

**Science Laboratories Infrastructure
Funding Profile by Subprogram**

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2009 Additional Appropriation ^a	FY 2010 Request
Science Laboratories Infrastructure				
Infrastructure Support	15,287	31,308	+103,873	6,599
Construction	51,574	114,072	+94,241	127,001
Total, Science Laboratories Infrastructure	66,861	145,380	+198,114	133,600

Public Law Authorizations:

Public Law 95–91, “Department of Energy Organization Act”, 1977

Public Law 109–58, “Energy Policy Act of 2005”

Public Law 110–69, “America COMPETES Act of 2007”

Program Overview

Mission

The mission of the Science Laboratories Infrastructure (SLI) program is to support scientific and technological innovation at Office of Science (SC) laboratories by funding and supporting mission-ready infrastructure and fostering safe and environmentally responsible operations. Paramount among these is the provision of infrastructure necessary to ensure world leadership by the SC national laboratories in the area of basic scientific research now and in the future. The SLI program also supports SC stewardship responsibilities for over 24,000 acres of the Oak Ridge Reservation (ORR) and the Federal facilities in the town of Oak Ridge, and provides Payments in Lieu of Taxes (PILT) to local communities around ANL, BNL, and ORNL.

Background

The infrastructure of our national laboratories is aging, with nearly half of active facility space 40 years old or older. This infrastructure includes multiprogram research laboratories, administrative and support buildings, as well as cafeterias, power plants, fire stations, utilities, roads, and other structures. Together, the SC laboratories have over 1,500 operational buildings and real property trailers, with nearly 20 million gross square feet of space. Over 8,500 employees and users of SC research facilities are housed in wooden buildings, trailers, or buildings that are more than 50 years old.

Despite past investments, many SC laboratory facilities and utility systems are not adequate to support the scientific mission because they do not meet the requirements of modern research. Significant work is needed to revitalize SC laboratory infrastructure, and SC has begun to implement an Infrastructure Modernization Initiative that will provide capital investment through the SLI program to make the needed improvements to general infrastructure. These investments will revitalize our ten laboratories over the next ten years. The goals of the Infrastructure Modernization Initiative are to:

^a The Additional Appropriation column reflects the planned allocation of funding from the American Recovery and Reinvestment Act of 2009, P.L. 111–5. See the Department of Energy Recovery website at <http://www.energy.gov/recovery> for up-to-date information regarding Recovery Act funding.

- Provide the modern laboratory infrastructure needed to deliver advances in science our Nation requires to remain competitive in the 21st century, and
- Correct longstanding deficiencies while ensuring laboratory infrastructure provides a safe and quality workplace.

The Infrastructure Modernization Initiative currently includes a portfolio of approximately 35 projects across all ten SC laboratories that will provide modern laboratory space, renovate space that does not meet research needs, replace facilities that are no longer cost effective to renovate or operate, modernize utility systems to prevent failures and ensure efficiency, and/or remove excess facilities to allow safe and efficient operations. The completion of these projects is critical to ensuring the continued mission readiness of SC laboratories. Mission readiness of a laboratory's facilities and infrastructure is the capability of those assets to effectively support the scientific mission assigned to the laboratory. The current and future mission readiness of each SC laboratory is evaluated using a peer-reviewed process which focuses on the ability of each laboratory infrastructure element to meet the needs of scientific research.

To execute and manage the Infrastructure Modernization Initiative effectively, the SLI program uses the SC Annual Laboratory Plans. The Annual Laboratory Plans integrate scientific planning with infrastructure/operational planning by directly tying proposed investments to identified mission capability gaps. The plans provide a clear picture of the mission readiness of each laboratory, the capability gaps, and the investments necessary to fill those gaps. The investments proposed form the basis for projects included in the Initiative.

Subprograms

The first subprogram of the SLI budget, Infrastructure Support, provides operating funds for the cleanup and removal of excess facilities at SC laboratories and for SC stewardship and Payment in Lieu of Taxes responsibilities. The second subprogram, Construction, includes investments under the Infrastructure Modernization Initiative.

Budget Overview

The primary focus of the SLI budget is the ongoing Infrastructure Modernization Initiative whose purpose is to ensure mission readiness of SC laboratories. An increase in the Construction subprogram is included in this request to reflect SC's plan to continue to implement this initiative. The proposed level will continue ongoing projects and will initiate three new projects.

Funding for Excess Facilities Disposition (EFD) projects other than the Bevatron was discontinued in FY 2009 because projects funded under the Infrastructure Modernization Initiative will, in many cases, include funds for removal of aged and outdated facilities that are being replaced by new ones. Other small facility decontamination and decommissioning and cleanup projects not included in the Modernization Initiative will be funded with laboratory overhead. With final funding of the Bevatron in FY 2009, funding for the EFD activity has now been discontinued.

The SLI program received additional funding in FY 2009 provided under the Recovery Act. This funding is being used to accelerate funding to four laboratory modernization projects, allowing construction to proceed more efficiently, minimizing the constraints of a protracted funding profile and providing mission ready facilities more quickly. Recovery Act funds are also being used to accelerate funding for General Plant Project improvements with a total cost of \$10,000,000 or less to facilities and infrastructure at multi-program laboratories. The Department of Energy Recovery Act website (<http://www.energy.gov/recovery>) contains up to date information on Recovery Act funding.

Infrastructure Support

Funding Schedule by Activity

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Infrastructure Support	15,287	31,308	6,599

Description

The Infrastructure Support subprogram provides operating funds for the cleanup and removal of excess facilities at SC laboratories, SC stewardship responsibilities for over 24,000 acres of the Oak Ridge Reservation (ORR) and the Federal facilities in the town of Oak Ridge, and Payments in Lieu of Taxes (PILT) to local communities around ANL, BNL, and ORNL.

Selected FY 2008 Accomplishments

- The Building 51 and Bevatron Demolition Project at Lawrence Berkeley National Laboratory will eliminate a legacy accelerator which ceased operation in 1993, freeing up approximately three acres of much needed land at the site for programmatic use. In FY 2008, the contract for this demolition project was awarded significantly below project estimates and demolition was started.
- Funding in the Infrastructure Support subprogram also allowed SC to successfully demolish more than 17,000 square feet of lightly contaminated excess facility space at Argonne and Oak Ridge National Laboratories in FY 2008.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Excess Facilities Disposition (EFD)	8,748	24,844	—

Funding for Excess Facilities Disposition supports removal of excess facilities at SC sites to reduce long-term costs and liabilities. EFD funding also supports cleanup of facilities for reuse when such reuse is economical and provides needed functionality. EFD funding is focused on disposal of facilities involving little, if any, contamination, such as the Bevatron D&D project at Lawrence Berkeley National Laboratory and small D&D projects at Argonne National Laboratory and Oak Ridge National Laboratory. Funding for projects other than the Bevatron was discontinued in FY 2009.

In FY 2009, \$14,844,000 of EFD funding was provided to continue demolition of Building 51 and the Bevatron at LBNL. The FY 2009 work includes isolation of utility systems, abatement of hazardous materials, removal of shielding blocks and the Bevatron accelerator, and demolition of Building 51 structures. Additionally, funding planned to be provided under the Recovery Act in FY 2009 fully funds the project, resulting in no funding request for FY 2010. The project is scheduled to be complete in FY 2011 at a total cost of \$50,000,000. The project's Performance Baseline was established in FY 2008.

In accordance with Congressional direction, \$10,000,000 of FY 2009 EFD funding will be provided for cleanup efforts at Argonne National Laboratory.

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Oak Ridge Landlord	5,033	5,079	5,214
<p>This funding supports landlord responsibilities, including infrastructure for the 24,000 acres of the Oak Ridge Reservation outside of the Y-12 plant, ORNL and the East Tennessee Technology Park, and DOE facilities in the town of Oak Ridge. Supported activities include maintenance of roads, grounds and other infrastructure, support and improvement of environmental protection, safety and health, payment of PILT to Oak Ridge communities, and other needs related to landlord responsibilities. These activities maintain continuity of operations at the Oak Ridge Reservation and the DOE facilities in Oak Ridge, and minimize interruptions due to infrastructure or other systems failures.</p>			
Payments in Lieu of Taxes (PILT)	1,506	1,385	1,385
<p>Provides PILT to support assistance requirements for communities around Argonne National Laboratory and Brookhaven National Laboratory. PILT payments are negotiated between Department and local governments based on land values and tax rates.</p>			
Total, Infrastructure Support	15,287	31,308	6,599

Explanation of Funding Changes

FY 2010 vs. FY 2009 (\$000)

Infrastructure Support

Excess Facilities Disposition (EFD)

Decrease due to final funding of the Bevatron project in FY 2009 and one-time Congressional Direction of \$10,000,000 for cleanup efforts at Argonne National Laboratory.

-24,844

Oak Ridge Landlord

Increase to support reservation road repairs.

+135

Total Funding Change, Infrastructure Support

-24,709

Construction

Funding Schedule by Activity

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Construction			
Research Support Building and Infrastructure Modernization (SLAC)	—	—	8,900
Energy Sciences Building (ANL)	—	—	10,000
Renovate Science Laboratories, Phase II (BNL)	—	—	7,000
Seismic Life-Safety, Modernization, and Replacement of General Purpose Buildings, Phase II (LBNL)	—	12,495	34,027
Interdisciplinary Science Building, Phase I (BNL)	—	8,240	39,387
Technology and Engineering Development Facility (TJNAF)	—	3,700	27,687
Modernization of Laboratory Facilities (ORNL)	9,329	25,103	—
Physical Sciences Facility (PNNL)	24,773	52,775	—
Science Laboratories Infrastructure Project (Various)	17,472	11,759	—
Total, Construction	51,574	114,072	127,001

Description

The SLI Construction subprogram funds line item construction projects to maintain and enhance the general purpose infrastructure at SC laboratories. Infrastructure Modernization Initiative investments are included here and are focused on ensuring mission readiness at each SC laboratory. Projects are selected using a collaborative approach involving SC Site Office Managers, laboratory Chief Operating Officers, and the SC Deputy Directors for Field Operations and Programs. Projects are evaluated and prioritized based upon mission relevance, amount of deferred maintenance reduction, amount of excess infrastructure eliminated, return on investment (e.g., reduction in operations and maintenance costs), and the level of institutional commitment to the project. The projects identified in this budget reflect this process.

