

The project Mission Need was approved in January 2005. The above changes reflect this approval. However, these dates are target dates, subject to change until the Performance Baseline is approved at the Critical Decision 2.

The purpose of this project is to design and construct a replacement Radiography Facility to be located within the TA-55 Perimeter Intrusion and Detection System (PIDAS). The specifics of the design and configuration are to be optimized to meet the requirements of the associated programs. The facility will house several x-ray systems suitable for the various energy level requirements, and will provide a long-term solution for LANL sealed nuclear component radiography. Radiography of sealed nuclear components is required for the Pit Manufacturing and Certification Project (PMCP) and Pit Surveillance Program (PSP).

LANL has been assigned the responsibility for establishing and maintaining a limited pit production mission for up to 20 pits per year until a more permanent pit manufacturing facility can be designed and constructed. Non-destructive examinations (NDE) using x-ray radiography, dye penetrant, and ultrasonic examinations are a necessary component of these operations to identify material defects and verify assembly configurations. The PSP examines approximately 15 pits per year; this is expected to increase to about 25 pits per year as stockpile life extension programs are implemented. Final radiography on “pits” manufactured at Los Alamos and radiography of surveillance pits (those removed from the stockpile for destructive examination) is currently performed at another facility that is over 40 years old. This facility does not have the permanent safety and security features required to meet the demands of the revised facility authorization basis or the revised design basis threat; therefore it is not suitable for the long term. NDE in this old facility also requires secure transport and extensive temporary security measures, which are labor intensive and inefficient.

This project will (1) reduce the programmatic and schedule risk associated with anticipated changes in the safeguards and security requirements for protecting nuclear assemblies during transportation and examination outside the PIDAS at TA-55; (2) provide improved protection for workers and the environment in the event of accidental releases; and (3) be commensurate with the Laboratory goal of consolidating nuclear operations around TA-55.

06-02: TA-55 Reinvestment Project, LANL

Fiscal Quarter				Total Estimated Cost (Design Only (\$000))	Preliminary Full Total Estimated Cost Projection (\$000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
3Q FY 2006	2Q FY 2008	1Q FY 2009	4Q FY 2015	6,859	105,000-175,000

Fiscal Year	Appropriations	Obligations	Costs
2006	2,000	1,859	1,200
2007	1,500	2,000	1,641
2008	0	0	659

The TA-55 Reinvestment Project is intended to provide for selective replacement and upgrades of major facility and infrastructure systems to NNSA's key nuclear weapons research and development facility, the Plutonium Facility (PF-4) and related structures, located at LANL's TA-55. The objective of the TA-55 Reinvestment Project is to extend the useful life of PF-4 and the safety systems that support its

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critical operations to assure continued capability to reliably support Defense Programs missions for an additional 25 years. The project will ensure the vitality and readiness of the NNSA nuclear security enterprise to meet the threat of the 21st century. The project received Critical Decision 0 on December 6, 2004, and is proceeding with the development of the Conceptual Design.

The PF-4's major facility and infrastructure systems are aging and approaching the end of their service life, and, as a consequence, are beginning to require excessive maintenance. As a result, the facility is experiencing increased operating costs and reduced system reliability. Compliance with safety and regulatory requirements is critical to mission essential operations, and thus becoming more costly and cumbersome to maintain due to the physical conditions of facility support systems and equipment. This project will enhance safety and enable cost effective operations so that the facility can continue to support critical Defense Programs missions and activities.

The scope of this project includes upgrading, replacing, and retrofitting TA-55 facility and infrastructure systems such as mechanical (heating ventilation and air conditioning; high efficiency particulate air; and material handling), electrical (power distribution, standby and emergency power), and utility systems (process gasses and liquids, piping), safety, facility monitoring and control, structural components, architectural (roofing, coatings), and other systems and components, as candidate options. The candidate systems and scope have been screened by a prioritized, risk-based selection process during the pre-conceptual phase that will be refined during conceptual design.

06-03: Radioactive Liquid Waste Treatment Facility Upgrade, LANL

Fiscal Quarter				Total Estimated Cost (Design Only (\$000))	Preliminary Full Total Estimated Cost Projection (\$000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
1Q FY 2006	3Q FY 2007	4Q FY 2007	2Q FY 2010	11,100	52,000-79,000

Fiscal Year	Appropriations	Obligations	Costs
2006	3,000	3,000	2,700
2007	8,100	8,100	8,400

The radioactive liquid waste (RLW) treatment and disposal capability at Los Alamos National Laboratory supports 15 technical areas, 63 buildings, and 1800 sources of RLW. This capability must be continuously available to receive and treat liquid waste generated from Stockpile Stewardship activities. LANL has a 50-year mission need for facilities and processes that can accept, store, and treat RLW in support of this long-term mission.

Significant portions of the RLW system are over 40 years old and their reliability is significantly diminishing. The recent transuranic storage tank failure demonstrated the inability of RLW components to remain in service beyond their design life. The treatment facility is in need of significant upgrades in order to comply with current codes and standards including International Building Code, seismic design/construction codes and the National Electric Code (NEC). Recent authorization basis decisions regarding connected facilities at TA-50, where the treatment facility is located, have highlighted the need for enhanced seismic conformance. Continuous workarounds are required to keep systems running and excessive corrosion threatens system availability. Degraded and outdated facility systems pose elevated risk to workers.