW	4
3.1 Action.....	4
3.2 Discussion	5
3.3 Guidance	7
4.0 COMMISSIONING PLAN	8
4.1 Action.....	9
4.2 Discussion	9
4.3 Guidance	11
5.0 TRANSITION TO OPERATIONS PLAN	13
5.1 Action.....	13
5.2 Discussion	13
5.3 Guidance	14
6.0 QUALITY ASSURANCE	18
6.1 Action:.....	18
6.2 Discussion:.....	18
6.3 Guidance	18
7.0 ENVIRONMENTAL MANAGEMENT SYSTEM REVISION.....	19
7.1 Action.....	19
7.2 Discussion	19
7.3 Guidance	19
8.0 SAFEGUARDS, SECURITY, AND SAFETY PLANS	19
8.1 Action—Documented Safety Analysis/Safety Evaluation	19
8.2 Action—Hazard Analysis	20
8.3 Action—Security Vulnerability Assessment	21
9.0 PROJECT CLOSEOUT REQUIREMENTS.....	22
9.1 Action—Lessons Learned.....	22
9.2 Action—Operational Documentation	22
9.3 Action—Final Project Closeout Report	25
APPENDIX A- REFERENCES	A-1
APPENDIX B- ACRONYMS	B-1

INTRODUCTION

DOE projects are typically divided into Initiation Phase, Definition Phase, Execution Phase, and Transition/Closeout Phase. This Guide is developed to provide processes and information for project Closeout (see Figure 1). It is based on the principles and requirements taken from DOE O 413.3B. This Guide addresses project transition to operations, lessons learned, physical closeout, and financial closeout. This Guide is written for the federal project director (FPD) and Integrated Project Teams (IPT) to ensure that processes progress smoothly and meets DOE asset management goals and financial closure requirements.

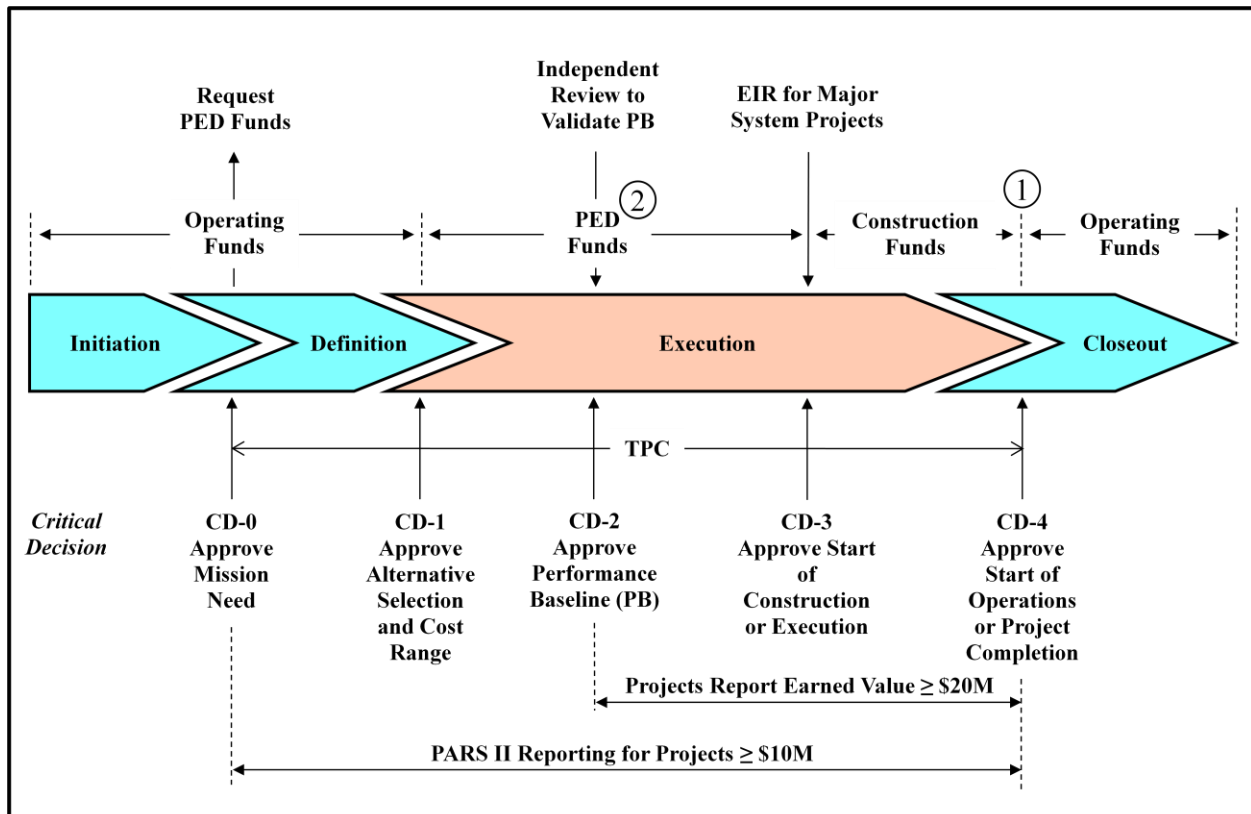


Figure 1. Typical DOE Acquisition Management System for Line-Item Projects.

DISCUSSION

Part of the closeout process from delivery, project completion, construction and/or remediation to operations or long term stewardship is to develop cost, schedule, and technical parameters that define how the project is to be completed. This process, which is the FPD's responsibility, should be as carefully planned and executed as any other project phase.

The process of completing a project requires that technical and administrative matters be addressed during early phases of the project. Prior to CD-4 approval, the project personnel should do the following:

- Verify Achievement of Key Performance Parameters (KPP) and Project Completion Criteria (PCC);
- Conduct a Readiness to Operate assessment for non-nuclear projects and issue a Project Transition to Operations Plan if applicable;
- Finalize the Hazard Analysis Report for facilities that are below the Hazard Category 3 threshold as defined in 10 CFR Part 830, Subpart B;
- Revise the Environmental Management System in accordance with DOE O 450.1A, as appropriate;
- If applicable, complete and submit Contractor Evaluation Documents to the Acquisition Executive (AE), the appropriate Program Secretarial Officer (PSO), the Office of Procurement and Assistance Management (OPAM), and the Office of Engineering and Construction Management (OECM) in accordance with Federal Acquisition Regulation (FAR) Subpart 42.15;
- Conduct an Operational Readiness Review (ORR) or Readiness Assessment (RA) for Hazard Category 1, 2, and 3 nuclear facilities in accordance with DOE O 425.1D and DOE-STD-3006-2010;
- Prepare the Documented Safety Analysis 3 with Technical Safety Requirements for Hazard Category 1, 2, and 3 nuclear facilities (Refer to 10 CFR Part 830, Subpart B.);
- Prepare a Safety Evaluation Report (SER)

Planning for project Transition to Operations may include activities such as the development of operations and maintenance manuals, generation of as-built drawings, identification of operations budget, and the procurement of any materials required for initial operations. Planning should be developed in conjunction with the DOE contractor or user/operating organization who will operate the facility or accept the final product to encourage complete mutual understanding.

Project closeout processes can be applied to all capital funded and expense funded projects that meet DOE criteria for capitalization. The processes described in this Guide should be used in preparation for project closeout and can apply to a portion of a project that functions independently of other portions of a project.

Note: All personal property to follow requirements in DOE O 580.1, *Department of Energy Personal Property Management Program*.

1.0 TAILORING

1.1 Action

Tailoring is subject to the project AE's approval and should be identified as early as possible. The tailoring strategy should be developed as part of the Project Execution Plan (PEP) and should be reviewed and updated prior to each impacted Critical Decision request. Information on the development of a PEP can be found in DOE G 413.3-15, Department of Energy Guide for Project Execution Plans."

1.2 Discussion

Tailoring should consider the risk, complexity, visibility, cost, safety, security, and schedule of a project. Tailoring planning is addressed only as a reminder to the FPD to lead and implement a tailored approach to all activities included in this Guide. Additional information on tailoring can be found in the PEP guide.

