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Defense Nuclear Nonproliferation
Office of Fissile Materials Disposition

National Nuclear Security Administration

United States Department of Energy

Pit Disassembly and Conversion Facility Project Project Execution Plan

(99-D-141)

September 2004

Rev. 1-ICN-003

National Nuclear Security Administration

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(99-D-141)

Revision 1-ICN-003

United States Department of Energy
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Defense Nuclear Nonproliferation
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Office of Fissile Materials Disposition	**INTERIM CHANGE NOTICE**	Number: Interim Change Notice 003 Document: Project Execution Plan Section/Paragraph: 1.2, 2.2.3, 2.2.4, 2.3, 2.5, 3.2, 3.2.1, 3.2.2, 3.3.2, 3.3.3, 4.1, 4.2.1, 4.2.2, 4.3, 5.1, 5.2, 5.3, 5.4, 5.5.1, 5.5.2, 5.6, 5.7.3, 5.7.4, 6.0, 6.1.1, 6.1.3, 6.1.4, 6.2, 6.2.1, 6.2.2, 6.2.3, 6.2.4, 6.2.8, 6.2.9, 6.3, 7.0, Appendix B.1.3, B.1.4.1, B.1.6, B.2, B.2.4.3, and Appendix C
Initiator: Prasanna Kumar	Document Title: *Pit Disassembly and Conversion Facility Project - Project Execution Plan*	

Description of Change:

Text and graphics have been modified as noted by the change bars (ICN-003 changes only) to reflect programmatic changes, update cited program documentation, and address editorial issues submitted by Integrated Project Team members.

Rationale/Justification:

1. This change is required to update program information, documentation, and roles and responsibilities of the Integrated Project Team.

Training Required: ____ Formal Classroom
____ Required reading
____ Other (Specify)

Concurrence:

_____ _____
Date

Approval:

_____ 9/29/04
Andre Cygelman Date
Acting Federal Project Director
Office of Fissile Materials Disposition

Concur: Richard Raaz
Project Manager, Washington Group International

9/15/04
Date

Concur: Randy Erickson
Program Manager, Los Alamos National Laboratory

9/17/04
Date

Concur: for JG Angelos
Jimmy Angelos
Nuclear Nonproliferation Program Director
Westinghouse Savannah River Company

9/23/04
Date

Office of Fissile Materials Disposition	**INTERIM CHANGE NOTICE**	Number: Interim Change Notice 002 Document: Project Execution Plan Section/Paragraph: 3.2, 3.2.1, 7.0, Appendix B.1.1
Initiator: Prasanna Kumar	Document Title: *Pit Disassembly and Conversion Facility Project - Project Execution Plan*	

Description of Change:

Text and graphics have been modified as noted by the change bars (ICN-002 changes only) to clarify recent program changes regarding the Integrated Project Team roles and responsibilities for the plutonium process design (PPD).

Rationale/Justification:

1. This change is required to clarify the PPD design authority role and responsibilities per Ron Collins' memo (May 7, 2004).

Training Required: ____ Formal Classroom
____ Required reading
____ Other (Specify)

Concurrence:

_____ _____
Date

Approval:

R. Collins 6-17-04
Ronald E. Collins Date
Federal Project Director
Office of Fissile Materials Disposition

Office of Fissile Materials Disposition	**INTERIM CHANGE NOTICE**	Number: Interim Change Notice 001
		Document: Project Execution Plan
		Section/Paragraph: 2.0, 2.4, 3.2.1, 3.2.2, 5.7.3, 6.1.1, 6.2.8, 7.0
Initiator: Prasanna Kumar	Document Title: *Pit Disassembly and Conversion Facility Project - Project Execution Plan*	

Description of Change:

Text and graphics have been modified as noted by the change bars to reflect recent program changes.

Rationale/Justification:

1. Lack of appropriated funding necessitates a suspension of the detailed design of the waste solidification building.

2. Scope of work for Government-Furnished Design has been reassigned from Los Alamos National Laboratory to Washington Group International. This scope of work shall now be referred to as the plutonium process design (PPD).

Training Required: ____ Formal Classroom
____ Required reading
____ Other (Specify)

Concurrence:

_____ _____
Date

Approval:

R E Collins 4/9/04
Ronald E. Collins Date
Federal Project Director
Office of Fissile Materials Disposition

Kenneth E. Baker (for) 8/29/03

Approve: Paul M. Longsworth
Deputy Administrator
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Date

8/25/03

Concur: Edward J. Siskin
Assistant Deputy Administrator
Office of Fissile Materials Disposition
Date

Ronald E. Collins 8/04/03

Concur: Ronald E. Collins
Federal Project Director
Office of Fissile Materials Disposition
Date

Concur: Richard Raaz
Project Manager, Washington Group International

3/6/03
Date

Concur: Randy Erickson
Program Manager, Los Alamos National Laboratory

3/7/03
Date

Concur: Jimmy Angelos
Plutonium Disposition Program Director,
Westinghouse Savannah River Company

3/6/03
Date

REVISION SUMMARY

Revision	Revision Date	Reasons for Revision
0	December 2000	Initial issue for commencement of execution.
1	September 2003	General revision to incorporate programmatic and management changes.
ICN-001 ICN-002 ICN-003	April 2004 June 2004 September 2004	This update reflects programmatic changes identified in Interim Change Notices 001, 002, 003, as well as organizational changes (Siskin, July 2004). Due to funding issues, all work on the waste solidification building has been suspended. Therefore, specific details on that subproject will be deferred to a later revision once the decision to proceed has been made. As such, the updates presented are primarily for the pit disassembly and conversion facility. Because the changes essential affect the entire document it is being reissued as Revision 1-ICN-003.

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LIST OF ACRONYMS

A/E	architect/engineer design firm
ALARA	as low as is reasonably achievable
BCP	Baseline Change Proposal
CCB	Change Control Board
CD	Critical Decision
CH	Chicago Operations Office
COR	Contracting Officer Representative
CRB	Corporate Review Budget
DNFSB	Defense Nuclear Facilities Safety Board
DOE	U.S. Department of Energy
DOE-SR	U.S. Department of Energy's Savannah River Operations Office
DRD	Design Requirements Document
EIR	External Independent Review
EM	Office of Environmental Management
ESAAB	Energy Systems Acquisition Advisory Board
FAR	Federal Acquisition Regulation
FDD	Facility Design Description
FRAM	Functions, Responsibilities, and Authorities Manual
FY	fiscal year
GFD	Government-Furnished Design
GFE	Government-Furnished Equipment
HAZOPS	hazards and operability
ICR	Idependent Cost Review
IPS	Integrated Project Schedule
ISMS	integrated safety management system
LANL	Los Alamos National Laboratory
LCC	life-cycle cost
M&O	management and operating
MOX FFF	mixed oxide fuel fabrication facility
NEPA	National Environmental Policy Act
NNSA	National Nuclear Security Administration
OCI	Organizational Conflict of Interest
OECM	Office of Engineering and Construction Management
OFMD	Office of Fissile Materials Disposition
OPC	other project cost
OSHA	Occupational Safety and Health Administration
PDCF	pit disassembly and conversion facility
PPD	plutonium process design
PSO	Program Secretarial Officer
QARD	Quality Assurance Requirements Document
RAMI	reliability, availability, maintainability, and inspectability
RFI	request for information
ROD	Record of Decision

LIST OF ACRONYMS (Continued)

SAE	Secretarial Acquisition Executive
SDD	System Design Description
SEMP	Systems Engineering Management Plan
SRS	Savannah River Site
SSCs	systems, structures and components
TBD	to be determined
TEC	total estimated cost
TPC	total project cost
WBS	work breakdown structure
WGI	Washington Group International
WSB	waste solidification building
WSRC	Westinghouse Savannah River Company
WTA	Work Task Authorization

1.0 INTRODUCTION

1.1 Mission Requirement

The end of the Cold War created a legacy of surplus weapons-usable plutonium both in the United States and Russia. The stockpiles of this plutonium pose a danger to national and international security in terms of potential proliferation of nuclear weapons if the plutonium is not properly safeguarded and managed.

In January 2002, the Administration affirmed its decision to disposition surplus weapons-usable plutonium and construct and operate a pit disassembly and conversion facility (PDCF) to convert the surplus plutonium metals to a plutonium oxide that would go to the mixed oxide fuel fabrication facility (MOX FFF).[1] The MOX fuel would then be irradiated in existing domestic, commercial light water reactors. Disposition will ensure that the plutonium will be inaccessible and unattractive for weapons use. The PDCF and MOX FFF will be constructed at the U.S. Department of Energy's (DOE) Savannah River Site (SRS). For further information on these facilities and their mission, see Appendix A, Critical Decision 1, Secretarial Approval of Mission Need.[2]

The mission of the PDCF project is to develop and deploy the capability to disassemble nuclear weapons pits and convert the resulting plutonium and other plutonium metal to an unclassified oxide suitable for storage and disposition. The rate of progress in deploying this capability will be consistent with that specified in the *Agreement Between the Government of the United States of America and the Government of the Russian Federation Concerning the Management and Disposition of Plutonium Designated As No Longer Required for Defense Purposes and Related Cooperation (U.S.-Russia Plutonium Management and Disposition Agreement)* (September 2000).

1.2 Project Execution Plan

The PDCF project is classified as a Major System. This Project Execution Plan defines project objectives, roles and responsibilities of the Integrated Project Team, project organization, and controls to facilitate effective project management of the PDCF project (Line Item: 99-D-141). It addresses the policies, requirements, and critical decision responsibilities for a Major System as identified in DOE's Manual 413.3-1, *Project Management for the Acquisition of Capital Assets*, and serves as the team's charter. This Project Execution Plan is a living document that will be periodically updated (i.e., page changes or complete revisions, as appropriate) as the project progresses through design to construction and startup. This is a controlled document per *MD Program Management Procedure, Document Control* (MD-PGM-4.1, December 2002).[3]

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[1] DOE press release, *Secretary Abraham Announces Administration Plan to Proceed with Plutonium Disposition and Reduce Proliferation Concerns*, January 23, 2002.

[2] DOE Order 413.3, *Program and Project Management for the Acquisition of Capital Assets*, was approved on October 13, 2000. What was Critical Decision 1, Approval of Mission Need, is now referred to as Critical Decision 0. This Project Execution Plan reflects the critical decision nomenclature of DOE Order 413.3.

[3] Reorganizations in March 2000 and October 2002 have resulted in the Office of Fissile Materials Disposition (MD) changing its routing symbol to OFMD or NA-26. However, nomenclature for existing MD procedures and program documents has not been revised to reflect the new organizational structure.

2.0 PROJECT DESCRIPTION

This section discusses the scope and objectives of the PDCF project. Included is a description of the PDCF, the pit disassembly and conversion process, demonstration activities, and the waste solidification building (WSB).

> Due to the difficulties in obtaining reprogramming of available funds to support detailed design of the waste solidification building, this work has been suspended (Cygelman, January 2004).

2.1 Scope

The scope of the PDCF project is to develop and deploy the capability to disassemble nuclear weapons pits and convert the resulting plutonium and other plutonium metal to an unclassified oxide suitable for storage and disposition. In addition, the project will develop and deploy the capability to treat and dispose of radioactive liquid wastes from the PDCF and MOX FFF. The PDCF project involves the following and constitutes the full scope of the project:

- Develop and demonstrate individual steps of the pit disassembly and conversion process at Los Alamos National Laboratory (LANL).
- Design, construct, test, and startup the PDCF at SRS using the experience from the pit disassembly and conversion technology demonstration.
- Design, construct, test, and startup the WSB at SRS.

2.2 Objectives

Specific programmatic, technical, cost, and schedule objectives have been developed for the PDCF project. The objectives are discussed in the following sections.

2.2.1 Programmatic Objective

The key programmatic objective of the PDCF project is to support U.S. nonproliferation objectives by reducing the stockpile of U.S. surplus plutonium metal in weapons pits and weapons-grade clean metal through disassembly and conversion to an unclassified oxide suitable for long-term storage or for disposition as MOX fuel.

2.2.2 Technical Objectives

The key technical objectives of the PDCF project are as follows:

- Provide capacity to convert plutonium from pits and clean metal to a stable, unclassified oxide at a rate of 3.5 metric tons per year over an anticipated 8-year project life.
- Provide a plutonium oxide feed within specifications for fabrication into MOX nuclear fuel and subsequent irradiation in domestic, commercial reactors.
- Implement integrated safety management in accordance with DOE Policy 450.4, *Safety Management System Policy*.
- Design and construct the PDCF in a manner that allows for efficient and cost-effective operation, shutdown, deactivation, and decommissioning at the end of the surplus plutonium disposition mission.

- Design and construct the PDCF so it can operate in compliance with applicable Federal, State, and local regulations, and consistent with the site's integration requirements and infrastructure capabilities.
- Provide the capability to treat and dispose of liquid radioactive waste streams from the PDCF and MOX FFF.

2.2.3 Cost Objective

The key cost objective is to manage the PDCF project to within the performance baseline established at Critical Decision 2.

2.2.4 Schedule Objective

The key schedule objective is to complete the PDCF project as indicated by the performance baseline.

2.3 Facility Concept

The PDCF will be built in a hardened space that meets applicable standards for processing special nuclear materials. The plutonium-processing building will be a material access area that houses systems for the following: receiving, assay and storage, pit disassembly, plutonium metal extraction and conversion to oxide, plutonium oxide packaging, and shipment. Also included in the PDCF will be an analytical laboratory; systems for materials recovery, decontamination, and declassification of derivative streams resulting from pit disassembly; and management of nonplutonium weapons components resulting from pit disassembly. In addition to hardened space, conventional buildings and structures will house offices, change rooms, a central control room, and systems for packaging, storage, and shipment of waste.

The PDCF will accept surplus fissile material as pits or plutonium metal and will produce packaged plutonium oxide suitable for storage and disposition. The pits will be separated into hemishells with a cutting device, and the plutonium will be removed from the hemishells and converted to a stable, unclassified oxide by a pyrochemical process. The unclassified oxide product will be sealed in metal cans, which will then be leak-checked and electrolytically decontaminated. The canned plutonium will be placed in storage and made ready for transfer, according to the *U.S.-Russia Plutonium Management and Disposition Agreement*, prior to transfer as feed to the MOX FFF, which is separate from the PDCF. Nonplutonium parts of the pits will be separated and recovered for reuse or prepared to be dispositioned. The disassembly and conversion system will consist of interconnected glovebox modules, which afford maximum system flexibility.

The WSB will be located outside 200-F Area adjacent to the PDCF and will be constructed of concrete. The major pieces of process equipment include tanks, evaporators, and cementation equipment. The WSB will treat the radioactive liquid waste streams from the MOX FFF and PDCF and solidify them through volume reduction/cementation. Once processed, the final waste form will be loaded into standard waste boxes or B-12 containers pending onsite or offsite disposal.

The PDCF will operate on three shifts per day, 7 days a week, and the WSB will operate on two shifts per day, 7 days a week. Planned operation is an average of 43 weeks per year for the PDCF and 42 weeks per year for the WSB with the remaining time planned for maintenance.

2.4 Development and Demonstration

An integrated demonstration of the PDCF production modules will establish the technical, engineering, safety, environmental, and administrative bases for the design, construction, and operation of the process technology. This demonstration includes laboratory facility preparation activities, acquisition of the gloveboxes, design and assembly of a control system to operate the modules, preparation of all system documentation requirements, demonstration of the disassembly and conversion of all types of nuclear weapons pits, material control and accountability, and measurements of personnel radiation exposure from all pit types.