Selected FY 2008 Accomplishments

- Significant progress was made on construction of the Physical Sciences Facility (PSF) at Pacific Northwest National Laboratory. This project is necessary to ensure continued research capabilities at this laboratory, as existing space is cleaned up and demolished by the Office of Environmental Management. In FY 2008, earthwork and placement of foundations and structural steel on all of the new facilities continued. The balance of facility construction activities as well as needed modifications to Building 325 was initiated following approval of Critical Decision (CD)-3B. This project is on track to meet its cost and schedule milestones.
- The Infrastructure Modernization Initiative also made significant progress in FY 2008. Four projects have successfully achieved approval of CD-1, Approve Alternative Selection and Cost Range. The three new projects included in the FY 2010 request for start of Project Engineering and Design have received Approval of Mission Need (CD-0) and are now beginning conceptual design activities.

With these accomplishments, these projects are well on their way to provide critically-needed infrastructure improvements at SC laboratories to ensure continued mission readiness.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Research Support Building & Infrastructure Modernization at SLAC (10-SC-70)	—	—	8,900
<p>SLAC National Accelerator Laboratory has evolved from a single program to a multi-program laboratory. This transition, combined with the condition and age of SLAC facilities drives the need to consolidate core research groups and modernize key support buildings. The Research Support Building and Infrastructure Modernization project will replace substandard modular buildings and trailers that are well beyond their intended useful life with a new Research Support Building and will also modernize three existing buildings onsite. This is a new project and FY 2010 funds will be used for Project Engineering and Design.</p>			
Energy Sciences Building at ANL (10-SC-71)	—	—	10,000
<p>Argonne National Laboratory research capabilities are currently hampered by antiquated, scientifically inadequate, and inefficient research space. This project will provide environmentally stable, specialized, and flexible space by constructing the new Energy Sciences Building to replace some of the oldest and least effective research space for energy-related sciences. This is a new project and FY 2010 funds will be used for Project Engineering and Design.</p>			
Renovate Science Lab, Phase II, at BNL (10-SC-72)	—	—	7,000
<p>A large number of scientists and researchers at Brookhaven National Laboratory are conducting science in laboratories built over forty years ago. Two such buildings are Building 510 (Physics) and Building 555 (Chemistry). Although their basic building core and shell construction is sound, the lab and office spaces and their utilities and environmental support systems are obsolete. This project will modernize unsuitable laboratory space in these two buildings, allowing them to continue supporting research in Basic Energy Sciences and Nuclear and High Energy Physics. This is a new project and FY 2010 funds will be used for Project Engineering and Design.</p>			
Seismic Life-Safety, Modernization, and Replacement of General Purpose Buildings, Phase II, at LBNL (09-SC-72)	—	12,495	34,027
<p>Lawrence Berkeley National Laboratory is located near the Hayward Fault. Recent building evaluations identified more than 30 buildings that would not survive a major earthquake without significant damage to the structure and appreciable life safety hazard to their occupants. This project will remedy high-seismic life-safety risks by replacing seismically-poor buildings and trailers with a new general-purpose laboratory/office building supporting Life Sciences. This project will also seismically upgrade the site-wide Hazardous Waste Handling Facility and modernize an existing Life Sciences building (Building 74). Early procurement for building renovations and initial construction activities are expected to take place in FY 2009. FY 2010 construction funding will be used to continue construction activities, including project management and all associated support functions.</p>			

(dollars in thousands)

FY 2008	FY 2009	FY 2010
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**Interdisciplinary Science Building, Phase I, at BNL
(09-SC-73)**

— 8,240 39,387

This project will provide high accuracy laboratories (e.g., equipped with precise temperature, humidity, and vibration controls), offices, and support space for energy-related research and development in a new interdisciplinary facility. It is part of a broader modernization plan for the laboratory that includes construction of new facilities where capabilities cannot be incorporated into existing buildings or where extensive life-extension work is not cost efficient, and renovation of existing building and utilities where the infrastructure can be made conducive to meet mission needs. This project also includes demolition of offsetting space. FY 2010 funds will be used to continue construction activities.

**Technology and Engineering Development Facility at
TJNAF (09-SC-74)**

— 3,700 27,687

The Technology and Engineering Development Facility project will ensure TJNAF facilities can reliably support production of advanced cryomodules with the quality required for ongoing and future projects and sustain the current high demand for mounting numerous unique large-scale particle detectors. It includes construction of new industrial assembly, laboratory, and office space to eliminate overcrowding and improve workflow and productivity by co-locating the engineering and technical functions currently spread across the laboratory. This project will also renovate existing space in the Test Lab Building, to provide efficient workflow, a safe and sustainable work environment, and functional efficiencies. Demolition of inadequate and obsolete work space is also included. FY 2010 funds will be used to start construction work on the new buildings, including project management and associated support activities.

Modernization of Laboratory Facilities at ORNL (08-SC-71)

9,329 25,103 —

Science operations of research groups housed in the ORNL 4500 Complex are affected by the functionality of the old, deteriorating building facilities. This project will construct a new chemical and materials science laboratory building to support research activities currently housed in the 4500 Complex. The project will provide modern, 21st-century research laboratories, with associated space for offices, small-group conference rooms, and support functions. The estimate for design activities (PED) has been revised downward. As a result, \$2,800,000 of FY 2008 PED funds will be used for construction activities. FY 2009 funds provided final funding for this project and will be used to complete construction of the building, including project management and all associated support functions.

Physical Sciences Facility at PNNL (07-SC-05)

24,773 52,775 —

This project is for the construction of new laboratory and office space on the PNNL site north of Horn Rapids Road and complete life extension upgrades to the 325 Building to accommodate a portion of the existing research capabilities being displaced as a result of the closure and cleanup of facilities in the Hanford 300 Area. The FY 2009 appropriation fully funded the DOE portion of this project's cost and will be used to continue project construction activities as well as facility start-up and readiness activities.

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Science Laboratories Infrastructure Project (MEL-001)	17,472	11,759	—
▪ OSTI Facility Improvements (MEL-001-052)	—	2,500	—
The subproject will provide critical roof replacement and upgrade of the fire safety protection system at the DOE-owned OSTI facility housing DOE's historic and current paper and electronic collection of energy-related R&D results.			
▪ Renovate Science Laboratory, Phase I, at BNL (MEL-001-050)	8,200	6,642	—
This subproject will upgrade and rehabilitate existing obsolete and unsuitable laboratory facilities in Building 480 (Material Science Building) and Building 815 (Multi-Program Laboratory/Office building) into modern, efficient facilities compatible with world-class scientific research.			
▪ Seismic Safety Upgrade of Buildings, Phase I, at LBNL (MEL-001-047)	9,272	2,617	—
This subproject will address the seismic vulnerability of laboratory buildings where high life-safety risks have been identified in Building 50 (Main Office Building) and Building 74 (Life Sciences).			
Total, Construction	51,574	114,072	127,001

Explanation of Funding Changes

FY 2010 vs. FY 2009 (\$000)

Research Support Building and Infrastructure Modernization at SLAC (10-SC-70)

Increase for initial Project Engineering and Design (PED). +8,900

Energy Sciences Building at ANL (10-SC-71)

Increase for initial Project Engineering and Design (PED). +10,000

Renovate Science Lab, Phase II, at BNL (10-SC-72)

Increase for initial Project Engineering and Design (PED). +7,000

Seismic Life-Safety, Modernization, and Replacement of General Purpose Buildings, Phase II, at LBNL (09-SC-72)

Increased project funding per the preliminary Project Execution Plan. +21,532

Interdisciplinary Science Building, Phase I, at BNL (09-SC-73)

Increased project funding per the preliminary Project Execution Plan. +31,147

Technology and Engineering Development Facility at TJNAF (09-SC-74)

Increased project funding per the preliminary Project Execution Plan. +23,987

FY 2010 vs. FY 2009 (\$000)

Modernization of Laboratory Facilities at ORNL (08-SC-71)

Funding was provided in FY 2009 to complete the project profile. -25,103

Physical Sciences Facility at PNNL (07-SC-05)

Funding was provided in FY 2009 to complete the project profile. -52,775

MEL-001, Science Laboratories Infrastructure Project

- **OSTI Facility Improvements (MEL-001-052)**

The FY 2009 appropriation provided full funding for these improvements. -2,500

- **Renovate Science Laboratory, Phase I, at BNL (MEL-001-050)**

Final funding provided in FY 2009 to revitalize and modernize laboratories in two buildings at Brookhaven National Laboratory (BNL). -6,642

- **Seismic Safety Upgrade of Buildings, Phase I, at LBNL (MEL-001-047)**

Final funding provided in FY 2009 for the first phase of seismic and structural safety upgrades at Lawrence Berkeley National Laboratory (LBNL). -2,617

Total, Construction **+12,929**

Supporting Information

Operating Expenses, Capital Equipment and Construction Summary

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Operating Expenses	15,187	31,208	6,499
General Plant Projects	100	100	100
Construction	51,574	114,072	127,001
Total, Science Laboratories Infrastructure	66,861	145,380	133,600

Construction Projects

(dollars in thousands)

