DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT

OVERVIEW

MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT

Attaining the science and technology goals will require intensive use of the Energy Research (ER) multiprogram energy laboratories and the Oak Ridge Institute for Science and Education (ORISE). The multiprogram energy laboratories are: Argonne National Laboratory (ANL), Brookhaven National Laboratory (BNL), Lawrence Berkeley Laboratory (LBL), Oak Ridge National Laboratory (ORNL), and Pacific Northwest Laboratory. All facilities at these laboratories are government-owned contractor-operated (GOCO) and have an estimated replacement cost of over $10 billion dollars. The average age of laboratory facilities is 30 years.

Resources are required to maintain these facilities in order to advance the Department's science and technology goals, especially facilitating technology transfer and strengthening industrial competitiveness. The Multiprogram Energy Laboratories-Facilities Support (MEL-FS) program is designed to maintain general purpose infrastructure integrity at these facilities. The strategy of the MEL-FS program is to select and support projects necessary to: (1) maintain operations of the laboratories in a safe, cost effective, environmentally responsible, and productive manner; (2) reduce the backlog of facility deficiencies; (3) address Environment, Safety and Health (ES&H) remediation needs; (4) remove inactive general purpose facilities that are surplus to current and planned operations and costly to maintain; and (5) clean up contaminated portions of general purpose facilities and maintain and prepare for transfer to the Office of Environmental Restoration and Waste Management (EM) appropriate contaminated general purpose facilities (GPF) for decontamination and decommissioning (D&D).

The MEL-FS program is composed of three subprograms. The general purpose facilities subprogram provides line-item construction support for the rehabilitation and replacement of the general purpose facilities at the laboratories. General purpose facilities include general use, service and support facilities such as administrative space, general office/laboratory space, utility systems, sanitary sewers, roads, etc. Operating funds are provided to support program planning and management activities related to this effort. These include implementing the Condition Assessment Survey and Capital Assets Management Process (CAMP), improved maintenance, site development planning and preparation of reports required by Section 2203(d) of the Energy Policy Act of 1992. Line-item construction projects are those with a total estimated cost of $2 million or higher. The GPF subprogram also includes General Plant Projects (GPP) and General Purpose Equipment (GPE) in support of landlord responsibilities at ORNL and Oak Ridge Institute for Science and Education (ORISE). GPP funds are essential in providing the laboratories and the Department with flexibility to meet emergency needs and rapidly emerging small construction needs i.e., those with a TEC of $2 million or less. GPE funds provide all the non-programmatic equipment at a laboratory such as communication, general-use computers, vehicles, etc.

The ES&H Support subprogram (previously named the Tiger Team Remediation Program) is an on-going activity that provides support necessary to correct site-wide ES&H deficiencies identified via the DOE ES&H Management Plan. Correcting these deficiencies that have accumulated over many years represents a significant burden to current program budgets at the laboratories. This program helps relieve that burden while providing effective Headquarters oversight of these ES&H activities. Operating and capital equipment funds support the highest priority compliance-related corrective actions. These include upgrades to radiological assistance programs, improvements to hazard assessment plans, upgrades to emergency operations center systems, air toxic compliance activities, upgrades to maintenance programs, upgrades to chemical monitoring systems and Occupational Safety and Health Administration (OSHA) items such as crane compliance, workplace upgrades and chemical and gas storage improvements. The program also funds initiatives to address the highest priority cross-laboratory ES&H issues such as identifying and transferring "noteworthy practices" and promoting needed process improvements in high priority areas such as pollution prevention.

The Inactive and Surplus Facilities subprogram provides resources to better manage the large number of retired, inactive and contaminated general purpose facilities at the multiprogram laboratories prior to their final removal or transfer to EM for decontamination and decommissioning. The largest laboratories date back to the 1940's and have many facilities that have outlived their usefulness. These facilities cannot be economically maintained or renovated to house current or planned activities and must be retired. In addition, portions of some operating facilities may be inactive due to contamination and must be cleaned up. Those contaminated facilities that qualify for clean-up by EM will be maintained and prepared for transfer in accordance with established criteria. The backlog of activities at the laboratories to be funded by this

program is estimated to be $250 million. The Inactive and Surplus Facilities subprogram is designed to modify and/or dispose of these facilities in a comprehensive and systematic manner in order to reduce surveillance and maintenance costs, eliminate ES&H liabilities, and to provide for better utilization of site space.

The benefits to be gained from supporting the MEL-FS program are: improved laboratory safety, security and environmental compliance levels; reduced health and safety risks; decreased operating costs and improved productivity; and continuity of operations. The program also provides continuity and a broad basis for establishing overall laboratory general purpose infrastructure needs and priorities. The program directly supports the specific Science and Technology objective to "operate and maintain a cost-effective National Laboratory infrastructure." In accomplishing this objective, the program enables the accomplishment of many of the other Departmental strategic planning goals and objectives.

Performance measures used for the MEL-FS program activities include: the number of new construction starts, the square footage of new or rehabilitated buildings, the percentage of high priority ES&H requirements met, the number of inactive/surplus facilities disposed of, and the backlog of requirements. The measures are discussed in the various subprograms as applicable.

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LEAD TABLE

Multiprogram Energy Laboratories – Facilities Support

Activity	FY 1993 Adjusted	FY 1994 Appropriation	FY 1994 Adjustment	FY 1995 Request
Operating Expenses				
General Purpose Facilities	$0	$700	$0	$595
Environment, Safety and Health Support	0	623	0	6,007
Inactive and Surplus Facilities	0	500	0	500
Subtotal Operating Expenses	$0	$1,823	$0	$7,102
Capital Equipment				
General Purpose Facilities	$0	$6,000	$0	5,787
Environment, Safety and Health Support	500	500	0	500
Subtotal Capital Equipment	$500	$6,500	$0	$6,287
Construction				
General Purpose Facilities	$23,406	$27,489	-$249	23,572
Environment, Safety and Health Support	2,794	5,776	-6	7,838
Subtotal Construction	$26,200	$33,265	-$255	$31,410
Subtotal Multiprogram Energy Laboratories – Facilities Support	26,700	41,588	-255	44,799
Adjustment	-690 a/	0	0	0
TOTAL	$26,010	$41,588	-$255	$44,799

a/ Amount of general reduction for use of prior year balances assigned to this program. The total will be taken at the appropriation level.

Activity	FY 1993 Adjusted	FY 1994 Appropriation	FY 1994 Adjustment	FY 1995 Request
Summary				
Operating Expenses	$0	$1,823	$0	$7,102
Capital Equipment	500	6,500	0	6,287
Construction	25,510	33,265	-255	31,410
Total Program	$26,010 b/	$41,588	-$255	$44,799

Authorization: P.L. 95-91, "Department of Energy Organization Act" (1977), Section 647

b/ Reflects program specific reduction of $40,000,000 and general reduction for use of prior year balances of $690,000.

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SUMMARY OF CHANGES

Multiprogram Energy Laboratories - Facilities Support

FY 1994 Appropriation	$ 41,588
- Adjustment	- 255
FY 1994 Adjusted	$ 41,333
- Reduces support for infrastructure planning and management activities and improvements to program/project support systems	- 105
- Increases support for most critical and highest priority ES&H corrective actions and compliance issues	+ 5,384
- Reduces general purpose equipment funding for landlord responsibilities at ORNL and ORISE.	- 213
- Supports continuation/completion of 6 on-going GPF projects and initiation of 4 new GPF projects	- 3,408
- Supports continuation/completion of 5 on-going ES&H projects and initiation of 3 new projects	+ 2,068
- Reduces general plant project funding for landlord responsibilities at ORNL	- 260
FY 1995 Congressional Budget Request	$ 44,799

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KEY ACTIVITY SUMMARY

MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT

I. Preface: General Purpose Facilities

The program requests operating funds to support the planning and management activities related to this subprogram. Funding supports development and implementation of site facilities planning systems at the laboratories such as the DOE Condition Assessment Survey, the Capital Assets Management Process, Site Development Planning and Real Property Inventory System, etc. Funds are also used to support efforts to integrate requirements across laboratories to develop comprehensive identification of needs and plans such as those required by EPACT. Section 2203(d) of the Act requires annual submission of a "plan for conducting future facility maintenance, making repairs, modifications and new additions and constructing new facilities at multiprogram energy laboratories." Energy Research multiprogram laboratories have 13,000,000 gross square feet spread over nearly 1,000 buildings. Forty-five percent is considered fully adequate, while the remainder needs rehabilitation or replacement.

The benefits to be gained from the general purpose facilities operating funds are better identification and prioritization of infrastructure requirements.

II. A. Summary Table: General Purpose Facilities

Program Activity	FY 1993 Enacted	FY 1994 Enacted	FY 1995 Request	% Change
Operating Expenses	$ 0	$ 700	$ 595	- 15
Total, General Purpose Facilities	$ 0	$ 700	$ 595	- 15

II. B. Major Laboratory and Facility Funding

ARGONNE NATIONAL LAB (EAST)	$ 0	$ 50	$ 50	0
BROOKHAVEN NATIONAL LAB	$ 0	$ 50	$ 50	0
LAWRENCE BERKELEY LAB	$ 0	$ 50	$ 50	0
OAK RIDGE INSTITUTE FOR SCIENCE & EDUCATION	$ 0	$ 10	$ 20	+100
OAK RIDGE NATIONAL LAB	$ 0	$ 50	$ 50	0
PACIFIC NORTHWEST LAB	$ 0	$ 100	$ 50	- 50

III. Activity Descriptions: (New BA in thousands of dollars)

Program Activity	FY 1993	FY 1994	FY 1995
General Purpose Facilities			
Operating Expenses	No activity.	Provides support to laboratories for infrastructure planning and management activities, such as support for developing and implementing the DOE Condition Assessment Survey and Capital Assets Management Process including preparation of Laboratory Integrated Facilities Plans. ($493)	Provides support to laboratories for infrastructure planning and management activities, such as support for developing and implementing the DOE Condition Assessment Survey and Capital Assets Management Process including preparation of Laboratory Integrated Facilities Plans. ($400)
	EPACT:	EPACT:	EPACT:
	EPACT Section 2203(b) "Supporting Research and Technical Analysis":	EPACT Section 2203(b) "Supporting Research and Technical Analysis":	EPACT Section 2203(b) "Supporting Research and Technical Analysis":
	No activity.	Provides architectural and engineering contractor support to aid in the preparation of a facility policy and plan for the mutliprogram energy laboratories as required by Section 2203(d) of the Energy Policy Act of 1992. ($197)	Provides architectural and engineering contractor support to aid in the preparation of a facility policy and plan for the multiprogram energy laboratories as required by Section 2203(d) of the Energy Policy Act of 1992. ($183)
	No activity.	Funding in the amount of $10 has been budgeted for the SBIR program.	Funding in the amount of $12 has been budgeted for the SBIR program.
	$ 0	$ 700	$ 595
General Purpose Facilities	$ 0	$ 700	$ 595

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KEY ACTIVITY SUMMARY

MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT

I. Preface: Environment, Safety & Health Support

The Department has undertaken a thorough review of the environment, safety and health compliance of its laboratories and has identified deficiencies in the annual DOE ES&H Management Plan. Deficiencies have been identified in the environmental area in noncompliance with laws and regulations e.g., air, water, hazardous materials. Deficiencies have been identified in occupational safety and health, fire protection, emergency preparedness, safety and hazards analyses, conduct of operations, configuration management, work practices and radiation protection. The Environment, Safety and Health (ES&H) Support subprogram provides the support required to correct the highest priority general ES&H deficiencies identified in the ES&H Management Plan.

The performance measure used for this activity is the percentage of high priority ES&H requirements addressed.

The program also funds initiatives to address the highest priority cross-laboratory ES&H issues such as identifying and transferring "noteworthy practices" and promoting needed process improvements in high priority areas such as pollution prevention.

II. A. Summary Table: Environment, Safety & Health Support

Program Activity	FY 1993 Enacted	FY 1994 Enacted	FY 1995 Request	% Change
Operating Expenses	$ 0	$ 623	$ 6,007	+864
Total, Environment, Safety & Health Support	$ 0	$ 623	$ 6,007	+864

II. B. Major Laboratory and Facility Funding

ARGONNE NATIONAL LAB (EAST)	$ 0	$ 0	$ 1,000	>999
BROOKHAVEN NATIONAL LAB	$ 0	$ 0	$ 1,000	>999
LAWRENCE BERKELEY LAB	$ 0	$ 170	$ 1,000	+488
OAK RIDGE NATIONAL LAB	$ 0	$ 100	$ 2,000	>999
PACIFIC NORTHWEST LAB	$ 0	$ 0	$ 500	>999

III. Activity Descriptions: (New BA in thousands of dollars)

Program Activity	FY 1993	FY 1994	FY 1995
Environment, Safety & Health Support			
Operating Expenses	No activity.	Supports the most critical and very highest priority corrective actions and compliance issues identified in the ES&H Management Planning process including the continuation of safety program development; safety training; hazard identification and analysis; health and safety manual improvements and restructuring (LBL); hazardous materials training for compliance with RCRA, DOT, OSHA, supplies (LBL) and upgrade of workplace (ORNL). ($614)	Increases support for the most critical and highest priority corrective actions and compliance issues identified in the ES&H Management Planning process. Examples are: pollution prevention activities through source reduction including chlorofluorocarbon replacement; operating permit development including source identification; upgrades in environmental monitoring practices and procedures; enhanced hazard assessment and risk prioritization abilities. ($5,517)
	No activity.	No activity.	Proactively address the highest priority cross-laboratory ES&H issues such as identifying and transferring "noteworthy practices" and promoting needed process improvements in high priority areas such as pollution prevention. ($300)
	No activity.	No activity.	Develop site-wide ES&H performance evaluation process. ($70)
	No activity.	Funding in the amount of $9 has been budgeted for the SBIR program.	Funding in the amount of $120 has been budgeted for the SBIR program.
	$ 0	$ 623	$ 6,007
Environment, Safety & Health Support	$ 0	$ 623	$ 6,007

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KEY ACTIVITY SUMMARY

MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT

I. Preface: Inactive and Surplus Facilities

It is the policy of the Department to maintain only those facilities necessary to effectively and economically perform assigned missions and tasks. Over the course of time, as research programs grow and shrink and technologies change, some existing general purpose facilities (or portions of them) have become permanently inactive. These facilities must be cleaned up if they are to be reused, or removed if they are determined to be surplus. The backlog of activities to be funded by this program is estimated to be $250 million.

Three categories of facilities are covered in the subprogram:

-- inactive/retired facilities that cannot be economically maintained or renovated to house current or planned activities and must be removed.

-- areas of operating facilities that are inactive due to discontinued activities and must be cleaned up for re-use due to operational and liability concerns.

-- contaminated facilities that qualify for clean up by EM will be maintained as required and prepared for transfer to EM.

The performance measures used are the number of inactive/surplus facilities cleaned, removed or transferred to Environmental Restoration and Waste Management. The FY 1995 request will allow 10 facilities to be removed or cleaned. This number is similar to the number to be removed or cleaned in FY 1994.

II. A. Summary Table: Inactive and Surplus Facilities

Program Activity	FY 1993 Enacted	FY 1994 Enacted	FY 1995 Request	% Change
Operating Expenses	$ 0	$ 500	$ 500	0
Total, Inactive and Surplus Facilities	$ 0	$ 500	$ 500	0

II. B. Major Laboratory and Facility Funding

ARGONNE NATIONAL LAB (EAST)	$ 0	$ 0	$ 75	>999
BROOKHAVEN NATIONAL LAB	$ 0	$ 50	$ 75	+ 50
LAWRENCE BERKELEY LAB	$ 0	$ 0	$ 75	>999
OAK RIDGE INSTITUTE FOR SCIENCE & EDUCATION	$ 0	$ 60	$ 25	- 58
OAK RIDGE NATIONAL LAB	$ 0	$ 0	$ 200	>999
PACIFIC NORTHWEST LAB	$ 0	$ 0	$ 40	>999

III. Activity Descriptions: (New BA in thousands of dollars)

Program Activity	FY 1993	FY 1994	FY 1995
Inactive and Surplus Facilities			
Operating Expenses	No activity.	Provides support to determine clean-up/demolition/transfer requirements for high priority facilities; preparatory work to transfer those contaminated facilities that EM will accept; removal of inactive surplus facilities that cannot be economically renovated including 6 facilities at ORISE (22,000 sq. ft.), 1 at BNL (2,700 sq. ft.), and 1 at PNL (750 sq. ft.).	Continues support to determine clean-up/demolition/transfer requirements for high priority facilities; preparatory work to transfer those contaminated facilities that EM will accept; and removal and/or clean-up of selected inactive surplus facilities that cannot be transferred to EM. ($490)
	No activity.	Funding in the amount of $7 has been budgeted for the SBIR program.	Funding in the amount of $10 has been budgeted for the SBIR program.
	$ 0	$ 500	$ 500
Inactive and Surplus Facilities	$ 0	$ 500	$ 500

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KEY ACTIVITY SUMMARY

MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT

I. Preface: General Purpose Facilities

This subprogram provides funding for general purpose equipment responsibilities at ORNL and ORISE. General purpose equipment funding provides all the non-programmatic equipment at a laboratory, such as communication, general use computer, vehicle, etc. The investment in capital equipment at ORNL and ORISE is nearly $300 million. This investment includes $4 million heavy mobile equipment, $12 million in motor vehicles, $28 million in process equipment, $22 million in shop equipment, $65 million in ADP equipment and software, $135 million in laboratory equipment and $34 million in miscellaneous equipment (hospital and medical; office furniture and equipment; security). Over $100 million of this investment is general purpose equipment supported by GPE funding.

The performance measure for this activity is the replacement rate for existing equipment.