The *Pit Disassembly and Conversion Integrated Design Support and Test Plan* (LA-UR-04-1886, February 2004) describes the testing and demonstration activities required to support the PDCF design. Key functions that are covered in the plan include:

- pit disassembly;
- special recovery line;
- hydride/dehydride process;
- plutonium and highly enriched uranium conversion;
- product packaging;
- nondestructive assay;
- part sanitization furnace;
- uranium processing; and
- manipulators.

2.5 Design, Construction, Testing, and Startup

The baseline process technology for the PDCF will be translated into plutonium process design (PPD) (formerly Government-Furnished Design [GFD])[1] and integrated into the PDCF design in order to meet the programmatic and technical objectives. The PDCF and WSB designs shall meet the functional, safety, safeguards, and operational requirements as specified in the *Facility Design Description for Pit Disassembly and Conversion Facility* (FDD) (G-FDD-F-00004, October 2003) and the *Facility Design Description, Waste Solidification Building* (G-FDD-F-00007, August 2003).

Construction management contractors and startup and testing contractors for the PDCF and WSB will be selected in accordance with the PDCF project acquisition strategy (see Section 6.1) and plans. A contractor distinct from the PDCF construction management contractor will be selected to procure the PDCF Government-Furnished Equipment (GFE). Systems testing and integrated systems startup of the PDCF and WSB will be conducted in accordance with approved acceptance criteria prior to the start of operations. A training module of the PDCF process will be used to train and prepare operating personnel.

[1] On March 3, 2004, the completion of the Government-Furnished Design process equipment was reassigned from Los Alamos National Laboratory to Washington Group International. The design scope of work is now referred to as the plutonium process design (Collins, March 2004).

3.0 PROJECT ORGANIZATION AND INTERFACES

The PDCF project is comprised of three phases: technology development, design of the facilities, and construction and startup of the facilities. This section describes the Integrated Project Team's specific roles and responsibilities and the interfaces necessary for the design and construction and startup phases.

3.1 Project Management Structure and Responsibilities

The PDCF project is a Major System acquisition for the National Nuclear Security Administration (NNSA). The Deputy Secretary is the Secretarial Acquisition Executive (SAE), the Deputy Administrator for the Office of Defense Nuclear Nonproliferation (NA-20) is the Program Secretarial Officer (PSO), and the Assistant Deputy Administrator for the Office of Fissile Materials Disposition (OFMD or NA-26) is the Program Manager. The Federal Project Director (NA-262)[1] is responsible for meeting project objectives and is authorized to make decisions regarding project implementation. The NA-262 Federal Project Director reports to the Director, Materials and Conversion (NA-262), who has been delegated authority commensurate with the level of authority afforded Federal Project Directors by the Assistant Deputy Administrator to initiate, implement, and approve activities related to the PDCF project.

3.2 Integrated Project Team

The Integrated Project Team is composed of personnel from NNSA, Office of Defense Nuclear Nonproliferation Headquarters (NA-20), Office of Fissile Materials Disposition (NA-26), and Fissile Materials Disposition Site Office/SRS (NA-266); DOE's Chicago Operations Office (CH); Westinghouse Savannah River Company (WSRC), the site management and operating (M&O) contractor; Washington Group International (WGI), the architect/engineer (A/E) design contractor; and LANL, the technology development contractor.

WGI is designated as the design agency for the PDCF. WSRC is designated as the design agency for the WSB and the design authority for the PDCF project (i.e., PDCF, excluding the PPD, and WSB). WSRC also has the responsibility for operations and maintenance reviews of the PDCF project design (see Appendix B, WSRC Roles and Responsibilities). LANL is the design authority for the PPD and is responsible for specifying PPD requirements in an NNSA-accepted Design Requirements Document (DRD) for the functional design and to review the final PPD produced by WGI to validate that the PPD will achieve the PDCF mission in a safe, compliant manner in accordance with the PDCF Preliminary Documented Safety Analysis (Collins, May 2004).

Both the WGI design organization and WSRC report to the WGI corporate organization. The corporate organization ensures that the WSRC PDCF Project Design Authority Manager, WSRC PDCF Program Manager, and PDCF Design Agent function independently of each other. As described in this Project Execution Plan and as required by the contract and the approved WGI *Organizational Conflict of Interest (OCI) Mitigation Plan* (May 2002), these managers will coordinate their efforts through NNSA and ensure that the Design Authority, WSRC Operations and Maintenance, and Design Agent organizations carry out their PDCF project responsibilities in a manner that is independent and unbiased.

[1] DOE Manual 413.3-1, *Project Management for the Acquisition of Capital Assets*, to which this plan conforms, refers to the lead management position as Federal Project Director as opposed to Federal Project Manager as directed in earlier DOE orders. Project documentation and contracts dated prior to May 2003 will not be revised to reflect the change in title name.

3.2.1 Design Phase Roles and Responsibilities

The design phase structure and position accountabilities of the Integrated Project Team are depicted in Figure 3–1 and the roles and responsibilities are described below:

Federal Project Director (NA-262)

- Serve as the single point of contact between Federal and contractor staff in all matters relating to the project and its performance.
- Lead the Integrated Project Team.
- Ensure the design, construction, environmental, safety, health, and quality efforts performed by contractors are in accordance with the contract, public law, regulations, and Executive orders.
- Define project objectives and technical, schedule, and cost scopes.
- Direct project management activities.
- Evaluate and verify reported progress, make projections of progress, and identify trends.
- Ensure timely, reliable, and accurate integration of contractor performance data into the project's scheduling, accounting, and performance measurement systems.
- Develop and implement this Project Execution Plan (which serves as the team's charter) and acquisition strategy.
- Conduct project communications (including meetings), work authorizations, project change control, design review and approval, and comment resolution in a manner consistent with this Project Execution Plan and the WGI OCI Mitigation Plan.
- Serve as the Chairperson of the PDCF Project Change Control Board (CCB) and make the disposition decision on all Baseline Change Proposals (BCPs).
- Ensure that project requirements are defined and validated for use in design.
- Evaluate and direct design requirements based on the technology demonstration results.
- Coordinate interactions between the Integrated Project Team and external parties.

Senior Site Representative (NA-262)

- Provide onsite project management oversight and monitoring of PDCF design development and issues.
- Report progress toward project milestones, identifying potential project issues and concerns.

Technology Manager (NA-262)

- Serve as the point of contact between Federal and national laboratory staff in all matters relating to the PDCF and technology development performance as delegated by the NA-262 Federal Project Director.
- Ensure the design, construction, environmental, safety, health, and quality efforts performed by the national laboratories are in accordance with the contract, public law, regulations, and Executive orders.

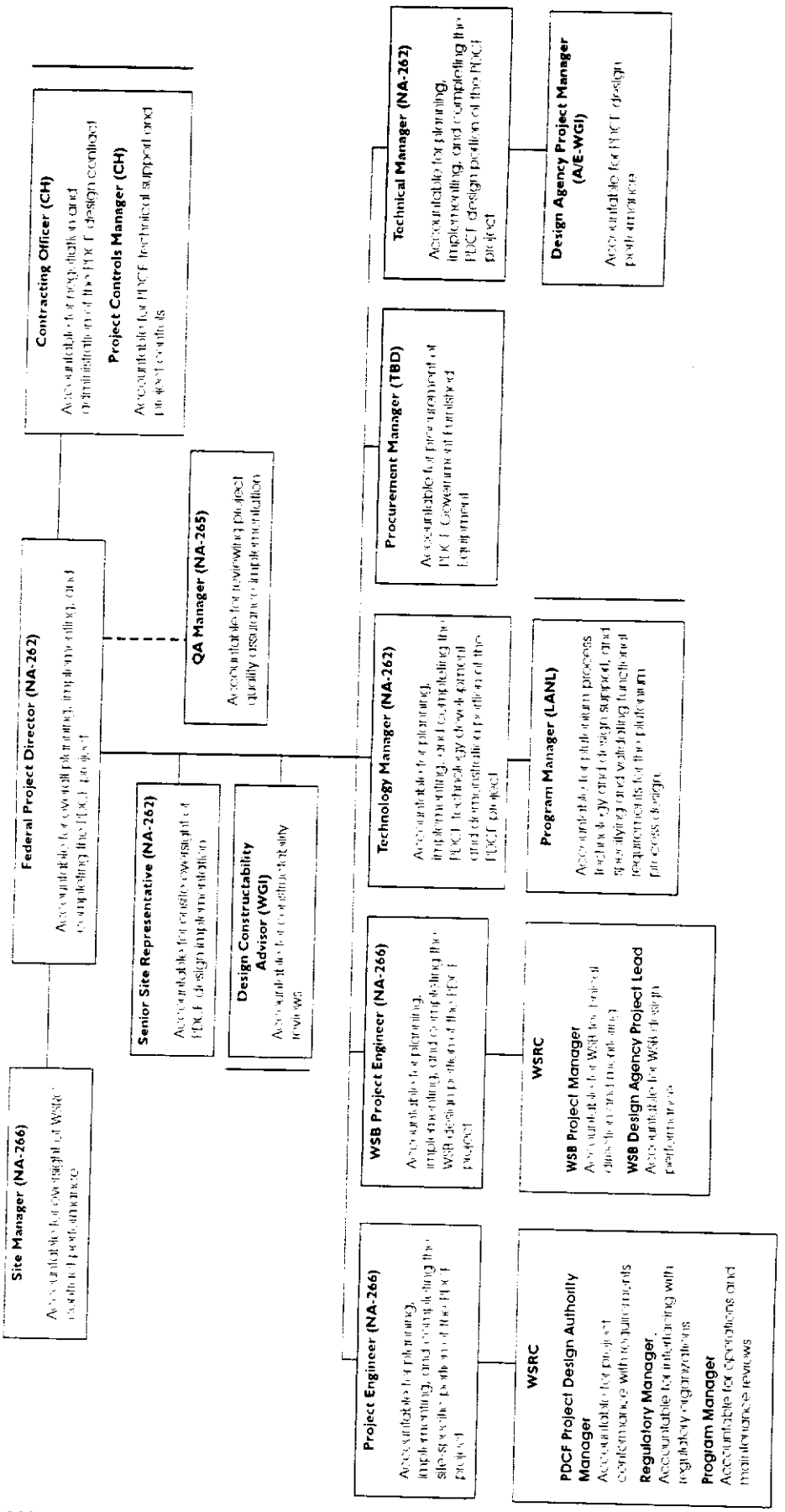

Figure 3–1. PDCF Integrated Project Team Organizational Structure During Preliminary and Final Design

Technical Manager (NA-262)

- Serve as the point of contact between Federal and WGI staff in all matters relating to the PDCF and design performance as delegated by the NA-262 Federal Project Director.
- Ensure the design, construction, environmental, safety, health, and quality efforts performed by WGI are in accordance with the contract, public law, regulations, and Executive orders.
- Ensure incorporation of technical and functional requirements into design.
- Serve as Contracting Officer Representative (COR) for the PDCF design contract.
- Evaluate and verify WGI project performance data.
- Review all PDCF BCPs and recommend disposition action to the CCB Chairperson.
- Coordinate OFMD review of WGI and WSRC deliverables.
- Accept WGI deliverables.

Quality Assurance Manager (NA-265)

- Maintain the Quality Assurance Requirements Document (QARD).
- Provide guidance in understanding and meeting the QARD requirements.
- Review and concur with the Integrated Project Team Quality Assurance Plans.
- Schedule and perform quality assurance audits and surveillance to verify implementation of the QARD.

Site Manager (NA-266)

- Serve as COR for the PDCF project WSRC contract.
- Oversee WSRC design scope of work for the PDCF project.
- Oversee incorporation of technical and functional requirements into design.
- Evaluate and verify WSRC PDCF project performance data.
- Accept WSRC deliverables.

Project Engineer (NA-266)

- Serve as the point of contact between Federal and WSRC staff in all matters relating to the PDCF as delegated by the NA-262 Federal Project Director.
- Oversee WSRC activities and other site project work related to the PDCF.
- Review all PDCF BCPs and recommend disposition action to the CCB Chairperson.
- Oversee preparation of site and WSRC project deliverables and reports.
- Coordinate NA-266 review of WGI and WSRC deliverables.
- Respond to site-based external parties and reviews (e.g., Defense Nuclear Facilities Safety Board [DNFSB]) and coordinate interactions between internal and external parties.
- Ensure the design, construction, environmental, safety, health, and quality efforts performed by WSRC are in accordance with the contract, public law, regulations, and Executive orders.
- Coordinate NA-266 project deliverables reviews and project report preparation.
- Perform safety management functions as delegated by the NA-266 Site Manager.
- Serve as authorized representative of the COR (i.e., NA-266 Site Manager).

WSB Project Engineer (NA-266)

- Serve as the point of contact between Federal and WSRC staff in all matters relating to the WSB as delegated by the NA-262 Federal Project Director.
- Oversee WSRC activities related to the WSB.
- Review all WSB BCPs and recommend disposition action to the CCB Chairperson.
- Ensure the design, construction, environmental, safety, health, and quality efforts performed by WSRC are in accordance with the contract, public law, regulations, and Executive orders.
- Oversee preparation of WSRC project deliverables and reports.
- Coordinate NA-266 review of WSRC deliverables.
- Respond to site-based external parties and reviews (e.g., DNFSB and coordinate interactions between internal and external parties.
- Perform safety management functions as delegated by the NA-266 Site Manager.
- Serve as authorized representative of the COR (i.e., NA-266 Site Manager).

Contracting Officer (CH)

- Negotiate and administer the PDCF design contract and the PDCF and WSB construction management contracts: approve subcontracts, change orders, and other procurement actions; and coordinate review of nontechnical deliverables.
- Recommend contract actions to NA-262.
- Coordinate administrative support (i.e., financial, legal, auditing, and related functions) needed to support contract actions.
- Provide funding execution for NA-262.
- Provide security/classification services for WGI.

Project Controls Manager (CH)

- Provide support to the NA-262 Technical Manager to ensure technical direction provided to the contractor is consistent with scope and cost of the contract.
- Provide support to the NA-262 Federal Project Director in identifying technical and contractual issues.
- Perform analysis of WGI baseline data and reports and ensure conformance of project reporting and control systems.
- Provide support to the NA-262 Project and Technical Managers in analyzing and processing BCPs.
- Review all PDCF BCPs and recommend disposition action to the CCB Chairperson.
- Provide project management support and integrated project management systems, controls, and reports to the NA-262 Director, Materials and Conversion and NA-262 Federal Project Director.

Program Manager (LANL)

- Develop and maintain the PPD DRD to specify the functional and operating requirements. Changes to the DRD are subject to PDCF formal baseline change control (see Section 5.2).
- Provide plutonium process equipment expertise in a manner that supports the PDCF design and construction schedules.
- Conduct pit disassembly and conversion technology demonstration to support design and procurement of equipment and submit demonstration results to the NA-262 Technology Manager.