2.0 PROJECT PERFORMANCE AND COMPLETION CRITERIA

2.1 Action

Verify that KPPs or PCC have been met and it has been demonstrated the project can achieve its intended design requirements and should support the mission need. The FPD will verify and document the scope accomplished, Total Project Cost (TPC), KPP's met, and the completion date as it relates to the original CD-2 performance baseline and the latest approved baseline change.

2.2 Discussion

KPPs and PCC are defined in the PEP during the project's definition and execution phases. The validation of PCC and KPP's is a key activity for demonstrating that the project has met DOE mission requirements. Additional information on preparing a PEP can be found in DOE G 413.3-15, Department of Energy Guide for Project Execution Plans."

A KPP, in pertinent part, is defined in DOE O 413.3B as "A vital characteristic, function, requirement or design basis, that if changed, would have a major impact on the facility or system performance, scope, schedule, cost and/or risk, or the ability of an interfacing project to meet its mission requirements."

Tracking progress throughout project execution is accomplished using earned value data and other performance indicators providing ongoing verification of progress towards meeting PCC. Final verification that KPP's and/or PCC have been met should be closely linked with project performance testing (or project commissioning, see Section 4) and/or DOE acceptance as defined in the PEP. The extent to which completion is documented depends on the nature of the project.

At a minimum the verification of meeting PCC should be documented with a statement of acceptance which lists all remaining work (corrective actions or punch list items) to be completed prior to final closeout including responsible individuals, completion dates, and estimated resource needs (if any).

2.3 Guidance

A key element in verifying that PCC have been met is the Checkout process. Checkout is an activity performed largely in parallel with acceptance testing for construction projects and should be completed prior to acceptance from the construction contractor. Checkout is also performed on remediation projects prior to turnover to another contractor, to DOE, or to Long-Term Stewardship (LTC). Checkout includes a facility walk-through for identification of visible deficiencies. Checkout, in conjunction with acceptance testing (where required), provides the basis for verifying that PCC have been met. For nuclear or environmental remediation construction projects, a completed RA or ORR as appropriate will be used to support that personnel, training, equipment, and programs/processes are in place for safe and compliant operation of the facility (see Section 3).

Equipment, systems, and facility checkouts/walk-throughs are typically a combined effort involving the user/operating organization and the project organization (DOE and contractor). The purpose of a walk-through is to visually verify that all required work has been completed and to inspect completed work and identify deficiencies. Walk-throughs are performed by establishing combined project organization and user/operating organization teams to review and inspect the site and/or the facility structures, systems, and components, and comparing the completed work against approved requirements and design documents. Identification and correction of safety deficiencies should be a key component of all checkout/walk-through activities.

Discrepancies and deficiencies are documented, corrective actions identified, responsible individuals assigned, and corrective action completion dates identified. Corrective actions are tracked to completion and then re-inspected for acceptability. Identification and correction of safety deficiencies should be a key component of all checkout/walk-through activities.

Documentation of equipment, systems and facility acceptance should include project acceptance checklists. Depending on the size and complexity of the project and project management structure, there should be multiple levels of acceptance checklists that are tiered to allow more detailed reviews and documentation for the acceptance of sub-systems and equipment. A higher level checklist signoff can be accomplished based on the successful completion of the lower level component reviews.

The PEP should define the process for documenting the closeout process from construction and/or remediation to operations or long term stewardship. Specific information regarding what should be included in the PEP can be found in the PEP guide. Ultimately an inspection and acceptance report is issued, documenting that PCC have been met, technical performance has been demonstrated to be acceptable, and the mission need has been satisfied. The inspection and acceptance report allows the FPD to certify that work is complete and should be included in the final project closure package.

3.0 READINESS ASSESSMENT/OPERATIONAL READINESS REVIEW

3.1 Action

Complete a RA or ORR and resolve all pre-start findings ensuring that operations and maintenance staff are properly trained and qualified to operate and maintain the equipment, system, and facilities which are being turned over. ORRs and RAs are not required for projects involving non-nuclear equipment, operations or facilities, or decommissioning projects unless required by the head of the field organization or AE.

3.2 Discussion

Although the ORR/RA is conducted during the project execution phase in preparation for CD-4, a project will not be successful in completing the readiness review unless adequate planning is started early during the definition phase.

As stated in DOE-STD-3006-2010, *Planning and Conducting Readiness Reviews*, the guidance contained in the standard should be useful to line managers when specifying other readiness review methods and approaches for startup of radiological facilities or non-nuclear facilities. DOE program requirements (or guidance) are available for other readiness reviews; for example, accelerator projects should reference DOE O 420.2C, *Safety of Accelerator Facilities*, for accelerator readiness review requirements.

3.2.1 Focus on Achieving Readiness

Common mistakes in readiness planning include:

- Focusing on the scope of the readiness review, instead of identifying the scope of activities and levels of detail required to make the facility/equipment/processes ready to be operated;
- Inadequate (or not) early planning for readiness activities;
- Lack of funding or schedule to support readiness activities;
- Premature declaration of readiness; and
- Insufficient time allowed to perform the review and complete the Corrective Actions.

Readiness preparation includes:

- Planning for the training and qualification of operations, maintenance, and surveillance personnel;
- Conducting the necessary operational facility, systems, and equipment tests;

- Developing and approving the safety analysis including implementation of the safety and security analysis requirements, operations, maintenance, and surveillance procedures; and
- Documenting the completed work required to achieve readiness.

Readiness planners should be sensitive to how facility, systems, and equipment interface with existing operations, and plan to include those interfaces in readiness preparations.

3.2.2 Early Determination of the Readiness Review

Readiness planning should begin early in the project lifecycle; ideally no later than conceptual design. DOE O 425.1D provides information and stipulates the type of review based on project/facility characteristics. In areas requiring interpretation, a recommendation can be made by the FPD, with assistance from the Integrated Project Team (IPT) to the local DOE office or Headquarters who will determine the type of readiness review to be performed to verify initial operations and the authorization authority (AA) or startup authority. Management documents such as the PEP and Project Data Sheet (PDS) should identify the readiness planning schedule and cost data. For nuclear facilities and equipment, the startup notification report is the formal mechanism for the AA to approve the level of readiness review to be conducted. The project should be identified on the startup notification report prior to CD-2 supporting development of the project baseline. For non-nuclear facilities and equipment, line management should define the process and develop a detailed schedule used to verify that the facility/operations are ready.

3.2.3 Developing a Project Approach to Readiness

Readiness planning includes—

- Assigning a responsible individual (i.e., a readiness lead) for the project's readiness preparation activities;
- Ensuring that the activities are included in the project's Work Breakdown Structure (WBS) and WBS dictionary;
- Preparing a conceptual resource loaded schedule with milestones; and
- Preparing a conceptual cost estimate.

The user/operating organization is key to the successful definition of work required to achieve the necessary level of readiness to conduct operations, and should be a key member of the IPT starting at the conceptual design phase. Additional information on IPT membership can be found in the IPT guide. Readiness implementation should include a phased approach with a staged occupancy/startup.

A desirable (but not mandatory) activity for the readiness lead would be to prepare a readiness/startup plan to be used in support of the readiness preparation and review. This plan should be tailored to review needs. Prior to CD-3, the readiness/startup plan should provide

sufficient detail in the project schedule to clearly understand relationships between facility, systems, or equipment operations documentation, user/operating personnel training, approval of safety and security basis documents, testing of facility/systems/equipment, and the path to the readiness review. The detailed schedule should be used by the IPT to successfully navigate the next phase of the project. As with any other project activity, readiness preparations and the associated required reviews should be planned, assigned, scheduled, estimated, and managed as a sub-project within the larger project. Note: the facility or project readiness lead must, in most cases, prepare, approve and issue a documented Plan of Action (POA) per DOE O 425.1D.

3.3 Guidance

The readiness lead should be project organization or user/operating organization personnel. The FPD should have overall responsibility to ensure adequate continuing oversight and that progress is maintained throughout all the readiness preparation activities. The FPD ensures that the review provides an independent and credible assessment of the project's readiness and that the operating organization remains fully involved throughout the execution phase of the project.

A large part of the RA/ORR is a review of project documentation. A vital function of the readiness lead is to ensure that project documentation is identified, approved (as appropriate), filed, and maintained throughout the project. The project documentation should be maintained in a centralized, controlled location and be readily retrievable on short notice. In addition, a successful RA/ORR requires communication and coordination among several organizations, including major contractors and subcontractors, DOE Headquarters, DOE field office/operations office, State agencies and regulatory agencies.