II. A. Summary Table: General Purpose Facilities

Program Activity	FY 1993 Enacted	FY 1994 Enacted	FY 1995 Request	% Change
Capital Equipment	$ 0	$ 6,000	$ 5,787	- 4
Total, General Purpose Facilities	$ 0	$ 6,000	$ 5,787	- 4

II. B. Major Laboratory and Facility Funding

OAK RIDGE NATIONAL LAB	$ 0	$ 4,000	$ 5,637	+ 41
OAK RIDGE INSTITUTE FOR SCIENCE & EDUCATION	$ 0	$ 150	$ 150	0

III. Activity Descriptions: (New BA in thousands of dollars)

Program Activity	FY 1993	FY 1994	FY 1995
General Purpose Facilities			
Capital Equipment	No activity.	Provides GPE funding for ORNL and ORISE including purchase of fleet replacement and additional industrial safety equipment, health monitoring equipment, heating, ventilation and air conditioning equipment. ($6,000)	Provides GPE funding for ORNL and ORISE including purchase of fleet replacement and additional industrial safety equipment, health monitoring equipment, heating, ventilation and air conditioning equipment. ($5,787)
	$ 0	$ 6,000	$ 5,787
General Purpose Facilities	$ 0	$ 6,000	$ 5,787

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MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT

I. Preface: Environment, Safety & Health Support

The Department has undertaken a thorough review of environment, safety and health compliance of its laboratories and has identified many deficiencies. These deficiencies are identified in the DOE ES&H Management Plan prepared annually. Deficiencies have been identified in the environmental area in noncompliance with laws and regulations e.g., air, water, hazardous materials. Deficiencies have been identified in occupational safety and health, fire protection, emergency preparedness, safety and hazards analyses, conduct of operations, configuration management, work practices and radiation protection.

II. A. Summary Table: Environment, Safety & Health Support

Program Activity	FY 1993 Enacted	FY 1994 Enacted	FY 1995 Request	% Change
Capital Equipment	$ 500	$ 500	$ 500	0
Total, Environment, Safety & Health Support	$ 500	$ 500	$ 500	0

II. B. Major Laboratory and Facility Funding

ARGONNE NATIONAL LAB (EAST)	$ 75	$ 26	$ 75	+188
BROOKHAVEN NATIONAL LAB	$ 75	$ 75	$ 75	0
LAWRENCE BERKELEY LAB	$ 100	$ 100	$ 100	0
OAK RIDGE NATIONAL LAB	$ 200	$ 185	$ 200	+ 8
PACIFIC NORTHWEST LAB	$ 50	$ 50	$ 50	0

III. Activity Descriptions: (New BA in thousands of dollars)

Program Activity	FY 1993	FY 1994	FY 1995
Environment, Safety & Health Support			
Capital Equipment	Provided modern health physics equipment, including air monitoring instruments, contamination monitoring instruments, ionizing radiation monitoring instruments, and hand and foot monitors.	Provides funding for required ES&H related equipment including: pollution prevention through source reduction activities, e.g., degreaser equipment (ANL); chlorofluorocarbon replacement (LBL); work stations for computer based safety and health and environmental training (BNL); hand and foot monitors, body counters and training for the Occupational Medical Program (ORNL); and air monitoring equipment purchase and installation to comply with environmental, safety and health regulations (PNL).	Continue to provide replacement, upgrade and improvement in health physics equipment and in environmental monitoring as identified in the ES&H Management Plan.
	$ 500	$ 500	$ 500
Environment, Safety & Health Support	$ 500	$ 500	$ 500

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MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT

I. Preface: General Purpose Facilities

The program funds line-item construction projects (i.e., projects with a total estimated cost of $2 million or above) that correct deficiencies in general purpose facilities at multiprogram national laboratories. Projects funded under this program are general use, service and support facilities such as administrative space, cafeterias, general office/laboratory space, utility systems, sanitary sewers, roads, etc. Support is coordinated with landlord programs that fund GPP (i.e., construction projects with a TEC estimated at $2 million or less) at these laboratories. Capital investment requirements are identified in laboratory Institutional Plans and Site Development Plans which address planned needs over a five to fifteen year planning horizon based on expected programmatic support. The program has prepared a multi-year program plan (5 year horizon) and in the latest plan has identified projects totalling over $700 million over the five year period.

This program also provides GPP funding for ORNL and ORISE. GPP funding provides flexibility to meet new emerging or emergency small (i.e., those below $2.0 million) construction needs.

The performance measures for general purpose line-item construction are the number of new starts and the square footage of new/replacement office and laboratory space.

II. A. Summary Table: General Purpose Facilities

Program Activity	FY 1993 Enacted	FY 1994 Enacted	FY 1995 Request	% Change
Construction	$ 23,406	$ 27,240	$ 23,572	- 13
Total, General Purpose Facilities	$ 23,406	$ 27,240	$ 23,572	- 13

II. B. Major Laboratory and Facility Funding

AMES LAB	$ 1,557	$ 0	$ 0	0
ARGONNE NATIONAL LAB (EAST)	$ 4,807	$ 4,127	$ 3,350	- 19
BROOKHAVEN NATIONAL LAB	$ 4,322	$ 2,929	$ 4,942	+ 69
LAWRENCE BERKELEY LAB	$ 3,629	$ 3,259	$ 1,000	- 69
OAK RIDGE INSTITUTE FOR SCIENCE & EDUCATION	$ 0	$ 1,000	$ 1,000	0
OAK RIDGE NATIONAL LAB	$ 6,091	$ 13,925	$ 10,740	- 23
PACIFIC NORTHWEST LAB	$ 3,000	$ 2,000	$ 2,540	+ 27

III. Activity Descriptions: (New BA in thousands of dollars)

Program Activity	FY 1993	FY 1994	FY 1995
General Purpose Facilities			
Construction	Supports the completion/continuation of 11 ongoing projects consistent with planned schedules and initiation of 2 new projects to continue modernization of infrastructure and reduction of the substantial backlog of facilities deficiencies. ($23,406)	Supports completion/continuation of 7 ongoing projects consistent with planned schedules and initiation of 2 new projects including utility and building rehab/upgrade projects. ($18,240)	Supports completion/continuation of 6 ongoing projects consistent with planned schedules and initiation of 4 new projects including 1 electrical safety project and 3 building rehab/upgrade projects. The square footage of new replacement lab and office space is 17,500 square feet. ($14,832)
	No activity.	Supports GPP funding at ORNL ($8,000) and ORISE. ($1,000)	Supports GPP funding at ORNL ($7,740) and ORISE. ($1,000)
	$ 23,406	$ 27,240	$ 23,572
General Purpose Facilities	$ 23,406	$ 27,240	$ 23,572

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I. Preface: Environment, Safety & Health Support

The Department has undertaken a thorough review of environment, safety and health (ES&H) compliance at its laboratories and has identified many deficiencies. These deficiencies are identified in the DOE ES&H Management Plan prepared annually. Deficiencies have been identified in the occupational safety and health, fire protection, emergency preparedness, safety and hazards analyses, conduct of operations, configuration management, work practices and radiation protection. ES&H Support subprogram provides the support required to correct the highest priority general ES&H deficiencies identified in the Plan. The program funds line-item projects (i.e., projects with a total estimated cost of $2 million or above) to correct ES&H deficiencies.

II. A. Summary Table: Environment, Safety & Health Support

Program Activity	FY 1993 Enacted	FY 1994 Enacted	FY 1995 Request	% Change
Construction	$ 2,794	$ 5,770	$ 7,838	+ 36
Total, Environment, Safety & Health Support	$ 2,794	$ 5,770	$ 7,838	+ 36

II. B. Major Laboratory and Facility Funding

ARGONNE NATIONAL LAB (EAST)	$ 390	$ 850	$ 1,710	+101
BROOKHAVEN NATIONAL LAB	$ 904	$ 1,926	$ 1,660	- 14
LAWRENCE BERKELEY LAB	$ 1,000	$ 2,000	$ 3,962	+ 98
PACIFIC NORTHWEST LAB	$ 500	$ 994	$ 506	- 49

III. Activity Descriptions: (New BA in thousands of dollars)

Program Activity	FY 1993	FY 1994	FY 1995
Environment, Safety & Health Support			
Construction	Supports initiation of 5 new projects to address Tiger Team corrective actions including fire safety projects, a roof replacement project, a safety code compliance project and a hazardous materials safeguard project.	Supports completion/continuation of the 5 on-going projects consistent with planned schedules.	Supports completion/continuation of the 5 on-going projects consistent with planned schedules and initiation of 3 new projects - a fire safety project, a sanitary system upgrade and a loss prevention upgrade.
	$ 2,794	$ 5,770	$ 7,838
Environment, Safety & Health Support	$ 2,794	$ 5,770	$ 7,838

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(Tabular dollars in thousands. Narrative material in whole dollars.)

IV. A. Construction Funded Project Summary

Project No.	Project Title	Previous Obligations	FY 1993 Adjusted	FY 1994 Enacted	FY 1995 Request	Unappropriated Balance	TEC
Multiprogram Energy Laboratories - General Purpose Facilities							
GPE-801	General Plant Projects, ORNL	$0	$0	$9,000	$8,740	$0	$8,740
95-E-310	Multiprogram Laboratory Rehab., I (PNL)	0	0	0	400	5,400	5,800
95-E-303	Electrical Safety Rehab. (PNL)	0	0	0	240	6,960	7,200
95-E-302	Applied Science Center, Phase I (BNL)	0	0	0	600	3,270	3,870
95-E-301	Central Heating Plant Rehab, Phase I (ANL)	0	0	0	1,307	8,193	9,500
|94-E-363	Roofing Improvements (ORNL)	0	0	3,232	3,000	9,768	16,000
|94-E-351	Fuel Storage and Transfer Facility (BNL)	0	0	912	2,479	209	3,600
|93-E-325	Potable Water System Upgrade I (BNL)	0	1,500	2,017	1,863	0	5,380
|93-E-313	Electrical Systems Upgrade II (ANL)	0	1,000	2,057	2,043	0	5,100
92-E-329	Electrical Substation Upgrade (ANL)	500	2,400	2,070	0	0	4,970
92-E-328	Program Support Facility (Ames)	4,483	1,557	0	0	0	6,040
|92-E-324	Safety Compliance Mods, 326 Building (PNL)	1,700	3,000	2,000	1,900	0	8,600
92-E-323	Upgrade Steam Distribution System, West End (ORNL)	1,080	5,227	2,693	0	0	9,000
|92-E-322	East Canyon Elec. Safety Project (LBL)	425	907	1,568	1,000	0	3,900
92-E-321	Fire Safety Improvements (ANL)	603	1,117	0	0	0	1,720
92-E-312	Roof Replacement (LBL)	2,000	500	0	0	0	2,500
92-E-309	Sanitary Systems Modifications (BNL)	1,238	2,822	0	0	0	4,060
91-E-323	Building 90 Seismic Rehab (LBL)	6,378	422	0	0	0	6,800
90-R-112	Measurements & Controls Support Facility (ORNL)	4,266	464	0	0	0	4,730
88-R-806	Environmental Health & Safety Project (LBL)	9,672	1,800	1,691	0	0	13,163
Subtotal Multiprogram Energy Laboratories-General Purpose Facilities Construction		$32,345	$22,716	$27,240	$23,572	$33,800	$130,673

Project No.	Project Title	Previous Obligations	FY 1993 Adjusted	FY 1994 Enacted	FY 1995 Request	Unappropriated Balance	TEC
Multiprogram Energy Laboratories - Environment, Safety and Health Support							
95-E-309	Loss Prevention Upgrades (BNL)	0	0	0	600	6,370	6,970
95-E-308	Sanitary System Mods (BNL)	0	0	0	960	2,572	3,532
95-E-307	Fire Safety Improvements, III (ANL)	0	0	0	210	2,670	2,880
93-E-324	Hazardous Materials Safeguards I (LBL)	0	500	1,000	1,962	1,258	4,720
93-E-323	Fire and Safety System Upgrade I (LBL)	0	500	1,000	2,000	1,100	4,600
93-E-320	Fire Safety Improvements (ANL)	0	390	850	1,500	2,610	5,350
93-E-317	Life Safety Code Compliance (PNL)	0	500	994	506	0	2,000
93-E-315	Roof Replacement, I (BNL)	0	904	1,926	100	0	2,930
Subtotal, Multiprogram Energy Laboratories - Environment, Safety and Health Support		$0	$2,794	$5,770	$7,838	$16,580	$32,982
Total Multiprogram Energy Laboratories - Facilities Support Construction		$32,345	$25,510	$33,010	$31,410	$50,380	$163,655

IV. B. Construction Funded Project Descriptive Summary

1. Project Title and Location: Project GPE-801 General Plant Projects — TEC: $ 8,740
Various Locations — TPC: $ 8,740

Start Date: 3rd Qtr. FY 1995 Completion Date: 3rd Qtr. FY 1995

2. Financial Schedule:

		Costs			
Fiscal Year	Obligations	FY 1993	FY 1994	FY 1995	After FY 1995
FY 1994 Projects	$ 9,000	$ 0	$ 7,000	$ 2,000	$ 0
FY 1995 Projects	8,740	0	0	6,740	2,000

3. Narrative: This project is required to support landlord responsibilities at Oak Ridge National Laboratory (ORNL) and Oak Ridge Institute for Science and Education (ORISE). The estimate is for minor new construction and other capital alterations to land, buildings and utilities systems. The estimate also includes the cost of installed equipment which is an integral part of the general plant subprojects. Since it is difficult to identify particular projects in advance, a continuing evaluation of requirements and priorities may result in additions, deletions and changes in the currently planned subprojects.

The current estimate is $7,740,000 for the Oak Ridge National Laboratory and $1,000,000 for the Oak Ridge Institute for Science and Education. The estimate is for minor new construction which will contribute to greater efficiency, eliminate health and safety hazards and reduce maintenance and operational costs. The total estimated cost of each project will not exceed $2,000,000.

4. Total Project Funding (B/A):

	Prior Years	FY 1993	FY 1994	FY 1995 Request
Construction.....	$ 0	$ 0	$ 9,000	$ 8,740

IV. B. Construction Funded Project Descriptive Summary

1. Project Title and Location: Project 95-E-310 Multiprogram Laboratory Rehabilitation, Phase I
Pacific Northwest Laboratory
Richland, Washington

TEC: $ 5,800
TPC: $ 6,340

Start Date: 2nd Qtr. FY 1996 Completion Date: 4th Qtr. FY 1997

2. Financial Schedule:

Fiscal Year	Appropriation	Obligations	Costs
1995	400	400	300
1996	2,000	2,000	1,700
1997	3,400	3,400	3,800

3. Narrative: This project is part of the Multiprogram Energy Laboratory - Facilities Support Program mission to modernize and renovate aging PNL multiprogram laboratory facilities in the Hanford 300 Area. This project will involve the remodeling of the 3rd floor of building 331 and construction of a new facility for small animal quarters.

Leading research programs are increasing emphasis on cellular/modular studies and changing use of animal models for the dose-response studies to those which use in vitro/in vivo approaches. As a result small animal physical facilities must be phased out to a much smaller size and be replaced by additional laboratory facilities in which mechanism based research can be carried out. This project responds to this new approach.

4. Total Project Funding (BA):

	Prior Years	FY 1993	FY 1994	FY 1995 Request	To Complete
Construction.....	$ 0	$ 0	$ 0	$ 400	$ 5,400
Capital Equipment.....	0	0	0	0	0
Operating Expenses.....	376	0	42	52	70

IV. B. Construction Funded Project Descriptive Summary

1. Project Title and Location: Project 95-E-303 Electrical Safety Rehabilitation
Pacific Northwest Laboratory
Richland, Washington

TEC: $ 7,200
TPC: $ 7,900

Start Date: 4th Qtr. FY 1995 Completion Date: 3rd Qtr. FY 1999

2. Financial Schedule:

Fiscal Year	Appropriation	Obligations	Costs
1995	$ 240	$ 240	$ 150
1996	1,500	1,500	1,100
1997	1,500	1,500	1,300
1998	1,500	1,500	1,600
1999	1,500	1,500	1,500
2000	960	960	1,400
2001	0	0	150

3. Narrative: This project will provide for the rehabilitation of electrical systems and correction of numerous National Electrical Code (NEC) violations in various Energy Research buildings in the 300 area of the Hanford Site.

Many of the buildings range in age from 20 to 40 years and electrical equipment and installations contained within them do not meet NEC and DOE standards and criteria for safe and efficient operations. This project will safeguard personnel working with the DOE facility electrical systems and enhance the reliability of those systems.

4. Total Project Funding (B/A):

	Prior Years	FY 1993	FY 1994	FY 1995 Request	To Complete
Construction.....	$ 0	$ 0	$ 0	$ 240	$ 6,960
Capital Equipment.....	0	0	0	0	0
Operating Expenses.....	0	254	0	99	347

IV. B. Construction Funded Project Descriptive Summary

1. Project Title and Location: Project 95-E-302, Applied Science Center - Phase I
Brookhaven National Laboratory
Upton, New York

TEC: $ 3,870
TPC: $ 3,920

Start Date: 2nd Qtr. FY 1996 Completion Date: 2nd Qtr. FY 1997

2. Financial Schedule:

Fiscal Year	Appropriation	Obligations	Costs
1995	$ 600	$ 600	$ 450
1996	3,270	3,270	1,900
1997	0	0	1,520

3. Narrative: The proposed addition to the Department of Applied Science (DAS) building will provide approximately 12,000 sq. ft. of laboratory, office and support space.

The addition will be a two-story structure with an underground passageway. The first floor will be devoted principally to laboratory space with some space for offices, darkroom and bathrooms. The second floor will principally be office space with some space dedicated for a library, lunch room, etc.