- Recommend design requirement additions or changes indicated by technology demonstration to the NA-262 Technology Manager.
- Review the piping and instrumentation drawings prepared by WGI for completion of the PPD to assess and validate the capability of the PPD, associated equipment, and equipment configuration to perform the PDCF mission in a functional and safe, compliant manner in accordance with the PDCF Preliminary Documented Safety Analysis.
- Review all PDCF BCPs and recommend disposition action to the CCB Chairperson.
- Participate in design reviews and coordination meetings, and provide technical expertise as requested by the NA-262 Technology Manager.

PDCF Project Design Authority Manager (WSRC)

- Perform assigned design authority activities in accordance with WSRC Roles and Responsibilities (see Appendix B.1).
- Serve as Secretary of the PDCF Project CCB.
- Review all BCPs and recommend disposition action to the CCB Chairperson.

Regulatory Manager (WSRC)

- Identify environmental regulatory requirements and obtain regulatory permits and approvals.
- Perform environmental regulatory activities in support of WSRC design authority roles and responsibilities.

Program Manager (WSRC)

- Perform operations and maintenance activities in accordance with the WSRC Roles and Responsibilities (see Appendix B.2).
- Provide site-specific safeguards and security requirements/input to the design agency.
- Direct M&O activities in support of construction and startup and in preparation to accept the facility for operation.

WSB Project Manager (WSRC)

- Direct and control the WSB design.
- Review all WSB BCPs and recommend disposition action to the CCB Chairperson.
- Perform design configuration management.
- Implement an integrated safety management system (ISMS) for design.

WSB Design Agency Project Lead (WSRC)

- Manage day-to-day execution of the contract scope of work in accordance with requirements, procedures, and standards as set forth in the contract.
- Execute the project within approved scope, schedule, and cost baselines.
- Design the WSB in compliance with the statement of work and applicable Federal, site, and external party requirements and standards as identified in the FDD.
- Monitor and control design performance by identifying variances and implementing corrective actions to maintain design schedule, budget, and technical scope.

PDCF Design Agency Project Manager (WGI)

- Manage day-to-day execution of the contract scope of work in accordance with requirements, procedures, and standards as set forth in the contract.
- Execute the project within approved scope, schedule, and cost baselines.
- Design the PDCF in compliance with the statement of work and applicable Federal, site, and external party requirements and standards as identified in the FDD.
- Provide PPD of the plutonium process equipment in a manner that supports the PDCF design and construction schedules.
- Incorporate national laboratory technology input and WSRC operational input to the design in accordance with applicable change control procedures.
- Monitor and control design performance by identifying variances and implementing corrective actions to maintain design schedule, budget, and technical scope.
- Prepare the project performance baselines for review and approval by OFMD.
- Review all PDCF BCPs and recommend disposition action to the CCB Chairperson.
- Perform design configuration management.
- Implement an ISMS for design.
- Develop and maintain a resource-loaded integrated project schedule.

Design Constructability Advisor (WGI)

- Review design for constructability.
- Review and concur with the Acquisition Plan.
- Assist WGI with construction planning.

Procurement Manager (TBD)

- Procure PDCF GFE.

3.2.2 Construction and Startup Phase Roles and Responsibilities

The construction and startup phase structure and position accountabilities of the Integrated Project Team are depicted in Figure 3–2 and the roles and responsibilities are described below:

Federal Project Director (NA-262)

- Serve as the single point of contact between Federal and contractor staff in all matters relating to the project and its performance.
- Lead the Integrated Project Team.
- Ensure the design, construction, environmental, safety, health, and quality efforts performed by contractors are in accordance with the contract, public law, regulations, and Executive orders.
- Conduct project communications (including meetings), work authorizations, and project change control, in a manner consistent with this Project Execution Plan.
- Direct project management activities.
- Evaluate and verify reported progress, make projections of progress, and identify trends.
- Ensure timely, reliable, and accurate integration of contractor performance data into the project's scheduling, accounting, and performance measurement systems.

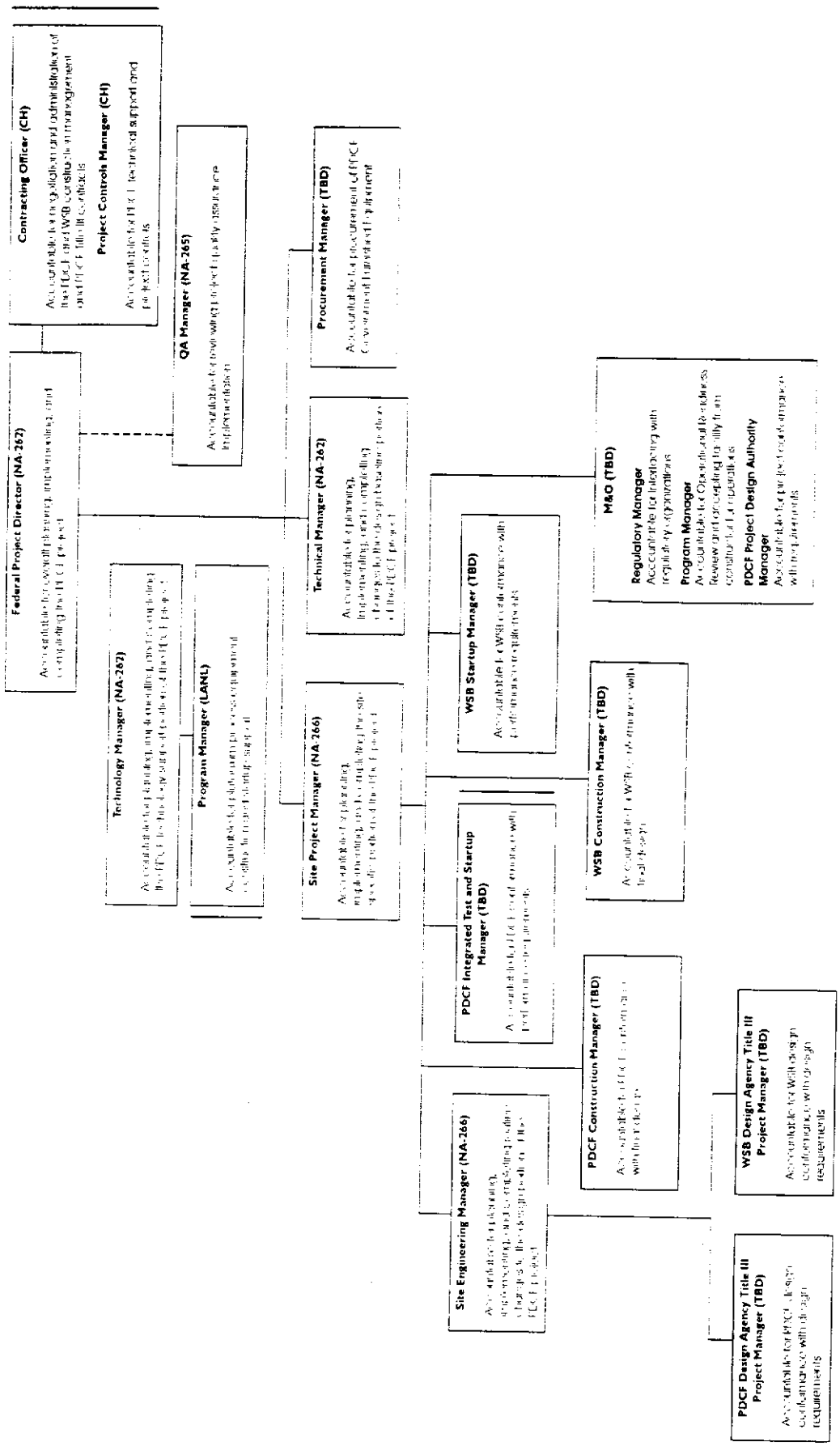

Figure 3–2. PDCF Integrated Project Team Organizational Structure During Construction and Startup

- Serve as the Chairperson of the PDCF Project CCB and make the disposition decision on all BCPs.
- Coordinate interactions between the Integrated Project Team and external parties.

Technology Manager (NA-262)

- Serve as the single point of contact between Federal and national laboratory staff in all matters relating to the PDCF and technology performance as delegated by the NA-262 Federal Project Director.
- Ensure the design, construction, environmental, safety, health, and quality efforts performed by the national laboratories are in accordance with the contract, public law, regulations, and Executive orders.

Technical Manager (NA-262)

- Serve as the single point of contact between Federal and design contractor staff in all matters relating to the PDCF and Title III design performance as delegated by the NA-262 Federal Project Director.
- Ensure the design, construction, environmental, safety, health, and quality efforts performed by the national laboratories are in accordance with the contract, public law, regulations, and Executive orders.
- Serve as COR for the PDCF Title III design contract for changes to baseline design.

Quality Assurance Manager (NA-265)

- Maintain the QARD.
- Provide guidance in understanding and meeting the QARD requirements.
- Review and concur with the Integrated Project Team Quality Assurance Plans.
- Schedule and perform quality assurance audits and surveillance to verify implementation of the QARD.

Site Project Manager (NA-266)

- Serve as the single point of contact between Federal and contractor staff in all matters relating to the PDCF project as delegated by the NA-262 Federal Project Director.
- Respond to site-based external parties and reviews (e.g., DNFSB) and coordinate interactions between internal and external parties.
- Ensure the design, construction, environmental, safety, health, and quality efforts performed by the national laboratories are in accordance with the contract, public law, regulations, and Executive orders.
- Serve as COR for the construction management contracts.

Site Engineering Manager (NA-266)

- Serve as COR for the PDCF project Title III design contracts for site construction support.
- Oversee the PDCF project Title III scope of work for site construction support.

Contracting Officer (CH)

- Negotiate and administer the PDCF and WSB construction management contracts: approve subcontracts, change orders, and other procurement actions; and coordinate review of nontechnical deliverables.
- Recommend contract actions to NA-262.

- Negotiate and administer the PDCF Title III contract.
- Coordinate administrative support (i.e., financial, legal, auditing, and related functions) needed to support contract actions.
- Provide funding execution for NA-262.
- Provide security/classification services for contractors.

Project Controls Manager (CH)

- Provide support to the NA-262 Technical Manager to ensure technical direction provided to the contractor is consistent with scope and cost of the Title III contract.
- Provide support to the NA-262 Federal Project Director in identifying technical and contractual issues.
- Perform analysis of WGI baseline data and reports and ensure conformance of project reporting and control systems.
- Provide support to the NA-262 Project and Technical Managers in analyzing and processing BCPs.
- Review all PDCF BCPs and recommend disposition action to the CCB Chairperson.
- Provide project management support and integrated project management systems, controls, and reports to the NA-262 Director, Materials and Conversion and NA-262 Federal Project Director.

Program Manager (LANL)

- Provide plutonium process equipment expertise in a manner that supports the PDCF design and construction schedules.
- Participate in reviews and meetings and provide technical expertise as required by the NA-262 Technology Manager, particularly with regard to use of the training module.

Procurement Manager (TBD)

- Procure PDCF GFE.

PDCF Design Agency Title III Project Manager (TBD)

- Produce as-built design for the PDCF.
- Monitor and control design performance by identifying and implementing corrective actions to maintain design change notices, field change requests, and field change notices throughout the construction and startup phases.

PDCF Construction Manager (TBD)

- Provide construction management services including procurement of equipment and materials, subcontractor management, and contracts administration.
- Monitor and control construction cost, schedule, and scope to the baseline.
- Obtain and maintain required site permits and licenses required for construction activities.

PDCF Integrated Test and Startup Manager (TBD)

- Provide final tests and inspections of PDCF structures, systems, and components prior to operation.
- Meet the M&O's operations criteria for turnover packages.
- Monitor and control startup baseline schedule, cost, and scope.

WSB Design Agency Title III Project Manager (TBD)

- Produce as-built design for the WSB.
- Monitor and control design performance by identifying and implementing corrective actions to maintain design change notices, field change requests, and field change notices throughout the construction and startup phases.

WSB Construction Manager (TBD)

- Provide construction management services including procurement of equipment and materials, subcontractor management, and contracts administration.
- Monitor and control construction cost, schedule, and scope to the baseline.
- Obtain and maintain required site permits and licenses required for construction activities.

WSB Startup Manager (TBD)

- Provide final tests and inspections of WSB structures, systems, and components prior to operation.
- Meet the M&O's operations criteria for turnover packages.
- Monitor and control startup baseline schedule, cost, and scope.

Regulatory Manager (M&O)

- Identify environmental regulatory requirements and obtain regulatory permits and approvals.
- Perform environmental regulatory activities in support of WSRC design authority roles and responsibilities.

Program Manager (M&O)

- Perform operations and maintenance activities in accordance with the WSRC Roles and Responsibilities (see Appendix B.2).
- Provide site-specific safeguards and security requirements/input to the design agency.
- Direct M&O activities in support of construction and startup and in preparation to accept the facility for operation, including Operational Readiness Reviews.

PDCF Project Design Authority Manager (M&O)

- Perform design authority activities in accordance with WSRC Roles and Responsibilities (see Appendix B.1).
- Serve as Secretary of the PDCF Project CCB.

3.3 Interfaces

The PDCF project interfaces with many organizations. Included in the following sections are descriptions of those interfaces principal to the PDCF project.

3.3.1 Interfaces at the Departmental Level

The PDCF project is a component of NNSA's plutonium disposition program. The PDCF project interfaces relate to meeting commitments made in the *U.S.-Russia Plutonium Management and Disposition Agreement*.

3.3.2 Interfaces Within OFMD

The PDCF project interfaces with the MOX FFF project. The PDCF project is responsible for providing plutonium oxide within specification to the MOX FFF and to the related lead assembly fabrication program and for solidification of selected radioactive wastes from the MOX FFF for disposal. The WSB portion of the project is addressed in the *Mixed Oxide Fuel Fabrication Facility Environmental Report* (July 2002). Description of the interface between the MOX FFF and PDCF is in accordance with the *Plutonium Dioxide Powder Interface Control Document* (May 2004).

The *NNSA Plutonium Disposition Program Interface Control Procedure* (MD-PGM-1.6, May 2003) specifies the overall policy, guidance, and process for assuring that project interfaces and related issues are identified, controlled, and resolved.

3.3.3 Interfaces Within NNSA

The PDCF project interfaces with the Office of Secure Transportation (NA-15) regarding transportation services for conveying weapons pits from Pantex and other materials from LANL to the PDCF as well as the Office of Defense Nuclear Security (NA-70) on safeguards and security issues. Other offices include the following:

Los Alamos Site Office. The Los Alamos Site Office is responsible for overseeing the operations of LANL. LANL supports the PDCF project by conducting the pit disassembly and conversion technology demonstration.

Y-12 Site Office. The Y-12 Site Office is responsible for designing the surplus plutonium pit transportation packaging and Y-12 will receive surplus highly enriched uranium from the PDCF project.

3.3.4 Interfaces Within DOE

Office of Environmental Management. The Assistant Secretary for the Office of Environmental Management (EM) is designated as the Lead PSO for SRS. Operations and infrastructure support may be provided by EM through DOE's Savannah River Operations Office (DOE-SR).

Office of Engineering and Construction Management. The Office of Engineering and Construction Management (OECM) will review NNSA's project management structure, attend selected PDCF design reviews, and conduct and approve the External Independent Reviews (EIRs) prior to Critical Decisions 2 and 3. This office is also responsible for processing any baseline change control requests originating in the PDCF project to the Energy Systems Acquisition Advisory Board (ESAAB).

3.3.5 Interfaces Outside DOE

Defense Nuclear Facilities Safety Board. DNFSB will conduct independent, external oversight of PDCF project activities throughout design, construction, and startup.