	Prior Years	FY 2008	FY 2009	FY 2009 Additional Approp. ^a	FY 2010	Outyears	Total
10-SC-70 Research Support and Infrastructure Modernization, SLAC							
TEC	—	—	—	—	8,900	TBD	80,000-96,000
OPC ^b	—	—	500	—	900	—	1,400
TPC	—	—	500	—	9,800	TBD	TBD
10-SC-71 Energy Sciences Building, ANL							
TEC	—	—	—	—	10,000	TBD	84,500-95,000
OPC ^b	—	—	1,000	—	—	—	1,000
TPC	—	—	1,000	—	10,000	TBD	TBD
10-SC-72 Renovate Science Labs, Phase II, BNL							
TEC	—	—	—	—	7,000	TBD	45,000-50,000
OPC ^b	—	—	800	—	—	—	800
TPC	—	—	800	—	7,000	TBD	TBD
09-SC-72 Seismic Life-Safety, Mod, and Replacement of General Purpose Bldgs., Phase II, LBNL							
TEC	—	—	12,495	15,000	34,027	TBD	91,900-94,600
OPC ^b	—	2,250	50	—	—	—	3,000
TPC	—	2,250	12,545	15,000	34,027	TBD	TBD
09-SC-73 Interdisciplinary Science Building, Phase I, BNL							

^a The Additional Appropriation column reflects the planned allocation of funding from the American Recovery and Reinvestment Act of 2009, P.L. 111-5. See the Department of Energy Recovery website at <http://www.energy.gov/recovery> for up-to-date information regarding Recovery Act funding.

^b Other Project Costs shown are funded through laboratory overhead.

(dollars in thousands)

	Prior Years	FY 2008	FY 2009	FY 2009 Additional Approp. ^a	FY 2010	Outyears	Total
TEC	—	—	8,240	18,673	39,387	TBD	61,300-66,300
OPC ^a	—	500	—	—	—	—	500
TPC	—	500	8,240	18,673	39,387	TBD	TBD
09-SC-74 Technology and Engineering Development Facility, TJNAF							
TEC	—	—	3,700	—	27,687	TBD	66,000-72,200
OPC ^a	—	1,000	—	—	—	—	1,000
TPC	—	1,000	—	—	27,687	TBD	TBD
08-SC-71 Modernization of Laboratory Facilities, ORNL							
TEC	—	9,329	25,103	60,568	—	—	95,000
OPC ^a	700	400	100	—	—	100	1,300
TPC	700	9,729	25,203	60,568	—	100	96,300
07-SC-05 Physical Sciences Facility, PNNL							
TEC/TPC	20,896	24,773	52,775	—	—	—	98,444
MEL-001, Science Laboratories Infrastructure Project							
TEC/TPC	N/A	17,472	11,759	—	—	—	N/A
Total, Construction							
TEC		51,574	114,072	94,241	127,001		
OPC ^a		4,150	2,450	—	100		
TPC		55,724	116,522	94,241	127,101		

Indirect Costs and Other Items of Interest

Institutional General Plant Projects (IGPP)

Institutional General Plant Projects are miscellaneous construction projects that have a total cost less than \$10,000,000 and are of a general nature (cannot be allocated to a specific program). IGPPs support multi-programmatic and/or inter-disciplinary programs and are funded through site overhead. Examples of acceptable IGPPs include site-wide maintenance facilities and utilities, such as roads and grounds outside the plant fences or a telephone switch that serves the entire facility.

^a Other Project Costs shown are funded through laboratory overhead.

The following displays IGPP funding by site:

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Argonne National Laboratory	385	6,000	7,000
Brookhaven National Laboratory	439	6,820	7,059
Lawrence Berkeley National Laboratory	2,452	4,100	4,100
Oak Ridge National Laboratory	10,327	14,000	14,000
Pacific Northwest National Laboratory	623	1,500	1,500
Stanford Linear Accelerator	—	3,000	1,200
Total, IGPP	14,226	35,420	34,859

Facilities Maintenance and Repair

The Department's facilities maintenance and repair activities are tied to its programmatic missions, goals, and objectives. Facilities Maintenance and Repair activities funded at SC laboratories are displayed in the following tables.

Indirect-Funded Maintenance and Repair

Facilities maintenance and repair activities funded indirectly through overhead charges at SC laboratories are displayed below. Since this funding is allocated to all work done at each laboratory, these activities are paid for using funds from SC and other DOE organizations, as well other Federal agencies and other entities doing work at SC laboratories. Maintenance reported to SC for non-SC laboratories is also shown.

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Ames Laboratory	1,045	1,031	1,066
Argonne National Laboratory	33,948	31,402	31,675
Brookhaven National Laboratory	24,918	31,736	32,797
Fermi National Accelerator Laboratory	8,752	9,668	9,891
Lawrence Berkeley National Laboratory	14,028	16,099	19,285
Lawrence Livermore National Laboratory	2,887	2,563	2,614
Los Alamos National Laboratory	100	111	113
Oak Ridge Institute for Science and Education	562	301	308
Oak Ridge National Laboratory	39,242	39,487	40,396
Oak Ridge National Laboratory facilities at Y-12	1,821	838	857
Office of Scientific and Technical Information	330	338	346
Pacific Northwest National Laboratory	2,790	1,215	1,919
Princeton Plasma Physics Laboratory	5,502	5,636	6,052
Sandia National Laboratories	2,045	2,402	2,450

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Stanford Linear Accelerator Center	6,716	4,881	4,904
Thomas Jefferson National Accelerator Facility	3,039	3,540	3,700
Total, Indirect-Funded Maintenance and Repair	147,725	151,248	158,373

Direct-Funded Maintenance and Repair

Generally, facilities maintenance and repair expenses are funded through an indirect overhead charge. In some cases, however, a laboratory may charge maintenance directly to a specific program. For example when maintenance is performed in a building used only by a single program. These direct-funded charges are nonetheless in the nature of indirect charges, and therefore are not directly budgeted. The maintenance work for the Oak Ridge Office is direct funded and direct budgeted by the Science Laboratories Infrastructure program. A portion of the direct-funded maintenance and repair expenses reflects charges to non-SC programs performing work at SC laboratories.

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Brookhaven National Laboratory	5,161	1,500	1,552
Fermilab National Accelerator Facility	3,801	3,854	3,943
Notre Dame Radiation Laboratory	124	169	177
Oak Ridge National Laboratory	21,425	16,151	16,066
Oak Ridge Office	550	2,642	2,790
Stanford Linear Accelerator Center	5,261	7,239	7,357
Thomas Jefferson National Accelerator Facility	88	57	59
Total, Direct-Funded Maintenance and Repair	36,410	31,612	31,944

Deferred Maintenance Backlog Reduction

SC is working to reduce the backlog of deferred maintenance at its laboratories: Argonne, Brookhaven, Lawrence Berkley, Oak Ridge, and Pacific Northwest national laboratories; the Ames Laboratory, Fermilab National Accelerator Facility, Princeton Plasma Physics Laboratory, Stanford Linear Accelerator Center, and Thomas Jefferson National Accelerator Facility; and other SC facilities in Oak Ridge and Notre Dame laboratories. The total deferred maintenance backlog at the end of FY 2008 is estimated to be \$462,000,000.

The primary strategy for reducing deferred maintenance is SC's proposed Infrastructure Modernization Initiative, which will modernize the general purpose infrastructure at SC laboratories. The initiative focuses on increased funding for line item construction projects which will result in significant additional reductions to the deferred maintenance backlog, but are not included within the indirect funding in the following table. In addition, SC laboratories are funding deferred maintenance reduction efforts via overhead, IGPP, GPP, and line items.

The table below shows the expected funding from laboratory overhead for deferred maintenance reduction.

(dollars in thousands)

	FY 2008 ^a	FY 2009 ^b	FY 2010 ^b
Argonne National Laboratory	2,042	4,581	3,800
Brookhaven National Laboratory	5,445	8,147	10,300
Fermi National Accelerator Laboratory	5,254	2,810	3,693
Lawrence Berkeley National Laboratory	4,349	2,500	2,000
Oak Ridge National Laboratory	8,728	6,500	6,500
Princeton Physics Plasma Laboratory	177	258	340
Stanford Linear Accelerator Center	686	850	953
Thomas Jefferson National Accelerator Facility	658	500	800
Total, Deferred Maintenance Backlog Reduction	27,339	26,146	28,386

^a Includes deferred maintenance reduction funding from overhead and IGPP

^b Includes deferred maintenance reduction funding from overhead

**10-SC-70, Research Support Building and Infrastructure Modernization,
SLAC National Accelerator Laboratory, Menlo Park, California
Project Data Sheet is for PED**

1. Significant Changes

The most recent DOE O413.3A Critical Decision (CD) is CD-0 (Approve Mission Need) that was approved on October 10, 2008 with a preliminary Total Estimated Cost (TEC) range of \$80,000,000–\$96,000,000.

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

	CD-0	CD-1	(Design/PED Complete)	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY 2010	10/10/2008	1Q FY2010	2Q FY2011	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

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2010	\$8,900	TBD	TBD ^a	\$1,400 ^b	TBD	TBD	TBD

4. Project Description, Justification, and Scope

SLAC National Accelerator Laboratory is an Office of Science (SC) laboratory that supports a large national and international community of scientific users performing cutting edge research in support of the Department of Energy mission. Success of that mission is directly coupled to the general purpose infrastructure necessary to conduct this research. At SLAC, accomplishment of that mission is currently at-risk given substandard buildings that do not provide the appropriate environment to conduct world class science or mission support functions.

SLAC has moved from a single program to a multi-program laboratory; this transition, combined with the condition and age of SLAC facilities, drives the need to consolidate core research functions and

^a Costs are to be determined. The preliminary TEC range is \$80,000,000 to \$96,000,000.