3.3.1 Operational Readiness Review Scope

An ORR is a disciplined, systematic, documented, performance-based examination of facilities, equipment, personnel, procedures, and management control systems for ensuring that a facility can be operated safely and securely within its approved safety and security envelope as defined by the facility safety basis and security plan. The ORR scope is defined in the Plan of Action which addresses all of the core requirements identified in DOE O 425.1D, *Verification of Readiness to Start up or Restart Nuclear Facilities*. A tailored approach should be used in defining the depth of the ORR based on core requirements and is documented in the ORR Implementation Plan approved by the ORR Team Leader. The ORR is effectively the mechanism for the project organization to demonstrate that:

- The facility/system/equipment is in a state of readiness to safely and securely conduct operations in accordance with the safety basis and security plan;
- Management control programs are in place to ensure safe and secure operations can be sustained; and
- User/operating organization personnel are trained and qualified.

The ORR provides the basis for the government's acceptance of the asset.

An RA is conducted to determine a facility's readiness to startup or restart when an ORR is not required or when a contractor's standard procedures for startup are not judged by the contractor or DOE management to provide an adequate verification of readiness. For restarts of nuclear facilities not requiring an ORR as defined in DOE O 425.1D DOE line management evaluates (and ensures that contractor line management evaluates) the need to perform an RA prior to restart.

3.3.2 Certification and Verification

The following are prerequisites for starting the DOE ORR:

- DOE line management has received correspondence from the responsible contractor and/or DOE user/operating organization certifying that the facility/system/equipment is ready for startup and this has been verified by the Contractor ORR;
- DOE line management has verified that the contractor and/or DOE user/operating organization preparations for startup have been completed; and
- DOE line management has certified that it meets, as a minimum, the applicable DOE-specific core requirements.

At the start of the DOE ORR, all startup actions should be completed, with the exception of a manageable list of open pre-start findings that have a well-defined schedule for closure. These results should be reviewed by the DOE ORR team. In the certification and verification process, DOE line management documents the actions taken to verify DOE field office and contractor readiness, including a review of closed contractor review findings, assessments of completed defined prerequisites, and other assessments performed to ascertain readiness.

In addition to the preceding information, some specific recommendations related to performing RA/ORR activities follow:

- Contractor ORRs should not start prematurely.
- Readiness should be achieved before starting the review.
- ORRs are to confirm readiness, not achieve readiness.
- Contractors should conduct a management self assessment prior to starting the ORR.
- DOE should reduce last minute perturbations by providing the ORR/RA implementation plan to oversight groups well ahead of the review.

- When planning for the review, the contractor and DOE should include not only time for conducting interviews and observations but also time to consolidate individual preparation, including preparing forms, and analyzing data.

Readiness is not achieved until all pre-start findings have been resolved. DOE line management must ensure that all prestart findings of the DOE ORR or RA prior to startup or restart of the facility are resolved. If appropriate, prestart findings from an RA must be resolved and approved by the AA.

4.0 COMMISSIONING PLAN

Much of this section is pulled from the Portland Energy Conservation's *Model Commissioning Plan and Guide Specification*. It has been modified, in places, to fit DOE's needs for developing Commissioning Plans.

4.1 Action

For nuclear facilities, post CD-1, develop a Checkout, Testing, and Commissioning Plan that identifies subtasks, systems, and equipment in preparation for acceptance and turnover of the structures, systems and components (SSC) at CD-4. The commissioning plan ensures that the equipment, systems, and facilities including high performance sustainable building systems, perform as designed and are optimized for greatest energy efficiency, resource conservation, and occupant satisfaction. The Commissioning Plan includes checkout and testing criteria required for initial operations.

Commissioning Plans are not applicable to environmental clean-up projects.

4.2 Discussion

Commissioning is defined as a systematic process for achieving, verifying, and documenting that the performance of the facility or system and its various components meet the design intent and the functional and operational needs of the owners, users, and occupants. Commissioning is a systematic process of ensuring that building/facility systems perform interactively. This is achieved beginning in the design phase by documenting the design intent and continuing through construction, acceptance, and the warranty period with actual verification of performance, operation and maintenance (O&M) documentation and the training of operating personnel.

Commissioning, including checkout and testing, is performed to demonstrate that SSC and structures, systems, and equipment (SSE) meet or exceed previously established project requirements. The KPPs and PCC (see Section 2) should be defined or referenced in the PEP. Commissioning and the resulting transition to operations are best achieved by:

- Early project planning, organization, and preparation for transition;
- Systematically performing required inspections and testing; and

- Providing adequate documentation of testing and transition activities.

If commissioning and testing are required for project transition and closeout, a commissioning authority should be designated as a member of the IPT at CD-1. The Commissioning Authority is responsible for commissioning and testing if the IPT believes that commissioning is required for project transition and closeout. The commissioning authority approves the commissioning plan including the elements described in Section 3. Additional information on membership of the IPT can be found in DOE G 413.3-18, *Integrated Project Teams for Use with DOE O 413.3B*. If commissioning and testing costs are considered significant enough to influence alternative analysis, a commissioning authority should be designated at CD-0 to be part of the gap or alternative analysis process.

4.2.1 Commissioning Mission

4.2.1.1 Objective

The objectives of the commissioning plan specifications during the design phase are as follows:

1. Ensure that the design team applies commissioning concepts to the design, e.g., clear and complete design intent documentation is developed, clear and concise process system and integrated system performance test requirements and acceptance criteria are specified, defined, and conveyed for inclusion in the construction documents, and commissioning-focused design reviews are conducted;
2. Ensure that the design team prepares commissioning specifications and specific forms or data sheets for documenting construction inspections and checks; and
3. Ensure that the commissioning authority develops a commissioning plan for inclusion in the construction documents.

By meeting the above objectives during the design phase, the following can be achieved.

- Commissioning work can be accurately bid.
- The commissioning process can be effectively executed by the contractor.
- Contractors or DOE user/operating organization can understand how to efficiently execute the commissioning process.
- There is a systematic, efficient and accountable method to accomplish the commissioning objectives.
- The commissioning objectives are met by using a systematic and accountable method, including:

- Ensuring that applicable equipment and systems are installed properly and receive an adequate operational checkout by installing contractors;
- Verifying and documenting proper performance of equipment and systems;
- Ensuring that O&M documentation left on site is complete; and
- Ensuring that the owner's operating personnel are adequately trained.

4.2.1.2 Commissioning Scope Description

The scope description provides a suggested outline (and checklist) for use in preparing a commissioning plan. A tailoring approach should be applied to the development of the commissioning plan, as necessary for the various types of DOE project scope, complexity, and associated project risks. This document provides guidance and useful references related to each of the outline items listed. The FPD and commissioning authority can refer to the *Model Commissioning Plan and Guide Specifications*, Portland Energy Conservation, for further details.

The commissioning plan describes the high-level activities required for the project, such as testing, startup, transition to operations, staffing, training, documentation preparation, etc. The Commissioning Plan scope should be under configuration control.

4.3 Guidance

4.3.1 Commissioning Planning

The commissioning plan is comprised of the following four separate documents designated as "parts."

Part I. *Commissioning Requirements—Design Phase*

Part II. *Commissioning Plan—Design Phase*

Part III. *Commissioning Guide Specifications*

Part IV. *Commissioning Plan—Construction Phase*

A brief description of each part follows:

4.3.1.1 Part I. Commissioning Requirements—Design Phase

During this part, the requirements are defined for use in subsequent contract documents. Included are the responsibilities for each member of the design team and for all players during the construction phase. If a bid for an architect-engineer (A-E) firm is to be implemented, this document should be included in the request for proposal (RFP).

4.3.1.2 Part II. Commissioning Plan—Design Phase

The commissioning plan describes the commissioning activities during the design phase. It provides details of responsibilities called out in Part I, *Commissioning Requirements—Design Phase*, for the architect, design engineers, commissioning manager, construction manager, project manager, and FPD. The plan describes the duties of the design team and commissioning authority in developing the site-specific commissioning specifications and for developing the first two drafts of the Commissioning Plan—Construction Phase.