The purpose of this project is to consolidate and upgrade the Department's space to alleviate the fragmentation of approximately 240 in-house DAS staff, supplemented at peak periods by research collaborating students and consultants. This fragmentation reduces the efficiency, management and opportunities for the exchange of information.

4. Total Project Funding (BA):

	Prior Years	FY 1993	FY 1994	FY 1995 Request	To Complete
Construction.....	$ 0	$ 0	$ 0	$ 600	$ 3,270
Capital Equipment.....	0	0	0	0	0
Operating Expenses.....	50	0	0	0	0

IV. B. Construction Funded Project Descriptive Summary

1. Project Title and Location: Project 95-E-301 Central Heating Plant Rehabilitation, Phase I
Argonne National Laboratory
Argonne, Illinois

TEC: $ 9,500
TPC: $ 9,675

Start Date: 3rd Qtr. FY 1996 Completion Date: 2nd Qtr. FY 1999

2. Financial Schedule:

Fiscal Year	Appropriation	Obligations	Costs
1995	$1,307	$1,307	$ 550
1996	2,593	2,593	2,620
1997	2,500	2,500	2,730
1998	3,100	3,100	2,730
1999	0	0	870

3. Narrative: This project supports rehabilitation/upgrade of central heating plant systems and components that are no longer adequate, efficient or reliable.

Tiger Team findings, as well as a number of other studies and assessments, have identified existing conditions at the central heating plant that do not meet current health, safety and environmental protection standards. Phase I will provide the most urgently needed rehabilitation/upgrade, including (as needed): boilers, boiler auxiliaries, deaerators, condensate tanks, material transport, piping, valves, pollution control equipment, etc.

4. Total Project Funding (B/A):

	Prior Years	FY 1993	FY 1994	FY 1995 Request	To Complete
Construction.....	$ 0	$ 0	$ 0	$ 1,307	$ 8,193
Capital Equipment.....	0	0	0	0	0
Operating Expenses.....	175	0	0	0	0

IV. B. Construction Funded Project Descriptive Summary

1. Project Title and Location: Project 94-E-363, Roofing Improvements
Oak Ridge National Laboratory
Oak Ridge, Tennessee

TEC: $ 16,000
TPC: $ 16,132

Start Date: 2nd Qtr. FY 1994 Completion Date: 4th Qtr. FY 1997

2. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1993	$4,024	-4,024 a/	$ 0	$ 0
1994	3,300	- 68	3,232	2,000
1995	3,000	0	3,000	3,600
1996	5,000	0	5,000	4,800
1997	4,768	0	4,768	5,000
1998	0	0	0	600

a/ This project was proposed as an FY 1993 new start (93-E-329). Application of a portion (-$4,024,000) of the FY 1993 programmatic general reduction of $40,000,000 necessitated a delay in the start of this project to FY 1994.

3. Narrative: Due to budgetary constraints, the start of this project was delayed from FY 1993 (Project No. 93-E-329) to FY 1994 resulting in an attendant increase in TEC and TPC. The TEC has been increased from $15,000,000 to $16,000,000. The TPC has been increased from $15,070,000 to $16,132,000.

This project supports replacement of deteriorated roofing on buildings and facilities throughout ORNL. Requirements are prioritized and those in the worst condition and housing the most critical equipment and activities will have the highest priority.

The purpose of this project is to replace deteriorated roofing on buildings and facilities at ORNL. Seventy percent of the roofs have been in place for more than 20 years. Because of age and deterioration, many of the roofs have developed leaks and require extensive maintenance. This project is needed before leakage problems reach the point that they affect equipment, records and research activities as well as the health and safety of personnel working in the facilities.

4. Total Project Funding (BA):

	Prior Years	FY 1993	FY 1994	FY 1995 Request	To Complete
Construction.....	$ 0	$ 0	$ 3,232	$ 3,000	$ 9,768
Capital Equipment.....	0	0	0	0	0
Operating Expenses.....	132	0	0	0	0

IV. B. Construction Funded Project Descriptive Summary

1. Project Title and Location: Project 94-E-351 Fuel Storage and Transfer Facility Upgrade
Brookhaven National Laboratory
Upton, New York

TEC: $ 3,600
TPC: $ 3,650

Start Date: 2nd Qtr. FY 1995 Completion Date: 3rd Qtr. FY 1996

2. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1994	$1,000	$- 88	$ 912	$ 800
1995	2,479	0	2,479	2,216
1996	209	0	209	584

3. Narrative: Start date changed from 4th quarter FY 1994 to 2nd quarter FY 1995. Completion date changed from 1st quarter FY 1996 to 3rd quarter FY 1996. Due to programmatic general reduction in FY 1993, this project will be funded over three years instead of one as originally submitted.

This project will upgrade the existing fuel storage and transfer facility to bring it into compliance with local and state code for handling and storage of fuel oil.

This facility will consist of fuel transfer facility enclosure with unloading booms and fire detection and protection systems. This facility will be constructed on a diked containment area equipped with leak detection systems and oil/water separator. The enclosure will be approximately 5,600 square feet.

4. Total Project Funding (BA):

	Prior Years	FY 1993	FY 1994	FY 1995 Request	To Complete
Construction.....	$ 0	$ 0	$ 912	$ 2,479	$ 209
Capital Equipment.....	0	0	0	0	0
Operating Expenses.....	50	0	0	0	0

IV. B. Construction Funded Project Descriptive Summary

1. Project Title and Location: Project 93-E-325, Potable Water System Upgrade - Phase I
Brookhaven National Laboratory
Upton, New York

TEC: $ 5,380
TPC: $ 5,430

Start Date: 2nd Qtr. FY 1994 Completion Date: 4th Qtr. FY 1995

2. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1993	$ 3,500	-2,000 a/	$1,500	$ 0
1994	2,017	0	2,017	2,700
1995	1,863	0	1,863	2,080
1996	0	0	0	600

a/ Application of a portion (-$2,800,000) of the FY 1993 programmatic general reduction of $40,000,000 and a reprogramming (+$800,000).

3. Narrative: Due to budgetary constraints, this project has been stretched out from the 4th quarter of FY 1994 to the 4th quarter of FY 1995 resulting in an attendant increase in TEC and TPC. The TEC and TPC have been increased from $5,250,000 to $5,430,000.

This project starts necessary upgrades of the potable water system at Brookhaven National Laboratory. It supports the first of several phases of an overall planned program to rehabilitate and improve the water supply and insure that an adequate supply of good quality water is available beyond the year 2000.

The existing nine potable water wells date back to 1941. The three oldest wells have been decommissioned because of volatile organic contamination. Only one does not show signs of contamination. The remaining well is capable of producing only half of the water requirements for the laboratory. Steps must be taken to insure a safe, adequate supply of water into the future. Five carbon absorption filtration units will be installed on wells 4, 6, 7, and 12. Eight thousand feet of cast iron piping and 1,750 feet of transite pipe will be replaced. The water main will be extended approximately 4,000 feet to sewage treatment plant for potable water and fire protection.

4. Total Project Funding (BA):

	Prior Years	FY 1993	FY 1994	FY 1995 Request	To Complete
Construction.....	$ 0	$ 1,500	$ 2,017	$ 1,863	$ 0
Capital Equipment.....	0	0	0	0	0
Operating Expenses.....	50	0	0	0	0

IV. B. Construction Funded Project Descriptive Summary

1. Project Title and Location: Project 93-E-313, Electrical System Upgrade - Phase II
Argonne National Laboratory
Argonne, Illinois

TEC: $ 5,100
TPC: $ 5,259

Start Date: 3rd Qtr. FY 1994 Completion Date: 1st Qtr. FY 1996

2. Financial schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1993	$ 3,000	-2,000 a/	$1,000	$ 29
1994	2,150	- 93	2,057	1,000
1995	2,043	0	2,043	2,840
1996	0	0	0	1,231

a/ Application of a portion (-$2,400,000) of the FY 1993 programmatic general reduction of $40,000,000 and a reprogramming (+$400,000).

3. Narrative: Due to budgetary constraints, this project has been stretched out from the 4th quarter of FY 1995 to the 1st quarter of FY 1996.

The project supports the upgrade of the main electrical distribution system and major components in the 200 area.

Due to the age of the electrical system, malfunctions have occurred. As maintenance of the switches is becoming increasingly difficult due to a scarcity of spare parts, a complete replacement is recommended to ensure safe, reliable and continuous operation of ongoing research. The new system will employ state of the art technology.

4. Total Project Funding (BA):

	Prior Years	FY 1993	FY 1994	FY 1995 Request	To Complete
Construction.....	$ 0	$ 1,000	$ 2,057	$ 2,043	$ 0
Capital Equipment.....	0	0	0	0	0
Operating Expenses.....	159	0	0	0	0

IV. B. Construction Funded Project Descriptive Summary

1. Project Title and Location: Project 92-E-324, Safety Compliance Modifications, 326 Building
Pacific Northwest Laboratory
Richland, Washington

TEC: $ 8,600
TPC: $ 9,065

Start Date: 3rd Qtr. FY 1993 Completion Date: 2nd Qtr. FY 1995

2. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1992	$1,700	0	$1,700	$ 489
1993	6,000	-3,000 a/	3,000	1,227
1994	2,000	0	2,000	3,850
1995	1,900	0	1,900	2,161
1996	0	0	0	873

a/ Application of a portion of the FY 1993 programmatic general reduction of $40,000,000.

3. Narrative: Due to budgetary constraints this project has been stretched out from the 1st quarter of FY 1994 to the 2nd quarter of FY 1995. The TPC has increased from $8,760,000 to $9,065,000 to cover other project related costs estimated at $465,000.

The project will bring the 326 Building, which is an aged but strategically important laboratory, into compliance with National Fire Protection Association (NFPA) requirements, National Electric Code requirements, and State of Washington requirements. Since its construction in 1952, the building has been in continuous use. Although the building is structurally sound, it does not meet today's building codes and standards of acceptability for health and safety.

The project will clearly define the egress pathways from the facility, provide fire resistant stairwells and exit corridors, extensively upgrade the building electrical system to comply with the National Electric code including replacement of most of the electrical distribution system, installation of a new motor control center, installation of backflow prevention on the fire main to meet State of Washington requirements, installation of handicap facilities, installation of full wet-pipe sprinklers to comply with NFPA requirements, and other modifications to meet code requirements.

4. Total Project Funding (BA):

	Prior Years	FY 1993	FY 1994	FY 1995 Request	To Complete
Construction.....	$ 1,700	$ 3,000	$ 2,000	$ 1,900	$ 0
Capital Equipment.....	0	0	0	0	0
Operating Expenses.....	300	55	55	55	0

IV. B. Construction Funded Project Descriptive Summary

1. Project Title and Location: Project 92-E-322 East Canyon Electrical Safety Project
Lawrence Berkeley Laboratory
Berkeley, California

TEC: $ 3,900
TPC: $ 3,940

Start Date: 2nd Qtr. FY 1994 Completion Date: 3rd Qtr. FY 1996

2. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1992	$ 377	+48 a/	$ 425	$ 19
1993	1,507	-600 b/	907	146
1994	1,568	0	1,568	1,124
1995	1,000	0	1,000	1,461
1996	0	0	0	1,150

a/ Includes internal reprogramming from closed-out projects (87-R-753 - $9,000; 88-R-807 - $ 5,000; 90-R-107 - $ 17,725; 90-R-108 - $8,000; 90-R-113 - $8,000).
b/ Application of a portion of the FY 1993 programmatic general reduction of $40,000,000.

3. Narrative: The project is the third of several rehabilitation elements that are part of a master plan to improve the reliability of the electrical distribution system of the entire laboratory. The project will utilize the new circuit breakers provided in FY 1987 by the improvements to the main substation. A new 12kV switching station and new 12kV distribution circuits to laboratory facilities in the East site area will be installed, as will a new 500 kVA substation with standby generation at the National Center for Electron Microscopy.

The existing 12kV power system has major deficiencies. There is no redundancy, so a cable fault will cause extended power outage. There is no ground fault protection, which would result in a loss of power to the entire East Site. Since there is no redundancy, preventive maintenance operations can only be accomplished during scheduled shutdowns of the entire East Site. The power cable is reaching the end of its useful life (21 years of a 25 years maximum) and should be replaced. A new substation at the National Center for Electron Microscopy is required to provide an independent power supply system to this major research facility. Power outages adversely affect the operation of the electron microscopes, requiring long time periods for adjustment and re-calibration of these major scientific instruments.

4. Total Project Funding (BA):

	Prior Years	FY 1993	FY 1994	FY 1995 Request	To Complete
Construction.....	$ 425	$ 907	$ 1,568	$ 1,000	$ 0
Capital Equipment.....	0	0	0	0	0
Operating Expenses.....	40	0	0	0	0

IV. B. Construction Funded Project Descriptive Summary

1. Project Title and Location: Project 95-E-309, Loss Prevention Upgrades - Electrical Substation
Brookhaven National Laboratory
Upton, New York

TEC: $ 6,970
TPC: $ 7,020

Start Date: 4th Qtr. FY 1996 Completion Date: 3rd Qtr. FY 1998

2. Financial Schedule:

Fiscal Year	Appropriation	Obligations	Costs
1995	$ 600	$ 600	$ 315
1996	2,480	2,480	585
1997	3,890	3,890	3,499
1998	0	0	2,571

3. Narrative: This project provides for the upgrade of approximately 96 existing substations. With respect to fire protection, the project includes relocating transformers, replacing oil-filled transformers with dry type, replacing oil-filled transformers with less flammable fluid, fire stand pipes and hose stations, fire deluge systems, dry chemical extinguishing systems, fire walls and barriers, wire glass, fire seals, relocating combustible materials and trailers, curbing, and oil retention pits. With respect to substation enclosures, work includes extending existing fence to proper heights, new fence to replace deteriorating fence, new fence for relocated transformers, replacing fences at proper clearances, non-combustible door for vaults, panic hardware on vault doors, and protective screens. With respect to grounding, work includes replacing deteriorating ground cable, new grounding for relocated substations, ground jumpers for gates, equipment grounds and reshaping arrestor grounding.

The purpose of this project is to minimize potential harmful situations to personnel and to minimize the potential loss of property and experimental program time due to fire. The sites' vulnerability was assessed as a result of Tiger Team findings.

4. Total Project Funding (B/A):

	Prior Years	FY 1993	FY 1994	FY 1995 Request	To Complete
Construction.....	$ 0	$ 0	$ 0	$ 600	$ 6,370
Capital Equipment.....	0	0	0	0	0
Operating Expenses.....	50	0	0	0	0

IV. B. Construction Funded Project Descriptive Summary

1. Project Title and Location: Project 95-E-308, Sanitary System Modifications, Phase II
Brookhaven National Laboratory
Upton, New York

TEC: $ 3,532
TPC: $ 3,772

Start Date: 1st Qtr. FY 1996 Completion Date: 2nd Qtr. FY 1997

2. Financial Schedule:

Fiscal Year	Appropriation	Obligations	Costs
1995	$ 960	$ 960	$ 700
1996	1,540	1,540	1,200
1997	1,032	1,032	1,300
1998	0	0	332

3. Narrative: This project is the second phase of the upgrade of the laboratory sanitary waste system. This project continues with replacement of the balance of defective sewer lines and implements treatment plant building improvements.

This phase will include replacement of approximately 15,440 linear feet of defective sewer pipe; demolishing the Hyperchlorite Building (No. 576), the Barminator Building (No. 583), and the Influent Measuring Building (No. 584), which are plywood structures. These structures will be replaced with masonry structures. Service Building (No. 575), which is a lunch and spare parts trailer, will be replaced with a masonry addition.

The purpose of this project is to eliminate or minimize present and future infiltration to groundwater and exfiltration to the sewage collection system, to replace structures not presently meeting OSHA and NEC Codes.

4. Total Project Funding (B/A):

	Prior Years	FY 1993	FY 1994	FY 1995 Request	To Complete
Construction.....	$ 0	$ 0	$ 0	$ 960	$ 2,572
Capital Equipment.....	0	0	0	0	0
Operating Expenses.....	240	0	0	0	0

IV. B. Construction Funded Project Descriptive Summary

1. Project Title and Location: Project 95-E-307 Fire Safety Improvements, Phase III
Argonne National Laboratory
Argonne, Illinois

TEC: $ 2,880
TPC: $ 2,946

Start Date: 2nd Qtr. FY 1996 Completion Date: 4th Qtr. FY 1998

2. Financial Schedule:

Fiscal Year	Appropriation	Obligations	Costs
1995	$ 210	$ 210	$ 170
1996	1,000	1,000	920
1997	1,000	1,000	840
1998	670	670	950

3. Narrative: This project encompasses the third phase of site wide fire safety modifications at ANL. This phase involves correction of "means of egress" deficiencies and fire separation/fire protection of building elements.

This project is proposed as part of ANL's 1991 Action Plan developed in response to DOE Tiger Team findings and is required to correct existing fire and life safety deficiencies.

4. Total Project Funding (B/A):

	Prior Years	FY 1993	FY 1994	FY 1995 Request	To Complete
Construction.....	$ 0	$ 0	$ 0	$ 210	$ 2,670
Capital Equipment.....	0	0	0	0	0
Operating Expenses.....	62	4	0	0	0

IV. B. Construction Funded Project Descriptive Summary

1. Project Title and Location: Project 93-E-324 Hazardous Materials Safeguards, Phase I
Lawrence Berkeley Laboratory
Berkeley, California

TEC: $ 4,720
TPC: $ 4,780

Start Date: 3rd Qtr. FY 1994 Completion Date: 2nd Qtr. FY 1996

2. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1993	$ 1,500	-1,000 a/	$ 500	$ 70
1994	1,000	0	1,000	670
1995	1,962	0	1,962	1,970
1996	1,258	0	1,258	2,010

a/ Application of a portion of the FY 1993 programmatic general reduction of $40,000,000.