Regulatory Authorities. The PDCF will be subject to the regulatory requirements of Federal, State, and local authorities.

Public. The PDCF project has high public visibility. OFMD, in conjunction with NA-266, CH, and WSRC, will maintain an active public outreach program.

3.4 Communications to Support Design

Successful completion of the PDCF design is predicated on effective communication of the Integrated Project Team members. A formal communications protocol developed for that purpose is presented as Appendix C. This protocol applies to the design of the PDCF only; it does not cover internal laboratory communications for the demonstration of the production modules.

4.0 PROJECT DEFINITION

This section addresses the work breakdown structure (WBS) and the technical, cost, and schedule requirements.

4.1 Project Work Breakdown Structure

The integrated PDCF project WBS provides the framework for the definition of all project work encompassing capital-funded (total estimated cost) and operating-funded (other project cost) activities and defines the work that must be done to accomplish the baselines described in the next section. Each Integrated Project Team organization provided input to the integrated PDCF project WBS and manages its work in accordance with the WBS.

Figure 4–1 shows the PDCF project WBS down to the Level 3 tasks. The PDCF project is shown as the Level 1 task. Level 2 tasks include the following:

- engineering design;
- procurement;
- construction;
- other project costs; and
- startup.

Level 3 engineering design tasks are defined further as:

- Preliminary design includes plant design, process design, mechanical design, electrical design, development of specifications, and systems engineering. Preliminary design includes preparation of a cost estimate and project schedule, which will establish the performance baseline for the project.
- Final design includes systems engineering and the development and submittal of design deliverables such as detailed plans, drawings, and specifications necessary for project procurement and construction activities.
- Title III consists of engineering and inspection services during construction.

The Level 4 WBS identifies tasks at the process level (i.e., systems engineering, utility systems, etc.) and the Level 5 WBS defines specific tasks (i.e., Systems Engineering Plans, configuration management, argon supply, etc.) as shown in Figure 4–2. Appendix A of the WGI *PDCF Detail Design Work Plan* (P-DSR-F-00001, July 2004) provides a detailed WBS dictionary delineating the definition and description of the task, labor hours planned, the responsible Cost Account Manager, and a list of deliverables for each PDCF design element. Similar information for the WSB design elements is maintained by WSRC. The WSB FDD is the basis for the work scope as defined in the latest WBS as shown in the *Waste Solidification Building Preliminary Design Estimate and Schedule* (September 2003).

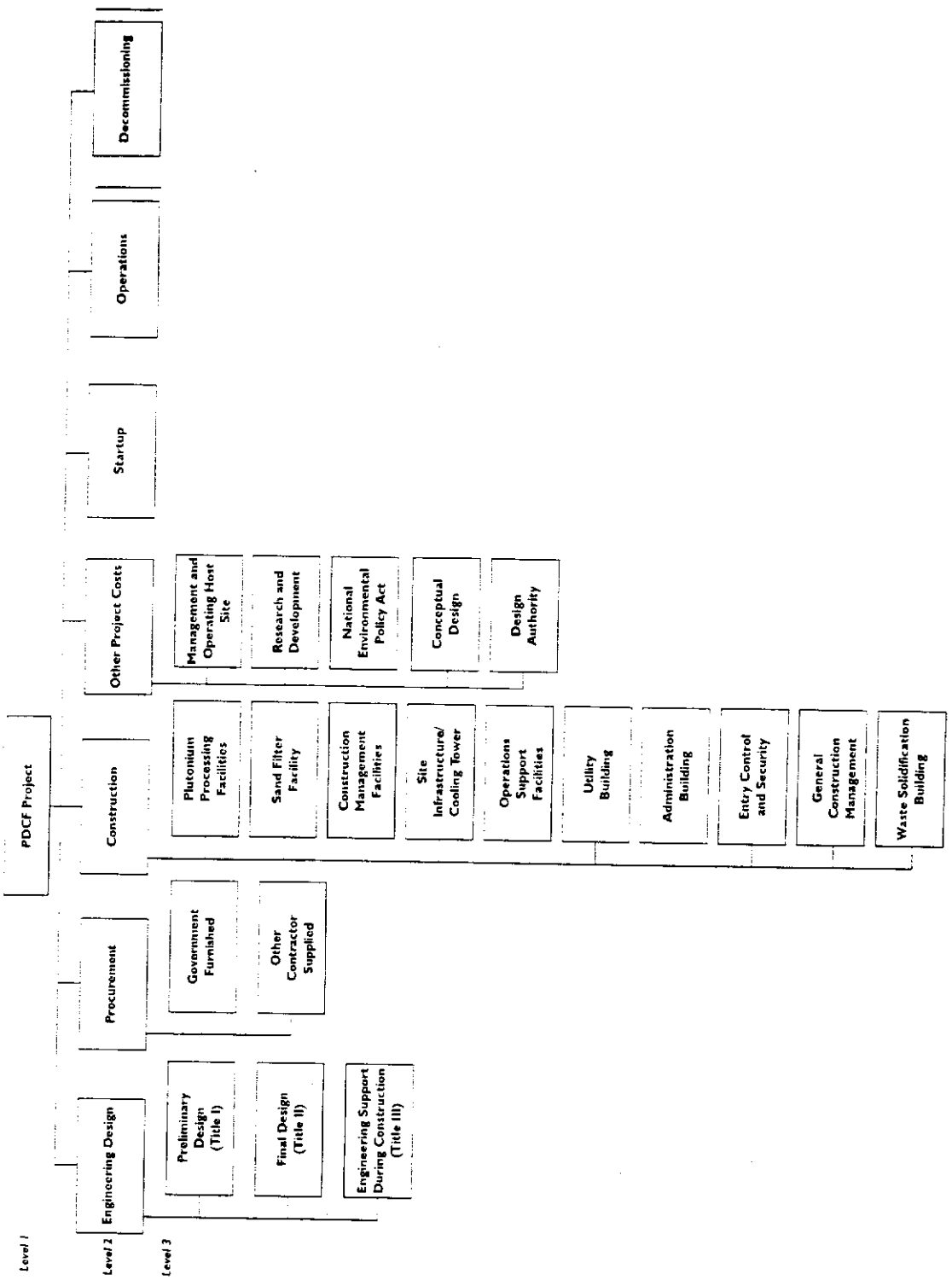

Figure 4–1. PDCF Project Work Breakdown Structure for Levels 1, 2, and 3

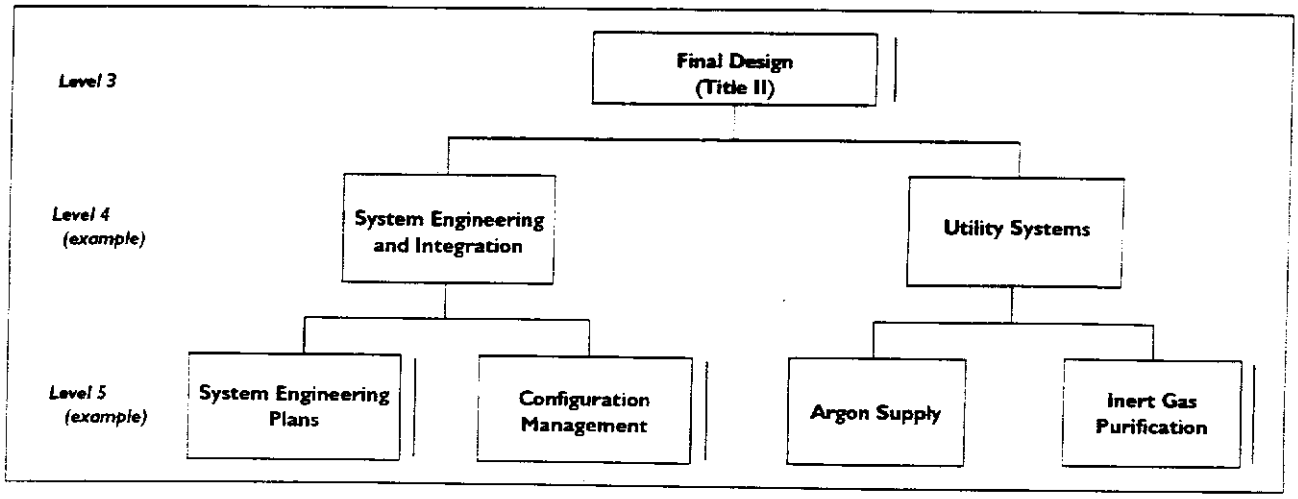

Figure 4–2. Example of PDCF Project Work Breakdown Structure for Levels 4 and 5 for Final Design (Title II)

4.2 Project Baselines

The preliminary design activities are monitored against the preliminary project technical requirements, cost, and schedule. At the completion of preliminary design, the project performance baseline is established and used to control the final design activities. The performance baseline is comprised of interrelated technical, cost, and schedule baselines and is monitored, controlled, and reported against during the execution of final design and construction. Changes to the project baseline are managed in accordance with Section 5.2.

4.2.1 Technical Baseline

The technical baseline is the set of controlled documents consisting of the facility-level requirements and design description; project interfaces; system-level requirements and design descriptions and drawings; and criteria for development of subsystem/component design and for testing, operating, and maintenance procedures.

A list of baseline documents is maintained by the PDCF Project Change Control Board in the *Technical Baseline List for the Pit Disassembly and Conversion Facility* (PDCF-0001, September 2003). A similar list has been established for the WSB as detailed in a WSRC memorandum (King, October 2003).

4.2.2 Cost Baseline

The total estimated cost (TEC) and total project cost (TPC), including cost contingency (see Section 5.4), will be updated and baselined at Critical Decision 2 (see Section 5.1). Prior to Critical Decision 2 and establishment of this baseline, the cost will be the A/E contract cost and the funding in the Annual Operating Plan for other Integrated Project Team organizations. The PDCF project life-cycle cost (LCC) is shown in Table 4–1.

Table 4–1. PDCF Project Life-Cycle Cost

Activity	Cost (FY2001 $ thousand)
Research and Development/Pre-capital	249,300
Design, Construction, and Procurement	450,900
Operation[a]	718,200
Deactivation	9,100
Contingency	267,700
Total	**1,695,200**

[a] Operation costs include PDCF-specific safeguards and security, and pit packaging activities.

4.2.3 Schedule Baseline

The PDCF Project–Integrated Project Schedule (IPS) provides the scheduled start and completion dates for project activities and the logical connections between activities for all project work scope. The schedule will be baselined at Critical Decision 2. The IPS is used to manage project progress and serves as a communication tool for the Integrated Project Team, senior management, and NNSA.

4.3 Project Risk

The PDCF project uses risk management programs that include project risk identification, analysis, quantification, and mitigation planning. The PDCF risk management program is approved by NNSA and risk management related activities are incorporated into the IPS and project cost elements as appropriate. The PDCF project will issue the *Pit Disassembly and Conversion Facility Risk Management Analysis Report* (draft, WSRC-RP-2004-00560, September 2004) developed in accordance with the *Pit Disassembly and Conversion Facility Risk Management Process Plan* (WSRC-RP-2004-00580, September 2004).

WSRC produced the *Risk and Opportunity Management Plan for the Nuclear Nonproliferation Program Waste Solidification Building* (Y-RMP-F-00007, March 2003) and *Nuclear Nonproliferation Program, Waste Solidification Building Risk and Opportunity Analysis Report* (Y-RAR-F-00019, October 2003), which will be updated during final design.

5.0 PROJECT CONTROLS AND REPORTING

This section describes the project management systems, controls, reports, and associated processes used to measure and control PDCF project performance. It identifies how changes to the project technical (scope), cost, and schedule documents will be managed. It also addresses how project performance is measured and reported and discusses systems and processes related to project reviews, and funds management.

The PDCF project performance baselines are used to effectively monitor, control, report, and manage the project scope. OFMD will retain project control responsibility throughout design, construction, and startup.

5.1 Critical Decisions

As a Major System, the PDCF project critical decisions must be approved by the DOE Deputy Secretary, who serves as the SAE. The PDCF did not obtain a formal Critical Decision 1 (CD-1), but rather presented program documentation, such as the Programmatic Record of Decision, as authority for Secretarial Approval of Mission Need (as CD-1 was defined at that time).[1] CD-1 "equivalency" was approved on October 31, 1997 as documented in a Memorandum to the File (see Appendix A). CD-1 prerequisites were reviewed under the auspices of the Office of Field Management and OFMD received verbal agreement from that office that the Memorandum to the File serves as the formal equivalency document confirming CD-1 approval.

The PDCF project anticipates receiving approval for Critical Decision 2 in fiscal year (FY) 2005. The PDCF project may require a Critical Decision 3A to authorize funding to allow procurement of long-lead items and for WSB construction. The IPS identifies the scheduled dates for seeking approval of critical decisions for the PDCF project.

5.2 Project Change Control

During design, proposed changes to the design are recorded and evaluated in accordance with approved procedures. This includes the identification and evaluation of trends that are scope, cost, or schedule impacts to the performance baselines. Other than for directed changes from OFMD, the normal flow of changes during final design[2] will initiate in the design contractor's change control process and move up to the Federal project change control process as appropriate. Table 5–1 delineates the change approval authority for each of the performance baselines.

The PDCF project change control process is governed by procedures as follows:

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[1] Critical Decision 1 (CD-1) was made under the authority of DOE Order 430.1A, *Life-Cycle Asset Management*, and in accordance with DOE Notice 430.1, *Energy Systems Acquisition Advisory Board Procedures*. CD-1 provides the PDCF project with authorization to proceed through design to CD-2. DOE Manual 413.3-1, *Project Management for the Acquisition of Capital Assets*, issued in March 2003, supercedes previous guidelines and requirements. Although the new order also inserted an additional decision point between former CD-1 and CD-2, renumbering CD-1 to CD-0, the PDCF project will continue under the original CD-1 authorization to CD-2. Subsequent critical decisions (i.e., CD-2, CD-3, and CD-4) reflect the nomenclature presented in DOE M 413.3-1.

[2] Change control during construction and startup will follow the same guidelines. Procedure references will be provided in the Critical Decision 3 version of the *PDCF Project – Project Execution Plan*.

Table 5–1. PDCF Project Change Approval Authority

Baseline	Approval Authority			
	Secretarial Acquisition Executive	**Program Secretarial Officer**	**NA-262 Federal Project Director**	**Contractor Project Manager**
Technical	Any change in scope and/or performance that affects mission need requirements or is not in conformance with current approved Project Data Sheets.	Any change that affects the programmatic objective (see Section 2.2.1) or technical objectives (see Section 2.2.2).	Any change to the technical baseline (see Section 4.2.1).	Any change that does not impact the technical baseline (see Section 4.2.1).
Schedule	A 6-month or greater increase (cumulative) in the original project completion date.	An increase less than 6 months (cumulative) in the original project completion date.	An increase greater than 3 months (cumulative) to a Level 1 or 2 milestone[a] date that does not impact the original project completion date.	An increase up to 3 months (cumulative) to a Level 2 milestone[a] date.
Cost	An increase in excess of $25 million or 25 percent (cumulative) of the original total project cost.	An increase less than $25 million or 25 percent (cumulative) of the original total project cost.	A change in the budgeted cost for elements at WBS Level 4[b] and above that does not impact the original total project cost.	A change in the budgeted cost for elements at WBS Level 5[b] and below.