4.3.1.3 Part III. Commissioning Guide Specifications

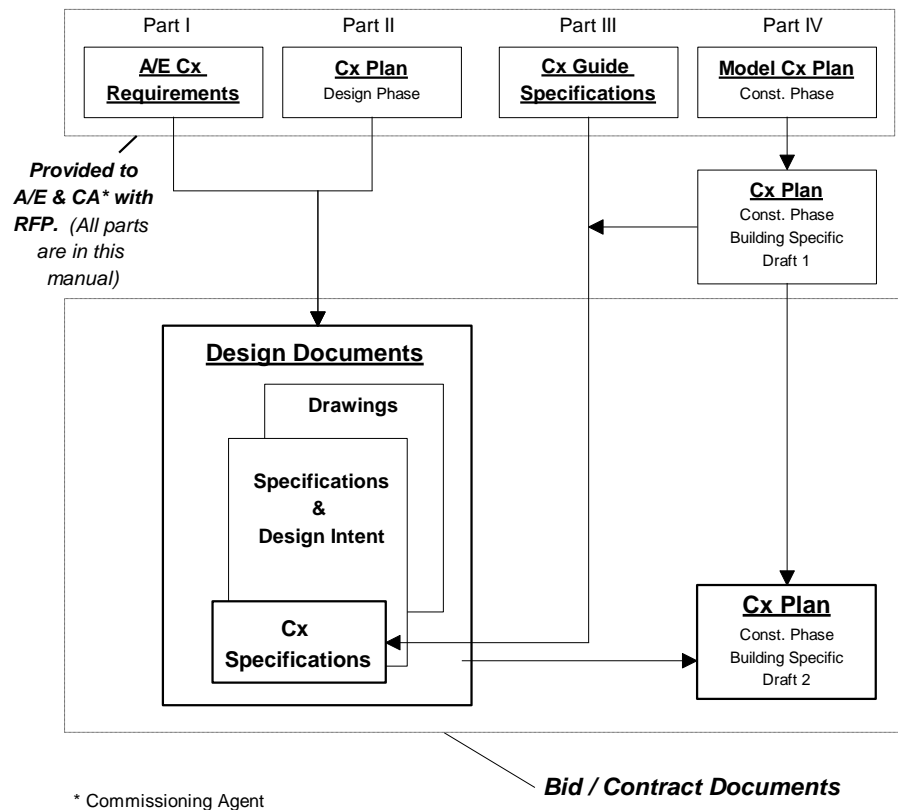
The commissioning guide specifications contain recommended language that describes both the requirements and the processes to incorporate commissioning into construction specifications. All divisions and sections that relate to commissioning should include language ensuring that the contractors or DOE user/operating organization are clearly informed regarding their commissioning responsibilities. An explanation of the commissioning process is also provided. In addition, pre-functional checklists and sample functional tests are included for many common types of equipment and systems. There are few systems and components that lend themselves to a pre-functional checklist or generic type of testing. Most new facilities have very unique and often one of a kind process systems requiring a dedicated test team to validate and put into service.

4.3.1.4 Part IV. Commissioning Plan—Construction Phase

The commissioning plan is developed in draft form for the specific project during the design phase. The plan provides direction for the development of commissioning specifications by the design team. During the construction phase, the plan provides direction for the commissioning tasks during construction. The plan focuses on providing support to the specifications and provides forms for application of the commissioning process.

The following graphic illustrates the above process.

Commissioning (Cx) Contract Document Development



For details of each section including more detailed scope, roles and responsibilities, checklists, and suggested documents, see “Model Commissioning Plan and Guide Specifications”.

5.0 TRANSITION TO OPERATIONS PLAN

5.1 Action

*Issue a Project Transition to Operations Plan (TOP)** that clearly defines the basis for attaining initial operating capability, full operating capability, or project closeout, as applicable. The plan includes documentation, training, interfaces, and draft schedules.*

*** Not applicable to environmental clean-up projects.*

5.2 Discussion

The TOP is a prerequisite to obtain Secretarial Acquisition Executive (SAE) and/or AE approval for CD-4. The purpose of the TOP, if applicable is to identify and plan for project transition phase activities that are required for approval to begin initial or full operations of project deliverables. The overall goal is to ensure a smooth turnover of the project deliverables (i.e., equipment, facility, product, or asset) and a seamless hand-off of responsibility/ownership from

the project organization to the user/operating organization. A TOP is prepared to ensure efficient and effective management of the transition scope; align schedules, identify resources to facilitate project transition; and provide proper customer/sponsor/stakeholder interfaces.

A TOP is an agreement between the FPD, DOE program, and the user/operating organization that describes the process for implementing transition to operations activities, if applicable. A tailored approach should be used when developing the TOP based upon the programmatic importance and complexity of the project. Systems engineering techniques should be applied when developing and implementing the TOP.

The key to a successful transition to operations is early, thorough, forward-looking planning. The TOP is a living document that should be kept current by the IPT throughout the project life-cycle. For additional information on the responsibilities of the IPT see the IPT guide. A preliminary TOP should be included/referenced in the PEP. Project funded activities associated with transition to operations should be identified and incorporated into the project performance baseline, and DOE program funded activities associated with transition to operations should be planned for by the program. A draft TOP should be started during design and completed as soon as possible after final design is completed. The final TOP is completed during construction before the project's integrated startup and commissioning activities, and is a prerequisite for CD-4 under DOE O 413.3B. For projects that are implemented in phases, the TOP should be started during the initial phase of design, with incremental updates to the plan made as necessary during project phases.

IPT members who are responsible for TOP should prepare the plan. It is very important to have participation (i.e., buy-in) by the user/operating organization and DOE program. In addition, participation by other key stakeholders should be considered.

The TOP should be approved by the project's DOE program sponsor, the FPD, the contractor project manager and the user/operating organization in accordance with the roles, responsibilities and authorities outlined in the PEP. The TOP should be under configuration control.

5.3 Guidance

Using a tailored approach, the FPD and the IPT should assess each component of the project and their applicability for project transition to operations planning. The TOP should be comprehensive and address all transition phase activities. It does not need to be voluminous and should reference other supporting documents as appropriate.

5.3.1 Project Description and Mission

The summary project description from the PEP or PDS could be used. The description should include detailed benefits that DOE and key stakeholders will realize at the completion of the project transition phase and list any potential negative impact on DOE mission including project cost and schedule, security, environmental, safety, technical and operational dependencies or efficiency if transition to operations is delayed.

5.3.2 Planning Management, Organization and Control

Describe the transition phase scope and activities such as testing (components, equipment, subsystems, systems, facilities, and software), activation, acceptance, beneficial occupancy, startup, commissioning, staffing, training, and readiness review. The transition to operations scope should be under configuration control (see Section 5.3.9).

5.3.3 DOE Orders and Program Guidance

List the DOE Directives and program guidance applicable to the transition to operations scope.

5.3.4 Key Transition Phase Steps and Deliverables

Key transition phase steps should include project activities to be undertaken to meet requirements identified in applicable DOE Directives. These can include agreements between DOE program offices, or with regulatory agencies and other stakeholders (e.g., memorandum of agreement). The transition phase deliverables include the list of CD-4 prerequisites provided in Table 2.4 of DOE O 413.3B. Transition phase deliverables can also include transition to operation documentation. The key transition phase steps and deliverables should be under configuration control (see section 5.3.10 below).

5.3.5 Strategy

Consistent with the PEP and project performance baseline, describe the strategy for completing the transition to operations scope, steps and deliverables. The strategy can be supported by a sequence logic/network diagram or a Gantt chart. DOE Headquarters program personnel should be actively engaged in the strategy development because of its programmatic importance to DOE missions and budget planning.

5.3.6 Operation or Long Term Stewardship Cost

Summarize the program's annual and life-cycle cost estimates for operation or long term stewardship of the project deliverables. Include the cost basis and assumptions for operation, maintenance, decontamination and decommissioning, and/or future surveillance activities, as appropriate.

5.3.7 Organizations, Stakeholders and Public Interfaces

Describe the transition phase information and communications interfaces between DOE and contractor organizations, stakeholders, and the public. Identify the information needs and process for meeting those needs. Transition to operations interfaces should be consistent with the PEP, the project organization chart, and organization breakdown structure.