3. Narrative: Due to budgetary constraints, this project has been stretched out from the 2nd quarter of FY 1995 to the 2nd quarter of FY 1996.

Project scope modified due to reduction of hazardous materials stored in Building 70. Reduction achieved through use of off-site storage. Modifications include deletion of chemical delivery system, ventilation system upgrades and central monitoring and alarm system. This project will upgrade Building 70 to add safety, health and environmental protection safeguards to meet or exceed current standards for public health and safety.

The existing Building 70 is an aged laboratory facility used for materials sciences and semi-conductor research. These operations employ a wide variety of chemicals which are highly flammable and/or toxic. If this project is not supported, research operations must be restricted, resulting in curtailing or eliminating fields of research at LBL.

4. Total Project Funding (BA):

	Prior Years	FY 1993	FY 1994	FY 1995 Request	To Complete
Construction.....	$ 0	$ 500	$ 1,000	$ 1,962	$ 1,258
Capital Equipment.....	0	0	0	0	0
Operating Expenses.....	60	0	0	0	0

IV. B. Construction Funded Project Descriptive Summary

1. Project Title and Location: Project 93-E-323 Fire and Safety Systems Upgrade, Phase I
Lawrence Berkeley Laboratory
Berkeley, California

TEC: $ 4,600
TPC: $ 4,630

Start Date: 2nd Qtr. FY 1994 Completion Date: 3rd Qtr. FY 1997

2. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1993	$ 1,500	-1,000 a/	$ 500	$ 80
1994	1,000	0	1,000	900
1995	2,000	0	2,000	1,200
1996	1,100	0	1,100	1,600
1997	0	0	0	820

a/ Application of a portion of the FY 1993 programmatic general reduction of $40,000,000.

3. Narrative: Due to budgetary constraints, this project has been stretched out from the 3rd quarter of FY 1996 to the 3rd quarter FY 1997.

This project is the first of several which will bring LBL facilities into compliance with building, fire and life safety codes.

A majority of facilities at LBL were constructed from the 1940s to the mid 1960s. The facilities provided national scientific leadership during a histbrically significant time. Since this period, major changes have occurred in building, fire and life safety codes. This project will support modifications required to meet new codes and correct noncompliance conditions.

4. Total Project Funding (BA):

	Prior Years	FY 1993	FY 1994	FY 1995 Request	To Complete
Construction.....	$ 0	$ 500	$ 1,000	$ 2,000	$ 1,100
Capital Equipment.....	0	0	0	0	0
Operating Expenses.....	30	0	0	0	0

IV. B. Construction Funded Project Descriptive Summary

1. Project Title and Location: Project 93-E-320, Fire and Safety Improvements - Phase II
Argonne National Laboratory
Argonne, Illinois

TEC: $ 5,350
TPC: $ 5,462

Start Date: 1st Qtr. FY 1994 Completion Date: 1st Qtr. FY 1997

2. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1993	$ 1,870	-1,480 a/	$ 390	$ 122
1994	850	0	850	838
1995	1,500	0	1,500	1,290
1996	2,610	0	2,610	1,900
1997	0	0	0	1,200

a/ Application of a portion ($-1,020,000) of the FY 1993 programmatic general reduction of $40,000,000 and a reprogramming ($-460,000).

3. Narrative: Start date changed from 4th quarter FY 1994 to 1st quarter FY 1994 to accommodate revised financial schedule and to optimize use of available funds. Completion date changed from 4th quarter FY 1996 to 1st quarter FY 1997 due to delay in availability of funds in FY 1993. This delay was the result of a programmatic general reduction and a reprogramming in FY 1993.

This project supports Phase II of required fire safety improvements at ANL and Phase II will complete upgrading of existing fire alarm and suppression systems and expand fire suppression systems to cover areas requiring protection.

4. Total Project Funding (BA):

	Prior Years	FY 1993	FY 1994	FY 1995 Request	To Complete
Construction.....	$ 0	$ 390	$ 850	$ 1,500	$ 2,610
Capital Equipment.....	0	0	0	0	0
Operating Expenses.....	112	0	0	0	0

IV. B. Construction Funded Project Description Summary

1. Project Title and Location: Project 93-E-317, Life Safety Code Compliance
Pacific Northwest Laboratory
Richland, Washington

TEC: $ 2,000
TPC: $ 2,200

Start Date: 1st Qtr. FY 1994 Completion Date: 4th Qtr. FY 1995

2. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1993	$ 1,000	-500 a/	$ 500	$ 25
1994	1,000	- 6	994	750
1995	506	0	506	850
1996	0	0	0	375

a/ Application of a portion of the FY 1993 programmatic general reduction of $40,000,000.

3. Narrative: This project supports upgrades to selected 300 area PNL multiprogram facilities. These upgrades will correct deficiencies in fire and life safety codes.

The project will ensure continuity of operations in vital multiprogram laboratories at PNL. The current conditions of the buildings have raised many concerns about their adequacy for continuing operations. PNL's research missions can be continued by completing the work proposed in this project.

4. Total Project Funding (BA):

	Prior Years	FY 1993	FY 1994	FY 1995 Request	To Complete
Construction.....	$ 0	$ 500	$ 994	$ 506	$ 0
Capital Equipment.....	0	0	0	0	0
Operating Expenses.....	150	50	0	0	0

IV. B. Plant Funded Construction Project

1. Project Title and Location: Project 93-E-315, Roof Replacement - Phase I
Brookhaven National Laboratory
Upton, New York

TEC: $ 2,930
TPC: $ 2,930

Start Date: 4th Qtr. FY 1993 Completion Date: 4th Qtr. FY 1995

2. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1993	$ 1,130	-226 a/	$ 904	$ 31
1994	1,926	0	1,926	1,530
1995	100	0	100	1,369

a/ Application of a portion of the FY 1993 programmatic general reduction of $40,000,000 and a reprogramming (+$104,000).

3. Narrative: Start date changed from 3rd quarter FY 1993 to 4th quarter FY 1993 due to delay in availability of FY 1993 funds resulting from a programmatic general reduction and a reprogramming.

This project supports roof replacement on buildings at BNL. Approximately 263,000 sq. ft. of re-roofing will be accomplished during this phase.

Roof surveys conducted in 1989 have indicated that approximately 718,000 sq. ft. of roofing on 46 buildings will have to be replaced. This project represents Phase I.

4. Total Project Funding (BA):

	Prior Years	FY 1993	FY 1994	FY 1995 Request	To Complete
Construction.....	$ 0	$ 904	$ 1,926	$ 100	$ 0
Capital Equipment.....	0	0	0	0	0
Operating Expenses.....	0	0	0	0	0

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - General Purpose Facilities

1. Title and Location of Project: General Plant Projects
Various locations

2a. Project No. GPE-801
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1995

3b. A-E Work (Title I & II) Duration: 6-12 Months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- None
Total Project Cost (TPC) -- None

4a. Date Physical Construction Starts: 3rd Qtr. FY 1995

4b. Date Construction Ends: 3rd Qtr. FY 1995

6. Current Cost Estimate:
TEC -- $ 8,740
TPC -- $ 8,740

7. Financial Schedule:

		Costs			
Fiscal Year	Obligations	FY 1993	FY 1994	FY 1995	After FY 1995
FY 1994 Projects	$ 9,000	$ 0	$ 7,000	$ 2,000	$ 0
FY 1995 Projects	8,740	0	0	6,740	2,000

1. Title and Location of Project:	General Plant Projects Various locations	2a. Project No. GPE-801 2b. Construction Funded

8. Brief Physical Description of Project

In order to support landlord responsibilities at Oak Ridge National Laboratory (ORNL) and Oak Ridge Institute for Science and Education (ORISE), $8,740,000 is requested for general plant projects.

This estimate is for minor new construction and other capital alterations to land, buildings and utilities systems. The estimate also includes the cost of installed equipment which is an integral part of the general plant subprojects. Although it is difficult to identify particular projects in advance, all of the subprojects identified below are currently being considered for FY 1995 support. The estimated costs for each of the subprojects are preliminary in nature, with a project limitation of $2,000,000. Since needs and priorities may change, other projects will be added and may be substituted for the examples listed below. These general plant projects will contribute to greater efficiency, eliminate health and safety hazards, and reduce maintenance and operational cost.

Chilled Water System Improvements, Compressor House (ORNL).....$ 150

This project will install a new sidestream filtration system and chemical make-up station in the central chilled water system in the compressor house.

Replace Heat and Cool Lines - High Voltage Accelerator Laboratory (ORNL).....$ 270

This project will replace the existing underground chilled water supply and return piping systems and the underground hot water supply and return piping systems serving the south addition of the High Voltage Accelerator Laboratory. The existing galvanized steel piping will be replaced with prefabricated sections of preinsulated double-contained pipe consisting of a PVC outer-pipe covering an internal steel carrier pipe with polyurethane foam filling the area between the pipes.

Upgrade HVAC, Engineering, Technology Administration and Laboratory (ORNL).....$ 770

This project will upgrade the HVAC system by installing a central chilled water system to replace several small units in various portions of the facility. Chilled water will be distributed throughout the facility to air handlers in occupied areas of the building.

Extend Walker Branch Power Line (ORNL).....$ 1,100

This project will extend existing powerlines (13.8 KV) from Rain Gauge 4 site approximately 0.5 mile along the watershed perimeter road to the interior, approximately one-half the distance between Rain Gauge 2 and Rain Gauge 4.

1. Title and Location of Project: General Plant Projects Various Locations	2a. Project No. GPE-801 2b. Construction Funded

8. Brief Physical Description of Project (Continued)

Add 13.8KV Reclosers (ORNL).....$ 150

This project is to add six sectionalizing reclosers to the 13.8KV electrical distribution system.

Secondary Containment Fuel Oil Tank Storage Tank (ORNL).....$ 150

This project will install a concrete liner in the existing gravel secondary containment area around the 70,000 gallon fuel tank located south of the Steam Plant.

Maintenance Shop Addition - Compressor House (ORNL).....$ 500

This project will construct an addition of approximately 1,200 square feet to the Compressor House Shop for maintenance personnel to work on the major air conditioning units and support equipment.

Replace Switchgear (ORNL).....$ 500

This project is for the replacement of the 2,400 volt switchgear, at the 3,000 substation.

Upgrade Breakers 4,000 Substation (ORNL).....$ 500

This project will replace the circuit breakers for the substation with vacuum breakers.

Upgrade Breakers, Compressor House (ORNL).....$ 500

This project will convert the switchgear series A in the compressor house to the vacuum type.

Tie Together Feeder 234 and 254 (ORNL).....$ 200

This project will tie together 234 and 254 Feeders.

Increase Chilled Water Supply to the Radiochemical Laboratory/Experimental Buildings (ORNL).....$ 1,079

This project is to increase the volumetric flow rate of chilled water that is provided to High-Level Radiochemical Laboratory/Experimental Engineering Buildings from the central chilled water system.

1. Title and Location of Project: General Plant Projects Various Locations	2a. Project No. GPE-801 2b. Construction Funded

8. Brief Physical Description of Project (Continued)

Metal Storage Shed, Steel Yard (ORNL).....$ 175

This project will provide for enclosure of the existing metal storage sheds.

Mobile Equipment Storage and Material Staging Area (ORNL).....$ 220

This project will provide a storage area for protection from weather for the numerous pieces of mobile personnel lift equipment to maximize the life of the equipment. In addition, an area is required to stage material in preparing to perform various maintenance jobs. Currently no location exists for secure, weather protected accumulation of this material.

Modifications to the Acid, Chemical and Flammable Liquid Storage Facility (ORNL).....$ 350

This project will construct a self-contained storage Level A facility of approximately 900 square feet within the building with its own HVAC system. In addition, the project will insulate building walls and ceiling and install vent fan.

Parking Lot, Biology Area (ORNL).....$ 111

This project is for labor and material for a fixed-price subcontractor to perform required grading, curbing, paving, and striping to install additional parking on the south and east side of the Virus Control Laboratory.

Addition to the Heavy Equipment Storage Shelter (ORNL).....$ 250

This project will provide for a 100 ft. x 50 ft. addition to the Heavy Equipment Storage Shelter.

1. Title and Location of Project: General Plant Projects Various Locations	2a. Project No. GPE-801 2b. Construction Funded

8. Brief Physical Description of Project (Continued)

Install Increased Emergency Electrical Power for the Radiochemical Engineering Development Center (ORNL) $ 600

This project will install two new diesel powered generators that are arranged and electrically sequenced so that both generators would be activated in case of an emergency. Further, each generator will be capable of supplying all of the electrical power necessary to maintain the electrically powered functions of the Radiochemical Engineering Development Center (REDC) that must be maintained during loss of normal power. In the present configuration, REDC has three sources of emergency electrical power. One source is a digest generator which supplies about 100 kW of backup power to the Transuranuim Processing Plant for maintaining operations in the control room (control panel instrumentation), lights for the control rooms, the building in general, air compressors, process water pumps, the facility radiation and contamination (underground conduit inside of a concrete tray conduit) supplied by the High Flux Isotope Reactor (HFIR). These feeder lines are supplied by emergency diesel powered generators at HFIR and contribute 75-100 kW each (total 150-200 kW) of important emergency power. In this proposed GPP, these two feeder lines from HFIR would be dropped (returning this excess back to HFIR), and two new generators would be installed to supply this emergency power to the REDC.

Replace HVAC System, Main Portal (ORNL)..... $ 165

This project will replace the HVAC system in the Main Portal, including fans, filtration, piping, coils, and controls.

Upgrade HVAC Systems - Vance Road Complex (ORISE)..... $ 560

Demolish and remove the existing three-pipe, energy inefficient, heating, ventilating and air conditioning (HVAC) system serving the offices and laboratories in the "D" wing of the Vance Road complex. Install new HVAC systems to provide more efficient heating and cooling with better control.

Upgrade Miscellaneous CFC Equipment - ORISE Buildings (ORISE)..... $ 37

Upgrade small CFC refrigerant equipped appliances such as water coolers, window units and refrigerators and replace with non-CFC equipped units.

1. Title and Location of Project:	General Plant Projects Various Locations	2a. Project No. GPE-801 2b. Construction Funded

8. Brief Physical Description of Project (Continued)

Install Addition to Sprinkler System - CER (ORISE)..... $ 10

Proposed removal of the existing Halon Fire Extinguisher System from a small computer room at the CER will require an addition to the building's sprinkler systems.

Engineering Design for HVAC Upgrades - Laboratory Road (ORISE)..... $ 45

Provide the detailed engineering design needed for the HVAC upgrades in the Laboratory Road Buildings.

Install Dry-Pipe Sprinkler Systems - Laboratory Road Building (ORISE)..... $ 105

Modify the existing wet-pipe sprinkler systems in the Laboratory Road Buildings 2714-F and 2714-G, to dry-pipe systems. Work will include the addition of compressors, modifications of some pipe runs, and changing some sprinkler heads to assure that systems will not freeze during cold weather. This will eliminate the need to heat the attic spaces during the winter months.

Upgrade Driveway and Security Fencing - Scarboro Operations Site (ORISE)..... $ 105

Upgrade the driveways and parking areas near the main buildings of the Scarboro Operations Site. Provide fencing of the main building area to exclude unauthorized personnel during non-work hours.

Fire Detection and Alarm System for Warehouse Building (ORISE)..... $ 55

Install a new fire detection and alarm system for Bays 4 and 5 of the Warehouse Building.

Dry Pipe Sprinkler System - ATDL (ORISE)..... $ 55

Upgrade the existing wet-pipe sprinklers to a dry pipe system to eliminate the need for attic heating during cold weather.

Electrical Systems Upgrade - Vance Road Complex (ORISE)..... $ 28

Upgrade four lighting and service panels with associated wiring to meet current Electrical Code requirements.

1. Title and Location of Project:	General Plant Projects Various Locations	2a. Project No. GPE-801 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project

Chilled Water System Improvements, Compressor House (ORNL)

Sludge buildup from bacteria, chemical reaction and other sources is a continuing problem in the Central Chilled Water System. This sludge settles out in heat exchangers and other areas throughout the system seriously affecting system efficiency and reliability. The installation of a sidestream filter will allow for the continuous removal of these solids before they can settle out and cause operational problems.

Replace Heat and Cool Lines - High Voltage Accelerator Laboratory (ORNL)

The existing piping system serving the building is badly corroded and requires constant monitoring and maintenance attention. Major leaks requiring considerable time and effort to repair are experienced regularly. In addition to shutting down heating and cooling to the south area offices and laboratories of this major facility, these leaks have the potential for the release of hazardous substances into the environment, thus causing possible NPDES permit violations.

Upgrade HVAC, Engineering, Technology Administration and Laboratory (ORNL)

The existing systems are inefficient and complex with climate control essentially nonexistent. Replacement parts are no longer available, resulting in extended outages and escalating repair costs.

Extend Walker Branch Power Line (ORNL)

Walker Branch Watershed has become a major user facility on the Oak Ridge Reservation supporting DOE research programs in Biogeochemical Cycling, Subsurface Transport, Atmospheric Deposition, and Global Climate Change, as well as major work-for-others projects for the National Science Foundation and the Electric Power Research Institute. Expanded research activities on the watershed are currently limited spatially by the availability of electrical service to support instrumentation and machinery necessary to accomplish expanded research objectives. The proposed extension will open up major new areas of the watershed to intensive research effort.

Add 13.8KV Reclosers (ORNL)

The addition of this equipment will result in a more reliable electrical system. It will lesson the impact of failures on the distribution system. This project is also the result of a 1979 study that recommended adding sectionalizing.

