

TRANSITION TO OPERATIONS PLAN
FOR THE
TECHNOLOGY AND ENGINEERING DEVELOPMENT FACILITY

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Revision 0

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TRANSITION TO OPERATIONS PLAN

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Acronyms

CAD	Computer Aided Design
CD-4a	Critical Decision – 4a; Start of Operation – New Construction
CD-4b	Critical Decision – 4b; Start of Operations - Renovation
CM/GC	Construction Manager/General Contractor
DOE	Department of Energy
FM&L	Facilities Management and Logistics Division
FPD	Federal Project Director
FPT	Functional Performance Test
GSF	Gross Square Feet
HVAC	Heating, Ventilation, Air Conditioning
KPP	Key Performance Parameters
IPR	Independent Project Review
NPDES	National Pollutant Discharge Elimination System
OCA	Owner, Contractor, Architect
PEP	Project Execution Plan
RFI	Request for Information
TOT	Transition to Operations Team
TWG	Transition Working Group

1. Introduction

The Technology and Engineering Development Facility (TEDF) Project includes construction of the Technology and Engineering Development (TED) building and Test Lab Addition (TLA) and renovation of the existing Test Lab (TLR) at the Thomas Jefferson National Accelerator Facility (TJNAF) campus. The TED building is a two-story 71,000 gross square feet (GSF) laboratory, technical space and office building, the TLA is a 46,550 GSF laboratory, clean-room and technical space addition to the Test Lab building. The TLR will renovate 88,000 GSF of the existing Test Lab (Bldg. 58). The TEDF Critical Decision (CD)-4a “Start of Operation – New Construction” is for the TED building and TLA and with necessary building support systems (HVAC, electricity and generators, potable water, sanitary lift station, etc.). CD-4a transition allows relocation of the existing functions within the Test Lab to the TED and TLA allowing renovation of the Test Lab to be completed. CD-4b transition is for the completed total project.

1.1. Purpose

This Transition to Operations Plan provides a comprehensive approach to manage the transition from construction to start of operations of the various project elements. For CD-4a this includes compliance with life safety to allow occupancy and relocation of equipment. For CD-4b this includes managing the construction project through project readiness evaluation to verify Key Performance Parameters (KPP) identified in the Project Execution Plan are complete and the buildings are ready for beneficial occupancy. The initial transition period will conclude with a successful approval of Critical Decision (CD)-4a, Start of Operations -New Construction. The final transition period will conclude with Beneficial Occupancy having been established for the TED building, TLA, and renovated Test Lab building and approval of CD-4b.

The applicable DOE Orders and Program Guidance used to develop this plan are:

- DOE O 413.3B, “Program and Project Management for the Acquisition of Capital Assets”
- DOE G 413.3-16A, “Project Completion/Closeout Guide

1.2. Commissioning

The third party commissioning agent will perform Functional Performance Tests (FPTs) on the systems identified in the Commissioning Plan. When FPTs have been completed, a commissioning report will provide verification of proper installation and operation of the building systems.

1.3. Beneficial Occupancy

Prior to occupancy the buildings will be sufficiently complete to accommodate occupancy in accordance applicable codes and standards. Occupancy of the TEDF new construction is required for CD-4a. Occupancy will allow the start of operations in the new construction At the CD-4a stage of the project the TED Building and TLA will be occupied at first by staff and

functions relocated from the Test Lab to allow continuation of the Test Lab renovation. Beneficial Occupancy will occur once all systems are fully functional and work is substantially complete. Occupancy for the TEDF new construction is defined in Attachment A.

At Beneficial Occupancy, the control of the buildings transitions from the Construction Manager/General Contractor (CM/GC) to TJNAF Facilities Management and Logistics Division (FM&L).

1.4. Key Performance Parameters

The TEDF Key Performance Parameters are listed below for the new construction (CD-4a) and renovation (CD-4b) portions of the project:

- Construction of a new 65,000 to 80,000 gsf Technology and Engineering Development (TED) building. (CD-4a)
- Construction of a new 25,000 to 40,000 gsf Test Lab building Addition (CD-4a)
- Renovation of the Test Lab building (approximately 90,000 gsf) (CD-4b)
- Demolition of 7,000 to 10,000 gsf of inadequate and obsolete workspace in and adjacent to the Test Lab building and 2,000 to 12,000 gsf of dilapidated trailers. (CD-4b)

2. Organizations and Responsibilities

2.1. Department of Energy

The Department of Energy (DOE) is the owner of the TEDF and is the ultimate authority for approval of all critical decisions concerning this project. Within the scope of this plan, the DOE Acquisition Executive will have final approval of Start of Operations – New Construction (CD-4a) and Start of Operations – Renovation (CD-4b).