^b Other Project Costs of \$1,400,000 are funded through laboratory overhead.

modernize key support buildings. The most pressing infrastructure gaps are the lack of appropriate space to house and co-locate accelerator scientists and key mission support staff who are currently spread across the laboratory in outdated and inefficient facilities.

To correct these deficiencies, a new building is proposed to house the laboratory’s accelerator scientists. This new building will replace numerous 40-year-old trailers that currently support the laboratory’s accelerator scientists. This will enable integration of the accelerator science and technology community across programmatic boundaries, allowing these scientists to better support the science missions at the laboratory. In addition, renovation of three buildings is proposed (i.e., 003, 024, and 041). These buildings house key mission support functions and were part of the original construction of the laboratory in the mid-1960s. Although the basic core and shell construction are sound, their interior spaces and utility system are obsolete. Overall, the proposed project will upgrade working conditions for over 20% of the laboratory staff in a way that supports the laboratory vision of a unified culture with a strong sense of community between all scientific and support functions across the laboratory.

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 2010	8,900	8,900	5,900
FY 2011	—	—	3,000
Total, TEC	8,900	8,900	8,900
Other Project Cost (OPC) ^a			
FY 2009	500	500	500
FY 2010	900	900	900
Total, OPC	1,400	1,400	1,400
Total Project Cost (TPC)			
FY 2009	500	500	500
FY 2010	9,800	9,800	6,800
Outyears	—	—	3,000
Total, TPC	10,300 ^b	10,300 ^b	10,300 ^b

^a Other Project Costs of \$1,400,000 are funded through laboratory overhead.

^b This Project has not yet received approval of CD-2; therefore estimates displayed only include funding for PED and associated other project costs. The preliminary TEC range is \$80,000,000 to \$96,000,000.

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	6,675	N/A	N/A
Contingency	2,225	N/A	N/A
Total, PED	8,900	N/A	N/A
Total, TEC	8,900	N/A	N/A
Contingency, TEC	2,225	N/A	N/A
Other Project Cost (OPC)			
OPC ^a			
Other OPC	900	N/A	N/A
Start-Up	300	N/A	N/A
Contingency	200	N/A	N/A
Total, OPC	1,400	N/A	N/A
Total, TPC ^b	10,300	N/A	N/A
Total, Contingency	2,425	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.

^a Other Project Costs of \$1,400,000 are funded through laboratory overhead.

^b This Project has not yet received approval of CD-2; therefore estimates displayed only include funding for PED and associated other project costs. The preliminary TEC range is \$80,000,000 to \$96,000,000.

**10-SC-71, Energy Sciences Building, Argonne National Laboratory (ANL), Argonne, IL
Project Data Sheet is for PED**

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decision (CD) is CD-0, Approve Mission Need, which was approved on October 10, 2008, with a preliminary Total Estimated Cost (TEC) range of \$84,500,000 to \$95,000,000.

A Federal Project Director has been assigned to this project. Project is pursuing to fulfill the certification requirements.

This Project Data Sheet is new for PED.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	(Design / PED Complete)	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY 2010	10/10/2008	4Q FY 2009	2Q FY 2011	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 2010	10,000	TBD	TBD ^a	1,000 ^b	TBD	TBD	TBD

4. Project Description, Justification, and Scope

This project will provide new energy efficient and environmentally sustainable laboratory space at Argonne National Laboratory (ANL) that will provide modern, 21st-century, high-accuracy laboratories for energy-related research and development (R&D) and associated space for support functions. The design will utilize modern, efficient laboratory planning benchmarks as the basis for determining the size and configuration of space types. The design of the space will also emphasize more open, collaborative environments and flexibility to respond to future mission changes. In addition to the research laboratories, the building will include office space for researchers, small group conference rooms, equipment areas, restrooms, circulation space, and supporting infrastructure.

The objective of the Energy Sciences Building (ESB) project is to provide high-accuracy, flexible, and sustainable laboratory and office space to support scientific theory/simulation, materials discovery,

^a Preliminary Total Estimated Cost (TEC) range is \$84,500,000 to \$95,000,000.

^b Other Project Costs of \$1,000,000 are funded through laboratory overhead.

characterization, and application of new energy-related materials and processes. Efficient, high-accuracy heating, ventilation, and air conditioning (HVAC) systems will be installed to support cutting edge research and the operation of sensitive instrumentation. Comparable space is not available at ANL. The scope of the project includes design, construction, and start-up of the new facility and extension of existing site utilities to the new building.

Key areas of energy research to be housed in the ESB include: discovery synthesis, biomimetics and solar energy, catalysis, fuel cell research, and electrical energy storage. These five research areas currently lack modern scientific space needed for seamless multi-disciplinary collaborative research, the hallmark of 21st century science and engineering.

ANL research buildings dedicated to the SC energy research mission are all more than 40 years old, some as much as 55 years old. They require constant repair and frequently compromise or halt scientific research and are unable to meet modern standards for high resolution apparatus requiring vibration, electromagnetic, and thermal stability. Electrical power in these facilities is unstable and insufficient for modern synthesis and measurement instruments to operate at rated performance levels. Temperature and humidity controls were designed for human comfort only and not for state-of-the-art experimental performance, resulting in erratic temperature and humidity fluctuations over a few hours requiring frequent recalibration of apparatus to achieve sufficient measuring accuracy. Several key laboratories can operate only at night because of excessive vibration, temperature, and power fluctuations in the daytime, significantly impeding productivity. In addition to the functional inadequacies described above, safety and building code noncompliances further compromise ANL’s ability to support SC and the Department’s long-term energy goals. Antiquated and/or outdated electrical, fire protection, and ventilation systems have resulted in numerous National Electric (NEC) and National Fire Protection Association (NFPA) code deficiencies. The age of these facilities and systems as well as the inability to obtain replacement parts has limited ANL’s ability to correct these deficiencies via replacement and/or capital improvements.

The project is being conducted in accordance with the project management requirements in DOE O 413.3A, 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 2010	10,000	10,000	7,000
FY 2011	—	—	3,000
Total, TEC	10,000	10,000	10,000
Other Project Cost (OPC) ^a			
OPC except D&D			
FY 2009	1,000	1,000	1,000

^a Other Project Costs of \$1,000,000 are funded through laboratory overhead.

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Project Cost (TPC)			
FY 2009	1,000	1,000	1,000
FY 2010	10,000	10,000	7,000
FY 2011	—	—	3,000
Total, TPC	11,000 ^a	11,000 ^a	11,000 ^a

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	8,688	N/A	N/A
Contingency	1,312	N/A	N/A
Total, TEC	10,000	N/A	N/A
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	263	N/A	N/A
Conceptual Design	603	N/A	N/A
Contingency	134	N/A	NA
Total, OPC	1,000	N/A	N/A
Contingency, OPC	134	N/A	N/A
Total, TPC	11,000 ^a	N/A	N/A
Total, Contingency	1,446	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.

^a This project has not yet received approval of CD-2; therefore, the TPC estimate displayed only includes project engineering and design and related other project costs. The preliminary total estimated cost range for this project is \$84,500,000 to \$95,000,000.

**10-SC-72, Renovate Science Labs, Phase II
Brookhaven National Laboratory (BNL), Upton, New York
Project Data Sheet is for PED**

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decision (CD) is CD-0, Approve Mission Need, which was approved on October 10, 2008, with a preliminary Total Estimated Cost (TEC) range of \$45,000,000 to \$50,000,000.

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/PED Complete)	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY 2010	10/10/2008	4Q FY 2009	3Q FY 2011	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 2010	7,000	TBD	TBD ^a	800 ^b	TBD	TBD	TBD

4. Project Description, Justification, and Scope

A large number of scientists and researchers at BNL are conducting science in laboratories built over forty years ago. Although their basic building core and shell construction is sound, the lab and office spaces, and their utilities and environmental support systems, are totally obsolete.

The Renovate Science Labs, Phase II Project will upgrade and rehabilitate existing, obsolete, and unsuitable BNL laboratory facilities into modern, efficient laboratory spaces compatible with world-class scientific research. This project will revitalize and modernize laboratories and support space located in each of two buildings, Building 510 Physics and Building 555 Chemistry.

The laboratories in Building 510 for the Physics Department were constructed in 1962 and need renovation and modernization in order to keep pace with the highly complex and rapidly changing technologies required for work on advanced new detectors. This work involves sophisticated electronics,

^a Preliminary Total Estimated Costs (TEC) range is \$45,000,000 to \$50,000,000.

^b Other Project Costs of \$800,000 are funded through laboratory overhead.

high precision mechanical assemblies, and extremely clean work areas for detectors such as silicon or gas filled devices. A task force conducted a condition assessment of the laboratories and developed a list of deficiencies, that included damaged floors and ceilings, roof and ceiling leaks, old and unused plumbing, including sinks and hoods in some laboratories, poor lighting levels, decrepit lab furniture, poor temperature control and ventilation, significant particulate discharge from HVAC systems, electromagnetic interference on electrical power in certain laboratories, and lack of fire sprinkler protection.

Likewise, Building 555 has a robust design for chemical sciences research, but was constructed in 1966 and now has a number of substantial limitations for current research needs. While building 555 has an effective design for wet chemistry, it needs to be renovated to address very serious infrastructure quality issues that have grown over the years. Its design can also accommodate the evolving need for laser and instrumentation space for many of the physical methods in use, but an upgrade of facilities for air, water and electrical is critical, and selective laboratory reconfiguration is needed to best meet advanced instrumentation needs.

The project is being conducted in accordance with the project management requirements in DOE O413.3A and all appropriate project management requirements have been met.