1. Title and Location of Project:	General Plant Projects Various Locations	2a. Project No. GPE-801 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project

Secondary Containment Fuel Oil Tank Storage Tank (ORNL)

This project will correct a violation of 40 CFR Part 151, Hazardous Substance Spill Prevention. It is also needed for protection of the environment.

Maintenance Shop Addition - Compressor House (ORNL)

Maintenance and repair work is currently performed in the operating areas of the facility, seriously affecting the safe operation of the facility and the safe, expedient repair of these critical equipment items. Operational safety, efficiency and reliability are often compromised because of the need for an area to work on this equipment. Aisleways between and around this equipment are often inaccessible because of ongoing maintenance and repair activities. This could lead to serious problems should an operational emergency occur.

Replace Switchgear (ORNL)

The original was built in the 1940s. Spare parts are becoming obsolete. The age of the equipment is causing increased failures and maintenance problems. Replacement with modern breakers will provide a more reliable and safer system to operate.

Upgrade Breakers 4,000 Substation (ORNL)

This substation was built in 1953. The age of the equipment is causing increased failures and maintenance problems. Spare parts are becoming very difficult to obtain and some are becoming obsolete. Replacement with modern breakers will provide a more reliable and safer system to operate.

Upgrade Breakers, Compressor House (ORNL)

The age of this equipment is causing operational problems. Replacement of this old equipment with newer technology will result in a more reliable system. Aging equipment is prone to failure and has an increased probability of causing an accident involving personnel.

1. Title and Location of Project:	General Plant Projects Various Locations	2a. Project No. GPE-801 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project

Tie Together Feeder 234 and 254 (ORNL)

The addition of this capability will result in a more reliable and dependable electrical system. It will also provide for new capability for back-up-power to the east and west areas of the plant.

Increase Chilled Water Supply to the Radiochemical Laboratory/Experimental Buildings (ORNL)

The existing chilled water headers are not capable of supplying the required flow to meet the temperature setpoints to obtain a controlled facility climate. This condition is mainly due to added demands on the chilled water system over the past 40 years without an enlargement of the existing supply and return headers. Current ongoing and proposed projects will add additional flow loads to the system and consequently magnify the uncontrollable facility climate.

Metal Storage Shed, Steel Yard (ORNL)

NQA1 storage requirements insist that certain metals be stored indoors. Presently, this stored pedigreed material is exposed to the elements. The Materials Department continues to write-off inventory due to metals not fit for its intended use.

Mobile Equipment Storage and Material Staging Area (ORNL)

Without this storage shed, expensive equipment will be allowed to deteriorate necessitating frequent maintenance and earlier replacement. Routine maintenance jobs will continue to be costly and schedules affected due to damaged and/or missing materials.

Modifications to the Acid, Chemical and Flammable Liquid Storage Facility (ORNL)

Materials Department facilities were not originally designed to meet storage requirements/standard safety related materials/components as outlined in NQA-2. Safety related items or components are on systems which prevent or mitigate the consequences of postulated accidents causing undue risk to the health and safety of the employees and the general public. Items requiring Level A storage must be warehoused in a facility that is temperature controlled as defined under NQA-2. This requirement also is included as a performance objective in DOE's Technical Safety Appraisal Manual and identified in the Finance and Business Management Division's Self-Assessment Report as a deficiency. Tiger Team Findings QV.5-1/QV.2-1/PT.12-1

1. Title and Location of Project:	General Plant Projects Various Locations	2a. Project No. GPE-801 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project

Parking Lot, Biology Area (ORNL)

Current situation is promoting illegal parking. The north parking lot is an unacceptable alternative due to its crowded condition.

Addition to the Heavy Equipment Storage Shelter (ORNL)

This addition to an existing structure would provide storage for equipment (manlifts, cranes, forklifts, etc.), thereby reducing maintenance and increasing equipment reliability. It would also provide a place for maintenance work to be performed during inclement weather.

Install Increased Emergency Electrical Power for the Radiochemical Engineering Development Center (ORNL)

Loss of all COG and VOG exhaust systems for the REDC does create a possibly hazardous situation for on-site personnel (not the public). The emergency power system was designed to provide levels of backup and redundancy so that critical power needs for the facility would be available. Therefore, it is prudent to provide a redundant, highly reliable system comprised of diesel generators for emergency electrical power. If such a system of emergency power is not provided, it is highly probable that a situation could arise which could impact operating conditions in the REDC. If the new diesel generators are not installed and dedicated to the REDC, the old system of underground feeder cables from the HFIR will have to undergo a very expensive and complicated repair and upgrade. Reiteration of the old system after repair will perpetuate a controversy over balancing of utility expenditures between the HFIR and the REDC.

Replace HVAC System, Main Portal (ORNL)

The existing system has deteriorated and exceeded its life expectancy. If not replaced the existing system will fail, leading to extended outages and extreme repair costs.

Upgrade HVAC Systems - Vance Road Complex (ORISE)

Demolish and remove the existing three-pipe, energy inefficient, heating, ventilating and air conditioning (HVAC) system serving the offices and laboratories in the "D" wing of the Vance Road complex. Install new HVAC systems to provide more efficient heating and cooling with better control.

1. Title and Location of Project:	General Plant Projects Various Locations	2a. Project No. GPE-801 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project

Upgrade Miscellaneous CFC Equipment - ORISE Buildings (ORISE)

Upgrade small CFC refrigerant equipped appliances such as water coolers, window units and refrigerators and replace with non-CFC equipped units. These units will be removed as part of an order to reduce the potential for CFC emissions. In most all cases the replacement units will be resized and upgraded to meet the increased load demands.

Install Addition to Sprinkler System - CER (ORISE)

Proposed removal of the existing Halon Fire Extinguisher System from a small computer room at the CER will require an addition to the buildings sprinkler systems. Removal of the existing system is in response to an order to reduce the potential for CFC emissions and will leave this portion of the building without adequate fire protection. The addition of the new sprinkler system will alleviate this need.

Engineering Design for HVAC Upgrades - Laboratory Road (ORISE)

Provide the detailed engineering design needed for the HVAC upgrades in the Laboratory Road Buildings. These buildings, 2714F and 2714G, currently have aged and inefficient HVAC systems installed during the 1940s. In addition, the existing HVAC systems are inadequately sized to properly heat and cool the buildings. This project covers the detailed engineering design in FY 1995 in preparation for construction (estimated at $690K) in FY 1996.

Install Dry-Pipe Sprinkler Systems - Laboratory Road Building (ORISE)

Modify the existing wet-pipe sprinkler systems in the Laboratory Road Buildings 2714-F and 2714-G, to dry-pipe systems. Work will include the addition of compressors, modifications of some pipe runs, and changing of some sprinkler heads to assure that systems will not freeze during cold weather. This will eliminate the need to heat the attic spaces during the winter months.

Upgrade Driveway and Security Fencing - Scarboro Operations Site (ORISE)

Upgrade the driveways and parking areas near the main buildings of the Scarboro Operations Site. Provide fencing of the main building area to exclude unauthorized personnel during non-work hours.

1. Title and Location of Project: General Plant Projects Various Locations	2a. Project No. GPE-801 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project

Fire Detection and Alarm System for Warehouse Building (ORISE)

Install a new fire detection and alarm system for Bays 4 and 5 of the Warehouse Building.

Dry Pipe Sprinkler System - ATDL (ORISE)

Upgrade the existing wet-pipe sprinklers to a dry pipe system to eliminate the need for attic heating during cold weather.

Electrical Systems Upgrade - Vance Road Complex (ORISE)

Upgrade four lighting and service panels with associated wiring to meet current Electrical Code requirements. These panels do not currently comply with the National Electric Code (NEC) requirements. This project will upgrade the panels and associated wiring to improve the complex electrical and fire safety and bring the panels into code compliance.

10. Details of Cost Estimate

Based on preliminary conceptual design.

11. Method of Performance

Design will be by negotiated architect-engineer contracts. To the extent feasible, construction and procurement will be accomplished by fixed-price contracts awarded on the basis of competitive bids.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - General Purpose Facilities

1. Title and Location of Project: Multiprogram Laboratory Rehabilitation, Phase I
Pacific Northwest Laboratory
Richland, Washington

2a. Project No. 95-E-310
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1995

3b. A-E Work (Title I & II) Duration: 13 Months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- None
Total Project Cost (TPC) -- None

4a. Date Physical Construction Starts: 2nd Qtr. FY 1996

4b. Date Construction Ends: 4th Qtr. FY 1997

6. Current Cost Estimate:
TEC -- $ 5,800
TPC -- $ 6,340

7. Financial Schedule:

Fiscal Year	Appropriation	Obligations	Costs
1995	$ 400	$ 400	$ 300
1996	2,000	2,000	1,700
1997	3,400	3,400	3,800

1. Title and Location of Project:	Multiprogram Laboratory Rehabilitation, Phase I Pacific Northwest Laboratory Richland, Washington	2a. Project No. 95-E-310 2b. Construction Funded

8. Brief Physical Description of Project

This project will involve the reconfiguration of a portion of the space on the 3rd floor of the 331 Building now containing small animal research facilities that are not needed due to age and design. Existing partitions and walls in this area are to be removed and the space converted into approximately eight general chemistry laboratories. Laboratory services, as required, will be provided from the second floor mechanical equipment room. Laboratory services will be added or upgraded, as required, to furnish the needs of each laboratory. Laboratory furniture such as laboratory benches, cabinets, sinks, etc. will be provided. Additional mechanical equipment will be provided as needed. Ventilation and ductwork reconfiguration, as required, will meet current code requirements. Additional work includes the removal demolition of the existing approximately 2,800 square foot virology lab (Building 331-A) that due to contamination and design cannot be economically rehabilitated, as well as new construction of a small animal quarters facility. This new addition will be approximately 3,500-4,000 square feet which will contain animal rooms of approximately 150 square feet each plus small change rooms. An existing cage washer on the first floor of the 331 Building will service the cage equipment of this new addition.

9. Purpose, Justification of Need For, and Scope of Project

The primary reasons for this project are to renovate, remodel, and extend the useful life of a major DOE multiprogrammatic facility which is critical to the DOE mission at Hanford. The purpose of this project is to provide additional general purpose chemistry laboratory space in the 331 building and to consolidate animal care facilities into one area. The 331 building was to accommodate the care and use of large and small animals. Originally, the facility was dedicated to life span animal research on various species. The animal research experiments included exposure to chemical carcinogens and radiation.

The DOE mission objective for the laboratory has recently changed from live animal studies toward molecular biology and biochemical research, utilizing cell and tissue culture. The shift has resulted in underutilization of a considerable amount of space formerly required to house and care for animals and a lack of laboratory space urgently needed for expansion of molecular biology capabilities. Although some live animal studies will continue to be performed, the required space will be reduced significantly. The space currently utilized for live animal research is fragmented between the research laboratories on the first floor and the animal habitat area on the third floor. The 331-A building is not large enough to support the small animal habitat space requirements. Further concern exists over the ability to decontaminate the building sufficiently to allow research animals to be

1. Title and Location of Project: Multiprogram Laboratory Rehabilitation, Phase I
Pacific Northwest Laboratory
Richland, Washington

2a. Project No. 95-E-310
2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

housed in the building without compromising the validity of research. Therefore, the 331-A building will be demolished to allow room for the new addition.

10. Details of Cost Estimate [a/]

	Item Cost	Total Cost
a. Design and management costs		$ 1,540
1. Engineering design and inspection at approximately 27 percent of construction costs, item b	$ 860	
2. Construction management costs	525	
3. Project management at 4 percent of construction costs	155	
b. Construction costs		3,160
1. Improvements to land	15	
2. Buildings	3,130	
3. Utilities	15	
Subtotal		4,700
c. Contingencies at approximately 23 percent of above cost		1,100
Total line item cost		$ 5,800 b/

a/ Based on conceptual cost estimate
b/ Includes escalation rates based on the February, 1993 Hanford Material and Labor Escalation Study.

11. Method of Performance

Design and inspection will be performed by the Hanford CPAF Engineer/Constructor. Construction and procurement will be accomplished where possible by fixed price contracts awarded on the basis of competitive bidding. Some construction may need to be accomplished by the Hanford CPAF constructor because the work to be done is in a building complex where the work will need to be coordinated with ongoing operations.

1. Title and Location of Project: Multiprogram Laboratory Rehabilitation, Phase I
Pacific Northwest Laboratory
Richland, Washington

2a. Project No. 95-E-310
2b. Construction Funded

12. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1994	FY 1995	FY 1996	FY 1997	Total
a. Total project costs						
1. Total facility costs						
(a) Line item	$ 0	$ 0	$ 300	$ 1,700	$ 3,800	$5,800
(b) PE&D	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
Total facility costs	$ 0	$ 0	$ 300	$ 1,700	$ 3,800	$5,800
2. Other project costs						
(a) R&D necessary to complete construction	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	200	0	0	0	0	200
(c) Other project related costs	176	42	52	52	18	340
Total other project costs	376	42	52	52	18	540
Total project costs	$ 376	$ 42	$ 352	$ 1,752	$ 3,818	$6,340

b. Related annual funding
None.

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
1. Total facility costs
Inventories - Inventories necessary to put the facilities into reuse after modifications and renovations are completed are estimated to cost -- $ 0.
2. Other project costs
a. R&D necessary to complete construction - Preconceptual design/engineering studies were performed during FY 1989 through FY 1991 at a cost of $10,000.
b. Conceptual design funding - It is expected that Conceptual Design was completed during FY 1992 at a cost of $200,000.
c. Other project related costs - Project support and start-up are estimated to cost $340,000. This item consists of preparation of project management and A-E selection plan prior to project authorization; technical direction of the A-E during definitive design, review of vendor submittals, user liaison and related management services during construction of the project.
b. Related annual funding
None.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - General Purpose Facilities

1. Title and Location of Project: Electrical Safety Rehabilitation
Pacific Northwest Laboratory
Richland, Washington

2a. Project No. 95-E-303
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1995

3b. A-E Work (Title I & II) Duration: 15 Months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- None
Total Project Cost (TPC) -- None

4a. Date Physical Construction Starts: 4th Qtr. 1995

4b. Date Construction Ends: 3rd Qtr. FY 1999

6. Current Cost Estimate:
TEC -- $ 7,200
TPC -- $ 7,900

7. Financial Schedule:

Fiscal Year	Appropriation	Obligations	Costs
1995	$ 240	$ 240	$ 150
1996	1,500	1,500	1,100
1997	1,500	1,500	1,300
1998	1,500	1,500	1,600
1999	2,460	2,460	1,500
2000	0	0	1,550

1. Title and Location of Project:	Electrical Safety Rehabilitation Pacific Northwest Laboratory Richland, Washington	2a. Project No. 95-E-303 2b. Construction Funded

8. Brief Physical Description of Project

This project will provide for the rehabilitation of electrical systems and correction of numerous National Electrical Code violations in 10-12 of the laboratories and support facilities for which Energy Research is responsible in the 300 Area of the Hanford Site.

Many of these buildings range in age from 20 to 40 years and electrical equipment and installations contained within them do not meet current National Electric Code (NEC) and DOE standards and criteria for safe and efficient operations. Most of the grounding violations did not meet the existing code when installed. Existing installations, in some cases, do not conform to present standards because other non-electrical equipment systems have been installed in conflict with electrical clearance requirements. Additionally, much of the older equipment is deteriorating and its present condition poses a personnel and fire safety hazard.

Typically, modification and rehabilitation work shall consist of work to be done to existing electrical systems as follows: (a) grounding and bonding of equipment for safety; (b) relocating existing electrical equipment and some mechanical equipment to obtain proper working clearances; (c) correcting wire/raceway sizes; (d) providing proper raceway supports; (e) isolating electrical equipment for safety and maintainability; and (f) installing additional circuit breakers, enclosures, etc. to protect equipment. In addition to the above, some major obsolete and deteriorated equipment will also be replaced.

9. Purpose, Justification of Need For, and Scope of Project

The primary purpose of this project is to provide building electrical systems that are safe, efficient, reliable, and maintainable as required by the DOE Order 5480.4 Environmental Protection, Safety and Health Protection Standards; DOE Order 6430.1A, General Design Criteria for Department of Energy Facilities; and specific requirements of the latest edition of the National Electric Code. This project will safeguard personnel working with the DOE facility electrical systems and enhance the reliability of those systems. Additionally, the project will also consolidate and upgrade electrical equipment, in some cases, where existing equipment is obsolete, deteriorated, or not in code compliance. An extensive code conformance survey conducted by PNL produced a National Electric Code violation data base with several thousand entries. Many of these findings relate to grounding and safe working clearances. Others relate to improper wire sizing, color identification and lack of proper overcurrent protection. This project responds to Tiger Team Finding TS 3-2.

1. Title and Location of Project:	Electrical Safety Rehabilitation Pacific Northwest Laboratory Richland, Washington	2a. Project No. 95-E-303 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

As institutional landlord, the Office of Energy Research (ER) is responsible for selected buildings at PNL per an agreement with the Office of Environmental and Waste Management, the overall Hanford site landlord. All work proposed in this project specifically addresses requirements in facilities for which ER is responsible.

10. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and management costs		$ 1,217
1. Engineering design and inspection at approximately 19 percent of construction costs, items b.	$ 953	
2. Project management at 5 percent of construction costs (item c)	264	
b. Construction costs		5,047
1. Electrical, renovation, rehabilitation, work is being done in existing government facilities	4,914	
2. Other structures	53	
c. Standard equipment	80	
Subtotal		6,264
d. Contingencies at approximately 14 percent of above cost		936
Total line item cost (Section 12.a.1.(a))		$ 7,200

11. Method of Performance

Design and inspection will be performed either under a negotiated Architect-Engineer (A-E) contract or by a Design/Construct contract based on comprehensive functional specifications. Construction and procurement will be accomplished where possible by fixed price contracts awarded on the basis of competitive bidding. Some construction may need to be accomplished by the Hanford onsite constructor because the work to be done is in buildings where the work will need to be coordinated with on-going operations in the buildings and some interruptions in electrical service may need to be done during off hours.