5.3.8 Transition Team Roles and Responsibilities

Identify the membership and leader of the transition team, and describe their roles and responsibilities for completing all of the transition to operations activities. Lines of

communication should be clearly defined in this section. A responsibility assignment matrix (RAM) could be used.

5.3.9 Configuration Control

The PEP provides the configuration control process and responsibilities for the project funded transition to operations scope. Describe or reference the process and responsibilities for non-project-funded transition to operations scope. Describe how these processes will be integrated.

5.3.10 Project Key Performance Elements and Completion Criteria

Describe the initial operations and/or full operations key performance requirements, and list the PCC (from the PEP or other project documentation, e.g., project functional requirements). Summarize the plan and process for verifying that these standards and criteria can be met (see Section 2.0).

5.3.11 Schedule and Key Milestones

Provide a comprehensive, integrated (project and program), transition to operations schedule and identify key milestones. The schedule and key milestones should be consistent with the integrated project schedule, the transition to operations strategy, and sequence logic/network diagrams.

5.3.12 Readiness Review

Consistent with the PEP, identify the type of readiness review, readiness review preparation roles and responsibilities, schedule and key milestones, interfaces with other transition to operations activities, resource requirements, readiness review documentation (e.g., contractor and DOE: plan of action, implementation plan, final report, and resolution of findings), and proposed AA (see Section 3.3.1).

5.3.13 Operations and Maintenance Management

Identify the O&M requirements for facility equipment, structures, systems and components. This section could reference the O&M manuals for project deliverables. Also identify spare parts, chemicals, supplies, and required specialized vendor support for initial operation.

5.3.14 Facility Support, Operations and Maintenance Training

Summarize as appropriate the plan for training the project test team, activation team, startup team, commissioning team, user/operating O&M personnel, and support personnel (e.g., emergency response, hazard containment, security, etc.), including training materials development, qualification and/or certification.

5.3.15 Environment, Safety and Health (ES&H), and Quality Assurance

Summarize the plan for preparing key ES&H documents needed to support CD-4, such as: documented safety analysis (DSA) and technical safety requirements (TSRs) for Hazard Category 1, 2, and 3 nuclear facilities; hazards analysis plan; DOE Safety Evaluation Report (SER); Unreviewed Safety Question (USQ) procedure; updated construction project safety and health plan; energy and resource conservation plan; revision of the environmental management system and Quality Assurance Plan (QAP) to incorporate any new aspects related to turnover and operations; and updated site emergency plan and facility emergency planning hazards assessment, if applicable (see Section 8).

5.3.16 Safeguards and Security (S&S)

Describe the process for validation of S&S equipment, programs, and processes, as applicable. Summarize the plan for preparing key S&S documents needed to support CD-4, such as the security vulnerability assessment report, and the facility and/or site security plan (see Section 8).

5.3.17 Permits and Licenses

Identify any permits and licenses that are required for initial operation and/or full operation of the project. Discuss the process for obtaining these permits and licenses, and providing any formal notifications to satisfy intra-Program and inter-agency agreements.

5.3.18 Authorization and Notification

Describe the process and responsibilities for formal authorization of initial operation and/or full operation of the project deliverables or reference the relevant document that contains this information. The description (or reference document) should list any required notifications, both internal and external to DOE, such as to regulatory agencies.

5.3.19 Project Acceptance, Beneficial Occupancy, and Transfer to Operations

Describe the process for formal acceptance and/or beneficial occupancy of the project deliverables and transfer/handover to the user/operating organization. This should be based on meeting the terms of the project contract, with deliverable acceptance by the contract administrator and formal acceptance. This denotes beneficial occupancy documentation which is acceptance of the deliverables from the project organization by the user/operating organization consistent with the PEP and transition to operations strategy.

5.3.20 Business Functions

Discuss the transition strategy for project business functions; the process to transfer licenses, contracts, equipment, assets, real property, and records to the user/operating organization, as applicable; disposition of any Government-furnished equipment provided to project contractors; and the process for handling unresolved project litigation and liabilities.

5.3.21 Project Information and Records Turnover

Identify the project information and records that will be transferred from the project organization to the user/operating organization, and describe the sequence, responsibilities, and formal acceptance process for turnover. Project information and records could include test reports, operation and maintenance manuals, training materials, agreements, acceptance documents, ES&H documents, design basis documents, as-built drawings, specifications, equipment manuals, warranties and configuration management documents.

5.3.22 Transition to Operations Reporting

Describe how transition to operations reporting will be handled. For example, it could be a separate report or it could be incorporated into the project quarterly review with the DOE program sponsor. Discuss the report content, frequency and responsibility for preparation.

5.3.23 User/Operating Organization Staff Planning

Summarize the plan for mobilizing the user/operating organization workforce, as required, so that it can assume responsibility for operation of the project deliverables by CD-4 or according to the schedule stipulated in the Program Budget Decision memo signed by the CFO. This may include a ramp-up of staff during testing, activation, startup and/or commissioning as appropriate, so that the user/operating organization staff gain experience. This section could reference a more detailed user/operating organization staffing plan.

5.3.24 Lessons Learned and Process Improvement

Document transition to operations lessons learned, including performance history leading to successful operation of the project. Implement process improvement opportunities throughout the life of the project to improve transition workflow (see Section 9.2).

5.3.25 Project Organization De-staffing Planning

Summarize the plan for demobilizing the contractor's project workforce and for DOE project staff, as applicable for a smooth transition to operations. This section could reference a more detailed project organization de-staffing plan.

6.0 QUALITY ASSURANCE

6.1 Action

Issue an updated QAP to address testing, identified deficiencies, and startup, transition, and operation activities.

6.2 Discussion

Over the duration of the project changes could occur. They should be in the area of testing, startup, transition, operational activities or other identified deficiencies. These are likely to

affect the existing project quality assurance program. In addition each of these changes should have useful lessons learned for specific areas. Incorporation of all lessons learned for similar projects at the same or other sites could be very useful. An update of the QAP may be necessary and should be done under guidance of the FPD.

6.3 Guidance

The QAP is developed at the inception of the project and is updated, as necessary, over the project's life cycle. The FPD is responsible for planning and implementing the Quality Assurance Program for the project. During the preparation of the project documentation appropriate consideration needs to be given to Quality Assurance because quality affects cost, availability, effectiveness, safety, security, and performance. Quality assurance needs to address the following 10 criteria:

- Program
- Personnel training and qualification
- Quality improvement
- Documents and records
- Work processes
- Design
- Procurement
- Inspection and acceptance
- Management assessment
- Independent assessment

Depending on the nature of the project, the key requirements/elements of a quality assurance program are provided in DOE O 414.1D and CFR Part 830, Subpart A. Also, apply ASME NQA-1-2008 (Edition) and NQA-1a-2009 (Addenda) for Hazard Category 1, 2, or 3 nuclear facilities.

7.0 ENVIRONMENTAL MANAGEMENT SYSTEM REVISION

7.1 Action

Revise the Environmental Management System (EMS) to ensure that it incorporates new environmental aspects related to turnover and operations.

7.2 Discussion

DOE O 413.3B requires a revision of the EMS when a construction/or remediation project initiates project closeout and transition activities. This revision is required upon the completion of a project and the transfer or turnover of the project deliverables to another organization for operations or long-term stewardship responsibilities. The purpose of revising the EMS is to ensure that project facility/systems/equipment operations or long-term stewardship activities continue to achieve environmental protection and regulatory compliance. The revision should reflect the environmental aspects necessary to ensure continued protection of human health and the environment and compliance with environmental regulations after a project is turned over for operations or long-term stewardship activities.

The EMS is to address the environmental aspects of project operations or activities and to ensure ongoing compliance with environmental regulatory requirements. Executive Order (EO) 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, requires that all agencies implement an EMS at the appropriate organizational levels. DOE sites have met this requirement principally through compliance with and/or certification to ISO 14001, *Environmental Management Systems—Specification with Guidance for Use*. For information on what should be included in an EMS, refer to the DOE G 450.1 series.

7.3 Guidance

Prior to CD-4, an EMS should be revised and implemented upon the turnover/transition date to reflect the project's operational configuration and/or the long-term stewardship activities. This EMS can either be under a site-wide management system or be facility-specific. Further, the EMS should reflect the environmental aspects related to turnover, i.e., project operations or long-term stewardship, as well as the six elements of an EMS according to ISO 14001.