The DOE Federal Project Director (FPD) and the DOE Thomas Jefferson Site Office (TJSO), with support staff who are separate from the TEDF Federal Project Director will perform a walkthrough of the conventional facility to make an overall assessment that the conditions for occupancy have been met.

2.2 Thomas Jefferson National Accelerator Facility (TJNAF)

The TJNAF as represented by the TEDF Project Team (see the TEDF Project Execution Plan) is responsible for the overall management of the TEDF project. During the transition to operations phase the TEDF Project Team assisted by a Transition to Operation Team (TOT) will verify that the completed structures, systems and technical equipment are fully functional for operations. Prior to acceptance verification will be made that the systems are fully functional and in full compliance with all the requirements and specifications of the TEDF design.

2.3. Mortenson Construction

Mortenson Construction serves as the Construction Manager/General Contractor (CM/GC/GC) for the conventional facilities of the TEDF. They are responsible for the direct management and oversight of their sub-contractors. They are active participants during the transition to operations phase and are responsible for demonstrating that the completed structures and systems are in full compliance with all the requirements and specifications for the TEDF conventional facilities.

2.4. Technical Equipment Vendors

Various independent vendors, working for TJNAF, have provided materials, equipment, and/or services for the TEDF project. During the transition to operations phase technical equipment vendors will be contractually required to set up the equipment, make final connections, perform startup and testing, and demonstrate the correct performance of their products.

2.5. Commissioning Agent

The third party commissioning agent, Cornerstone Commissioning (CC), is engaged to test and evaluate system performance both individually and collectively as compared to approved design criteria. FPTs will be established and all designated systems will be tested. Results will be recorded, and corrective actions initiated, and closed as required. The third party commissioning agent will perform FPTs on the systems identified in the Commissioning Plan.

3. Transition to Operations Team

The Transition to Operations Team (TOT) is responsible for verifying that the TEDF has been constructed to comply with all the requirements and specifications of the design and that the TEDF spaces are ready for occupancy. The TOT will ensure the completed structure and systems comply fully with the TEDF design requirements, specifications, and approved design changes. The TOT will ensure the completed structures and systems are fully functional prior to occupancy and turn over to Jefferson Science Associates Facilities Management and Logistics Division (FM&L) for operations (Beneficial Occupancy).

The TOT shall be composed of the TEDF Project Director, the Project Manager, Principle Engineers, the User Representative, ESH&Q Staff, and the TJNAF Facility Management support staff as required by the Project Manager and/or Project Director. Membership of the TOT may vary as various representatives will participate only in the areas of their direct involvement.

3.1. Team Roles and Responsibilities

The TOT is lead by the TEDF Project Manager. The TEDF Project Manager has established a smaller working group (Transition Working Group) to guide this transition plan and to deal with day to day transition activities.

The Transition Working Group (TWG) may vary and consists of the following individuals:

- TEDF Project Manager – Keith Royston
- Transition Project Manager – Dennis Miner
- FM&L Mechanical Engineering Lead – Carroll Jones
- FM&L Mechanical Engineering – Michael Davenport
- FM&L Electrical Engineering Lead – Paul Powers
- FM&L Fire Protection Engineer – Dave Kausch
- ESH&Q Representative – Dick Owen
- Customer Representative – Evelyn Akers (specific work area occupants as necessary*)
- Commissioning – Larry Battis (as required)
- FM&L Transition Coordinator – David Fazenbaker

* The list of work area occupant representatives that while be utilized to help coordinate initial occupation is provided in Attachment B

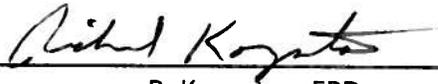
4. Transition Phase

The initial transition phase is the period beginning with occupancy going through turnover of the buildings to FM&L with approval of Critical Decision CD-4a Start of Operations – New Construction. The requirements to reach CD-4a are defined in this section. This section will be updated to include additional requirements for the final transition as preparation for CD-4b is initiated.

4.1. Transition Activities

As the new construction phase of the project nears completion, representatives of the Transition Working Group and the Federal Project Director will periodically walk down the buildings and systems to verify that they are ready to turn over for occupancy. Key transition activities need to occur prior to the occupancy.

The TWG will conduct reviews to verify that the required CD-4a Prerequisites are complete (Table 4.1), the required training has been completed, documentation and records are turned over, ES&H requirements are complete, and security measures are in place. Any deficiencies will be added to the project punch list. The punch list will be used to track corrective actions and insure that all deficiencies are corrected.