5. Financial Schedule

	(dollars in thousands)		
	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED			
FY 2010	7,000	7,000	2,800
FY 2011	—	—	4,200
Total, TEC	7,000	7,000	7,000
Other Project Cost (OPC) ^a			
OPC except D&D			
FY 2009	800	800	800
Total Project Cost (TPC)			
FY 2009	800	800	800
FY 2010	7,000	7,000	2,800
FY 2011	—	—	4,200
Total, TPC, PED	7,800	7,800	7,800

^a Other Project Costs of \$800,000 are funded through laboratory overhead.

6. Details of Project Cost Estimate^a

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	6,200	N/A	N/A
Contingency	800	N/A	N/A
Total, TEC	7,000	N/A	N/A
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	150	N/A	N/A
Conceptual Design	600	N/A	N/A
Contingency	50	N/A	N/A
Total, OPC	800	N/A	N/A
Contingency, OPC	50	N/A	N/A
Total, TPC	7,800	N/A	N/A
Total, Contingency	850	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.

^a This project has not yet received approval of CD-2; therefore the estimates displayed only include funding for PED and associated other project costs. The preliminary total estimated cost range for this project is \$45,000,000 to \$50,000,000.

**09-SC-72, Seismic Life-Safety, Modernization, and Replacement of General Purpose Buildings,
Phase 2, Lawrence Berkeley National Laboratory (LBNL), Berkeley, California
Project Data Sheet is for PED/Construction**

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decision (CD) is CD-1, Approve Alternative Selection and Cost Range, which was approved on September 23, 2008 with a preliminary Total Estimated Cost (TEC) range of \$91,900,000–\$94,600,000.

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

This Project Data Sheet (PDS) is an update of the FY 2009 PDS.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	(Design/PED Complete)	CD-2A	CD-2B/3A	CD-4	D&D Start	D&D Complete
FY 2009	9/18/2007	2Q FY 2009	3Q FY 2010	2Q FY 2010	TBD	TBD	TBD	TBD
FY 2010	9/18/2007	9/23/2008 ^a	4Q FY 2010	2Q FY 2010	TBD	TBD	TBD	TBD

CD-0 – Approve Mission Need

CD-1 – Approve Alternative Selection and Cost Range

CD-2A, Approve the Performance Baseline and Long-Lead Procurement for Building 74 Modernization

CD-2B/3A, Approve the Performance Baseline, and Approve Start of Construction for Building 74 Modernization.

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D ^b	OPC, D&D	OPC, Total	TPC
FY 2009	8,680	TBD	TBD	2,300	TBD	TBD	TBD
FY 2010	9,680	TBD	TBD	2,300	TBD	TBD	TBD

4. Project Description, Justification, and Scope

The objective of this project is to replace seismically unstable, high maintenance facilities at the Lawrence Berkeley National Laboratory (LBNL) with modern, seismically stable, state of the art laboratory space in support of the mission requirements of the Office of Science.

This project includes the modernization of Building 74, including upgrades to building systems and approximately 28,000 to 45,000 gross square feet (GSF) of laboratory/office space; construction of a 35,000 - 43,000 GSF General Purpose Laboratory (GPL); seismic upgrades and slope stabilization for Building 85, the site-wide Hazardous Waste Handling Facility; and demolition of offsetting space. The project includes all necessary design and construction activities and start-up of operations for both the new facility and Building 74.

^a The Department of Energy was under a continuing resolution for more than 5 months in FY 2009. As a result, this project did not receive PED funds and was not able to begin preliminary design until April 2009.

^b Other Project Costs of \$2,300,000 are funded through laboratory overhead.

Lawrence Berkeley National Laboratory (LBNL) is an Office of Science multi-program national laboratory with a mission to perform leading multidisciplinary research in the fields of energy sciences, general sciences, and life sciences. The laboratory's research makes use of multidisciplinary collaboration and advanced engineering, computation, communications, fabrication, and other support facilities characteristic of a national laboratory. The laboratory's facilities are planned, constructed, and maintained to support the research programs and scientific goals, while maintaining compatibility with the university community and the surrounding physical setting. Research at LBNL is directly tied to the quality of its facilities and site improvements through a proactive building and utility maintenance program.

LBNL completed seismic evaluations of all permanently owned and occupied LBNL buildings in FY 2007. These evaluations have revealed that several buildings are seismically unsafe, and would not be able to survive a major earthquake without significant damage to the structure and appreciable life safety hazard to their occupants. The U.S. Geological Survey has estimated the probability of a major seismic event in the San Francisco Bay Area at 67% in the next 30 years. LBNL is located less than one kilometer from the Hayward Fault and will be subjected to severe shaking during a major seismic event on this fault.

This project will provide safe, modern, and energy efficient laboratories for multidisciplinary biology which directly benefit science at the interface of physical, life, and computational sciences. The research performed in these facilities will support and enhance work conducted at LBNL user facilities including the Advanced Light Source, the National Center for Electron Microscopy, and the Molecular Foundry. Additionally, a number of scientific areas of research will benefit from being co-located as a result of this project.

FY 2009 PED funding will be used for design of the project, including project management and all associated support functions. FY 2009 construction funding will support early procurement of mechanical and electrical systems for Building 74 including project management and all associated support functions. FY 2010 construction funding will be used for continued construction activities on this project, including project management and all associated support functions.

The project is being conducted in accordance with the project management requirements in

DOE O 413.3A, 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	Recovery Act Costs	Costs
Total Estimated Cost (TEC)				
PED ^a				
FY 2009	8,680	8,680	—	2,360
FY 2009 Recovery Act	1,000	1,000	1,000	—
FY 2010	—	—	—	6,050
Outyears	—	—	—	270
Total, PED	9,680	9,680	1,000	8,680
Construction				
FY 2009	3,815	3,815	—	120
FY 2009 Recovery Act	14,000	14,000	560	—
FY 2010	34,027	34,027	6,360	1,290
Outyears	TBD	TBD	7,080	TBD
Total Construction	TBD	TBD	14,000	TBD
Total, TEC	TBD	TBD	15,000	TBD
Other Project Cost (OPC) ^b				
OPC except D&D				
FY 2008	2,250	2,250	—	2,250
FY 2009	50	50	—	50
Outyears	TBD	TBD	—	TBD
Total, OPC	TBD	TBD	—	TBD

^a All designs will be completed in less than 18 months.

^b Other Project Costs of \$2,300,000 are funded through laboratory overhead.

(dollars in thousands)

	Appropriations	Obligations	Recovery Act Costs	Costs
Total Project Cost (TPC)				
FY 2008	2,250	2,250	—	2,250
FY 2009	12,545	12,545	—	2,530
FY 2009 Recovery Act	15,000	15,000	1,560	—
FY 2010	34,027	34,027	6,360	7,340
Outyears	TBD	TBD	7,080	TBD
Total, TPC ^a	TBD	TBD	15,000	TBD

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	8,027	8,234	N/A
PED Contingency	1,653	1,446	N/A
Total, PED	9,680	9,680	N/A
Construction ^a			
Construction	43,202	3,815	N/A
Construction Contingency	8,640	—	N/A
Total Construction	51,842	3,815	N/A
Total TEC	61,522	12,495	N/A
Contingency, TEC	10,293	1,446	N/A
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning and Design	2,142	2,107	N/A
Contingency	158	193	N/A
Total, OPC	2,300	2,300	N/A
Contingency, OPC	158	193	N/A
Total, TPC ^a	TBD	16,395	N/A
Total Contingency	TBD	1,639	N/A

^a This project has not yet received approval of CD-2; therefore, construction, TEC, and OPC estimates displayed only include PED, related other project costs, and initial construction costs. Construction funds will not be executed without appropriate Acquisition Executive approval. The preliminary total estimated cost range for this project is \$91,900,000 to \$94,600,000.

7. Schedule of Project Costs

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

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	2Q FY 2015
Expected Useful Life (number of years)	30
Expected Future Start of D&D of this capital asset (fiscal quarter)	2Q FY 2045

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	640	N/A	19,203	N/A
Maintenance	1,407	N/A	42,219	N/A
Total, Operations & Maintenance	2,047	N/A	61,422	N/A

9. Required D&D Information

	Square Feet
Area of new construction	35,000–43,000
Area of existing facility(s) being replaced ^a	1,560
Area of additional D&D space to meet the “one-for-one” requirement ^b	33,440–41,440

10. Acquisition Approach

A building program and design criteria will be developed by the LBNL Facilities Department incorporating detailed functional requirements. An architect-engineering firm with appropriate multidisciplinary design experience will be selected, based on qualifications, for design services. A lump-sum Construction Management /General Contracting (CM/GC) subcontract will be negotiated and awarded by the University of California. Independent reviews of the structural design and construction cost estimate will be arranged by LBNL.

^a Building 74F (1,560SF) will be demolished to make way for the new General Purpose Laboratory.

^b This project includes demolition of appropriate offsetting space to meet this requirement prior to Critical Decision-4.

**09-SC-73, Interdisciplinary Science Building, Phase I, Brookhaven National Laboratory (BNL),
Upton, New York
Project Data Sheet is for PED/Construction**

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decision (CD) is CD-1, Approve Alternative Selection and Cost Range, which was approved on September 23, 2008, with a preliminary Total Estimated Cost (TEC) range of \$61,300,000 to \$66,300,000.