1. Title and Location of Project: Electrical Safety Rehabilitation
Pacific Northwest Laboratory
Richland, Washington

2a. Project No. 95-E-303
2b. Construction Funded

12. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	Total
a. Total project costs								
1. Total facility costs								
(a) Line item.....	$ 0	$ 150	$ 1,100	$ 1,300	$ 1,600	$ 1,500	$ 1,550	$ 7,200
Total Facility Costs.....	$ 0	$ 150	$ 1,100	$ 1,300	$ 1,600	$ 1,500	$ 1,550	$ 7,200
2. Other project costs								
(a) Conceptual design costs.....	170	0	0	0	0	0		170
(b) Other project-related costs.	84	99	99	94	94	60	0	530
Total other project costs.....	$ 254	$ 99	$ 99	$ 94	$ 94	$ 60	0	700
Total project cost (TPC).....	$ 254	$ 249	$ 1,199	$ 1,394	$ 1,694	$ 1,560	$ 1,550	$ 7,900

b. Related annual funding (estimated life of project -- 25 years)
None.

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
1. Total facility costs
2. Other project costs
a. Conceptual design funding - $170,000.
b. Other project related costs - Project support and start-up are estimated to cost-- $460,000. This item consists of preparation of project management and A-E selection plans prior to project authorization; technical direction of the A-E during definitive design, review of vendor submittals, user liaison and related management services during construction of the project and final inspection of non-engineered work.

b. Related funding requirements (Estimated use of facilities for their programmatic purpose: 25 years):
None

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - General Purpose Facilities

1. Title and Location of Project: Applied Science Center - Phase I
Brookhaven National Laboratory
Upton, New York

2a. Project No. 95-E-302
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1995

3b. A-E Work (Titles I & II) Duration: 8 Months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- None
Total Project Cost (TPC) -- None

4a. Date Physical Construction Starts: 2nd Qtr. FY 1996

4b. Date Construction Ends: 2nd Qtr. FY 1997

6. Current Cost Estimate:
TEC -- $3,870
TPC -- $3,920

7. Financial Schedule:

Fiscal Year	Appropriation	Obligations	Costs
1995	$ 600	$ 600	$ 450
1996	3,270	3,270	1,900
1997	0	0	1,520

1. Title and Location of Project:	Applied Science Center - Phase I Brookhaven National Laboratory Upton, New York	2a. Project No. 95-E-302 2b. Construction Funded

8. Brief Physical Description of Project

The proposed addition to the Department of Applied Science (DAS) Building 815 will provide approximately 12,000 square feet of laboratory, office and support space.

The proposed expansion will be at the north side of Building 815. It will be a two-story structure with an underground passageway leading to a large existing basement. To better utilize the existing basement, a passenger/freight elevator will be included. The basement is currently served only by stairs and an outside areaway. The addition is structural steel framing with open web joists, concrete block and brick exterior to match existing and gypsum wallboard on metal stud and concrete block interior partitions. An insulated metal roof deck with built-up roofing will be used. For energy conservation, insulated aluminum windows will be provided for operational and functional requirements.

The first floor plan layout is devoted principally to laboratory space but with some space for offices, a darkroom and toilets. The second floor is principally office space with some space for library, lunch room, file/xerox rooms and toilets. Two offices in the existing structure will be modified for conference space.

The addition will be designed according to DOE Order 6430.1, "General Design Criteria" and will meet or exceed the latest DOE Standards for Energy Conservation. The fire protection system will be hydraulically designed, in accordance with NFPA 13. DOE Standards for accessibility for the handicapped will be incorporated into the design of the addition.

9. Purpose, Justification of Need For, and Scope of Project

Building 815, first occupied in 1962, is the only office-laboratory building predominantly occupied by the Department of Applied Science (DAS). It was built as the first phase of integrating the Department's operations. The 1989 Site Development Plan refers to it as the center of the DAS campus at BNL.

As presently structured, DAS does not occupy anything resembling a campus. The eight Divisions, which comprise the Department, are housed in some twelve major buildings and three user facilities with DAS Administration remote from any of its staff. These buildings, in contrast to Building 815, are older (mostly World War II vintage Army buildings), more crowded, and have high maintenance costs due to their age and construction.

1. Title and Location of Project:	Applied Science Center - Phase I Brookhaven National Laboratory Upton, New York	2a. Project No. 95-E-302 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

DAS, in concert with the Director's Office, has embarked on a five-year program both to consolidate and upgrade the Department's space. For instance, General Plant Project (GPP) monies have and will be used to upgrade Building 801, one of the older permanent structures at BNL. Building 527 is now undergoing a renovation with occupancy planned by late December. After the various stages of this plan are enacted, DAS will be housed in only five buildings, with the three facilities remaining as they are now. A key component of this plan is this addition to Building 815.

Of the eight Divisions which comprise DAS, only Chemical Sciences is fully housed in Building 815 now. Parts of two other Divisions, Applied Physics and Environmental Chemistry, fill the rest of the structure.

Another DAS structure, Building 318, which was constructed during World War II, now houses parts of two other DAS Divisions: Oceanographic & Atmospheric Sciences (O&AS); Biosystems & Process Sciences (B&PS); and a minor part of Applied Physics. All these Divisions have expanding programs and Building 318 has no expansion space available. Expansion needs are primarily related to receipt of funds to participate in DOE's Global Climate Change program.

The proposed addition to Building 815 will house the O&AS Division, providing them with laboratories, offices and some growth potential to consolidate the staff. The site map shown in the conceptual design report graphically demonstrates the need for consolidation within all of the Department's programs. At the same time, this will relieve some pressure on the B&PS Division which will remain in Building 318 for the present. It should also be possible to relocate the Applied Physics space to Building 815.

In summary, the need to replace failing World War II wood structures with modern energy efficient buildings and consolidate the DAS functions is very important to the success of DAS programs and the laboratory. The fragmentation of approximately 240 in-house DAS staff, supplemented at peak periods by research collaborating students and consultants reduces the efficiency, management and opportunities for the exchange of information.

1. Title and Location of Project:	Applied Science Center - Phase I Brookhaven National Laboratory Upton, New York	2a. Project No. 95-E-302 2b. Construction Funded

10. Details of Cost Estimate a/	Item Costs	Total Cost
a. Design and management costs		$ 449
1. Engineering design and inspection and administration at approximately 13 percent of construction costs, Item b	$ 367	
2. Project management at 2 percent of construction costs, Item b	82	
b. Construction costs		2,833
1. Site Work	175	
2. Architectural/Structural	1,733	
3. Mechanical Services	530	
4. Electrical Services	395	
c. Standard equipment		120
Subtotal		3,402
d. Contingencies at approximately 14 percent of above costs		468
Total line item cost		$ 3,870 b/c/

a/ This estimate is based on conceptual design report dated December 1990.
b/ Escalation rates used were taken from DOE Departmental Price Change Index - FY 92 Guidance, August 1990 update.
c/ Includes $270,000 of Brookhaven National Laboratory's indirect costs in accordance with Cost Accounting Standards.

11. Method of Performance

Design and inspection will be on the basis of a negotiated architect-engineer contract. Construction and procurement will be accomplished by a competitively obtained lump sum contract.

12. Schedule of Project Funding and Other Related Funding Requirements

Not required on projects with a TEC less than $5,000,000 per draft DOE Order 5100.3a.

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

Not required on projects with a TEC less than $5,000,000 per draft DOE Order 5100.3a.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST

ENERGY SUPPLY RESEARCH & DEVELOPMENT - PLANT & CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - General Purpose Facilities

1. Title and Location of Project: Central Heating Plant Rehabilitation - Phase I
Argonne National Laboratory
Argonne, Illinois

2a. Project No. 95-E-301
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1995

3b. A-E Work (Title I & II) Duration: 11 Months

5. Previous Cost Estimate:
Total Estimated Cost: None
Total Project Cost: None

4a. Date Physical Construction Starts: 3rd Qtr. FY 1996

4b. Date construction ends: 2nd Qtr. FY 1999

6. Current Cost Estimate:
TEC -- $ 9,500
TPC -- $ 9,675

7. Financial Schedule:

Fiscal Year	Appropriation	Obligations	Costs
1995	$ 1,307	$ 1,307	$ 550
1996	2,593	2,593	2,620
1997	2,500	2,500	2,730
1998	3,100	3,100	2,730
1999	0	0	870

1. Title and Location of Project:	Central Heating Plant Rehabilitation - Phase I Argonne National Laboratory Argonne, Illinois	2a. Project No. 95-E-301 2b. Construction Funded

8. Brief Physical Description of Project

This project will provide the most urgently needed rehabilitation/upgrade of the central heating plant (CHP) systems and components that are no longer adequate, efficient or reliable, including (as needed): boilers (tubing, drums, refractory, baffles, casing, insulation); boiler auxiliaries (fans, pumps, drives, soot blowers); deaerators; condensate tanks; material transport (coal, bottom ash, flyash, spent sorbent); piping (steam, condensate, feedwater, blowdown, cooling water); valves (isolation, blowdown, safety, non-return); pollution control equipment (dust collectors, baghouse); instrumentation and control (controllers, transmitters, transducers, recorders, uninterruptible power supply) electrical (switchgear, starters, PA systems, instrumentation, lighting); building envelope and interior (windows, doors, gratings and floor plates, column fireproofing, painting); plumbing (water and drain piping). The project will also include: a 1,500 square foot brick and block cavity wall addition containing a first floor clean assembly and repair area and a space below grade that will be waterproofed to form a 12,000 cubic foot concrete tank for storage of boiler make-up water; two external stair towers; and a new control room.

9. Purpose, Justification of Need For, and Scope of Project

The CHP is a 58,918 square foot steel frame structure that contains 5 water tube boilers, with combined rated steam capacity of 510,000 pounds per hour and has a replacement value of $45,266,000. The facility provides steam, sitewide, for: heating of buildings; heating of water; absorption air conditioning cycles; turbine drives on emergency electric generators; concentration of radioactive wastewater; food preparation and serving; and research requirements.

A number of studies and assessments have identified existing conditions at the CHP that do not meet current health, safety and environmental protection standards, codes and guidelines or that diminish the reliability of the site steam supply system, a system that is vital for maintaining building and programmatic functions at the laboratory. These conditions are discussed in some detail below.

Tiger Team concern MA.5-1 states that "the Argonne National Laboratory-East inspection and corrective action program is not effective in assuring the design operability of facility support systems." Given present conditions, implementation of a maintenance program to accomplish this goal is no longer a viable option for CHP, as follows:

1. Title and Location of Project:	Central Heating Plant Rehabilitation - Phase I Argonne National Laboratory Argonne, Illinois	2a. Project No. 95-E-301 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

By the date of the funding for the project, nearly all equipment in the Central Heating Plant will be between 27 and 42 years of age. Adequate maintenance is difficult and very costly because replacement parts for many of the components are no longer available and because there is no dedicated clean area where repairs can be made efficiently and without delay. The condensate tank has no back-up and there is no tank for storage of the make-up water needed during temporary outage of the water treatment plant or in the event of condensate return system contamination or piping failure. The baghouse booster fan enclosure is uninsulated which causes condensation and corrosion. Boiler pumps and fans and their turbine drives are operating at reduced capacity and are unreliable. Valves do not seat. Boiler No. 5 blow down piping and some condensate piping is badly eroded and weakened. Operating efficiencies are reduced and fuel costs excessive. There is no secondary containment for oil storage, which is an NFPA-30 requirement. Safe, efficient and reliable plant operation is increasingly difficult to achieve.

Tiger Team Concern FP.2-1 states that "Argonne National Laboratory-East is not in compliance with Life Safety Code, NFPA-101." Recently completed studies have confirmed that the building's emergency egress and emergency public address systems are inadequate.

Tiger Team Finding No. A/CF-7 cites numerous pollutant excursions exceeding NEPA limits. These have occurred because of the currently degraded and unreliable operating condition of the existing flue gas control system.

Based on the building's size, height and occupancy, the applicable codes (Chapter 28 - NFPA 101, Section 3.6 of Appendix B - NFPA 45, Article 3 - BOCA) require that the currently unprotected structural support columns be fireproofed to provide a two-hour rating.

Failure to implement this urgently needed rehabilitation may seriously impact all other operations of this research and development facility, including all ongoing research. Without this rehabilitation work, safety standards for plant and personnel will deteriorate, operating costs and maintenance costs will increase and the environment will be adversely affected.

1. Title and Location of Project:	Central Heating Plant Rehabilitation - Phase I Argonne National Laboratory Argonne, Illinois	2a. Project No. 95-E-301 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

Alternatives to the Proposed Action

There appear to be three alternatives other than the proposed rehabilitation project: (1) take no action, (2) make only minimal repairs and rehabilitate only progressively when and as necessary, and (3) provide a totally new replacement project.

No Action, Alternative 1:

This approach would allow the adverse environmental, fire, safety and health conditions and the inefficient mechanical and electrical systems to continue in their present state. The frequency and duration of partial or total, functional shutdowns and negative impact on productivity of scientific work, some of which is time-sensitive, would increase. Yearly maintenance costs would also increase and be subject to inflationary pressures as well. The building would continue to be in violation of current life safety and fire protection codes and the potential for structure and equipment failure that could compromise the health and safety of the operational staff would continue to increase. Finally, personnel morale would be impaired. This approach is not recommended.

Minimal and Progressive Rehabilitation, Alternative 2:

This is the option now employed. It is an expensive approach over a long period of time and allows various adverse environmental, fire protection, safety, and health conditions, inefficient physical plant systems and periodic scientific shutdowns to continue until renovation occurs sometime in the future. The repairs are expensive and represent a band-aid approach as some working mechanical and electrical parts are no longer available for the existing systems and equipment. The unreliability of aged and worn components compounds the problems. Importantly, the piecemeal rectification approach over a long period of time increases the number of times that equipment must be shut down for rehabilitation. Due to the adverse ES&H and fiscal impacts, this approach is not recommended.

Total New Replacement Project, Alternative 3:

This approach would involve construction of a new CHP building on a different site at Argonne which would contain approximately 58,918 gross square feet to provide the same functions as the existing facility. The estimated cost at the completion of the project would be $45,266,000. This approach is not recommended.

1. Title and Location of Project: Central Heating Plant Rehabilitation - Phase I
Argonne National Laboratory
Argonne, Illinois

2a. Project No. 95-E-301
2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

Recommendation:

The rehabilitation work and the new building additions as described in this report is the recommended approach to expediently resolve the described problems.

10. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and management costs		$ 1,155
1. Engineering design and inspection at approximately 13 percent of construction costs	881	
2. Project management at approximately 1.5 percent of construction costs	100	
3. Construction management at approximately 2.5 percent of construction costs	174	
b. Construction Costs		6,715
1. New Additions	887	
a) Clean Assembly/Make-up Water Storage	435	
b) Stair Towers	452	
2. Work to Existing Building	5,828	
a) Architectural/Structural	964	
b) Mechanical	4,418	
c) Electrical	446	
Subtotal		7,870
c. Contingencies at approximately 15 percent of above costs		1,180
Total line item cost		$ 9,050 b/c/
d. Laboratory overhead assessment		450
		$ 9,500

a/ Estimates are based on a completed conceptual design and current cost data.
b/ Overhead assessment to be applied to all construction projects starting in FY 1995 at the following rates: FY 1995-4.5%; FY 1996 and outyears 5%.
c/ All costs have been escalated from January 1992 to the midpoint of construction at the rate of 18%. Escalation rate methodology is based upon DOE FY 1993 Guidance, dated August 1991: FY 1992 - 2.5%, FY 1993 - 3.9%, FY 1994 - 4.7%, FY 1995 - 4.8%, and FY 1996 - 4.9%.

1. Title and Location of Project: Central Heating Plant Rehabilitation - Phase I
Argonne National Laboratory
Argonne, Illinois

2a. Project No. 95-E-301
2b. Construction Funded

11. Method of Performance

Engineering and design will be performed under a negotiated A/E contract with guidance, review and monitoring by laboratory personnel. Inspection will be performed by laboratory personnel aided by the A/E firm. Construction management and project management will be performed by laboratory personnel. Construction will be accomplished by fixed-price lump sum contract(s) awarded on the basis of competitive bidding.

12. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	Total
a. Total project costs							
1. Total facility costs							
(a) Line item	$ 0	$ 550	$ 2,620	$ 2,730	$ 2,730	$ 870	$9,500
Total direct costs.....	$ 0	$ 550	$ 2,620	$ 2,730	$ 2,730	$ 870	$9,500
(2) Other project costs							
(a) Conceptual design costs.	150	0	0	0	0	0	150
(c) Documentation costs	25	0	0	0	0	0	25
Total other project costs ..	$ 175	$ 0	$ 0	$ 0	$ 0	$ 0	$ 175
Total project costs (TPC)	$ 175	$ 550	$ 2,620	$ 2,730	$ 2,730	$ 870	$9,675

b. Related annual costs (Estimated life of project: 25 years)
None.

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
1. Total facility costs
(a) Line item -- Narrative not required.