[a] Refer to the PDCF Project IPS for definition of Level 1 and 2 schedule milestones.

[b] See Section 4.1 for WBS levels.

- The PDCF design contractor shall review all proposed design changes as described in the WGI procedure, *Design Change Control* (PDCF-PE-117, May 2004).
- The WSB design contractor shall review all proposed design changes in accordance with applicable WSRC guidelines.
- The PDCF Project Change Control Board (CCB) shall review all PDCF changes beyond the contractor-approval authority as well as all WSB proposed changes. Changes shall be documented as Baseline Change Proposals (BCPs) in accordance with the *PDCF Project Change Control Board Procedure* (MD-PGM-1.2.2, May 2003).
- The PSO CCB shall review BCPs beyond the NA-262 Federal Project Director approval authority in accordance with the *Program Change Control Board Procedure* (MD-PGM-1.2.1, September 2000).
- The ESAAB shall review BCPs beyond the PSO approval authority in accordance with DOE M 413.3-1.

Design changes proposed by other Integrated Project Team members shall be handled in accordance with the PDCF Communications Protocol (see Appendix C) and the design contractor's change control procedure. If contract changes are necessary they will be enacted through the Contracting Officer.

The change control procedures identify CCB members. The PDCF Project CCB is comprised of representatives from the Integrated Project Team. Their role is to provide evaluation and advice to the CCB Chairperson who, as the Federal Project Director, is responsible for making final decisions on BCP disposition. The PSO, in addition to dispositioning BCPs beyond the approval authority of the NA-262 Federal Project Director, will also propose all critical decisions to the SAE for the PDCF project after approval by the NNSA Administrator. The SAE approves program-level changes and critical decisions.

Project reports and quarterly reviews provide BCP status (e.g., pending, approved, overdue), impact on cost and schedule, approval level, and priority classification. Approved BCPs will be reflected in revised baselines. Changes due to late completions, cost overruns, or general poor performance will not be considered by the PDCF Project CCB but will be captured and displayed as variances in the monthly PDCF project status reports.

In the event of unrecoverable variances or major changes in the project scope, schedule, and/or funding, the project performance baseline may be revised. Rebaselining will consist of modifying task plans for all or part of the WBS to reflect the new, revised baseline and eliminate any remaining significant variances. The NA-262 Federal Project Director will determine when or if rebaselining is necessary. All performance baseline changes are subject to the PDCF project change approval authority established in Table 5–1.

5.3 Cost Estimates

To validate the project technical, cost, and schedule baselines (including contingency), cost estimates should be developed by the contractor, Field/Project Office, or a selected independent third party at the following decision points:

- Start of preliminary design prior to contract award for the design baseline and following the design-only conceptual design phase (Critical Decision 0). Cost estimates were prepared in October 1997 to establish the cost baseline for the design effort and ranges for project/LCC of the facility.
- Following preliminary design to support the Independent Cost Review (ICR) and establishment of the project performance baseline (Critical Decision 2). The PDCF project LCC estimate was prepared by WGI and submitted for review in the *PDCF Preliminary Design Report* (P-DSR-F-00001, March 2003). A detailed review of the LCC was initiated by NNSA and the results will be incorporated into the LCC prior to submittal for the ICR.
- Start of construction prior to the initiation of physical site construction and following completion of design (Critical Decision 3).

The NA-262 Federal Project Director may authorize check estimates at other stages of the project on the basis of major design changes, scope modifications, or management concerns about the validity of the current project baseline.

5.4 Cost Contingency

There will be no contractor-controlled management reserve for the PDCF project. Contingency funds will be set aside from the PDCF project cost performance baseline. The NA-262 Federal Project Director controls all project contingency funds and maintains contingency logs to track each allocation, which will be reflected in monthly/quarterly reporting.

The PDCF project uses a risk-based approach to estimate contingency. Risk-based cost contingency is derived from a risk impact analysis of project uncertainties. This risk impact analysis is performed in accordance with the Risk Management Plans (see Section 4.3).

5.5 Funds Management

5.5.1 Management

All work performed by the Integrated Project Team is approved by NNSA and conforms to the technical, cost, and schedule direction in the Annual Operating Plan.

Project funds are earmarked for design, construction, and related work specifically identified and segregated in the WBS as part of TEC for the PDCF project. The WBS distinguishes between project costs and other project costs (OPC) so that proper accounting of the TPC can be performed.

Funds provided to the contractor at the beginning of each fiscal year will be for planned work less any contingency. Contingency funds will not be distributed without an approved BCP.

5.5.2 Validation

The annual validation process evaluates the PDCF project's readiness-to-proceed into the Departmental Corporate Review Budget (CRB) process, verifying that the project maintains a defendable, well-defined baseline, and that the funding profile is consistent with the out-year commitments of the project's scope and schedule. As a Major System, an independent third party (e.g., Office of Defense Nuclear Nonproliferation [NA-20] Project Management Support Office) validates the PDCF project to ensure an objective assessment in accordance with annual DOE Headquarters validation guidance. The validation report focuses on baseline changes to the Project Data Sheet (current fiscal year plus 2) as an ongoing project in DOE's line-item budget. The Project Data Sheet serves as the congressional project baseline and should represent only those baseline changes that have been approved through formal PDCF project change control. The validating official will coordinate completed validation reports with the NA-262 Federal Project Director, and copies will be forwarded to OECM in support of the CRB review process.

5.6 Reporting

Project reporting is conducted on a monthly basis measuring cost and schedule performance against the established PDCF project baseline using an earned value management system.

Cost and schedule variances are tracked and reported regularly to the NA-262 Federal Project Director. Each variance will not be routinely recognized contractually through rebaselining or processed through the PDCF Project CCB. As appropriate, cost and schedule increases attributable to new or additional work scope will be authorized by the Contracting Officer through a formally issued Change Order. However, for administrative ease, schedule and cost variances will be accumulated and bundled for purposes of contract rebaselining or change control actions.

Cost/schedule variances, milestones, and funding status are reported monthly against approved WBS activities and task plans. Variances or deviations in performance from the approved technical, cost, and schedule baselines will be tracked and highlighted separately in each of the project reports. The project report will include variance/trend analysis, the status of corrective actions (including EIRs) updates on recent BCP activity, allocation of contingency funds, and details on potential problems and critical issues.

Additional reporting requirements resulting from the DOE Major System classification necessitates copies of the monthly project reports be distributed to the NA-20 Project Management Support Office and OECM for review and oversight purposes.

The Integrated Project Team contractors are responsible for collecting, maintaining, and correlating information in preparing the monthly contractor reports. They maintain budget and cost data at all WBS levels for assigned work. WGI monthly reports are forwarded to the NA-262 Technical Manager, with a copy to the CH Contract and Project Controls Manager. Other monthly reports are forwarded to the CH Contract and Project Controls Manager. These reports include, but are not limited to, the following:

- Contractor Project Manager's narrative highlights and status assessments of each WBS element, including activities planned for the next reporting period.
- Complete cost and schedule performance report using earned value measurement techniques. A variance threshold of 5, 10, 15, or 20 percent has been assigned to individual WBS Level 4 elements dependent on the magnitude of each element's total budgeted hours. A variance analysis report will be provided when an element exceeds its assigned threshold. The variance analysis will identify the nature of the variance, the expected impact on the project, a recovery plan, and a current estimate at completion for the work.
- Following IPS baselining, schedule updates, including changes to planned activity durations, planned start and completion dates, actual start and completion dates, additions and deletions of activities, logic changes, budget changes, and impacts on the critical path.
- Status of established Level Schedule milestones, with a 6-month forecast of upcoming more detailed milestones. Data should include planned, forecast, and actual dates with explanations for variances exceeding thresholds.

5.7 Project Reviews

5.7.1 Quarterly Project Performance Reviews

The NA-262 Federal Project Director conducts the Quarterly Project Performance Reviews on a fiscal year quarterly basis for NA-20.

5.7.2 Status Reviews

Weekly PDCF project status teleconferences are held to discuss new and ongoing issues and share information. An agenda is generated and distributed to cognizant members of the Integrated Project Team who are expected to participate. The NA-262 Federal Project Director chairs the teleconference.

5.7.3 Design Reviews

The PDCF design is subject to scheduled reviews based on specific plans and criteria, which are distributed in advance and determine the level of review. The following reviews are planned for the PDCF project as specified in the IPS:

- **Conceptual Design Review.** NNSA reviewed the PDCF conceptual design in FY 1998 (design only) and used it as the basis for request for design contract proposals for preliminary and final design culminating in the selection of Raytheon Engineers and Constructors in September 1998. NNSA received the *WSB Conceptual Design Report* (G-CDR-R-0004) in August 2002 for review. NNSA accepted the conceptual design and authorized WSRC to proceed with the preliminary design (Franks, January 2003).
- **Preliminary Design Review.** The draft *PDCF Preliminary Design Report* was reviewed by NNSA at 90% preliminary design in FY 2003. The review generated comments that were addressed by WGI and incorporated in the final *PDCF Preliminary Design Report* (March 2003)

and 100% preliminary design. The preliminary design review by NNSA for the WSB was completed on September 30, 2003.

- **90% GFD Final Design Review.** The 90% final GFD (now referred to as PPD) was formally reviewed by NNSA before transferring the scope of the PPD work to WGI for final integration into the PDCF final design. Comments from the 90% review will be addressed by WGI and LANL in the 100% final PPD for acceptance by NNSA.
- **Final Design Topical Reviews.** As the final design is being prepared, it will be subject to planned in-depth reviews of specific topics to assure NNSA of the quality and consistency of the design process. There were 14 topical reviews held in 2003. The reviews generated comments that WGI will address in the 90% final design.
- **30% and 90% Final Design[3] Reviews.** The PDCF final design will be reviewed by NNSA at 30% and 90% complete. Comments from the 30% review will be addressed in the 90% design. Comments from the 90% review will be addressed in the 100% final design for acceptance by NNSA.

5.7.4 Independent Reviews

EIRs are conducted by non-proponent reviewers contracted by OECM. The general purpose of these reviews is to assess the project's likelihood for successful completion.

The first EIR for the PDCF project was initiated in response to a department-wide requirement specified in House Report 105-271 and subsequently in P.L. 105-62 that was based on conclusions reached in the National Research Council report, *Assessing the Need for Independent Project Reviews in the Department of Energy*, published in February 1998. The PDCF project was one of the 32 candidate projects recommended for review by the National Research Council. Jupiter Corporation was contracted to do the review and their report, *External Independent Review: Pit Disassembly and Conversion Facility*, was published in December 1998. OFMD submitted its response to the EIR findings (Holgate, December 1998) shortly after the final report was issued and prepared a detailed corrective action plan, *Project Management Improvement Plan* (May 1999).

A second EIR with a concomitant ICR is scheduled for late 2004 when the preliminary design, IPS, and LCC estimate will have been completed. The findings and corrective actions taken as a result of the review will be presented to the SAE as part of the justification to approve Critical Decision 2 and the project performance baselines. A third EIR will be conducted at the completion of final design in preparation for PDCF project construction. Finally, an operational readiness review will be conducted at the completion of startup testing. The anticipated dates for these review activities are specified in the IPS.

Other independent project reviews conducted by DOE reviewers may be authorized by the NA-20 Deputy Administrator at any point in the project. OECM will be notified of such reviews. No Independent Project Reviews are currently scheduled for the PDCF project; future reviews, if any, will be reflected in the IPS.

[3] "Final" and "detail" design are synonymous and although may be used interchangeably throughout PDCF project documentation, "final" design conforms to DOE Manual 413.3-1, *Project Management for the Acquisition of Capital Assets*.

6.0 PROJECT MANAGEMENT APPROACH

This section describes the overall PDCF project acquisition strategy and project management approach for preliminary and final design and construction. The relationship of the PDCF project management documents is depicted in Figure 6–1.

6.1 Acquisition Strategy

This section describes the overall acquisition approach of the PDCF project. The PDCF, including the WSB, combined with the MOX FFF, comprise the principal assets of the plutonium disposition program. The acquisition strategy reflects that the PDCF is a first-of-a-kind facility. At project initiation, technology had not been fully developed, tested, nor demonstrated, and U.S. experience in handling plutonium was limited to a few national laboratories and commercial entities.

6.1.1 Technology Development and Demonstration and Plutonium Process Design

The decision to have LANL develop and test an integrated pit disassembly and conversion process as described in Section 2.4 was made in August 1998 (*Finding of No Significant Impact on the Pit Disassembly and Conversion Demonstration Environmental Assessment and Research and Development Activities* [DOE/EA-1207, May 1998]). The work, including development and preparation of the fabrication packages, was directed to LANL on a sole source basis because LANL could handle the plutonium quantities needed to demonstrate the PDCF processes and possessed the most experience in these processes. LANL has been providing the main process equipment design packages. Presently, WGI has been assigned the task of completing the design of the plutonium process equipment (Collins, March 2004).

6.1.2 Preliminary and Final Design

PDCF. In early 1998, OFMD prepared the initial acquisition strategy that provided for the selection of an A/E to perform the preliminary and final design of the PDCF. As part of the strategy, a request for proposals from interested A/E firms was published in the Commerce Business Daily in March 1998. The competition culminated in the selection of Raytheon Engineers and Constructors (currently WGI[1]) in September 1998 and the contract was signed in June 1999. The cost plus-fixed-fee contract with WGI provides for the preliminary design and was modified to a cost plus-award-fee contract for final design with an option for Title III construction supervision and inspection services. The contract is administered by CH with oversight by NA-262.

The PDCF design is a first-of-a-kind. The processes are complex and the technology for the processes was not fully defined nor demonstrated when bids were solicited for the design contract. At the time of the contract award, the security requirements were still to be defined and the site had not been selected. Because the disposition of surplus plutonium was considered to be urgent, the plan was to move the design forward as soon as possible. The presence of numerous uncertainties and unpredictable contingencies related to performing the design work made it unlikely that a contractor would be able to quote a fixed price that the Department would be willing to accept as a fair and reasonable price. A cost reimbursement contract was considered likely to be less costly and in the best interest of the Department.

[1] Morrison Knudson Company acquired Raytheon Engineers and Constructors in July 2000 and formed a new company, Washington Group International (WGI) that now holds the PDCF design contract.