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

This Project Data Sheet is a continuation of a PED PDS proceeding to construction. The significant change is that the estimated size range of the new facility has been revised downward due to volatile market conditions and uncertainties in escalation. The final scope will be established at CD-2. The TEC range remains unchanged.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	(Design/PED Complete)	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY 2009	09/18/2007	2Q FY 2009	3Q FY 2010	2Q FY 2010	TBD	TBD	TBD	TBD
FY 2010	09/18/2007	09/23/2008 ^a	2Q FY 2010	2Q FY 2010	TBD	TBD ^b	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 ^c	OPC Except D&D ^d	OPC, D&D	OPC, Total	TPC
FY 2009	8,240	TBD	TBD	500	TBD	TBD	TBD
FY 2010	8,240	TBD	TBD	500	TBD	TBD	TBD

^a The Department of Energy was under a continuing resolution for more than 5 months in FY 2009. As a result, this project did not receive PED funds and was not able to begin preliminary design until April 2009.

^b The preliminary CD-4 range is 3Q FY 2012 to 4Q FY 2013.

^c Preliminary Total Estimated Cost (TEC) range is \$61,300,000 to \$66,300,000. No construction funds, other than for early site preparation activities, will be used until the project performance baseline has been validated and CD-3 approved.

^d Other Project Costs of \$500,000 are funded through laboratory overhead.

4. Project Description, Justification, and Scope

A large number of scientists and researchers at BNL are conducting science in left-over Army barracks that were modified to serve as laboratories and offices. These buildings are over 50 years old and have numerous functional and maintenance problems including wood rot, poor heat and ventilation, roof leaks, inadequate electrical services, and cramped space. Major investment would be needed to continue usage of these buildings that would otherwise be better invested in a new modern facility. In addition, the decentralized distribution of staff in old, ineffective buildings is demoralizing and decreases effective exchange of ideas between staff members.

The proposed Interdisciplinary Science Building, Phase I Project will construct 65,000 to 90,000 square feet high efficiency laboratories, offices, and support functions for energy-related research and development (R&D) in a new sustainable building. Efficient heating, ventilation, and air conditioning (HVAC) systems will be installed to support cutting edge research and the operation of sensitive instrumentation. The scope of the project includes design, construction, and start-up of the new facility, extension of existing site utilities to the new building, and demolition of a sufficient amount of excess facilities including building 185, to meet offsetting space requirements for the new building.

This type of space is limited at BNL and forces collaborative efforts into ad-hoc, sub-standard facilities which often limits the research. The proposed building will consolidate staff, improve employee moral, help retain and attract scientific talent, and improve capability to meet the DOE mission. This building will be designed to encourage peer interactions and collaborative visits by staff around the laboratory.

FY 2009 funds will be used for preliminary and final design and establishment of the performance baseline. FY 2010 funds will be used to continue construction activities.

The project is being conducted in accordance with the project management requirements in DOE O 413.3A 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	Recovery Act Costs	Costs
Total Estimated Cost (TEC)				
PED ^a				
FY 2009	8,240	8,240	—	4,000
FY 2010	—	—	—	4,240
Total, PED	8,240	8,240	—	8,240

^a All design will be completed in less than 18 months.

(dollars in thousands)

	Appropriations	Obligations	Recovery Act Costs	Costs
Construction				
FY 2009 Recovery Act	18,673	18,673	500 ^a	—
FY 2010	39,387	39,387	2,000	—
Outyears	TBD	TBD	16,173	TBD
Total, Construction	TBD	TBD	18,673	TBD
TEC				
FY 2009	8,240	8,240	—	4,000
FY 2009 Recovery Act	18,673	18,673	500	—
FY 2010	39,387	39,387	2,000	4,240
Outyears	TBD	TBD	16,173	TBD
Total, TEC	TBD	TBD	18,673	TBD
Other Project Cost (OPC)^b				
FY 2008	500	500	—	500
Total, OPC	500	500	—	500
Total Project Cost (TPC)				
FY 2008	500	500	—	500
FY 2009	8,240	8,240	—	4,000
FY 2009 Recovery Act	18,673	18,673	500	—
FY 2010	39,387	39,387	2,000	4,240
Outyears	TBD	TBD	16,173	TBD
Total, TPC	TBD	TBD^c	18,673	TBD

^a Involves early site preparation activities as approved by the Acquisition Executive.

^b Other project Costs of \$500,000 are funded through laboratory overhead.

^c This project has not yet received approval of CD-2; therefore, construction and TEC estimate displayed only include anticipated activities through FY 2010. Construction funds, other than for early site preparation activities, will not be executed.

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	6,918	7,485	N/A
Contingency	1,322	755	N/A
Total, PED	8,240	8,240	N/A
Construction			
Site Preparation	1,500	N/A	N/A
Other Construction	46,817	N/A	N/A
Contingency	9,743	N/A	N/A
Total, Construction	58,060	N/A	N/A
Total, TEC ^a	66,300	8,240	N/A
Contingency, TEC	11,065	755	N/A
Other Project Cost (OPC) ^b			
OPC except D&D			
Conceptual Planning	50	50	N/A
Conceptual Design	450	383	N/A
Start-Up	—	—	N/A
Contingency	—	67	N/A
Total, OPC except D&D	500	500	N/A
Contingency, OPC	—	67	
Total, TPC	66,800	8,740	N/A
Total, Contingency	11,065	822	N/A

7. Schedule of Project Costs

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

^a This project has not yet received approval of CD-2; therefore, construction and TEC estimate displayed only include anticipated activities through FY 2010. Construction funds, other than for early site preparation activities, will not be executed without Acquisition Executive approval. The preliminary total estimated cost range is \$61,300,000 to \$66,300,000.

^b Other Project Costs of \$500,000 are funded through laboratory overhead.

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	4 Q FY 2013
Expected Useful Life (number of years)	50
Expected Future Start of D&D of this capital asset (fiscal quarter)	4 Q FY 2063

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	16,500	N/A	660,000	N/A
Maintenance	1,500	N/A	60,000	N/A
Total, Operations & Maintenance	18,000	N/A	720,000	N/A

9. Required D&D Information

The project will demolish a sufficient amount of excess facilities to meet space offsetting requirements for the new building at the BNL site. The details of which specific buildings will be demolished will be developed as part of the performance baseline for CD-2.

10. Acquisition Approach

Design will be performed by an architect-engineer (A-E) firm with the subcontract managed by the BNL operating contractor. The A-E firm will be competitively selected based on qualifications. After completion of the design, the BNL operating contractor will solicit offers from prospective large and small business general construction firms and award a firm fixed price construction subcontract. Evaluation of bids will include consideration of each offeror's experience, safety record, and past performance in successfully completing similar construction projects. Award will then be made to the lowest priced, qualified, responsible, responsive bidder.

Site preparation, which includes clearing, utility isolation and relocation, and demolition of existing structures on the building site will be conducted under a separate subcontract to the BNL operating contractor. Demolition of excess facilities will be accomplished using either the BNL operating contractor's in-house resources or one of its basic ordering agreement subcontractors.

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

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decision (CD) is CD-1, Approve Alternative Selection and Cost Range, which was approved on September 23, 2008 with a preliminary Total Estimated Cost (TEC) range of \$66,000,000 to \$72,200,000.

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

This Project Data Sheet is a continuation of a PED PDS proceeding to construction.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	(Design/PED Complete)	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY 2009	09/18/2007	2Q FY 2009	3Q FY 2010	4Q FY 2009	TBD	TBD	TBD	TBD
FY 2010	09/18/2007	09/23/2008 ^a	3Q FY 2010	4Q FY 2009	TBD	TBD ^b	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 ^c	OPC Except D&D ^d	OPC, D&D	OPC, Total	TPC
FY 2009	3,700	TBD	TBD	1,000	TBD	TBD	TBD
FY 2010	3,700	TBD	TBD	1,000	N/A	TBD	TBD

4. Project Description, Justification, and Scope

The proposed project renovates Building 58 (the Test Lab, about 90,000 square feet), removes an estimated 7,000 to 10,000 square feet of inadequate and obsolete work space in and adjacent to the Test Lab, and allows for removal of between 2,000 and 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 new construction which will add between 90,000 to 120,000 square

^a The Department of Energy was under a continuing resolution for more than 5 months in FY 2009. As a result, this project did not receive PED funds and was not able to begin preliminary design until April 2009.

^b The preliminary CD-4 range is 2QFY 2014 to 4QFY 2014.

^c Costs are to be determined (TBD). Preliminary Total Estimated Cost (TEC) range is \$66,000,000 to \$72,000,000. No construction funds will be used until the performance baseline has been validated and CD-3 approved.

^d Other Project Costs of \$1,000,000 are funded through laboratory overhead.

feet of needed workspace for critical technical support functions including mechanical and electrical engineering, cryogenics engineering and fabrication, and environment, safety, and health. The scope will be finalized at CD-2.

The project 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. It also corrects numerous safety and building codes 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 approved TJNAF Secretarial Waiver (9/15/06) provides offsetting space for this project. 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 removal of about 12,000 square feet of dilapidated trailers will offset the space added by this project.

TJNAF has identified 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 90,000 to 120,000 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 rehabilitation 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 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 to 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 work environment improvements provided by this project will increase staff morale working 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.

FY 2009 funds will be used to complete preliminary and final designs for both the new construction and the renovation work. FY 2010 construction funds will be used to start construction work on the new buildings, including project management and associated support activities.