1. Title and Location of Project:	Central Heating Plant Rehabilitation - Phase I Argonne National Laboratory Argonne, Illinois	2a. Project No. 95-E-301 2b. Construction Funded

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (Continued)

(2) Other project costs
(a) Conceptual design costs are for Conceptual Design Reports.
(b) Documentation costs include preparation of project data sheets, design criteria/reviews, and Environmental Evaluation Notification Form (DOE-CH 560).

b. Related annual funding
None.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1994 Congressional Budget Request are denoted with a vertical line in left margin.)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - General Purpose Facilities

1. Title and Location of Project: Roofing Improvements
Oak Ridge National Laboratory
Oak Ridge, Tennessee

2a. Project No. 94-E-363
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1994

3b. A-E Work (Title I & II) Duration: 12 Months

5. Previous cost estimate: None
Total Estimated Cost (TEC) -- $15,000
Total Project Cost (TPC) -- $15,070

4a. Date Physical Construction Starts: 2nd Qtr. FY 1994

4b. Date Construction Ends: 4th Qtr. FY 1997

6. Current Cost Estimate:
TEC -- $16,000
TPC -- $16,132

7. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1993	$ 4,024	-4,024 a/	$ 0	$ 0
1994	3,300	- 68	3,232	2,000
1995	3,000	0	3,000	3,600
1996	5,000	0	5,000	4,800
1997	4,768	0	4,768	5,000
1998	0	0	0	600

a/ This project was proposed as an FY 1993 new start (93-E-329). Application of a portion (-$4,024,000) of the FY 1993 programmatic general reduction of $40,000,000 necessitated a delay in the start of this project to FY 1994.

1. Title and Location of Project: Roofing Improvements
Oak Ridge National Laboratory
Oak Ridge, Tennessee

2a. Project No. 94-E-363
2b. Construction Funded

8. Brief Physical Description of Project

Due to budgeting constraints, the start of this project was delayed from FY 1993 (Project No. 93-E-329) to FY 1994 resulting in an attendant increase in TEC and TPC. The TEC has been increased from $15,000,000 to $16,000,000.
| The TPC has been increased from $15,070,000 to ~~$16,120,000~~ $16,132,000.

This project will replace deteriorated roofing on buildings and facilities throughout the Oak Ridge National Laboratory complex. ORNL has over 2.4 million square feet of roof area on approximately 160 buildings. Based on a recent study by the laboratory's Plant and Equipment Division, approximately seventy percent of the total area needs to be replaced due to age and deterioration. This project is the first of several planned projects to replace the deteriorated roofing. It will replace the roofs that are in the worst condition (top priority) on buildings housing the most important facilities. Most of the existing roofing materials contain asbestos and much of it has traces of radioactive contaminants. This project will provide for the installation of new roofing and includes the necessary engineered controls to assure compliance with applicable health and safety regulations.

9. Purpose, Justification of Need For, and Scope of Project

The purpose of this project is to replace deteriorated roofing on buildings and facilities at ORNL. As mentioned in Item 8, ORNL has over 2.4 million square feet of roof area. Approximately 70 percent of the roofs have been in service for over 20 years. Because of age and deterioration, many of these roofs have already developed leaks and require an increasing amount of maintenance. The results of the Plant and Equipment Division study of these roofs giving the type and condition of each roof by building including conditions of asbestos and/or radioactive contamination were used as the basis of the conceptual design. In some cases the problems have reached the point that they could affect equipment, records, and research activities, as well as the health and safety of personnel working in the buildings or facilities.

During the past few years budget constraints and the increased cost of satisfying environment, safety and health regulations have resulted in a reduction in funds available for roof replacement. The effects of this shortfall have been compounded by the increased cost associated with restrictions placed on work with or around asbestos materials. Most of the roofs needing replacement involve asbestos materials. This combination of factors has resulted in a growing backlog of roofs that need replacement due to a lack of adequate funding. The current average annual cost of roof repairs is $800,000. This does not include damage from leaks before repairs are made. There is currently a backlog of over $5 million of repairs needed. The roof replacement program is normally funded from expense funds; however, line item funding is requested because of the magnitude of the backlog and the need to

1. Title and Location of Project:	Roofing Improvements Oak Ridge National Laboratory Oak Ridge, Tennessee	2a. Project No. 94-E-363 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

provide an acceptable margin of response to meeting future replacement needs in a timely manner.

Failure to fund this project will result in a continuation of the expensive piece-meal repair program. As the roofs age, the number of leaks will increase, repairs will become more expensive and the potential for serious structural and equipment damage will grow along with the threat to employee health and safety. Further deterioration of facilities could result in decreased program funding for DOE and ORNL.

Use of the metric system of measurement for design, procurement and construction of this project was considered; but because of the nature of the work and the prevailing practices in the region it was determined to be uneconomical.

10. Details of Cost Estimate a/

	Item Cost	Total Costs
a. Design and management costs		$ 2,300
1. Engineering design and inspection at approximately 7 percent of items b and c.	$ 800	
2. Construction management at approximately 12 percent of items b and c	1,300	
3. Project management costs approximately 2 percent of item b	200	
b. Construction costs (install new roofing) b/		2,860
c. Removal and packaging of existing roofing		8,040
d. Design and project liaison, testing, checkout and acceptance		200
Subtotal		13,400
e. Contingencies at approximately 19 percent of above costs		2,600
Total line item cost		$16,000

a/ The cost estimate is based on conceptual design completed April 1991 at a cost of $70,000 and updated March 1993. The DOE Headquarters Economic Escalation Indices for Construction Projects were used as appropriate over the project cycle.

b/ Construction costs include $60,000 for readiness reviews.

1. Title and Location of Project: Roofing Improvements
Oak Ridge National Laboratory
Oak Ridge, Tennessee

2a. Project No. 94-E-363
2b. Construction Funded

11. Method of Performance

Design shall be performed under a negotiated architect-engineer contract and inspection shall be performed by the operating contractor. To the extent feasible, construction and procurement shall be accomplished by fixed-price contracts and subcontracts awarded on the basis of competitive bidding.

12. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	Total
a. Total project costs							
1. Total facility costs							
(a) Line item	$ 0	$ 2,000	$ 3,600	$ 4,800	$ 5,000	$ 600	$16,000
Total direct costs	$ 0	$ 2,000	$ 3,600	$ 4,800	$ 5,000	$ 600	$16,000
2. Other project costs							
(a) Conceptual design costs	$ 70	$ 0	$ 0	$ 0	$ 0	$ 0	$ 70
(b) Site characterization	7	0	0	0	0	0	7
(c) NEPA documentation	5	0	0	0	0	0	5
(d) Other project related costs	50	0	0	0	0	0	50
Total other project related costs	132	0	0	0	0	0	132
Total project costs (TPC)	$132	$2,000	$ 3,600	$ 4,800	$ 5,000	$ 600	$16,132

b. Related annual funding (Estimated life of project: 20 Years) ..... $ 515

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
1. Total facility costs
(a) Line item costs for design, procurement, removal of the old roofing, proper packaging of all project waste, and installation of the new roof are estimated to be $16,000,000. This includes $60,000 for readiness reviews.
2. Other project costs
(a) Conceptual design costs - The conceptual design was completed April 1991 at a cost of $70,000.
(b) Site characterization costs - $7,000.

1. Title and Location of Project:	Roofing Improvements Oak Ridge National Laboratory Oak Ridge, Tennessee	2a. Project No. 94-E-363 2b. Construction Funded

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (Continued)

2. Other project costs

(c) NEPA documentation costs - $5,000.
(d) Other project related funding - The design criteria will be completed July 1992 at a cost of $50,000.

b. Related annual funding
1. Other costs - The estimated average annual cost in FY 1994 dollars to repair the roofing installed by this project over the estimated 20 year life is $515,000.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1994 Congressional Budget Request are denoted with a vertical line in left margin.)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - General Purpose Facilities

1. Title and Location of Project:	Fuel Storage and Transfer Facility Upgrade Brookhaven National Laboratory Upton, New York	2a. Project No. 94-E-351 2b. Construction Funded

SIGNIFICANT CHANGES

- Start date changed from 4th quarter FY 1994 to 2nd quarter FY 1995. Completion date changed from 1st quarter FY 1996 to 3rd quarter FY 1996. Due to programmatic general reduction in FY 1993 this project will be funded over three years instead of one year as originally submitted.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - General Purpose Facilities

1. Title and Location of Project: Fuel Storage and Transfer Facility Upgrade
Brookhaven National Laboratory
Upton, New York

2a. Project No. 94-E-351
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1994

3b. A-E Work (Title I & II) Duration: 8 Months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- None
Total Project Cost (TPC) -- None

4a. Date Physical Construction Starts: 2nd Qtr. FY 1995

4b. Date Construction Ends: 3rd Qtr. FY 1996

6. Current Cost Estimate:
TEC -- $ 3,600
TPC -- $ 3,650

7. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1994	$1,000	$- 88	$ 912	$ 800
1995	2,479	0	2,479	2,216
1996	209	0	209	584

1. Title and Location of Project: Fuel Storage and Transfer Facility Upgrade
Brookhaven National Laboratory
Upton, New York

2a. Project No. 94-E-351
2b. Construction Funded

8. Brief Physical Description of Project

This project will upgrade the existing fuel storage and transfer facility (FSTF) at BNL to bring it into compliance with local and state codes for handling and storage of fuel oil, and will be in compliance with the NEPA and related DOE Orders.

A fuel truck unloading and transfer facility capable of unloading four trucks will be constructed. This facility will consist of a two sided pre-engineered enclosure with unloading booms and fire detection and protection systems, all constructed on a diked containment area equipped with leak detection systems and oil/water separator.

The fuel transfer facility enclosure will be constructed of uninsulated metal siding on a structural steel frame totalling approximately 5,600 square feet.

A pump house will be constructed adjacent to the fuel transfer enclosure. The pump house will draw fuel from the trucks via unloading booms and will discharge to the various fuel storage tanks. The pump house will consist of a building of approximately 1,200 square feet. The pump house will have pumps connected to the unloading booms via piping in a pipe tunnel located below grade. The pipe tunnel will provide secondary containment and will be fitted with a leak detection system and an oil/water separator connected to holding tanks. The pump house will have pumps for transferring oil among tanks and for circulating oil for tank heating.

Modifications to fuel piping will require installation of approximately 6,000 feet of above ground and underground distribution piping fitted with heat-tracing, leak detection and secondary containment systems. Modifications to fuel storage tanks will require coating the inner bottom of six tanks with an epoxy coating system.

Application of the epoxy requires stripping, degassing and sandblasting of the tanks. Additional modifications required for storage tanks are (1) installation of double bottoms and leak detection systems in two tanks, (2) installation of cathodic protection systems on eight tanks, and (3) installation of fixed foam fire protection systems on eight tanks.

1. Title and Location of Project:	Fuel Storage and Transfer Facility Upgrade Brookhaven National Laboratory Upton, New York	2a. Project No. 94-E-351 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project

This project will bring the BNL FSTF into compliance with state and local codes for handling and storage of fuel oil. The FSTF provides the only supply of fuel for the BNL Central Steam Facility (CSF) and the CSF is the primary source of heating and process steam for the entire laboratory. Renewal of the major petroleum facility license for the FSTF is contingent on timely upgrade of the facility to meet current code requirements. Failure to receive a renewed license could jeopardize operation of the CSF and impact programmatic operations.

The location of BNL over an EPA designated sole-source aquifer has heightened regulatory concern over potential groundwater contamination from BNL facilities. In 1987, DOE and BNL agreed to comply with Suffolk County Department of Health Services' (SCDHS) regulations targeted at groundwater protection. The regulations applicable to the FSTF are defined by SCDHS Sanitary Code Article 12 and by the New York State Department of Environmental Conservation (NYSDEC) rules for bulk petroleum storage facilities.

The BNL FSTF has a current storage capacity of over 2,000,000 gallons of residual and light petroleum fuels. This facility has been modified and expanded several times from its original construction in 1948 until 1986. However, these modifications preceded recent changes in state and local code requirements for the storage and handling of petroleum fuels.

Current regulations require that fuel off-loading areas be provided with shelter from rain and have improved containment. The capacity of the containment must exceed the largest fuel truck capacity by 10 percent. The regulations also require that all underground piping must have secondary containment and leak detection systems as must all new above ground piping. All storage tanks must have overfill protection systems and impervious secondary containment. Those tanks in direct contact with the ground must have cathodic protection systems and, depending on their date of installation, must have their bottoms coated with epoxy or fitted with a double bottom and leak detection system.

BNL has been able to meet the requirements of some of the new code modifications through the General Plant Projects (GPP) program. All the tanks have or are in the process of having overfill protection systems installed and have had the necessary modifications for secondary containment. However, the scope and cost of meeting full compliance for the FSTF requires a line item project.

1. Title and Location of Project:	Fuel Storage and Transfer Facility Upgrade Brookhaven National Laboratory Upton, New York	2a. Project No. 94-E-351 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

The regulatory timetable for achieving compliance for the FSTF has been exceeded and will require a temporary waiver to continue operations. Renewal of the NYSDEC Major Petroleum Facility license will be dependent upon having a conceptual plan and a funding commitment in place to perform the upgrades needed to achieve full compliance.

An additional benefit of implementing this project is that it will enable reactivation of the Alternate Liquid Fuel Program (ALF). The ALF program, as required by SEN 28, reduces the consumption and dependence on imported petroleum. The ALF program had to be curtailed because the FSTF did not meet the compliance requirements for the light fuels handled and stored as part of the ALF program.

In order to bring the FSTF into compliance with all applicable codes, the following actions will be undertaken during this project:

a. A fuel truck unloading enclosure will be constructed to minimize run-off in the fuel handling area. The area will have diked secondary containment with leak detection systems and an oil/water separator to process any run-off collected.

b. A pump house will be constructed to enable unloading and transfer of fuel from trucks more safely.

c. All underground piping will be replaced with new piping fitted with secondary containment and leak detection systems.

d. New above ground piping fitted with secondary containment and leak detection will be installed where necessary to improve the safety of transfer operations.

e. All fuel storage tanks in contact with the ground will be epoxy coated on the inner bottom. Those tanks containing light fuels will have double bottoms and leak detection systems installed.

f. All fuel storage tanks in contact with the ground will be fitted with cathodic protection systems.

g. Fuel tanks which store fuel oils with flashpoints below 100° F will be fitted with fixed foam fire protection systems.

1. Title and Location of Project: Fuel Storage and Transfer Facility Upgrade, Brookhaven National Laboratory, Upton, New York

2a. Project No. 94-E-351

2b. Construction Funded

10. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and management costs		$ 448
1. Engineering, design and inspection at approximately 14 percent of construction costs, Item b (Design, Drawings and specifications :$184)	$ 386	
2. Project management at 2 percent of construction costs (item b) and EDI (item a.1)	62	
b. Construction costs		2,700
1. Fuel transfer facility	1,030	
2. Piping upgrades	900	
3. Fuel tank upgrades	580	
4. Fire protection upgrades	190	
Subtotal		$3,148
c. Contingencies at approximately 14 percent of above costs		452
Total line item costs		$3,600 b/

a/ The above estimates are based on the Conceptual Design Report dated December 1991.
b/ Escalation rates used were taken from DOE Department Price Change Index - FY 1993 Guidance, August 1991 update.

11. Method of Performance

Engineering, design and inspection shall be performed by the operating contractor in conjunction with a fixed price evaluated architect/engineer contract. Construction and procurement shall be accomplished by fixed price contracts awarded on the basis on competitive bidding.

12. Schedule of Project Funding and Other Related Funding Requirements

Not required on projects with a TEC of less than $5,000,000 per draft DOE Order 5100.3a.

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

Conceptual design completed at $50,000. Other data not required on projects with a TEC of less than $5,000,000 per draft DOE Order 5100.3a.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1994 Congressional Budget Request are denoted with a vertical line in left margin.)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT
MULTIPROGRAM ENERGY LABORATORIES - GENERAL PURPOSE FACILITIES

1. Title and Location of Project:	Potable Water System Upgrade - Phase I Brookhaven National Laboratory Upton, New York	2a.	Project No. 93-E-325
		2b.	Construction Funded

SIGNIFICANT CHANGES

- Start date changed from 4th quarter FY 1993 to 2nd quarter FY 1994 due to delayed availability of funding in FY 1993. This delay was a result of a programmatic general reduction of $40,000,000 and a reprogramming of FY 1993 funding consistent with requested resources in FY 1994.

- Scope changed:

  Changed number of wells to be improved by installation of carbon absorption filtration systems from five to four.

  Increased by 4,000 feet, the amount of cast iron to be replaced.

  Extend water main approximately 4,000 feet to sewage treatment plant for potable water and fire protection.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1994 Congressional Budget Request are denoted with a vertical line in left margin.)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT
MULTIPROGRAM ENERGY LABORATORIES - GENERAL PURPOSE FACILITIES

1. Title and Location of Project: Potable Water System Upgrade - Phase I
Brookhaven National Laboratory
Upton, New York

2a. Project No. 93-E-325
2b. Construction Funded

3a. Date A-E Work Initiated (Title I design start scheduled): 2nd Qtr. FY 1993

3b. A-E Work (Title I & II) Duration: 12 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $5,250
Total Project Cost (TPC) -- $5,250

4a. Date Physical Construction Starts: 2nd Qtr. FY 1994

4b. Date Construction Ends: 4th Qtr. FY 1995

6. Current Cost Estimate:
TEC -- $ 5,380
TPC -- $ 5,430

7. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1993	$ 3,500	$-2,000 a/	$1,500	$ 0
1994	2,017	0	2,017	2,700
1995	1,863	0	1,863	2,080
1996	0	0	0	600

a/ Application of a portion (-$2,800,000) of the FY 1993 programmatic general reduction of $40,000,000 and a reprogramming (+$800,000).

1. Title and Location of Project:	Potable Water System Upgrade - Phase I Brookhaven National Laboratory Upton, New York	2a. Project No. 93-E-325 2b. Construction Funded

8. Brief Physical Description of Project

Due to budgetary constraints, this project has been stretched out from the 4th quarter of FY 1994 to 4th quarter FY 1995 resulting in an increase in TEC and TPC. The TEC has been increased from $5,250,000 to $5,380,000 and the TPC has been increased from $5,250,000 to $5,430,000.