8.0 SAFEGUARDS, SECURITY, AND SAFETY PLANS

8.1 Action—Documented Safety Analysis/Safety Evaluation

Prepare the Documented Safety Analysis with Technical Safety Requirements for Hazard Category 1, 2, and 3 nuclear facilities.

Prepare a Safety Evaluation Report based on a review of the Documented Safety Analysis and Technical Safety Requirements for Hazard Category 1, 2, and 3 nuclear facilities.

8.1.1 Discussion

During the transition/closeout phase, the project team should continue to update and finalize safety documents and procedures that have been initiated in the prior phases of project activity.

Approved final DSA, TSRs and other hazard control documents contain the principal safety basis for a DOE decision to authorize facility operation. Once facility operation is authorized, the final DSA and hazard controls will be the principal safety basis for sustaining authorization and safety

oversight. A final DSA documents the safety basis and provides detailed information for a determination that the facility can be operated, maintained, shut down, and decommissioned safely and in compliance with applicable laws and regulations. This has much the same meaning as does the similar language for preliminary documented safety analysis (PDSA), except that for the final DSA the descriptions of operations are complete, detailed, and based on final information.

8.1.2 Guidance

During construction, the final DSA is developed. It is based on the facility as built and as it will be operated and finalizes the description of needed safety management programs. After the construction has been completed and the DSA has been updated to reflect the as-built drawings and development of the TSR bases, DOE reviews the revised DSA and updates the SER authorizing operations subject to any necessary conditions, including the need for an ORR (see Section 3.1). DOE then issues the SER that documents its review and approval of the DSA.

8.2 Action—Hazard Analysis

Finalize the Hazard Analysis Report for facilities that are below the Hazard Category 3 threshold and obtain DOE approval (field level).

8.2.1 Discussion

Additional analyses to prepare the DSA include evaluation of equipment that was not part of the preliminary and final design, such as government furnished equipment or specialty equipment designs that were performed in separate design activities not fully addressed in the PDSA, and detailed operational analysis for those activities that did not need to be considered for development of the design. In addition, hazards analyses that were completed as part of the PDSA should be reviewed to ensure that they remain accurate and that changes were made as necessary. Note that Government-furnished equipment ideally should be included in the early hazard and accident analysis activities and treated as though it was part of the design. Otherwise the design interfaces, and potentially the acceptability of the Government-furnished equipment may not be determined in a timely fashion. Then this additional task would be a final check on interfacing facilities or systems that are not under the direct control of the project.

8.2.2 Guidance

In order to complete operational hazards analyses and to analyze other upset conditions that were not developed in the PDSA, the hazards analysis process should engage the operations staff. Detailed operational concepts should be developed by the operations staff in conjunction with the safety analysis efforts and should include government furnished equipment that should be used in these operations.

The DSA cannot be completed until there is a high degree of certainty that facility configuration matches the design documentation, safety basis documentation, and the operating procedures for that configuration. Final verification that the DSA information is consistent with the as-built

configuration is necessary before sending the DSA and TSR to DOE for approval. A rigorous change control process will help in this regard.

The final development of the DSA and TSR should provide for implementation planning. The initial planning for these activities should be included in the TOP, which should be baselined during preliminary design. The TOP provides the concepts that support when and how many operations staff is brought into the project to support transition and defines (to the extent known at the time) the activities that need to be performed, including those needed to implement the commitments expected to be in the DSA and TSR. Many of the details of activities needed to implement the DSA and TSR are based on limited information that is available in preliminary design. Consequently, the detailed strategy and activities needed to implement the DSA and TSR should be addressed and compared to the baseline in the TOP so that appropriate adjustments can be made.

8.3 Action—Security Vulnerability Assessment

Finalize the Security Vulnerability Assessment Report (SVAR) and any required security plan.

8.3.1 Discussion

During the transition/close-out, all security system documentation is reviewed and an acceptance determination made. System component and complete system acceptance testing is evaluated against the test and acceptance plan. The SVAR and any required security plan (including the presence of trained security professionals) should be completed prior to a CD-4.

8.3.2 Guidance

Prior to CD-3, the final update of the vulnerability assessment is required, if necessary, with a resulting SVAR. This report should document the proposed security systems and features, as well as demonstrate how the facility design, construction, and operations satisfy security requirements. Also, any required updates to the resulting security plan should be incorporated for implementation.

At CD-4, there is a transition from the project organization to the user/operating organization for assumption of responsibility for management operations and maintenance. The facility/site management and operations group takes over the responsibility for the management, operation, and associated support.

9.0 PROJECT CLOSEOUT REQUIREMENTS

9.1 Action—Lessons Learned

Within 90 days of CD-4 approval, submit Lessons Learned regarding project execution and facility start-up to OECM and PSO for broader sharing among the DOE project management community.

9.1.1 Discussion

The DOE lessons learned program is designed to enhance the lines of communications between all Elements of the DOE including its contractors, and is a key element in the Department's commitment to continuous improvement. The Lessons Learned Program includes two processes:

1. A development process that includes identification, documentation, validation, and dissemination of lessons learned; and
2. A utilization and incorporation process that includes identification of applicable lessons learned, distribution to appropriate personnel, identification of actions that will be taken as a result of the lessons learned, and follow-up to ensure that appropriate actions were taken.

In addition, the lessons learned program contains processes designed to measure operational performance improvements and program effectiveness.

9.2 Action—Operational Documentation

Complete project operational documentation.

9.2.1 Discussion

Converting a facility from construction project status to operating status requires that technical and administrative matters be addressed during earlier stages of the project. As early in the execution phase as feasible, the project organization should initiate planning for and development of the documentation for transition to operations. During transition, the user/operator will normally accept beneficial occupancy of the facility and take ownership of project documentation.

Project documentation transferred from the project organization to the user/operating organization could include, for example, environmental and safety, design basis, drawings (as-built) and specifications, configuration management (required by DOE O 420.1B), equipment and operating manuals, project records, and other relevant information. As appropriate, project documentation that supports transition, turnover, ORR, RA, or other readiness review and operation and maintenance should be made available to the user/operating organization. Project records that are not provided to the user/operating organization are prepared for storage or disposal in accordance with DOE O 243.1, *Records Management Program*. Records should be complete, properly identified, approved, and orderly. In certain cases, electronic and hard copies of project records should be provided.

The project organization is responsible for delivering a completed project to the user/operating organization. A successful turnover for operations includes providing the user/operating organization a comprehensive set of operational documentation and records. This will be best accomplished by partnering with the user/operating organization to identify all operational documentation and records required to turn over a completed project. The project organization is responsible for assembling the documentation and records needed to properly transition and turnover a completed project to the user/operating organization. All records that are turned over

to the user/operating organization or sent to storage should be accompanied by a complete inventory list. A duplicate of these lists should be kept by the project organization and turned over to the field/site project management organization when the project office is closed.

9.2.2 Guidance

The list of operational documentation and records will depend on the project type and the needs of the user/operating organization. Provided below is a typical list of documents and records that should be considered for turnover to the user/operating organization. Partnership with the user/operating organization and a tailored approach should be used to develop a comprehensive list of all operational documents and records to be transferred from the project organization to the user/operating organization.

9.2.2.1 Final Design

The final design is the completion of the design effort and production of all the approved design documentation necessary to permit Project procurement. The final design is used to permit construction, testing, checkout, and turnover to proceed.

9.2.2.2 Procurement

The procurement documentation includes key documents used to execute the project. These could include the construction/restoration contract, statement of work, contract amendments, and other related documents.

9.2.2.3 Construction

Construction documentations include the documents that record the execution of construction. These documents could include drawings and specifications, construction meeting minutes, inspection reports, material submittals, and other related records.

9.2.2.4 Pre-Operational Testing

As part of the commissioning activities, most facility systems and equipment will undergo thorough testing as part of its acceptance process to verify that the systems and equipment were installed correctly and that it satisfies the manufacture's operational specifications. Important for operations, this documentation demonstrates that the systems and equipment were installed and operated as required by the project specifications.