The project is being conducted in accordance with the project management requirements in DOE O 413.3A, 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	1,900
FY 2010	—	—	1,800
Total, PED	3,700	3,700	3,700
Construction			
FY 2010	27,687	27,687	12,000
Outyears	TBD	TBD	TBD
Total, Construction	TBD	TBD	TBD
TEC			
FY 2009	3,700	3,700	1,900
FY 2010	27,687	27,687	13,800
Outyears	TBD	TBD	TBD
Total, TEC	TBD	TBD	TBD

(dollars in thousands)

	Appropriations	Obligations	Costs
Other Project Cost (OPC) ^a			
OPC except D&D			
FY 2008	1,000	1,000	300
FY 2009	—	—	700
Total OPC except D&D	1,000	1,000	1,000
Total Project Cost (TPC)			
FY 2008	1,000	1,000	300
FY 2009	3,700	3,700	2,600
FY 2010	27,687	27,687	13,800
Outyears	TBD	TBD	TBD
Total, TPC	TBD	TBD	TBD

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	3,350	3,515	N/A
Contingency	350	185	N/A
Total, PED	3,700	3,700	N/A
Construction			
Site Preparation	3,900	N/A	N/A
Equipment	—	N/A	N/A
Other Construction	18,187	N/A	N/A
Contingency	5,600	N/A	N/A
Total Construction	27,687	N/A	N/A
Total, TEC ^b	TBD	3,700	N/A
Contingency, TEC	TBD	185	N/A

^a Other Project Costs of \$1,000,000 are funded through laboratory overhead.

^b This project has not yet received approval of CD-2; therefore, construction and TEC estimate displayed only include anticipated activities through FY 2010. Construction funds will not be executed without appropriate CD-2 and CD-3 approvals. The preliminary total estimated cost range for this project is \$66,000,000 to \$72,200,000.

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Other Project Cost (OPC) ^a			
OPC except D&D			
Conceptual Planning	150	150	N/A
Conceptual Design	770	770	N/A
Contingency	80	80	N/A
Total, OPC	1,000	1,000	N/A
Total, TPC ^b	TBD	4,700	N/A
Total, Contingency	TBD	265	N/A

7. Schedule of Project Costs

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

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy	
New Construction	4Q FY 2012
Renovation	4Q FY 2014
Expected Useful Life	50 years
Expected Future Start of D&D of this capital asset	4Q FY 2064

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	478	N/A	23,900	N/A
Maintenance	1,120	N/A	56,000	N/A
Total, Operations & Maintenance	1,598	N/A	79,900	N/A

9. Required D&D Information

The approved TJNAF Secretarial Waiver (9/15/06) provides offsetting space for this project. The removal of about 7,000 to 10,000 square feet of inadequate and obsolete work space in and next to the 42-year-old Test Lab plus removal of about 2,000 to 12,000 square feet of dilapidated trailers will help offset the space added by this project.

^a Other Project Costs of \$1,000,000 are funded through laboratory overhead.

^b This project has not yet received approval of CD-2; therefore, construction and TEC estimate displayed only include anticipated activities through FY 2010. Construction funds will not be executed without appropriate CD-2 and CD-3 approvals. The preliminary total estimated cost range for this project is \$66,000,000 to \$72,200,000.

10. Acquisition Approach

Design will be performed by an architect-engineer (A-E) firm with the subcontract managed by the TJNAF operating contractor, Jefferson Science Associates (JSA). The A-E subcontractor will be competitively selected based on the demonstrated competence and qualifications to perform the required design services at a fair and reasonable price.

After completion of the design, the TJNAF operating contractor will solicit offers from prospective large and small business general construction firms and award firm fixed price construction subcontract(s). Evaluation of offers will include consideration of each offeror's relative experience and past performance in successfully completing similar construction projects. Award will then be made to the qualified responsible, responsive offeror that submits the lowest reasonable offer.

Construction management will be performed by a Construction Management company (CM) with the subcontract managed by the TJNAF operating contractor. The CM subcontractor will be competitively selected based on the demonstrated competence and qualifications of potential firms to perform the required services at a fair and reasonable price. The A-E subcontractor will be retained to assist when needed during the construction activity, preparation and analysis of changes, and review of submittals and other performance related documents.

**07-SC-05, Physical Sciences Facility,
Pacific Northwest National Laboratory (PNNL), Richland, Washington
Project Data Sheet is for PED/Construction**

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decision (CD) is CD-3B, Approve Start of Construction—Balance of Construction, which was approved on April 16, 2008, with a Total Project Cost (TPC) of \$224,000,000.

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

No Project Data Sheet (PDS) was submitted for this project in the FY 2008 budget. This PDS is an update of the FY 2009 PDS.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	(Design/PED Complete)	CD-2	CD-3A	CD-3B
FY 2007	09/23/2004	1Q FY 2006	1Q FY 2008	2Q FY 2007		1Q FY 2008
FY 2009	09/23/2004	12/15/2006	2Q FY 2008	06/22/2007	7/20/2007	2Q FY 2008
FY 2010	09/23/2004	12/15/2006	11/1/2007	06/22/2007	7/20/2007	4/16/2008

CD-0 – Approve Mission Need

CD-1 – Approve Alternative Selection and Cost Range

CD-2 – Approve Performance Baseline

CD-3A – Site work, Foundations, and Steel

CD-3B – Approve Start of Construction

(fiscal quarter or date)

	CD-4A	CD-4	D&D Start	D&D Complete
FY 2007		2Q FY 2011	FY 2011	FY 2015
FY 2009	2Q FY 2010	2Q FY 2011	FY 2011	FY 2015
FY 2010	2Q FY 2010	2Q FY 2011	FY 2011	FY 2015

CD-4A – Approve Start of Operations

CD-4B – Approve Start of Operations or Project Closeout

D&D Start – Start of Decontamination and Decommissioning (D&D) work

D&D Complete – Completion of D&D work

Decontamination and Decommissioning (D&D) activities for the facilities being vacated in the 300 Area will be conducted under a separate project managed by EM.

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, Total	TPC
FY 2007	25,000-35,000	155,000–210,000	180,000–245,000	20,000–25,000	20,000–25,000	200,000–270,000
FY 2009	29,486	180,443	209,929	14,071	14,071	224,000
FY 2010	29,486	181,417	210,903	13,097	13,097	224,000

4. Project Description, Justification, and Scope

This project, the line-item construction element of the Pacific Northwest National Laboratory (PNNL) Capability Replacement Laboratory (CRL) projects, will be used to construct new laboratory and office space on the PNNL site north of Horn Rapids Road (also referred to as the Horn Rapids Triangle) and to complete life extension upgrades to the 325 Building to accommodate a portion of the existing research capabilities being displaced as a result of the closure and cleanup of facilities in the Hanford 300 Area. The buildings to be constructed or modernized by this project are listed below.

- 3410 Building—Materials Science and Technology
- 3410 Building—Chemistry and Processing
- 3420 Building—Radiation Detection
- 3425 Building—Ultra-low Background/Deep Laboratory
- 3430 Building—Ultra-trace
- 3440 Building—Large Detector Laboratory
- 325 Building (Radiochemical Processing Laboratory)—Shielded Operations

The balance of research capabilities accounted for in the CRL will be housed in leased facilities and in three other existing 300 Area buildings (Buildings 318, 331, and 350) in the southern portion of the 300 Area that DOE’s Office of Science (SC) will also retain. Several ancillary support facilities, including a fire station, a telephone switch, and internet node will also be retained.

The new facilities listed above (i.e., all except the 325 Building) will constitute approximately 190,000 square feet of new construction to accommodate the following mission critical capabilities: materials science and technology, radiation detection, ultra-trace, and chemistry and processing (non-nuclear). The facilities will include laboratory and office space to house appropriate equipment and staff suited for each of these purposes. New construction on the Horn Rapids Triangle will also include a central utility plant, a paved outdoor area for experimental capabilities to detect radiological materials in vehicles and containers, and a large detector laboratory.

To support increased heating, ventilation, and air conditioning (HVAC) capacity requirements, modernization of the 325 Building will include removal of fume hoods and design, fabrication, and installation of new hot cells and glove boxes. In addition, repairs and other upgrades will be performed to allow continued use of the facility.

The estimate provided is based on design development to support CD-2 and reflects approved changes implemented in accordance with a certified earned value management system (EVMS). Project Engineering and Design (PED) funds were received in FY 2004, 2005, and 2006. The FY 2006

appropriation provided additional PED funds to complete project engineering and design and to initiate construction. Construction began in FY 2007 with initiation of site work. FY 2008 funds were utilized to award and initiate the foundation and structural steel and balance of facility construction activities on both the new construction and 325 Building Life Extension upgrades. This project data sheet is requesting construction funds in FY 2010 to continue those efforts.

SC, the National Nuclear Security Administration (NNSA), and the Department of Homeland Security (DHS) are jointly funding the PSF project. The allocation of costs among the three project sponsors was determined based upon the estimated net square footage of space required to perform research in support of each sponsor's mission needs, as identified in the Justification of Mission Need. Sponsor shares of the Total Project Cost (TPC) will be as follows: SC, 44 percent; NNSA, 31 percent; DHS, 25 percent. On November 7, 2006, SC, NNSA, and DHS formally established a funding strategy with the purpose, to the extent funding is appropriated and available, of providing a predictable funding profile, critical to finishing this project on schedule and within budget.

Currently, more than 4,000 PNNL staff members conduct and support research activities on a consolidated laboratory campus composed of 79 buildings with nearly two million square feet of space. Approximately one-third of that space (about 700,000 square feet) is located in the Hanford Site 300 Area—a National Priorities List waste site of aging, cold war facilities targeted by DOE for an aggressive cleanup effort to reduce costs and accelerate site closure. Facilities in the 300 Area represent 45 percent of PNNL's experimental laboratory space and house many capabilities important to accomplishing DOE strategic objectives.

DOE, which operates PNNL and the Hanford Site, the U. S. Environmental Protection Agency, and the State of Washington, signed a comprehensive cleanup and compliance agreement on May 15, 1989. This Hanford Federal Facility Agreement and Consent Order, or Tri-Party Agreement, established enforceable regulatory milestones for the cleanup of the site including the completion of surplus facility disposition and remedial action clean-up of the Hanford Site 300 Area by 2015. The DOE Office of Environmental Management (EM), the office responsible for executing the Hanford 300 Area cleanup project has determined that the most efficient and economical method of cleanup will entail wholesale removal of the surplus buildings and underground utility systems to get at and remove the contamination. Limited transition out of the 300 Area is already underway, and PNNL staff and equipment have already been removed from several of the facilities and relocated to a newly leased office building and existing laboratory space. Facilities currently occupied by PNNL that are not to be retained by the laboratory will all be vacated in 2011 and available for cleanup.