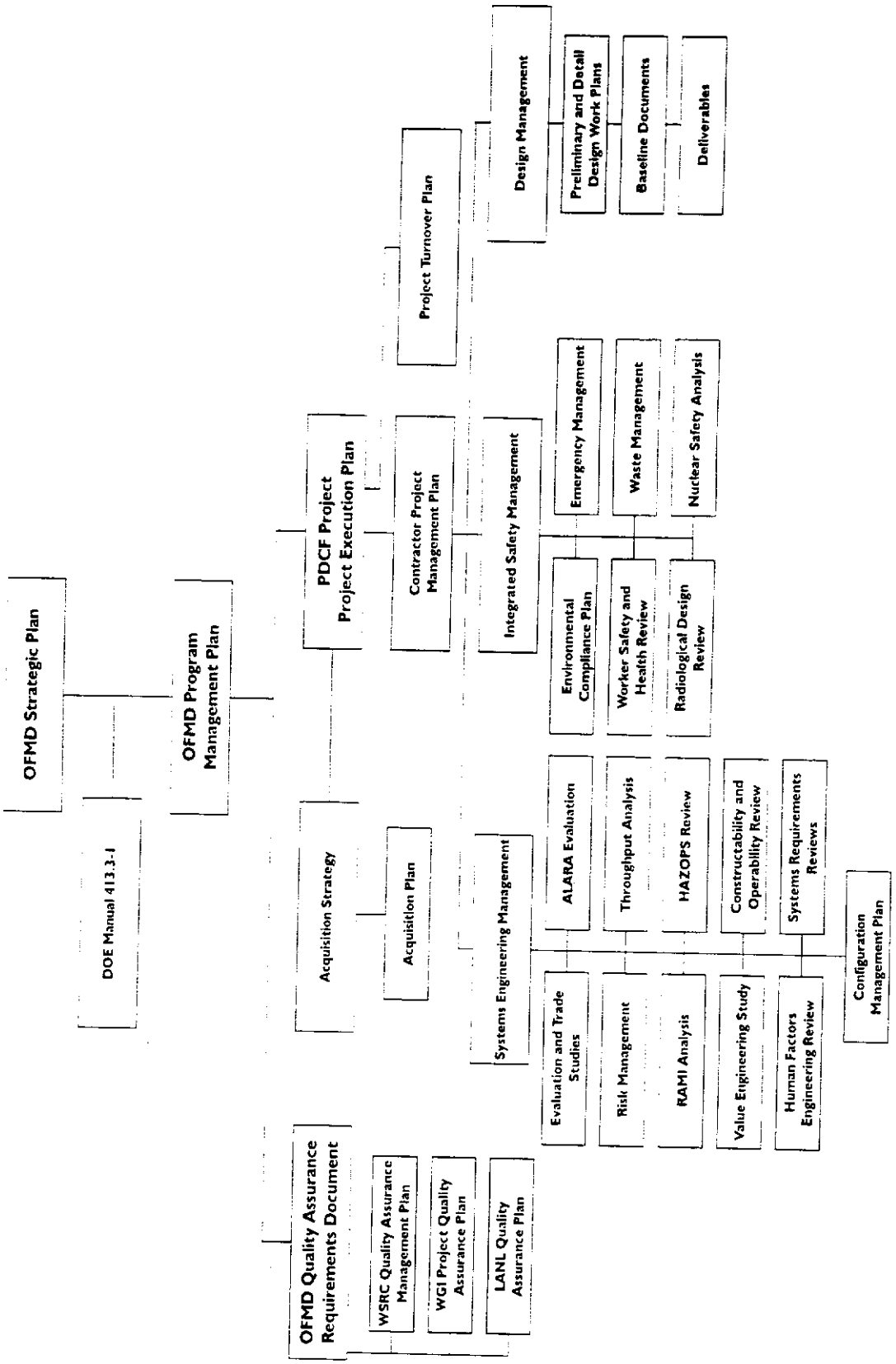

Figure 6–1. PDCF Project Management Documents

The decision to site the PDCF at SRS was documented in the Record of Decision (ROD) dated January 4, 2000. OFMD designated the resident M&O contractor, WSRC, as the PDCF project design authority, with the exception, as noted in Appendix B.1, that NNSA is responsible for directing the design agency.

WSB. In mid-2002, the need emerged for a new capability to treat liquid radioactive wastes for disposal instead of the F-Area capability then under consideration. As a result of the Department's drive to reduce the costs in F-Area, the treatment capability of that area was no longer assured at the time when it would be needed for the plutonium disposition mission. A stand-alone building on the PDCF project site was considered to be the best solution to treat liquid radioactive wastes from the MOX FFF and PDCF. The WSB offered the advantages of expediting the licensing of the MOX FFF and could be built in advance of the PDCF to support the MOX FFF. A conceptual design was prepared by the SRS M&O (WSRC) to form the basis of the design effort. WSRC offered the benefits of its knowledge of SRS and disposal regulations as well as its experience in the treatment processes.

The MOX FFF design was well underway and the WSB design would need to be expedited in order to deploy the WSB in time to support MOX FFF startup and operations. Two organizations already under contract to NNSA with the most knowledge of the PDCF project and with the treatment processes were considered for the design of the WSB. Of the two, NNSA selected WSRC as the designer in order to provide design consistency, applying the same exceptions as noted for the PDCF.

6.1.3 Construction Management

PDCF. To review constructability of the facility design, the PDCF project added a Design Constructability Advisor during the final design phase. The Design Constructability Advisor performs design reviews for construction suitability and provides input to the IPS on construction durations and resource loading. To accommodate the delay between completion of design and start of construction and to ascertain the scope of design criteria changes that may be required as a result of changes to codes, standards, and regulations identified during the intervening time period, the PDCF Design Agency Title III Project Manager should be in place to provide a pre-construction design criteria review of the facility about 6 months before the Critical Decision 3 information submittal to the SAE. The outcome of the review would be a recommended action plan, cost estimate, and BCP, if required.

The PDCF design contract has an option for Title III services. The traditional Title III A/E work, including incorporation of changes from the pre-construction design review, will be performed on a cost plus type basis. A/E services during construction include the maintenance of the design drawings and managing configuration management as a result of field changes in addition to other design tasks, including verification of equipment testing against design specifications.

A Construction Manager will be selected through the competitive award of an NNSA contract. The construction management services contract for the PDCF will consist of constructability reviews, construction, and startup and testing support. Phase I of the contract will assist the design agent in the definition of technical data package requirements for use in the development of the PDCF-specific subcontracts. Phase II of the contract will cover the actual construction of the PDCF, to be performed in accordance with an NNSA-approved Acquisition Plan using primarily fixed-price subcontracts and other construction services as approved. The Phase II contract will also provide support to the startup and testing contractor through correction of punch-list deficiencies and modifications as required by the startup and testing activities.

The Phase I construction management services contract will be a cost plus contract. Activities to be performed on the Phase I contract include:

- Development of a Fixed-Price Acquisition Plan (to be approved by NNSA) and packages that may include the training module, site preparation, design-build facilities, and build-to-print construction work. Fixed-price goals, any use of site work forces for construction, and security requirements to be enforced during construction will be addressed.
- Support to the design agent for the assembly of technical specifications and drawings for bid solicitation and procurement packages.
- Development of the Construction Plan and schedule.
- Development of Construction Management and Contract Administration Plans (to be approved by NNSA), which include but are not limited to:
  - Quality Assurance Plans
  - Supervision and Inspection Plan
  - Integrated Safety Management Plan
  - Measurement and Payment Procedure
  - Contract Change Procedure
  - Claims Mitigation Procedure/Strategy
  - Progress Measurement and Reporting Procedure
  - Liquidated Damages Procedure
- Procurement of any long-lead and/or critical items identified for the PDCF.

The Phase II construction management services contract will be considered for award approximately 12 months prior to the scheduled start of physical construction (also a cost plus contract). Activities to be performed on the Phase II contract include:

- Preparation of bid solicitation and procurement packages in accordance with the NNSA-approved Acquisition Plan.
- Management of the selected construction subcontractors.

WSB. A Construction Manager (alternatively, a constructor) will be selected through the competitive award of a NNSA contract separate from the PDCF because the WSB is a much smaller scope of work and requires a different skill mix than the PDCF. Also, the WSB needs to be operational in advance of the PDCF in order to support the MOX FFF, which will be constructed and operational before the PDCF. The number of contractors capable of doing this work is expected to be larger than that for the PDCF. The contract award would be on a fixed-price basis because the scope of work should be well defined and less complex than the PDCF. The selection of the Construction Manager will consider the solicitation of minority, woman-owned, and small and disadvantaged businesses to satisfy contracting guidelines.

6.1.4 Procurement

PDCF. Critical and long-lead equipment items for the PDCF may include gloveboxes and one-of-a-kind equipment required for the disassembly and conversion process. A specific listing of this equipment will be provided in the Acquisition Plan (in development). For other than GFE, the Construction Manager will prepare the bid packages and manage procurement in accordance with an approved schedule established prior to starting construction activities. A separate contractor, to be selected by NNSA, will procure GFE.

The Construction Manager will be required to prepare an Execution Plan that supports the schedule. The Execution Plan will encompass a subcontracting and procurement plan in accordance with the Federal Acquisition Regulation (FAR), including what work will be subcontracted and what work will be performed by the Construction Manager's work force, a detailed procurement schedule, and a plan for

addressing environmental and security requirements, classified work, and safety requirements imposed by DOE orders and SRS guidelines. Selection of contract vehicles to be used will be in conformance with FAR Part 16. The construction procurement process will consider the solicitation of minority, women-owned, and small and disadvantaged businesses to satisfy contracting guidelines and the use of General Service Administration schedules to streamline the procurement process. Procurement of materials, construction services, and equipment will be made on a competitive basis with fixed-price contracts used to the maximum extent practicable.

WSB. Critical and long-lead equipment for the WSB will be procured in accordance with the acquisition plan contained within the WSRC *Waste Solidification Building Preliminary Design Estimate and Schedule* (September 2003).

6.1.5 Startup and Testing

PDCF. Startup and testing support will be provided in two phases. Phase I startup support will be provided by NNSA through the WSRC M&O contractor during the final design phase of the project in the development of component and system testing requirements and acceptance criteria. Phase II startup testing and acceptance will be performed by an independent Startup Manager, who will be selected through the competitive award of an NNSA cost plus contract.

WSB. Startup and testing support will be provided through a separate contract from the PDCF but will use the same approach.

6.2 Project Management

During the design effort, WGI provides overall design engineering management and project integration support to establish and manage the PDCF project baselines as described in Section 4.2. The WGI Project Management Plan (February 2003) describes the plans that govern WGI's activities to manage the preliminary and final design phases of the PDCF project. There are three broad areas of design engineering management: systems engineering, integrated safety, and design. As discussed in Section 5.6, project performance measurement and controls are established.

6.2.1 Systems Engineering Management

The WGI Systems Engineering Management Plan (SEMP) (January 2002) describes the management approach used on the PDCF project to implement a systems engineering process. The systems engineering process is used to define project requirements and to ensure that the requirements are effectively implemented in the baseline documents. The systems engineering process is a top-down development process that results in a collection of baseline documents that have been subjected to an iterative bottom-up analysis against the requirements to ensure that the systems, structures, and components (SSCs) as designed fully and effectively implement the PDCF mission and objectives. The WGI SEMP provides a full discussion of the process.

To accomplish the systems engineering objectives, the WGI SEMP invokes specific plans and procedures that comprise the design evaluation and optimization and the verification and validation processes. These processes include:

- Evaluation and Trade Studies;
- Risk Management;
- Reliability, Availability, Maintainability, and Inspectability (RAMI) Analysis;

- Value Engineering Study;
- Human Factors Engineering Review;
- As Low As Is Reasonably Achievable (ALARA) Evaluation;
- Throughput Analysis;
- Hazards and Operability (HAZOPS) Review;
- Constructability and Operability Review;
- Systems Requirements Reviews; and
- Configuration Management Plan.

For summary descriptions and references to applicable plans and procedures refer to the WGI SEMP. These iterative processes often result in specific project deliverables. The list of specific project deliverables is being developed and presented in the *Pit Disassembly and Conversion Facility, Final Design Review Plan* (September 2004). NNSA will ensure that the deliverables list is maintained throughout the life of the project and will determine which of the specific deliverables require NNSA review and approval consistent with the OCI Mitigation Plan.

6.2.2 Integrated Safety Management

Integrated safety management is conducted in accordance with DOE Policy 450.4, *Safety Management System Policy*, directing all Departmental operations to systematically integrate safety into management and work practices such that missions are accomplished while protecting the public, workers, and the environment. Related functions, responsibilities, and authorities are established in accordance with DOE Policy 411.1, *Safety Management Functions, Responsibilities, and Authorities Policy*, and associated NNSA *Safety Management Functions, Responsibilities, and Authorities Manual* (FRAM) (October 2003). The NNSA FRAM identifies safety management functions, responsibilities, and authorities assigned to the NA-26 Assistant Deputy Administrator. OFMD retains the authority to approve the safety basis for the PDCF project. The contractors implement integrated safety management in accordance with the requirements set forth in the contract.

6.2.3 Environmental Management

The *Surplus Plutonium Disposition Final Environmental Impact Statement* (DOE/EIS-0283, November 1999) and its associated RODs (January 2000 and April 2002) provides National Environmental Policy Act (NEPA) documentation for the design, construction, and operation of the PDCF. Implementation of the *Plutonium Disposition Program Preconstruction and Pre-Operational Environmental Monitoring Plan* (ESH-EMS-2000-897, October 2000) provides documentation of the environmental aspects of the PDCF property prior to construction as necessary to meet DOE order requirements.

6.2.4 Environmental Permitting and Compliance

The *Pit Disassembly and Conversion Facility Environmental Permit and Compliance Plan* (WSRC-RP-2003-00330, May 2003) documents the necessary permits and regulatory approvals necessary for construction and operation of the PDCF and WSB. Prior to construction and operation, the project will require appropriate environmental permits and regulatory approvals, including but not limited to:

- National Pollution Discharge Elimination System permits for liquid effluent outfalls.

- National Emission Standards for Hazardous Air Pollutants alternate source term calculation for radiological emissions to the air.
- Clean Air Act Title V permit for non-radiological emissions to the air.
- Various construction and operating permits obtained from the South Carolina Department of Health and Environmental Control.

6.2.5 Worker Protection

Occupational Safety and Health Administration (OSHA) requirements form the basis for all other worker safety considerations. DOE-SR maintains a process safety management program that accounts for all the elements of the OSHA process safety management program. Site contracts require compliance with OSHA requirements.

6.2.6 Waste Management

The M&O will plan for and determine disposition paths for all waste generated related to construction and operation of the PDCF. Waste generated from construction and operations activities will be documented in SRS waste forecasts and in the PDCF Waste Management Plan. The project will meet all State and Federal regulatory, and DOE order requirements relating to waste minimization.

6.2.7 Safeguards and Security

The roles and responsibilities for the PDCF safeguards and security will be defined in a comprehensive memorandum of understanding between the DOE-SR Manager and NA-266 Site Manager. Appropriate safeguards and security plans will be prepared by WSRC, as directed by the NA-266 Site Manager in accordance with the WSRC contract, and submitted to NA-266 for review and approval and subsequent approval by NNSA prior to the appropriate readiness review in compliance with DOE Policy 470.1, *Integrated Safeguards and Security Management*.

6.2.8 Quality Assurance Management

All Integrated Project Team contractors provide Quality Assurance Plans that meet the requirements of the OFMD *Fissile Materials Disposition Program Quality Assurance Requirements Document* (QARD) (January 1999). The plans are reviewed and concurred for use by OFMD. The WSRC *Quality Assurance Management Plan* (WSRC-RP-92-225, August 2003), when used in conjunction with the Project Execution Plan, fulfills the requirements of the QARD. The WGI *Project Quality Assurance Plan* (November 2003) has been approved for use on the PDCF project as compliant with the QARD. The LANL *Quality Assurance Plan for Pit Disassembly and Conversion Program* (NMT15-QA-PLAN-010, April 2004) addresses the execution of quality assurance for the pit disassembly and conversion technology and plutonium process equipment development at LANL.

The preparation, review, concurrence, and approval of project deliverables are accomplished in accordance with the quality assurance review procedure of the preparing organization. Once the deliverable is approved for use, NA-262 will review and accept it as a contract deliverable in accordance with *MD Program Management Procedure, Review and Acceptance of Deliverables and MD Generated Documents* (MD-PGM-1.3, December 1999).