Tasks	Deliverables/Action Required during Transition
1. Verify Key Performance Parameters	<ul style="list-style-type: none"> • Walk-Through Inspections  <p style="text-align: center;">R. Korynta – FPD</p>
2. Verify Quality Assurance Plan is Up to Date and Approved	<ul style="list-style-type: none"> • <i>TEDF Quality Assurance Plan</i>
3. Complete Project Transition to	<ul style="list-style-type: none"> • <i>TEDF Transition to Operations Plan</i>

Operations Plan	
4. Initial Checkout, Testing, and Commissioning	• <i>TEDF Initial Commissioning Report</i>
5. Complete Environmental Documentation	• Environmental Management System
6. Construction Project Health and Safety Complete	• <i>Mortenson Construction Site Specific Safety and Health Plan</i>
7. Complete Security Vulnerability Assessment	• <i>TEDF Final Vulnerability (Risk) Assessment</i>
8. Complete Cyber Security Plan and Establish Certification and Accreditation	• N/A
9. Independent Peer Review	• Out-brief of findings

Table 4.1 CD-4a Prerequisites

4.2. Training

The CM/GC will develop training to be provided by each responsible subcontractor. The construction documentation specifies the systems for which the CM/GC will provide training. CM/GC is responsible for videotaping the training for future use by FM&L. The TOT is responsible for scheduling training with the CM/GC and their subcontractors. A pre-instruction conference will be held with the CM/GC to review the instruction content and schedule.

The TNJAF Director Facilities Management shall determine the personnel required to be trained on each module. The Director Facilities Management and various engineering discipline leads will insure that the training has been provided to the appropriate personnel per the training plan and project specification.

In addition, the building operations team (other than Janitors) will participate in startup and commissioning activities to ensure they are familiar with building equipment and systems prior to receiving their formal training.

4.3. Maintenance

The Director Facilities Management shall determine all requirements for maintaining conventional facility equipment and systems. The Director Facilities Management will insure that the training, materials, and equipment are provided to the appropriate personnel. This will include verifying that any vendor/contractor provided training is properly used and documented.

4.4. Documentation and Records Turnover

Documentation verifying the correct construction and installation of the conventional facilities and their suitability for operations shall be provided to the TEDF Project by the CM/GC as required by the project specification. Both hard copy and electronic files are to be transmitted. The turnover files shall include but are not limited to the following:

- Record CAD drawings (As-built drawings)
- Building Information Model files
- Project Specifications including addenda and contract modifications
- Product data submittals
- Operation and maintenance manuals
- Warranties
- Project records including OCA minutes, photographic logs, RFI's, etc.

Documentation is to be provided during the transition phase but must be completed prior to project closeout.

4.5. ES&H

The TOT will identify and document the completion of specific ES&H requirements. The ESH&Q organization will provide support to the TOT in the identification of identification of hazardous materials and personal protective equipment, etc. Training requirements will be established for safe operation of all equipment and associated building systems.

The Preliminary Fire Hazard Analysis (initial Facility Readiness for Safe Operation and Occupancy Report) identified a design feature that utilizes a common path of egress in a high hazard area. The report states that this does not meet the life safety code. This high hazard area is in the TLA and is commonly referred to as the "T trench". This area is being placed under Administrative Control as an accepted measure to address the life safety code requirement. During operations, the T trench is normally unoccupied. Once operations start the T trench will as appropriate be posted for limited access and be secured by controlled key access only. An engineered solution to the common path egress concern is being considered and will be executed prior to CD-4b if feasible. The following ES&H and quality assurance documents are needed to support CD-4a:

Document	Responsible Party
TEDF Hazard Analysis	Project EHS&Q Representative
TEDF Construction ES&H Plan	Mortenson
Preliminary Fire Hazard Analysis (Safe Occupancy)	FM&L Fire Protection Engineer
Final Fire Hazard Analysis (Safe Occupancy)	FM&L Fire Protection Engineer
TEDF Quality Assurance Plan *	TEDF Project Manager

*Supplemental Quality Assurance Plan signed 9-28-09 remains in effect

Any hazards present during occupancy shall be identified to occupants through signage or Temporary Operating Procedures.

4.6. Safeguards and Security (S&S)

The Lab Security Office has performed a vulnerability (risk) assessment of the TEDF Project. Prior to occupancy, the Security Office will update the Site Security Plan as required and assist the TEDF Project Manager in implementing any recommendations.

Prior to occupancy, the access control system will tie-in to the TNJAF site wide system and configure the facility access control server. The Lab locksmith will implement the facility lock and key plan by installing door cores.

Cyber Security – The Computer and Network Security Group will accomplish network certification and accreditation.