SC programs at PNNL support research in chemical, materials, and environmental sciences, systems biology, atmospheric sciences, and climate change. The capabilities required include expertise and programs in biology, low-dose radiation biology, environmental molecular chemistry, microbiology, biogeochemistry, subsurface science, systems biology, and biotechnology. These capabilities are needed to solve some of the nation's most pressing problems in energy production, carbon sequestration, national security, and environmental remediation.

NNSA strategically invests in science, technology, and infrastructure to develop the essential capabilities to accomplish its mission. In support of the NNSA mission, PNNL conducts science, technology, and analytic activities in the 300 Area to prevent the proliferation of weapons of mass destruction, promote international nuclear safety, ensure compliance with international arms control treaties, and protect the nation's critical infrastructure. The ultra-low-level radionuclide detection and characterization analytical laboratory provides a national asset to the NNSA user community. The

PNNL staff skills, experience, and research equipment in the 300 Area are an integral part of the NNSA nonproliferation activities.

DHS strategically invests in facilities to support its research needs and to develop and maintain the essential capabilities to accomplish its mission. PNNL will continue to provide research capabilities to DHS in the ultra-trace, radiation detection, information analysis, certification, systems biology, chemistry, and processing capabilities.

FY 2006 and FY 2007 construction funds were used for Horn Rapids Triangle site work, foundations, and structural steel. FY 2008 construction funds were used to begin construction on the Horn Rapids Triangle facilities and 325 Building modifications. FY 2009 funds will be used to complete construction and modifications.

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. The most recent DOE O 413.3A approved Critical Decision (CD) is CD-3B, Approve Start of Construction – Balance of Construction, which was approved on April 16, 2008.

5. Financial Schedule^a

(dollars in thousands)

Appropriations				Obligations				Costs			
NNSA	SC	DHS	Total	NNSA	SC	DHS	Total	NNSA	SC	DHS	Total

Total Estimated Costs

PED

FY 2004	—	986	—	986	—	986	—	986	—	—	—	—
FY 2005	—	4,960	2,000	6,960	—	4,960	2,000	6,960	—	—	—	—
FY 2006	12,870	2,970	—	15,840	12,870	2,970	—	15,840	742	3,710	2,000	6,452
FY 2007	3,700	—	2,000	5,700	3,700	—	2,000	5,700	12,392	5,206	—	17,598
FY 2008	—	—	—	—	—	—	—	—	3,436	—	2,000	5,436
Total, PED	16,570	8,916	4,000	29,486	16,570	8,916	4,000	29,486	16,570	8,916	4,000	29,486

^a DHS is expected to fund 25 percent, or \$55,933,000, of the Total Project Cost for this project, with the remaining portion funded by DOE. This Financial Schedule is based on assumed funding contributions agreed to in the Memorandum of Understanding (MOU) among the funding parties.

(dollars in thousands)

	Appropriations				Obligations				Costs			
	NNSA	SC	DHS	Total	NNSA	SC	DHS	Total	NNSA	SC	DHS	Total
Construction												
FY 2006	—	1,980	—	1,980	—	1,980	—	1,980	—	—	—	—
FY 2007	4,220	10,000	—	14,220	4,220	10,000	—	14,220	—	1,219	—	1,219
FY 2008	24,772	24,773	13,511	63,056	24,772	24,773	13,511	63,056	11,779	13,519	5,964	31,262
FY 2009	18,460	52,775	21,717	92,952	18,460	52,775	21,717	92,952	24,962	51,619	26,972	103,553
FY 2010	—	—	7,525	7,525	—	—	7,525	7,525	8,220	19,794	7,828	35,842
FY 2011	—	—	1,684	1,684	—	—	1,684	1,684	2,491	3,377	3,673	9,541
Total, Construction	47,452	89,528	44,437	181,417	47,452	89,528	44,437	181,417	47,452	89,528	44,437	181,417
Total TEC												
FY 2004	—	986	—	986	—	986	—	986	—	—	—	—
FY 2005	—	4,960	2,000	6,960	—	4,960	2,000	6,960	—	—	—	—
FY 2006	12,870	4,950	—	17,820	12,870	4,950	—	17,820	742	3,710	2,000	6,452
FY 2007	7,920	10,000	2,000	19,920	7,920	10,000	2,000	19,920	12,392	6,425	—	18,817
FY 2008	24,772	24,773	13,511	63,056	24,772	24,773	13,511	63,056	15,215	13,519	7,964	36,698
FY 2009	18,460	52,775	21,717	92,952	18,460	52,775	21,717	92,952	24,962	51,619	26,972	103,553
FY 2010	—	—	7,525	7,525	—	—	7,525	7,525	8,220	19,794	7,828	35,842
FY 2011	—	—	1,684	1,684	—	—	1,684	1,684	2,491	3,377	3,673	9,541
Total, TEC	64,022	98,444	48,437	210,903	64,022	98,444	48,437	210,903	64,022	98,444	48,437	210,903
Other Project Costs (OPC)												
OPC except D&D												
FY 2004	600	—	250	850	600	—	250	850	—	—	—	—
FY 2005	5,000	—	—	5,000	5,000	—	—	5,000	3,201	—	232	3,433
FY 2006	—	—	—	—	—	—	—	—	1,135	—	—	1,135
FY 2007	—	—	—	—	—	—	—	—	352	—	—	352
FY 2008	—	—	1,489	1,489	—	—	1,489	1,489	442	—	—	442
FY 2009	—	—	3,283	3,283	—	—	3,283	3,283	470	—	4,788	5,258
FY 2010	—	—	2,475	2,475	—	—	2,475	2,475	—	—	2,464	2,464
FY 2011	—	—	—	—	—	—	—	—	—	—	13	13
Total, OPC	5,600	—	7,497	13,097	5,600	—	7,497	13,097	5,600	—	7,497	13,097

(dollars in thousands)

	Appropriations				Obligations				Costs			
	NNSA	SC	DHS	Total	NNSA	SC	DHS	Total	NNSA	SC	DHS	Total
Total Project Cost (TPC)												
FY 2004	600	986	250	1,836	600	986	250	1,836	—	—	—	—
FY 2005	5,000	4,960	2,000	11,960	5,000	4,960	2,000	11,960	3,201	—	232	3,433
FY 2006	12,870	4,950	—	17,820	12,870	4,950	—	17,820	1,877	3,710	2,000	7,587
FY 2007	7,920	10,000	2,000	19,920	7,920	10,000	2,000	19,920	12,744	6,425	—	19,169
FY 2008	24,772	24,773	15,000	64,545	24,772	24,773	15,000	64,545	15,657	13,519	7,964	37,140
FY 2009	18,460	52,775	25,000	96,235	18,460	52,775	25,000	96,235	25,432	51,619	31,760	108,811
FY 2010	—	—	10,000	10,000	—	—	10,000	10,000	8,220	19,794	10,292	38,306
FY 2011	—	—	1,684	1,684	—	—	1,684	1,684	2,491	3,377	3,686	9,554
Total, TPC	69,622	98,444	55,934	224,000	69,622	98,444	55,934	224,000	69,622	98,444	55,934	224,000

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	29,486	29,466	28,241
Contingency	—	20	1,377
Total, PED	29,486	29,486	29,618
Construction			
Site Preparation (General Site Work Package)	3,308	4,501	4,577
Equipment (standard building equipment included in Other Construction below)	—	—	—
Other Construction	162,825	142,128	140,621
Contingency	15,284	33,814	35,057
Total, Construction	181,417	180,443	180,255
Total, TEC	210,903	209,929	209,873
Contingency, TEC	15,284	33,834	36,434

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Design	4,165	4,165	4,165
Start-Up	8,161	7,906	7,658
Contingency	771	2,000	2,304
Total, OPC	13,097	14,071	14,127
Contingency, OPC	771	2,000	2,304
Total, TPC	224,000	224,000	224,000
Total, Contingency	16,055	35,834	38,738

7. Schedule of Project Costs

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

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	2Q FY 2010
Expected Useful Life (number of years)	20 years (existing facilities) 40 years (new facilities)
Expected Future Start of D&D of this capital asset (fiscal quarter)	2Q FY 2050

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	6,000	6,000	395,000	395,000
Maintenance	3,700	3,700	245,000	245,000
Total, Operations & Maintenance	9,700	9,700	640,000	640,000

9. Required D&D Information

This project involves construction of a new facility and completion of upgrades to the 325 Building to house capabilities being displaced by the closure of the 300 Area of the Hanford Site in Richland, Washington. As described in Section 4, the D&D costs are being funded by the EM program over the next 8–10 years and are not included in this estimate.

	Square Feet
Area of new construction	~190,000
Area of existing facility(s) being replaced	~400,000
Area of additional D&D space to meet the “one-for-one” requirement	N/A

Name and site location of existing facility to be replaced: PNNL-occupied facilities in the 300 Area of the Hanford Site in Richland, Washington.

10. Acquisition Approach

Design and inspection of the facilities and equipment will be conducted by the operating contractor and architectural-engineering subcontractor as appropriate. Technical construction is being done by a competitively-bid lump-sum contract administered by PNNL. To the extent feasible, construction and procurement is being accomplished by fixed-price contracts awarded on the basis of competitive bidding. Project and construction management, inspection, coordination, testing and checkout witnessing, and acceptance will be performed by the PNNL operating contractor.