6.2.9 Configuration Management

The WGI *PDCF Configuration Management Plan* (January 2002) describes the configuration management process for the PDCF design. The plan, implemented by WGI in support of NNSA, is used to manage the technical (both classified and unclassified), cost, and schedule baselines established for the PDCF design.

WSB configuration management is controlled in accordance with the WSRC *WSB Configuration Management Plan* (WSRC-G-TRT-F-00012, May 2003). Configuration management for the PDCF project is accomplished in conjunction with the project change control process described in Section 5.2 and is the responsibility of the Integrated Project Team.

6.2.10 Value Engineering

Prior to 30% preliminary design, a series of trade studies were performed. These studies identify and assess alternate approaches to resolving design issues. The results of these studies were reviewed and accepted by NNSA.

Formal value engineering during preliminary design was performed in accordance with the *PDCF Value Engineering Plan* (August 2001). The plan noted a number of potential value engineering topics of which the following three were evaluated using the value engineering job plan:

- Revisiting the Special Recovery Line versus the Direct Metal Oxidation furnaces for handling tritium contaminated plutonium parts.
- Reviewing heating ventilation and air conditioning turnover of air in the facility.
- Evaluating crucible management alternatives.

The results of the three studies and recommendations for implementation are presented in the report, *PDCF Value Engineering Studies* (Y-ESR-F-0010, September 2001). In addition, the application of value engineering methodology to the general arrangement of the plutonium processing building resulted in an estimated potential capital savings of up to $320 million. The results of this analysis are documented in the report, *PDCF General Arrangement Value Engineering Analysis* (SRW-3006-01-012, June 2001).

6.3 Project Turnover

The Project Turnover Plan describes the requirements for the completion of the design during the construction portion of the project. This plan will be developed by OFMD during final design.

Requirements for project closeout of the design during the construction phase are as follows:

- The M&O PDCF Program Manager has accepted all turnover packages.
- Project as-built drawings have been issued.
- All purchase orders are complete.
- All essential design and construction cost codes are closed to further charges.
- The PDCF Construction Manager has issued a construction completion report.

- The M&O PDCF Program Manager has accepted all "release-to-operations" documentation (e.g., training, operation, and maintenance procedures; vendor manuals; preventive maintenance requirements; inventories of spare equipment/parts) defined in the Project Turnover Plan.
- Successful completion of startup testing has been achieved.
- The readiness self-assessment and Operational Readiness Review have both been completed and all project-specific findings resolved.

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APPENDIX A
PDCF CRITICAL DECISION 1
SECRETARIAL APPROVAL OF MISSION NEED

DOE F 1325.8
(8-89)
EFG (07-90)

United States Government **Department of Energy**

memorandum

DATE: October 31, 1997

REPLY TO ATTN OF: MD-2, S. Haller, x63448

SUBJECT: Critical Decision 1 - Pit Disassembly and Conversion Facility; Immobilization and Processing Facility; and Mixed Oxide Fuel Fabrication Facility

TO: File

The purpose of this memorandum is to document Secretarial Approval of Mission Need, Critical Decision 1, for the following facilities under the purview of the Office of Fissile Materials Disposition:

- Pit Disassembly and Conversion Facility
- Immobilization and Associated Processing Facility
- Mixed Oxide Fuel Fabrication Facility

This memorandum will serve as the equivalency document in satisfying the Life Cycle Asset Management (LCAM) requirements per DOE O 430.1 for projects proceeding into the conceptual design phase. The Programmatic Record of Decision (ROD) dated January 14, 1997 signed by Secretary O'Leary is the primary source of equivalency information used to meet these Critical Decision 1 requirements. A crosswalk matrix is provided in Attachment 1 to show each of the six LCAM requirements and identify the corresponding sections in the Programmatic ROD which satisfy that specific requirement. The following are excerpts from the Programmatic ROD which illustrate the Secretarial support for all three projects within the Storage and Disposition of Weapons-Usable Fissile Materials Program:

- Record of Decision for the Storage and Disposition of Weapons-Usable Fissile Materials Final Programmatic Environmental Impact Statement dated January 14, 1997

  "The Department's decision for surplus plutonium disposition is to pursue both the existing Light Water Reactor (MOX fuel) and immobilization approaches. The timing and extent to which either option is ultimately utilized will depend on the results of international agreements, future technology development and demonstrations, site-specific environmental review, detailed cost proposals, and negotiations with Russia and other nations. In the event both technologies are utilized, because the time required for plutonium disposition using reactors would be longer than that for immobilization, it is probable that some surplus plutonium would be immobilized initially, prior to completion of reactor irradiation for other surplus plutonium. Implementation of this strategy will involve some or all of the following supporting actions":

Pit Disassembly and Conversion Facility

"Construct and operate a pit disassembly and conversion facility at Hanford, INEEL, Pantex, or SRS."

Immobilization Facility

"Construct and operate a collocated plutonium vitrification facility or ceramic immobilization facility and a plutonium conversion facility for non-pit plutonium materials at either Hanford or SRS."

MOX Fuel Fabrication Facility

"Construct and operate a domestic, government-owned, limited-purpose MOX fuel fabrication facility at Hanford, INEEL, Pantex, or SRS."

The Justification of Mission Need for these projects is:

The end of the Cold War has created a legacy of surplus weapons-usable fissile materials both in the U.S. and the former Soviet Union. The global stockpiles of weapons-usable fissile materials pose a danger to national and international security in the form of potential proliferation of nuclear weapons and the potential for environmental, safety and health consequences if the materials are not properly safeguarded and managed.

In September 1993, President Clinton issued a *Nonproliferation and Export Control Policy* in response to the growing threat of nuclear proliferation. The President's policy states "the U.S. will seek to eliminate where possible the accumulation of stockpiles of highly enriched uranium or plutonium"...."initiate a comprehensive review of long-term options for plutonium disposition, taking into account technical, nonproliferation, environmental, budgetary and economic considerations". Furthermore, at the Moscow Nuclear Safety Summit, April 19-20, 1996, the President agreed to a statement including the following: "we are determined to identify appropriate strategies for the management of fissile material designated as no longer required for defense purposes... options include safe and secure long-term storage, vitrification or other methods of permanent disposal, and conversion into mixed oxide (MOX) fuel for use in nuclear reactors... weapons fissile material designated as no longer required for defense purposes will never again be used for nuclear explosive purposes and effective managemnet of this material will aim to reduce stocks of separated plutonium and highly enriched uranium through peaceful non-explosive use or safe and final disposal as soon as practicable".

Based on the justification shown above and information provided by the Programmatic ROD recently signed by the Secretary, we agree that this Memorandum to the File will hereby serve as the formal equivalency document for documenting Approval of Mission Need, Critical Decision 1 for the Fissile Materials Disposition Program.

Antonio F. Tavares, ESAAB Secretariat
Office of Projects and Fixed Asset Management
Office of the Associate Deputy Secretary for
Field Management

for Howard R. Canter, Acting Director
Office of Fissile Materials
Disposition

Attachment

Attachment 1

CROSSWALK MATRIX
APPROVAL OF MISSION NEED

LIFE CYCLE COSTS AND ASSET MANGEMENT (LCAM) REQUIREMENTS	**RECORD OF DECISION/OTHER**
1. Mission Need	Summary (page 1); Background (page 2), DOE Strategic Plan
2. Minimum Technical Functional Requirements	Section IV. Non-Environmental Consideration, Technical Summary Reports (page 10), MD Technical Requirements Document
3. Proposed Cost and Schedule Ranges	Section IV. Non-Environmental Considerations, Technical Summary Reports (page 10)
4. Preliminary Environmental Strategy	Section III. NEPA Process (page 3), Storage and Disposition of Weapons-Usable Fissile Materials Final PEIS (December 1996), Surplus Plutonium Disposition EIS Notice of Intent (May 16, 1997)
5. Identification of Project Technical and Organizational Interfaces	Technical Requirements Document, OFMD Annual Operating Plan, Surplus Plutonium Disposition EIS Notice of Intent (May 16, 1997), Draft MD Project Management Plan
6. Integration with other Projects and Activities	Section IV. Non-Environmental Considerations, Nonproliferation Assessment (page 10)-NN; Section V. Decisions, A. Storage of Weapons-Usable Fissile Materials - DP & EM; B. Plutonium Disposition-Immobilization at existing facilities at Hanford or SRS-EM; Draft MOU between MD-EM-DP-RW-NN

APPENDIX B
WSRC ROLES AND RESPONSIBILITIES

B.1 PDCF PROJECT DESIGN AUTHORITY
B.2 PDCF PROJECT OPERATIONS AND MAINTENANCE

TABLE OF CONTENTS

B.1 PDCF PROJECT DESIGN AUTHORITY ROLES AND RESPONSIBILITIES

B.1.1 SUMMARY

This pit disassembly and conversion facility (PDCF) and waste solidification building (WSB) are expected to be operated by the Savannah River Site (SRS) management and operating (M&O) contractor, currently Westinghouse Savannah River Company (WSRC). Washington Group International (WGI) is the design agency for the PDCF and WSRC is the design agency for the WSB. Los Alamos National Laboratory (LANL) is the design authority for the plutonium process design (PPD) for the PDCF.

The National Nuclear Security Administration (NNSA) Office of Fissile Materials Disposition (OFMD or NA-26) has designated WSRC as the design authority for the PDCF project, which includes both the PDCF and WSB, with the exception of the PPD or plutonium processing equipment, which is incorporated into the gloveboxes within the plutonium processing building. LANL, as the design authority for the PPD, specifies the PPD functional requirements in a Design Requirements Document (DRD) and validates that the WGI-produced PPD will achieve the PDCF mission in a functional and safe, compliant manner. The safety requirements and principles are incorporated into the PDCF Preliminary Documented Safety Analysis Report.

The roles and functions of the design authority for WSRC are defined in the remainder of this appendix. They do not supercede the specific design authority roles and responsibilities assigned to LANL as discussed in the *PDCF Project – Project Execution Plan*. Although WSRC and LANL are the design authorities, NNSA has ultimate authority and responsibility for ensuring that the design is acceptable. The PDCF project approach differs from DOE Standard 1073, *Guide for Operational Configuration Management Program*. NNSA is responsible for directing the design agency and will control the design process, project communications (including meetings), work authorizations, project change control, design review and approval, and comment resolution in a manner consistent with the *PDCF Project – Project Execution Plan* and the approved WGI *Organizational Conflict of Interest (OCI) Mitigation Plan* (May 2002).

B.1.2 SCOPE

The roles and responsibilities discussed herein are intended to complement WGI's design review process and WSRC's procedure, *Conduct of Engineering and Technical Support; Procedure 1.10, Design Authority*.

B.1.3 DESIGN AUTHORITY FUNCTIONS

The design authority establishes the facility-level functions and performance and design requirements in the Facility Design Description (FDD) to verify appropriate flowdown of the functions and requirements to the facility systems and reviews project design documents and design deliverables. The design authority verifies design adequacy, technical accuracy, and conformance with applicable requirements, including those standards applicable to health, safety, and the environment. To accomplish these functions, the design authority, through NNSA, shall:

- Establish the functions, performance requirements, and design constraints. Identify and control these facility level functions, performance requirements, and constraints, including changes, in appropriate sections of the FDD. Verify appropriate flowdown of functions, performance

requirements, and design requirements in the systems, structures, and components (SSCs) as documented in the System Design Descriptions (SDDs) and design criteria documents.

- Verify that the design produced by the design agency meets requirements (the PDCF process equipment designs produced by the national laboratories are incorporated into WGI products prior to being provided to the design authority for review).
- Concur on the appropriate functional classifications for SSCs.
- Evaluate proposed design change requests to the technical baseline for SSCs. Review and provide advisory comments on changes to the technical requirements through the change control process.
- Participate in design reviews, comment generation, and comment resolution.
- Review and concur on safety authorization basis documents (e.g., Preliminary Documented Safety Analysis) prior to submittal to NNSA for approval. Review focuses on ensuring that methodology is used appropriately and analysis is complete and aligned with design requirements.
- Review and provide advisory comments on the disposition of non-conformance reports for which justification is required (e.g., repair or use-as-is) to assure that the physical, functional, and safety requirements are met.
- Support the development and implementation of a risk management program to include project risk identification, analysis, quantification, and mitigation planning.

B.1.4 DESIGN AUTHORITY IMPLEMENTATION

B.1.4.1 General Implementation

In executing the design authority review function, WSRC utilizes knowledgeable and experienced engineering and operations personnel to perform reviews. Personnel who supported the development of the design solution are excluded from participating in the design authority review.

Comments from technical reviews are provided directly to NNSA, Office of Defense Nuclear Nonproliferation, Fissile Materials Disposition Site Office/SRS (NA-266) or in accordance with approved project-specific design review procedures (i.e., 90% Preliminary Design Review). (If the design agency considers that resolution of any comments from the design authority will result in a change to their contract with the Department of Energy (DOE), resolutions and changes will be worked with the Contracting Officer's Technical Representative prior to implementation.)

The design authority shall have access to design information at the design agency facilities.

The design authority may use outside subject-matter experts to perform their tasks. The credentials of such experts are subject to documentation/verification before they perform work for the project.

B.1.4.2 PDCF Project Design Authority Manager Responsibility

The PDCF Project Design Authority Manager is responsible for verifying that the integrated plant design meets all requirements as outlined in the respective FDD and SDDs. This manager shall review and concur on, by signature, the FDD, SDDs, and all safety authorization basis documents, including subsequent revisions, prior to submission to NNSA for final approval.

B.1.4.3 Interface with Operations and Maintenance and the Design Agent for the PDCF

WGI ensures that the PDCF Project Design Authority Manager, the PDCF Program Manager, and the PDCF Design Agent function independently of each other. As described in the *PDCF Project – Project Execution Plan* and as required by the approved WGI OCI Mitigation Plan, these managers coordinate their efforts through NNSA and ensure that the Design Authority, WSRC Operations and Maintenance, and the Design Agent organizations carry out their PDCF responsibilities in a manner that is independent and unbiased.

B.1.5 RECONCILIATION PROCEDURE

If the design authority cannot accept a design document or change thereto, the design authority can request a meeting with NNSA. As appropriate, NNSA can designate a team to develop a resolution of the issue(s). In the event a resolution cannot be reached within a reasonable period of time, NNSA shall unilaterally resolve the issue. NNSA shall also resolve discrepant positions between the design authority and WSRC operations and maintenance.

B.1.6 REFERENCES

Department of Energy. *Guide for Operational Configuration Management Program*, DOE Standard 1073.

Washington Group International. *Organizational Conflict of Interest (OCI) Mitigation Plan*, May 20, 2002.

Westinghouse Savannah River Company, *Conduct of Engineering and Technical Support: Procedure 1.10, Design Authority*, WSRC E7.

B.2 PDCF PROJECT OPERATIONS AND MAINTENANCE ROLES AND RESPONSIBILITIES

B.2.1 SUMMARY

WSRC provides the operations and maintenance review of the PDCF and WSB design documents. The objective of this review is to ensure that the design of the facilities can be safely operated and maintained within the authorization basis and that operations can be conducted within DOE standards for Conduct of Operations and Maintenance.