4.7. Permits and Licenses

The following permits and licenses are needed to support CD-4a:

Document	Responsible Party
Erosion and Sediment Control Plan	FM&L Environmental Engineer

4.8. Independent Peer Review

The TEDF is a Laboratory/Office Facility without an operating process and a formal independent project readiness review/assessment is not a requirement for CD-4a. The DOE FPD will use a tailored process defined as the Independent Peer Review (Peer Review). The Peer Review team will utilize the KPP' outlined in the PEP to perform a project readiness evaluation. The Peer Review team evaluation report will be submitted to the FPD and subsequently to the DOE Program Manager for Acquisition Executive and Office of Project Assessment (OPA) to support approval of CD-4a, Start of Operation – New Construction.

The Peer Review team will verify that KPP's, Issuance of Transition to Operations Plan, Hazard Analysis Report, and the Environmental Management System have been revised as necessary. The Peer Review team will participate in a facility walk-through that verifies criteria for occupancy and review results of the following transition processes:

- Walk Through with Punch Lists
- Commissioning (for performance criteria)
- Life safety reviews
- Facility Operations and Training

The OPA Independent Project Review (IPR) will take place on 15 February 2012. Occupancy of the TED Building is scheduled for 24 February 2012 and the Test Lab Addition is scheduled for 1

March 2012. The CD-4a project milestone is March 30, 2012. The Energy Systems Acquisition Advisory Board (ESAAB) Equivalent Board meeting chaired by the Acquisition Executive for CD-4a approval is tentatively scheduled for March 22, 2012.

A draft Project Closeout report will be provided to support CD-4a approval. Within 90 days of the CD-4b approval, the Initial Project Closeout report will be submitted. The Final Project Closeout report will be submitted 30 days after all project costs are established.

5. Business Functions

The TEDF Project Manager will provide as-built electronic floor plans to the Facilities Management Space Coordinator. The Facilities Management Space Coordinator will walk-down the space to verify as-built status and floor space and enter the space in the Lab space management database.

5.1. FML Staff Planning

The FML Director and facility discipline leads will identify and appropriately staff for operating the building. Facility discipline leads will provide appropriate staff to witness the construction start up of building equipment and commissioning of building systems. A Facilities Building Manager has been assigned and is participating in construction inspections.

5.2. Lessons Learned and Process Improvement

Lessons learned and process improvement during the transition phase will be handled the same as other phases of the project. This process is described in Section 11.4 of the TEDF PEP.

Attachment A - Occupancy Definition

Occupancy

The following items shall be completed prior to either interim or beneficial occupancy

- The building structures are substantially complete. Permanent walls, floors, ceiling roofs, structural members, foundations, stairways, and elevators are installed according to specification.
- The fire protection systems have been accepted by the TJNAF Fire Protection Engineer.
- Doors, lights, and emergency systems have been installed and are functioning properly.
- Life safety egress paths shall be properly identified and clear for access.
- Utility connections are complete and provide the final required level of service.
- Conventional facility utility systems (HVAC, potable and sanitary water, chilled water, electricity, lighting,) internal to the building have been installed and are operational to a level to support planned operations.
- System Testing and Balancing

Beneficial Occupancy

Items Completed for Beneficial Occupancy in addition to the above items

- Conventional facility utility systems (HVAC, potable and sanitary water, chilled water, electricity, lighting, gas systems, Etc.) internal to the building have been installed and are operational in their final permanent configuration and accepted for operation. Wiring, piping, pumps, motors, outlets, fixtures, hangers, and hardware are properly installed and complete.
- Surface treatments (paint, carpet, tile, protective coatings, etc.) have been properly applied.
- CM/GC provided system training
- Commissioning
- Turnover of all red-lined as-built drawings and all the required documentation such as operations/maintenance manuals and /or instructions that are necessary to operate and maintain the building and its systems.
- Punch list items can be outstanding at beneficial occupancy.

Items Completed after Beneficial Occupancy of New Construction

- Landscaping at the west side of the TED Building
- Final asphalt paving
- Final grading, landscaping, and accelerator fence installation.
- Completion of knockout panels

- Elements of work that are linked to the Test Lab Renovation portion of the project therefore outside of the CD-4a scope.
- Casework and fume hoods installation in the TLA are outside the scope of the GC. Installation will occur after beneficial occupancy.

Attachment B – Work Area Occupant Representatives

Facilities Management Transition Coordinator David Fazenbaker

Accelerator Division and Injector Group Evelyn Akers

SRF Phil Denny
Steve Manning
Steve Castagnola
John Fischer
Charlie Reece
Tony Reilly
Bob Bennett

Electrical Eng Ron Lauze
Ernest Stallworth

Mechanical Eng Larry Munk
Scott Thompson
Neil Wilson

Physics Walt Akers