9.2.2.5 Startup

Startup activities of facility systems and equipments are part of the commissioning activities. Systems and equipment that are installed and completed by the construction contractor should be tested and accepted by the project organization before they are made available to the user/operating organization. To facilitate the turnover to the user/operating organization, the acceptance process should be in partnership with the user/operating representative; in most cases this representative is a technician or mechanic who will assume ownership of the system or

equipment once accepted and started. Startup activities are an important part of the transfer of knowledge to the user/operating organization. These documents could include testing and startup procedures, checklists, and records.

9.2.2.6 Safety

Operational safety of the new or restored facility is critical at the turnover of the completed project to the user/operating organization. Safe operation of the facility and its systems and equipment should be documented. Operational procedures are developed to document the appropriate use and safe operations of the facility systems and equipments.

9.2.2.7 Quality

Important to the project and user/operating organization is the quality assurance of the construction activities and the systems and equipment provided by the project. Proper documentation of the construction and/or installation, inspection, and acceptance will facilitate quality assurance and ensure that the completed project satisfies the project's objectives and specifications.

9.2.2.8 Safeguards and Security

Safeguards and security refers to an integrated system of activities, systems, programs, facilities, and policies for the protection of classified information and/or classified matter, unclassified controlled information, nuclear materials, nuclear weapons, nuclear weapon components, and/or the Department's and its contractors' facilities, property, and equipment. Project success will depend upon the satisfaction of safeguards and security requirements. The project organization's safeguards and security plans and related documents, which describes the applicable requirements and assure that these have been satisfied, should be turned over to the user/operating organization.

9.2.2.9 Permits and Licensing

Permits and licensing required for facility operations should be identified and provided to the user/operating organization to facilitate the transition to operations. In many cases the project organization has the expert staff to research and identify the permits and licensing requirements to operate the constructed facility.

9.2.2.10 Operations and Maintenance Manuals

One method of transferring knowledge from the project organization to the user/operating organization is the transfer of M&O manuals for systems and equipment provided by the various vendors. The turnover of these manuals to the user/operating organization is critical for the proper operation and maintenance of the facility's systems and equipment by the user/operating O&M staff.

9.2.2.11 Manufacturer's Warranties

All warranty documents for new systems and equipment installed as part of the project should be collected, properly categorized, and turned over to the user/operating organization to facilitate their use in the future if necessary.

9.2.2.12 As-Built Drawings

As-built drawings record the actual construction details used to construct or restore a facility. They record required deviations from the original design and in most cases are recorded on as-built drawings. This knowledge should be captured and transferred to the user/operating organization for operation and future reference if necessary.

9.3 Action—Final Project Closeout Report

Within 90 days of CD-4 approval, submit an Initial Project Closeout Report. This report includes preliminary final cost details, since contract closure, for example, may be a lengthy process due to request of equitable adjustments.

Prior to Project Closeout, perform final administrative and financial closeout. Prepare the Final Project Closeout Report once all project costs are incurred and invoiced and all contracts are closed. The report includes final cost details as required to include claims and claims settlement strategy where appropriate.

9.3.1 Discussion

Project closeout begins prior to CD-4 approval or at the point when all environmental activities KPPs or PCCs are completed and the site is ready for turnover for alternative use. This includes long-term stewardship, surveillance for environmental remediation, disposition, or at project termination. Generally, closeout starts after all physical, regulatory, and contractual activities are complete. Following CD-4 approval, the FPD submits a Final Project Closeout Report through the site financial officer (FO) to the DOE Chief Financial Officer (CFO) and OECM. If project cost details are unable to be finalized within 90 days of CD-4 approval, then submit an Initial Project Closeout Report. Use the guidance specified for the Final Project Closeout Report, but note those cost components that are projected and awaiting finalization.

The purpose of the Final Project Closeout Report is to provide a determination of the overall closure status of the project, contracts, regulatory drivers, and fiscal condition in accordance with performance goals and measures established for closeout.

9.3.2 Guidance

The Final Project Closeout Report should consist of two key deliverables, a project completion report typically prepared by the DOE contractor and a project final cost report prepared by the FPD.

The DOE contractor, who has prime contracting responsibility for the DOE project, is responsible for compiling the technical, contractual, and financial information required to

finalize the project completion report. However, the FPD should work closely with the contractor project manager to ensure that the project completion report is accurate and reflects the project's condition. For projects that are managed directly by DOE, the FPD is responsible for preparing the project completion report. The essential elements of the project completion report and the project final cost report are discussed in Section 9.3.2.1 and Section 9.3.2.2 of this Guide respectively. The requirement of a project completion report should be identified in the PEP so that adequate time and resources can be allocated to facilitate project closeout.

The FPD approves and submits the Final Project Closeout Report to the cognizant site CFO, who reviews, assembles, approves, and forwards the report to the DOE CFO. In addition, the closeout package should contain a summary of financial actions requested of the DOE CFO for project closeout as well as the site FO's signature and date of approval of this action.

Ultimately, The DOE CFO places all unused funds into the project overrun reserve to resolve any remaining costs of the project. Use of these funds should be requested in writing and include a description of the problem, causes of the problem, and corrective actions. In addition, the current status of the contractual, regulatory, financial, and physical project should be explained. The DOE CFO is responsible for approving all requests.

9.3.2.1 Project Completion Report

The FPD approval of the final project completion report is the official acceptance of the contractor deliverables and other reporting requirements on behalf of the Government. Elements of the project completion report should address the following key activities.

9.3.2.1.1 Physical Closeout

Physical closeout provides documentation to affirm all work associated with the project is complete and the Government accepts beneficial occupancy or environmental completion of the project. As applicable, elements of project physical closeout can include:

1. confirmation that all PCC/KPP were satisfactorily completed;
2. all turnover/closeout punch list items have been completed, verified and documented as closed;
3. excess material and equipment have been identified, retrieved, and disposed of in accordance with DOE property disposition regulations;
4. all purchase orders have been closed or placed in a single account;
5. all real property and installed equipment warranty information has been documented;
6. outstanding obligations have been identified, described and dispositioned in the contractor's financial closeout;

7. an occupancy checklist has been prepared and used to accelerate the transition process (where applicable);
8. remaining project control accounts, except for outstanding obligations have been closed;
9. project lessons learned report has been completed and submitted to DOE (see Section 9.1); and
10. an Acquisition Executive CD-4 approval statement is included.

9.3.2.1.2 Contractual Closeout

Contractual closeout is performed by the contracting officer and includes the identification and status of each project contract and subcontract, their values, and their terms and conditions. The contract status should include any incomplete deliverables; terms, conditions, and dates for obtaining remaining deliverables; real and potential claims; pending and any ongoing legal actions; warranties made as part of the contract; and any other information that might prove useful to the user organization in relation to legal, contractual, warranty, or deliverables.

9.3.2.1.3 Financial Closure

The FPD is responsible for the financial closeout of the project. Although financial closeout and physical closeout can occur in parallel, financial closeout can only be finalized after a successful physical closeout is complete. Financial closeout follows two parallel paths to identify unspent project fund balances and deobligate them to use these funds elsewhere as needed; these paths are adjusting the Department's construction and capital asset accounts and preparing the project Final Cost Report.

The general steps involved in the financial closeout process can include:

- Attain CD-4 approval, which marks the beginning of project closeout.
- Remove Project from Construction Work in Progress (CWIP) Account.
- Capitalize project funds and begin depreciation.
- The prime contractor prepares the Closing Statement of Cost.
- The CFO uses the contractor's Closing Statement of Cost to adjust the Department's construction and capital asset accounts, determine whether any unspent balances remain, prepare the Final Closing Statement of Cost, and deobligate remaining balances using the approved funding program.
- Finalize PARS II reporting (include earned value data).

9.3.2.1.4 Regulatory Closeout

A major component of closing an environmental remediation or facility transition project is the demonstration of regulatory compliance with the Resource Conservation Recovery Act (RCRA) and/or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Failure to comply with these regulations could lead to legal actions and ultimately delay final closure. The regulatory closeout process varies depending on the type of project, applicable regulation, and the government agencies having jurisdiction. Regulatory closeout includes certifying that applicable environmental actions have met all requirements and no additional active management is needed, with the possible exception of long-term monitoring. Regulatory closeout also provides for possible site turnover to other responsible agencies or private parties for transition to other use.