B.2.2 SCOPE

WSRC adheres to the roles and responsibilities discussed in Section B.2.3 during review of the PDCF and WSB designs. WSRC formally reviews the in-process design documents against SRS requirements for operations and maintenance. WSRC may also provide input and recommendations for consideration during all phases of the design effort.

B.2.3 OPERATIONS AND MAINTENANCE FUNCTIONS

The operations and maintenance function provides input during design, construction, and commissioning of the facilities to ensure that all SSCs can be safely operated and maintained for the life of the facility; review and comment on work in progress and review project design documents and deliverables that impact operations and maintenance activities; and development of prototype operation guidelines and training activities at SRS to support transition of the facility from construction through startup to operations. To accomplish these functions, the operations and maintenance organization, through NNSA, shall:

- Provide input during design to ensure that operations support systems such as fire protection, safeguards and security, utilities, and emergency preparedness are compatible with existing SRS infrastructure and Conduct of Operations standards.
- Actively participate in the design process to ensure operations and maintenance issues are addressed early in the design process. Provide interim guidance and feedback on design approaches, work in progress, trade studies, and plant level analyses (e.g., functional classification, reliability, availability, maintainability, and inspectability [RAMI]).
- Develop operations and maintenance requirements for the design authority to include in the FDD, SDDs, and other plant level requirement documents.
- Participate in design reviews, comment generation, and comment resolution.
- Review and concur on safety authorization basis documents (e.g., Preliminary Documented Safety Analysis) prior to submittal to NNSA for approval. Review focuses on ensuring that controls are suitable for implementation at SRS.
- Recommend preferred operations choice where the design agency provides design alternatives (e.g., two 100 percent pumps versus three 50 percent pumps).
- Interface with existing SRS organizations on site-specific issues, i.e., environmental management, waste management, site services.
- Participate in constructability reviews and provide comments.
- Ensure transfer of configuration management responsibility of the PDCF from WGI to WSRC for a smooth transition from construction to operation of the facility.

- Review, as requested, list of bidders to verify suppliers with proven experience and reputation.
- Ensure that appropriate controls related to safety are established as a result of analyses (e.g., Safety Analysis, Hazard Analysis).
- Establish or review and concur with acceptance criteria for system testing to ensure that systems and components function as specified.
- Develop test plans and test, operation, and maintenance procedures to support operation of prototype and training facilities, startup testing, and turnover on a component or system basis.
- Perform final acceptance inspections and accept facility from constructor for operations.

B.2.4 OPERATIONS AND MAINTENANCE IMPLEMENTATION

B.2.4.1 General Implementation

The operations and maintenance review function reviews and provides comments to NA-266 on design documents. In executing the operations and maintenance review function, WSRC utilizes knowledgeable and experienced personnel to perform the reviews.

Operations and maintenance reviews are conducted on work as it progresses to provide input and recommendations at an early stage in the design. Comments are provided directly to NA-266.

B.2.4.2 PDCF Program Manager Responsibility

The PDCF Program Manager is responsible for operations and maintenance review of the PDCF. The Program Manager shall review and concur on, by signature, the FDD, SDDs, and all safety authorization basis documents, including subsequent revisions, prior to submission to NNSA for final approval.

B.2.4.3 Interface with Design Authority

The PDCF Program Manager functions independently of the PDCF Project Design Authority Manager. These two managers report to the WSRC Nuclear Nonproliferation Director, who ensures independence of the design authority and operations and maintenance organizations.

B.2.5 RECONCILIATION PROCEDURE

If operations and maintenance review of project design documents results in comments that the design agency cannot resolve, the issue will be brought before the design authority and NNSA. As appropriate, NNSA can designate a team to develop a resolution of the issue(s). In the event a resolution cannot be reached within a reasonable period of time, NNSA shall unilaterally resolve the issue.

APPENDIX C
PDCF COMMUNICATIONS PROTOCOL

This protocol will be followed for communications between the Integrated Project Team members with particular reference to requests for information (RFI) during the preliminary design phase for the pit disassembly and conversion facility (PDCF). The team is composed of personnel from the Office of Fissile Materials Disposition (OFMD or NA-26), Office of Materials and Conversion (NA-262); the National Nuclear Security Administration, Office of Defense Nuclear Nonproliferation, Fissile Materials Disposition Site Office/Savannah River Site (SRS)(NA-266); DOE's Chicago Operations Office (CH); the SRS management and operating (M&O) contractor, Westinghouse Savannah River Company (WSRC); the architect/engineer (A/E) design firm, Washington Group International (WGI, formerly Raytheon Engineers and Constructors); and Los Alamos National Laboratory (LANL). This protocol applies to the facility design of the PDCF only and does not cover communications between personnel on subjects other than the PDCF. Further, it does not address design reviews. Specific design review plans will be developed and issued that will address the communication protocols for the review.

General Requirements

1. All technical correspondence, as defined in Section G.1 of the A/E contract, should be addressed to the NA-262 Technical Manager (Ram Mukunda), with information copies of the correspondence to CH Contract Specialist (Cynthia Anderson), NA-262 Federal Project Director (Andre Cygelman), and NA-266 Project Engineer (Robert Billue).[1] Additional detailed distribution requirements for deliverables and reports are contained in Section J of the A/E contract.
2. Status-type correspondence from the A/E (such as schedule status, monthly reports, and meeting summaries) should be addressed to the NA-262 Technical Manager (Ram Mukunda) with information copies of the correspondence to the appropriate team members as dictated by the subject of the correspondence. Routine monthly and periodic PDCF reports will be provided for information only directly to WSRC. However, WSRC will relay any comments/concerns through NNSA.
3. Correspondence to the PDCF Project Change Control Board (CCB) should be addressed to the CCB Chairperson (Andre Cygelman) with information copies to the CCB Secretary (Sue King) and the other CCB members.
4. No changes to the contract will be made without the written approval of the CH Contracting Officer (James Bieschke). WGI will notify the NA-262 Technical Manager in writing for approval of any information/data request and response that would constitute a constructive change to the contract requirements and will not make any changes without the written approval of the CH Contracting Officer.
5. WGI correspondence addressed to team members other than WSRC may include an information copy directly to WSRC.

Communications Protocol

1. All formal comments, concerns, recommendations from WSRC will be submitted in writing through the NA-266 representative for forwarding to the NA-262 Technical Manager.
2. All formal comments, concerns, and recommendations from LANL will be submitted in writing to the NA-262 Technical Manager.
3. All formal comments, concerns, recommendations from WGI on WSRC deliverables will be submitted in writing to NA-262 and NA-266.

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[1] Technical correspondence, as defined in Section G.1 of the A/E contract, is all correspondence excluding correspondence where patent or proprietary data issues are involved or correspondence which proposes or otherwise involves waivers, deviations, or modifications to the requirements, terms, or conditions of the contract.

4. Formal comments, concerns, and recommendations from WGI on LANL deliverables may be submitted directly to LANL with copies to NA-262 and NA-266.
5. The NA-262 Technical Manager will provide the resolution in writing to the originator of comments and will communicate any changes to all the affected Integrated Project Team members.

Mechanics of Communications

1. Communications (formal and informal, written and verbal) between LANL and WGI will be through the primary point of contact at each organization. This does not preclude contacting the designated experts in the various fields. However, the primary point of contact will be kept informed of any contact made with the designated technical experts. Contact between designated experts will be for the purpose of obtaining information and clarifications. Only the NA-262 Technical Manager can provide technical direction. If information obtained via telephone, email, etc. between the various technical experts or members of the various organizations is used in the design of the facility, then that information must be documented in writing and a record of the correspondence must be maintained by WGI. A copy of the correspondence must be furnished to the NA-262 Technical Manager and the CH Contract Specialist.
2. Communications (formal and informal, written and verbal) between WGI and WSRC (including subcontractors) shall not occur unless NNSA participates in the communication or specifically authorizes the communication due to Organization Conflict of Interest concerns. Authorized routine communication between WGI and WSRC includes:
   - Administrative matters (such as schedule status updates, time and location of meetings).
   - Communication between WGI (Battelle) classification office and the WSRC classification office to resolve issues on information classification and ensure that classification rules are consistently interpreted.
   - Communication to facilitate field work at SRS by WGI or WGI subcontractors. WSRC will assign a representative to support any field work to be performed on the SRS site. This representative will maintain routine communications with WGI (and/or WGI subcontractors) and will ensure proper logistical support for the field work.
3. Request for information must be in a RFI form with a unique number for each request. The following procedures apply:
   - RFIs from WGI for WSRC are prepared by WGIand sent (either by paper or email) to NA-266 with copies to CH and NA-262. NA-266 shall forward the RFI as appropriate to WSRC. WSRC responses (paper or email) will be returned through NA-266 to WGI with copies to CH and NA-262. The WSRC point of contact for the RFI may communicate directly with the WGI point of contact for the RFI to clarify the intent of the request or to respond to questions about the information provided.
   - RFIs from WGI that require response from LANL or any other national laboratory are prepared by WGI and sent to LANL with copies to the NA-262 Technical Manager and CH. LANL will coordinate the response from other national laboratories (i.e., Sandia National Laboratory or Lawrence Livermore National Laboratory). LANL will return responses directly to WGI with copies to CH and NA-262.

Work Authorization

Should WSRC or WGI require support from the other, a Work Task Authorization (WTA) will be prepared and forwarded to NA-266 for approval and tasking. Each task will have a unique identification number, and will describe the scope of work requested, the roles and responsibilities of each organization, the deliverables, cost, and schedule. After approval, the work must be authorized via an appropriate contract mechanism (such as the Annual Operating Plan for WSRC or within WGI contract). After

completion of the work the WTA needs to be formally closed. Development of the WTA will require input from both WGI and WSRC. Communications between the two organizations for this development must go through NA-266.

Washington Group International
Integrated Engineering, Construction, and Management Solutions

	Classification Level:
PDCF **REQUEST FOR INFORMATION (RFI)** **PART I: DESCRIPTION OF REQUEST**	**Qualified Design Input Required:** **Yes ☐ No ☐**

RFI Short Title:		**RFI No.:**
Response Due Date:	**Dwg/Spec Ref.:**	**Line/Page Ref.:**

RFI Recipient:
Request (include applicable references):

Originator:	**Date:**
Engineering Manager/Designee:	**Date:**
ADC Reviewer (if applicable):	**Date:**

PART II: RESPONSE TO REQUEST
Responding Organization:
Response:

Signature of Respondent:	**Title:**	**Date:**
Signature of Reviewer:	**Title:**	**Date:**

PDCF
Work Task Authorization

1) Task No. _____ 2) Revision No: _____ 3) Date: _____

4) WTA Task Title:

_____

5) WGI Point of Contact: _____ Phone/E Mail: _____

6) WSRC Point of Contact: _____ Phone/E Mail: _____

7) Scope of Work:

8) WGI Roles and Responsibilities:

9) WSRC Roles and Responsibilities:

10) NNSA Roles and Responsibilities:

11) Deliverables:

12) Schedule Requirements:

13) Special Requirements:

14) Reporting:

15) Cost Summary: FY02: S _____ FY03: S _____ FY04: S _____

16) Detailed Estimate:

17) Work Authorization Concurrence:

WGI WTA Manager: _____ Date: _____

WSRC WTA Manager: _____ Date: _____

18) Work Authorization Approvals:

NA-262 Technical Manager: _____ Date: _____

NA-266 Project Engineer: _____ Date: _____

19) Task Completion:

WGI WTA Manager: _____ Date: _____

WSRC WTA Manager: _____ Date: _____

20) Task Completion Approval:

NA-266 Project Engineer: _____ Date: _____

Form Completion and Process

1) **Task No:** Each task will be numbered in consecutive order by WSRC or WGI and will continue to be identified by the unique number assigned. The number sequence will be as follows: PDCF - initiating organization symbol - last two digits of the year - sequential number. For example, the first WSRC number would be PDCF-WSRC-02-001 and the first WGI number would be PDCF-WGI-02-001.

2) **Revision No.:** Should a revision be made to the task, the unique task number will be followed by a letter to identify the revision number

3) **Date:** Date initiated by WSRC or WGI.

4) **WTA Task Title:** Title of work element to be accomplished.

5) **WGI Point of Contact:** WGI Manager or lead for the task.

6) **WSRC Point of Contact:** WSRC Manager or lead for the task.

7) **Scope of Work:** WGI or WSRC to provide a complete definition of task work scope. Describe in adequate detail to provide WSRC or WGI and NNSA with a complete understanding of the work to be accomplished. Should the work be complicated, WGI and WSRC should meet to clearly review and answer any questions. If a requirement exists for providing life cycle costs, include the requirement as part of the scope.

   Include in this section the WBS Numbers and/or Task Numbers for WSRC, WGI, and NNSA that cover this work scope.

   Work scope cannot be modified without issuing a revision. Only a signed revision can be used to authorize the change in technical requirements, the additional expenditure of funds, or a schedule slippage.

8) **WGI Roles and Responsibilities:** WGI to clearly define the WGI roles and responsibilities for the task.

9) **WSRC Roles and Responsibilities:** WGI or WSRC to clearly define the WSRC roles and responsibilities for the task. If applicable, list WGI Point of Contact designee by name.

10) **NNSA Roles and Responsibilities:** NNSA to clearly define the NNSA roles and responsibilities for the task. If applicable, list WGI Point of Contact designee by name.

11) **Deliverables:** WGI, WSRC, or NNSA to clearly define the expected deliverables.

12) **Schedule Requirements:** WGI or WSRC to provide the schedule when the scope of work should be completed and when the deliverables are required.

13) **Special Requirements:** WGI or WSRC to provide any special requirements for completing the work. For example, QA requirements, PE Certification, interim reviews, and communications required between WGI and WSRC personnel required to complete the task.

14) **Reporting:** Monthly cost and schedule status should be reported on all but the simplest of

capital tasks. Other project costs (OPC) tasks will not require the same level of reporting. The NA-266 Project Engineer, prior to the start of work, will define OPC reporting requirements. Copies of the status reports must be provided to the NA-262 Technical Manager and NA-266 Project Engineer.

15) **Cost Summary:** After review and concurrence of the scope and schedule requirements, WSRC or WGI to provide a cost estimate by fiscal year to perform the proposed scope of work.

16) **Detailed Estimate:** WSRC or WGI to provide a detailed build-up of costs including hours, direct costs, overheads, and other mark-ups.

17) **Work Authorization Concurrence:** Concurrence by the WGI WTA Manager and WSRC WTA Manager indicates their agreement with the scope of work to be performed as well as all other requirements identified in the WTA.

18) **Work Authorization Approvals:** Approval by the NA-262 Technical Manager and NA-266 Project Engineer must be obtained before work can proceed. When approvals by NNSA are received either WSRC or WGI will send an electronic copy to the NA-266 Project Engineer noting on the electronic copy that the signatures are on file. The NA-266 Project Engineer will then issue the approved WTA to Integrated Project Team members. Upon issue by the NA-266 Project Engineer, WGI or WSRC shall insert the task into the WTA tracking system (to be developed) and work may begin.

19) **Task Completion:** Upon completion of the task, the WSRC or WGI WTA Manager shall forward the deliverables to the NA-266 Project Engineer with a task completion signature on the original task authorization.

20) **Task Completion Approval:** The NA-266 Project Engineer shall complete their review and forward either an approval or an approval with comments to the WSRC or WGI WTA Manager for comment resolution. Once final approval of a work task is completed, the task will be closed out in the WTA tracking system to indicate completion of the task.