

**09-SC-74, Technology & Engineering Development Facility, Thomas Jefferson National  
Accelerator Facility, Newport News, Virginia  
Project Data Sheet is for PED**

**1. Significant Changes**

The most recent DOE O 413.3A approved Critical Decision (CD) is CD-0, which was approved on September 18, 2007 with a preliminary Total Estimated Cost (TEC) range of \$66,000,000–\$72,200,000.

A Federal Project Director with certification level II has been assigned to this project.

This project data sheet is new for PED.

**2. Design, Construction, and D&D Schedule**

(fiscal quarter or date)

	CD-0	CD-1 (Design Start)	(Design/PED Complete)	CD-2	CD-3 (Construction Start)	CD-4 (Construction Complete)	D&D Start	D&D Complete
FY 2009	09/18/2007	2Q FY 2009	3Q FY 2010	TBD	TBD	TBD	TBD	TBD

CD-0 – Approve Mission Need

CD-1 – Approve Alternative Selection and Cost Range

CD-2 – Approve Performance Baseline

CD-3 – Approve Start of Construction

CD-4 – Approve Start of Operations or Project Closeout

D&D Start – Start of Demolition & Decontamination (D&D) work

D&D Complete –Completion of D&D work

**3. Baseline and Validation Status**

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2009	3,700	TBD	TBD	1,000 <sup>a</sup>	TBD	TBD	TBD

**4. Project Description, Justification, and Scope**

The project renovates Building 58 – the Test Lab (about 88,900 square feet), removes over 10,000 square feet of inadequate and obsolete work space in and adjacent to the Test Lab, and removes 12,000 square feet of dilapidated trailers that are characterized as inefficient, poor quality work environments that do not meet current commercial standards. The project also includes construction of a new building which will add over 100,000 square feet of needed workspace for critical technical support functions including mechanical and electrical engineering, cryogenics engineering and fabrication, and environment, safety, and health. It will significantly improve the efficiency of workflow and provide a safer and sustainable work environment for multi-program functions such as Office of Science Superconducting Radio Frequency (SRF) R&D, multi-program cryomodule assembly and testing, and large accelerator and experimental equipment assembly. The project will implement functional efficiencies in areas such as clean rooms, chemistry facilities, high bays, laboratories, and office space.

<sup>a</sup> Other Project Costs are funded through laboratory overhead.

It will correct numerous “grandfathered” safety and building code issues to ensure compliance, and will reduce energy consumption of the existing building by approximately 30%. The design will incorporate all current applicable codes, standards, and best management practices. The design will meet sustainability principles and environmental, safety and health features, and will implement Integrated Safety Management at all levels per DOE Policy 225.1.

The recently approved TJNAF Secretarial Waiver (9/15/06) provides offsetting space for planned projects in the Ten Year Site Plan (TYSP) through FY 2017. The removal of about 10,000 square feet of inadequate and obsolete work space in and next to the 42-year-old Test Lab plus about 12,000 square feet of dilapidated trailers will help offset the space added by this project.

TJNAF’s TYSP identifies projects needed as a platform for the science and technology mission of the laboratory. SRF research and production is located in the Test Lab building, making correction of the performance gap in this building a high priority. The related engineering and support facilities to incorporate this technology into accelerator operations are equally important.

To enable further advancement of TJNAF state-of-the-art production processes, it is necessary to reconfigure the layout of all the laboratory, shop, clean room, and office areas to provide efficient and effective work flow and assure safe working conditions throughout the building. The Test Lab Rehabilitation along with construction of ~100,000 square feet of additional technical space under this project will address many of these limitations by streamlining the production process, renovating or replacing obsolete infrastructure, relocating critical production and testing facilities to more appropriate locations, and consolidating emerging and development functions.

It is anticipated that as a result of TJNAF’s reputation and expertise as a “National SRF Center of Excellence”, TJNAF will be used in the design and construction of cryomodules for future Office of Science accelerator projects. Renovation of the Test Lab will ensure that TJNAF facilities can reliably support production of advanced cryomodules with the quality required for future projects.

Mechanical and electrical systems over 40 years old contribute to the deteriorated condition of the Test Lab. Numerous components in these current systems are no longer commercially available. The building has never undergone a major rehab of its systems or components. The three main air handlers serving the High Bay area are well past the end of their design life, and a number of other air handlers that were installed in 1987 are nearing the end of their life cycles. The HVAC renovation included in this project will replace these systems and upgrade all systems to full electronic control, improving maintainability and energy management capabilities. The electrical systems are of the same vintage. As this equipment degrades and becomes unreliable, it poses increasing risk of fire or arc flash hazards. Renovation of the electrical distribution system as part of this project will increase safety and enable improved load distribution and flexibility for future power utilization.

Environmental management functions such as waste water treatment, waste acid neutralization and air handling are complicated by the piecemeal evolution of the facilities with multiple systems of differing vintage trying to work together to maintain safe and environmentally responsible conditions. A significant portion of plumbing in the Test Lab remains from the original construction, and needs rehabilitation to ensure future reliability of services, and assure integrity for dependable environmental protection.

Numerous work items are required to bring the Test Lab building up to current codes and standards. Many aspects of the building, while meeting code at the time of construction, do not meet current safety code standards, regulations and practices. Currently, in order to comply with code requirements,

administrative controls are required in certain work areas. To bring the building up to current safety and accessibility standards a number of upgrades to stairways, walkways, guardrails, the fire alarm system, fire doors, fire walls, door hardware, and signage will be implemented as part of this project.

The improvements to the work environment this project provides will improve the morale of staff currently in areas not intended as work space such as in service buildings or in offices built on large concrete shielding enclosures with access by suspended walkways. This project will also enhance the laboratory's ability to attract and retain world-class scientists by providing a quality work environment. In addition, mechanical and electrical upgrades will result in reduced energy cost.

The project is being conducted in accordance with the project management requirements in DOE O 413.3A and DOE M 413.3-1, Program and Project Management for the Acquisition of Capital Assets, and all appropriate project management requirements have been met.

## 5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED			
FY 2009	3,700	3,700	3,600
FY 2010	—	—	100
Total TEC <sup>a</sup>	3,700	3,700	3,700
Other Project Cost (OPC) <sup>b</sup>			
OPC except D&D			
FY 2008	1,000	1,000	1,000
Total Project Cost (TPC)			
FY 2008	1,000	1,000	1,000
FY 2009	3,700	3,700	3,600
FY 2010	—	—	100
Total, TPC	4,700	4,700	4,700

<sup>a</sup> The TEC displayed is for PED only.

<sup>b</sup> Other Project Costs are funded through laboratory overhead.

## 6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED) <sup>a</sup>			
Design	3,515	N/A	N/A
Contingency	185	N/A	N/A
Total, TEC	3,700	N/A	N/A
Contingency, TEC	185	N/A	N/A
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	150	N/A	N/A
Conceptual Design	770	N/A	N/A
Contingency	80	N/A	N/A
Total, OPC	1,000	N/A	N/A
Contingency, OPC	80	N/A	N/A
Total, TPC	4,700	N/A	N/A
Total, Contingency	265	N/A	N/A

## 7. Schedule of Project Costs

For schedule of project costs, see Section 5, "Financial Schedule."

## 8. Related Operations and Maintenance Funding Requirements

Not applicable for PED.

## 9. Required D&D Information

Not applicable for PED.

## 10. Acquisition Approach

Not applicable for PED.

<sup>a</sup> All design will be completed in less than 18 months.