9.3.2.2 Project Final Cost Report

The contractor project manager should provide the FPD an estimate of any outstanding costs required to complete the project, which enables the de-obligation process to start prior to complete closeout of all actions. The FPD works with the site FO to ensure that DOE accounting requirements are met for project closeout. The FPD project final cost report includes:

- project name;
- budget classification;
- original de-obligation amount and subsequent obligations or de-obligations;
- actual cost summary organized in same categories as the original PDS;
- capital investment for the project; and
- value of plant and capital equipment adjustments.

The project final cost report will be used to zero out the uncoded balance of the project budget, establish a reserve account for open items, and satisfy the requirements to remove a project from the Construction Work in Progress Account in accordance with DOE O 534.1B, *Accounting*. The accounting data from the project final cost Report provides physical evidence that all of the conditions necessary to closeout the project and/or retire the contract have been met. Closeout document requirements differ for cost reimbursement contracts and fixed-price contracts. A review of the final contract modification is required for cost reimbursable contracts with the contractor finance confirming the final contract price. A review and payment of the final invoice is required in accordance with DOE and field office procedures. The site FO or designee should confirm the required closeout documents to the extent warranted by the individual circumstances and applicable procurement regulations, such as Federal Acquisition Regulation (FAR) 4.804-5, *Procedures for Closing Out Contract Files*, and advise the DOE CFO accordingly. This should include a review and reconciliation of financial/closeout records by the site FO with any discrepancies being resolved with the contractor's finance officer.

9.3.2.3 Project Facility Sustainment Goal

The FPD should complete and document achievement of the Facility Sustainment goals (e.g., Leadership in Energy and Environmental Design (LEED) Gold, LEED Silver, etc...), as applicable, via an independent third-party entity within one year of facility occupancy in accordance with EO 13423, Section 2(f), EO 13514, Section 3, and DOE O 436.1.

9.3.2.4 Facilities Information Management System Update

The FPD should ensure the establishment and/or update of the property record in the Facility Information Management System (FIMS) for all construction and/or modifications to real property, followed by adjusting the site's Ten Year Site Plan. (Refer to DOE O 430.1B for additional information.)

REFERENCES

1. 10 CFR 830, Subpart A, *Quality Assurance Requirements*.
2. 42 USC 82, *Solid Waste Disposal*.
3. 42 USC 103, *Comprehensive Environmental Response, Compensation and Liability Act*.
4. ANSI/PMI 99-001-2010, A Guide to the Project Management Body of Knowledge, Fourth Edition, Chapter 10, Project Communications Management.
5. ASME/NQA-1-2008 (Edition) dated 3-18-08 and NQA-1a-2009 (Addenda)
6. DEAR 904.804-1, *Closeout by the Office Administering the Contract*.
7. DOE Accounting Handbook, Chapter 21, *Financial Closeout*.
8. DOE Acquisition Guide,
http://management.energy.gov/policy_guidance/Acquisition_Guide.htm.
9. DOE G 413.3-series.
10. DOE G 414.1-2B, *Quality Assurance Program Guide*, dated 08-16-11.
11. DOE G 421.1-1, *Criticality Safety Good Practices Program Guide for DOE Nonreactor Nuclear Facilities*, dated 08-25-99.
12. DOE G 421.1-2, *Implementation Guide for Use in Developing Documented Safety Analyses to Meet Subpart B of 10 CFR 830*, dated 10-24-01.
13. DOE G 423.1-1A, *Implementation Guide for Use in Developing Technical Safety Requirements*, dated 11-03-10.
14. DOE G 424.1-1B, *Implementation Guide for Use in Addressing Unreviewed Safety Question Requirements*, dated 04-08-10.
15. DOE G 430.1-1, Chapter 8, *Startup Costs*, dated 03-28-97.
16. DOE G 430.1-1, Chapter 9, *Operating Costs*, dated 03-28-97.
17. DOE G 450.1-series.
18. DOE M 140.1-1B, *Interface with the Defense Nuclear Facilities Safety Board*, dated 03-30-01.
19. DOE M 470.4-1 Chg2, *Safeguards and Security Program Planning and Management*, dated 10-20-10.

20. DOE O 231.1B, *Environment, Safety and Health Reporting*, dated 06-27-11.
21. DOE O 243.1, *Records Management Program*, dated 02-03-06.
22. DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, dated 11-29-2010.
23. DOE O 414.1D, *Quality Assurance*, dated 04-25-11.
24. DOE O 420.1B Chg 1, *Facility Safety*, dated 12-22-05.
25. DOE O 420.2C, *Safety of Accelerator Facilities*, dated 07-21-11.
26. DOE O 425.1D, *Verification of Readiness to Start Up or Restart Nuclear Facilities*, dated 04-16-10.
27. DOE O 430.1B, Chg 2, *Real Property Asset Management*, dated 04-25-11.
28. DOE O 436.1, *Departmental Sustainability*, dated 03-02-11.
29. DOE O 433.1B, *Maintenance Management Program for DOE Nuclear Facilities*, dated 04-21-10.
30. DOE O 470.4A, *Safeguards and Security Program*, dated 05-25-07.
31. DOE O 471.1B, *Identification and Protection of Unclassified Controlled Nuclear Information*, dated 03-1-10.
32. DOE O 534.1B, *Accounting*, dated 01-06-03.
33. DOE O 580.1, Chg. 1, *Department of Energy Personal Property Management Program*, dated 05-08-08.
34. DOE P 141.2, *Public Participation and Community Relations*, dated 05-02-03.
35. DOE-STD-1189-2008, *Integration of Safety into the Design Process*, dated March 2008.
36. DOE-STD-3006-2010, *Planning and Conducting Readiness Reviews*.
37. DOE-STD-7501-99, *The DOE Corporate Lessons Learned Program*, dated December 1999.
38. EO 13423, Section 2(f), dated 01-24-07.
39. EO 13514, Section 3, dated 07-2011.
40. FAR 52.216-7, *Allowable Cost and Payment*.
41. FAR 4.804, *Closeout of Contract Files*.

42. ISO 14001: 2004/Cor 1:2009, *Environmental Management Systems – Specification with Guidance for Use*, dated July 2009.
43. OMB Circular A-11, Part 7, Capital Programming Guide.
44. Portland Energy Conservation, Inc. *Model Commissioning Plan and Guide Specifications*, dated February 1998.

ACRONYMS

ANSI	American National Standards Institute
AA	Authorization/Approval Authority
AE	Acquisition Executive
A-E	Architect-Engineer
ASME	American Society of Mechanical Engineers
CFO	Chief Financial Officer
CFR	Code of Federal Regulations
CD	Critical Decision
CWIP	Construction Work in Progress
Cx	Commissioning
DOE	Department of Energy
DSA	Documented Safety Analysis
EIR	External Independent Review
EMS	Environmental Management System
EO	Executive Order
ES&H	Environmental Safety and Health
FAR	Federal Acquisition Regulation
FIMS	Facility Information Management System
FPD	Federal Project Director
FO	Financial Officer
G	Guide
IPT	Integrated Project Team
ISO	International Standards Organization
KPP	Key Performance Parameter
LEED	Leadership in Energy and Environmental Design
M	Manual
NQA	Nuclear Quality Assurance
O	Order
OECD	Office of Engineering and Construction Management
O&M	Operation and Maintenance
OPAM	Office of Procurement and Assistance Management
ORR	Operational Readiness Review
P	Policy

PARS	Project Assessment and Reporting System
PB	Performance Baseline
PCC	Project Completion Criteria
PDS	Project Data Sheet
PDSA	Preliminary Documented Safety Analysis
PED	Project Engineering and Design
PEP	Project Execution Plan
PSO	Program Secretarial Office
QAP	Quality Assurance Plan
RA	Readiness Assessment
RFP	Request for Proposal
RAM	Responsibility Assignment Matrix
S&S	Safeguards and Security
SAE	Secretarial Acquisition Executive
SER	Safety Evaluation Report
SSC	Structures, Systems, and Components
SSE	Structures, Systems, and Equipment
SVAR	Security Vulnerability Assessment Report
TSR	Technical Safety Requirement
TOP	Transition to Operations Plan
USQ	Unreviewed Safety Question
WBS	Work Breakdown Structure