This project commences upgrade of the potable water system as outlined in the Master Plan, Potable Water System 1989-2000. This project represents the first of several phases of an overall planned program to rehabilitate and improve the BNL potable water supply and will insure that an adequate supply of good quality potable water is available for the laboratory through the year 2000 and beyond.

Included in this first phase of work are the following improvements:

a. Installation of carbon absorption filtration systems to remove volatile organic compound contamination on main wells that supply water to the laboratory in the following sequence: Wells ~~10~~, 12, 4, 6, and 7.

b. Replacement of the existing ~~4,000~~ 8,000 feet of 6 inch cast iron pipe with cement-lined ductile iron pipe to eliminate the existing problem with low pressure/flow.

c. Partial replacement of 1,750 feet out of a total of 35,000 feet of 6 inch "transite" pipe to eliminate the future possibility of asbestos contamination of the water.

d. Extend the water main approximately 4,000 feet to the sewage treatment plant for potable water and fire protection.

e. Installation of additional equipment at each well station to improve the safety of the existing chlorine gas disinfection system located at each well station.

9. Purpose, Justification of Need For, and Scope of Project

a. Well Stations - The existing nine potable water wells date back to 1941. Of these nine, the three oldest have been decommissioned because of volatile organic contamination. Of the remaining six wells, only one, No. 7, does not show signs of contamination.

1. Title and Location of Project:	Potable Water System Upgrade - Phase I Brookhaven National Laboratory Upton, New York	2a. Project No. 93-E-325 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

Since this well is capable of only providing approximately half of the water requirements for the laboratory, steps must be taken to insure a safe, adequate supply of water into the future when considering the fact that the chemical contamination intrusion appears to be spreading. Eventually all of the wells may be affected. In addition, the Federal Government is in the process of tightening the current drinking water standards.

A means of insuring a long term and reliable service of safe potable water must be implemented. The drilling of new wells is not a viable alternative because of the uncertainty of the quality of the water from the new well(s). Previous studies have determined that the most cost-effective approach is the installation of a carbon adsorption filtration system at each well station. Because all of the wells are of the same capacity (1,200 gpm), a single modular design system can be purchased, and installed on a segmental basis at minimum cost, time and disruption.

Although Well No. 7 does not yet show contamination, the program plans for installation of carbon adsorption units on this well, anticipating the probable spread of the existing contamination problems. BNL is currently installing a prototype carbon adsorption system on Well ~~No. 11~~ Nos. 10 and 11. Operating experience gained on this installation will be utilized for the proposed systems on the other wells.

~~Five~~ Four carbon adsorption filtration units will be installed as part of this Phase I work for Well Nos. 4, 6, 7, ~~10,~~ and 12.

b. Cast Iron Piping - The ~~4,000~~ 8,000 feet of cast iron piping supplying the area south of Bell Avenue needs to be replaced to eliminate the unacceptable iron contact levels (resulting in discoloration and sediment) in the water, due to the corrosion on the interior of the cast iron pipe. Corrosion and scaling have also contributed to high pressure drops in the distribution piping, which inhibits fire fighting flow availability.

c. Transite Piping - Approximately 35,000 feet of transite pipe are part of the laboratory's potable water system. Some of this pipe dates back as far as the 1940s. In order to eliminate the potential health hazard of asbestos contamination of the potable water system, it is necessary to replace this pipe with cement-lined ductile iron pipe.

1. Title and Location of Project:	Potable Water System Upgrade - Phase I Brookhaven National Laboratory Upton, New York	2a. Project No. 93-E-325 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

c. Transite Piping (Continued)

Because of the large quantity of pipe involved, in all sizes from 4" to 24" diameter, and because the piping covers a wide physical area of the laboratory grounds, the only practical engineering approach is to replace the pipe in sections. The total area has been divided into smaller subareas so that the pipe replacement can be performed in a manageable fashion. These subsurfaces have been selected on the basis of each forming a contiguous region that could be replaced with minimum disruption of service and minimum number of interconnections with adjoining areas.

Because of the large amount of transite piping involved and the budget for Phase 1, only 1,750 feet of transite piping will be replaced at this time.

10. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and management costs		$ 655
1. Engineering design and inspection and administration at approximately 13 percent of construction costs, item b	$ 590	
2. Project management at 2 percent of construction costs, item a (1) and item b	65	
b. Construction costs		4,235
1. Well Station Treatment	2,340	
2. Replacement of Cast Iron and Transite Pipe	890	
3. Equipment (volatile organic compound removal)	1,005	
Subtotal		$ 4,890
c. Contingencies at approximately 10 percent of above costs		490
Total line item cost		$ 5,380 b/

a/ Estimate is based on a Conceptual Design Report dated May 1990.
b/ Escalation rates used were taken from DOE Departmental Price Change Index - FY 94 Guidance, August 1991 Update.

1. Title and Location of Project:	Potable Water System Upgrade - Phase I Brookhaven National Laboratory Upton, New York	2a. Project No. 93-E-325 2b. Construction Funded

11. Method of Performance

Design and inspection will be on the basis of negotiated architect-engineer contract. Construction and procurement will be accomplished by a competitively obtained lump sum contract.

12. Schedule of Project Funding and Other Related Funding Requirements

Not required.

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

Not required.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1994 Congressional Budget Request are denoted with a vertical line in left margin.)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - General Purpose Facilities

1.	Title and Location of Project:	Electrical System Upgrade - Phase II Argonne National Laboratory Argonne, Illinois	2a.	Project No. 93-E-313
			2b.	Construction Funded

SIGNIFICANT CHANGES

- Date A-E work initiated changed from 2nd quarter FY 1993 to 3rd quarter FY 1993 due to delayed availability of funding in FY 1993. This delay was a result of programmatic general reduction of $40,000,000 and a reprogramming of FY 1993 funding consistent with requested resources in FY 1994.

- Start date changed from 2nd quarter FY 1994 to 3rd quarter FY 1994 due to delayed availability of funding in FY 1993. This delay was a result of a programmatic general reduction of $40,000,000 and a reprogramming of FY 1993 funding consistent with requested resources in FY 1994.

- Completion date changed from 4th quarter FY 1995 to 1st quarter FY 1996 due to delayed availability of funding in FY 1993. This delay was a result of a programmatic general reduction of $40,000,000 and a reprogramming of FY 1993 funding consistent with requested resources in FY 1994.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1994 Congressional Budget Request are denoted with a vertical line in left margin.)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - General Purpose Facilities

1. Title and Location of Project: Electrical System Upgrade - Phase II
Argonne National Laboratory
Argonne, Illinois

2a. Project No. 93-E-313
2b. Construction Funded

3a. Date A/E Work Initiated, (Title I Design Start Scheduled): 3rd Qtr. FY 1993

3b. A/E Work (Title I & II) Duration: 8 Months

5. Previous Cost Estimate:
Total Estimated Costs (TEC) -- None
Total Project Cost (TPC) -- None

4a. Date Physical Construction Starts: 3rd Qtr. FY 1994

4b. Date Construction Ends: 1st Qtr. FY 1996

6. Current Cost Estimate:
TEC -- $5,100
TPC -- $5,259

7. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1993	$ 3,000	-2,000 a/	$1,000	$ 29
1994	2,150	- 93	2,057	1,000
1995	2,043	0	2,043	2,840
1996	0	0	0	1,231

a/ Application of a portion (-$2,400,000) of the FY 1993 programmatic general reduction of $40,000,000 and a reprogramming (+$400,000).

1. Title and Location of Project: Electrical System Upgrade - Phase II
Argonne National Laboratory
Argonne, Illinois

2a. Project No. 93-E-313
2b. Construction Funded

8. Brief Physical Description of Project

Due to budgetary constraints, this project has been stretched out from the 4th quarter of FY 1995 to the 1st quarter FY 1996.

The project provides for the rehabilitation of the main electrical distribution system and major components in the 200 area. The work consists of the following:

Replace the Inner Circle Drive 13.2 kV underground vault feeder loop switches, underground main feeder loop cables (B1, B2, B3 and B4) and building service lateral cables in 200 Area with type EPR cables and an underground conduit system. Replace below grade switch vaults. Replace 15 kV exterior automatic transfer switches. Provide a Central Control Station for the Site-wide Electrical Distribution System, with instrumentation and control of major components of the system.

9. Purpose, Justification of Need For, and Scope of Project

a. The 13.2 kV main feeder automatic transfer switch equipment is over 30 years old. Malfunctions on the switches have occurred. Maintenance of these switches is becoming increasingly difficult due to inability to obtain spare parts. A complete replacement, employing the present state-of-the-art technology, is recommended to insure safe, reliable, and continuous operation of the laboratory's programmatic experiments.

b. The 13.2 kV loop switches located in below grade manholes are undersized in their current capacity rating, have malfunctioned and present a hazard to operational personnel. The manufacturer has issued a hazard warning letter (G&W dated 7/10/85) to all users on the hazard present to personnel and equipment on operating these switches under any load condition.

c. The building high-voltage underground service cable laterals and Inner Circle main cable loop feeders B1, B2, B3 and B4 are direct burial, over 30 years of age and have passed the end of the predicted useful life, as recommended by cable manufacturers of cross-linked polyethylene cables.

d. A Central Control and Monitoring Station is necessary to permit fast control of the Site Distribution System from a central point where all necessary parameters would be available and for quick system analysis when problems occur. Disturbances on the distribution system have caused repeated untimely interruptions and loss of experimental data. A Central Control and Monitoring Station will quickly identify the trouble so that corrective action can be taken to minimize downtime.

1. Title and Location of Project: Electrical System Upgrade - Phase II
Argonne National Laboratory
Argonne, Illinois

2a. Project No. 93-E-313
2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

e. If this project is not approved, costly, inefficient, adverse and unsafe conditions will continue. The frequency and duration of partial, or total, functional shutdowns of scientific work, some of which are time sensitive, would increase. Yearly maintenance costs would also increase and be subject to inflationary pressures as well. Finally, morale would be impaired as the laboratory would be ignoring serious safety concerns. A "do-nothing" approach is not recommended.

10. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and management		$ 700
1. Engineering design and inspection at approximately 14 percent of construction costs	$ 520	
2. Construction management at approximately 3 percent of construction costs	110	
3. Project management at approximately 2 percent of construction costs	70	
		3,740
b. Construction Costs		
1. Loop switches and manholes	750	
2. 13.2 kV bldg. cable laterals	375	
3. 13.2 kV loop feeder cables	1,750	
4. 13.2 kV auto. transfer switches	265	
5. Supervisory system	600	
Subtotal		4,440
c. Contingencies at approximately 15 percent of above costs		660
Total line item cost		$5,100 b/

a/ The above estimates are based on a completed conceptual design and current cost data.
b/ All costs have been escalated from January 1991 to the midpoint of construction at the rate of 19.7%. Escalation rate methodology is based upon DOE FY 1992 Guidance dated August 1990: FY 1991 - 3.6%, FY 1992 - 4.5%, FY 1993 - 5.1%, FY 1994 - 5.6%, and FY 1995 - 5.7%.

1. Title and Location of Project: Electrical System Upgrade - Phase II
Argonne National Laboratory
Argonne, Illinois

2a. Project No. 93-E-313
2b. Construction Funded

11. Method of Performance

Engineering and design will be performed under a negotiated A/E contract with guidance, review and monitoring by laboratory personnel. Inspection will be performed by laboratory personnel aided by the A/E firm. Construction management and project management will be performed by laboratory personnel. Construction will be accomplished by fixed-price lump sum contract(s) awarded on the basis of competitive bidding.

12. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 91	FY 92	FY 93	FY 94	FY 95	FY 96	Total
a. Total project funding								
1. Total facility costs								
(a) Line item	$ 0	$ 0	$ 0	$ 29	$1,000	$2,840	$1,231	$5,100
Total direct costs	$ 0	$ 0	$ 0	$ 29	$1,000	$2,840	$1,231	$5,100
2. Other project costs								
(a) Conceptual design costs.....	$ 125	$ 25	$ 0	$ 0	$ 0	$ 0	$ 0	$ 150
(b) Documentation costs.....	6	3	0	0	0	0	0	9
Total other project costs.....	$ 131	$ 28	$ 0	$ 0	$ 0	$ 0	$ 0	$ 159
Total project costs (TPC)	$ 131	$ 28	$ 0	$ 29	$1,000	$2,840	$1,231	$5,259

b. Total related annual costs (estimated life of project: 30 years)
None.

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project costs (TPC)
1. Total project costs
(a) Line item -- Narrative not required.
2. Other project costs
(a) Conceptual design costs are for conceptual design reports.
(b) Documentation costs include preparation of project data sheets, design criteria and Environmental Evaluation Notification Form (DOE-CH 560).

1. Title and Location of Project:	Electrical System Upgrade - Phase II Argonne National Laboratory Argonne, Illinois	2a. Project No. 93-E-313 2b. Construction Funded

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (Continued)

b. Related annual funding

1. Facility operating costs -- Implementation of this project will replace existing physical components in the electrical distribution system with new state-of-the-art equipment. This will result in a reduction of maintenance and operating costs while restoring an acceptable level of operational efficiency and reliability to the system, thus the system's operating cost is reported as zero.

2. Programmatic operating expenses directly related to the facility -- Although this project will restore and replace general purpose facilities employed to supply electrical power to a wide variety of activities, there is no activity operating expense directly related to, or required for support of this project, thus the activity operating expense is reported as zero.

3. Capital equipment not related to construction but related to the programmatic effort in the facility -- None.

4. Maintenance, repair, GPP or other construction related to programmatic effort -- None.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1994 Congressional Budget Request are denoted with a vertical line in left margin.)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - General Purpose Facilities

1. Title and Location of Project:	Safety Compliance Modifications, 326 Building Pacific Northwest Laboratory Richland, Washington	2a. Project No. 92-E-324 2b. Construction Funded

SIGNIFICANT CHANGES

- Project was stretched out from the 1st quarter of FY 1994 to the 2nd quarter of FY 1995 due to budget constraints in FY 1993. This delay resulted in an increase in TEC from $8,400,000 to $8,600,000 and an increase in TPC from $8,520,000 to $9,065,000.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1994 Congressional Budget Request are denoted with a vertical line in left margin.)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - General Purpose Facilities

1. Title and Location of Project: Safety Compliance Modifications, 326 Building, Pacific Northwest Laboratory, Richland, Washington

2a. Project No. 92-E-324
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1992

3b. A-E Work (Title I & II) Duration: 13 Months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $8,400
Total Project Cost (TPC) -- $8,760

4a. Date Physical Construction Starts: 3rd Qtr. FY 1993

4b. Date Construction Ends: 2nd Qtr. FY 1995

6. Current Cost Estimate:
TEC -- $ 8,600
TPC -- $ 9,065

7. Financial Schedule:

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1992	$ 1,700	0	$ 1,700	$ 489
1993	6,000	-3,000 a/	3,000	1,227
1994	2,000	0	2,000	3,850
1995	1,900	0	1,900	2,161
1996	0	0	0	873

a/ Application of a portion of the FY 1993 programmatic general reduction of $40,000,000.

1. Title and Location of Project:	Safety Compliance Modifications, 326 Building Pacific Northwest Laboratory (PNL) Richland, Washington	2a. Project No. 92-E-324 2b. Construction Funded

8. Brief Physical Description of Project

Due to budgetary constraints, this project has been stretched out from the 1st quarter of FY 1994 to the ~~4th~~ 2nd quarter of FY 1995. The TPC has been increased from ~~$8,520,000~~ $8,760,000 to ~~$8,760,000~~ $9,065,000 to cover other projected related costs estimated at ~~$240,000~~ $465,000.

This project will bring the 326 Building, which is an aged but strategically important laboratory, into compliance with DOE Order 6430.1A, National Fire Protection Association (NFPA) requirements, National Electric Code requirements, and State of Washington requirements.

This project will include the following modifications to 326 Building: clearly define the egress pathways from the facility to meet the intent of NFPA 101, provide fire resistant stairwells and exit corridors to meet the intent of NFPA 101, extensive upgrading of the building electrical system to comply with The National Electric Code including replacement of most of the electrical distribution system, installation of a new motor control center, installation of backflow prevention on the fire main to meet State of Washington requirements, installation of handicap facilities, installation of full wet pipe sprinklers to comply with NFPA requirements, and other modifications to meet code requirements.

9. Purpose, Justification of Need For, and Scope of Project

The purpose of this project is to ensure continuity of operations in a vital laboratory facility supporting energy research operations. The 326 Building figures prominently in PNL's research in structural and microstructural materials research, microstructural services, chemical methods and separations, component analysis, super critical fluids, super conducting materials and various other basic research programs.

Department of Energy Order 6430.1A requires facilities to comply with the requirements of NFPA 101, Life Safety Code. Modifications to the facility will upgrade egress pathways, stairwells, and exit corridors to meet the intent of NFPA 101. Department of Energy Order 6430.1A also requires facilities to comply with the provisions of NFPA 70, NEC. Some aspects of the existing power distribution system do not meet the requirements for clear access as described in the NEC. In addition, replacement parts are not readily available for panelboards. There are some panels that are at full capacity with some circuits being overloaded. Additional distribution panels will be installed to alleviate the condition.

1. Title and Location of Project:	Safety Compliance Modifications, 326 Building Pacific Northwest Laboratory (PNL) Richland, Washington	2a. Project No. 92-E-324 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

Under agreement with the State of Washington, potable water systems at Hanford will be installed or modified to meet the requirements of the Washington State Department of Social and Health Services. At the 326 Building this effort will include installing backflow prevention devices on the building fire main to meet the intent of these requirements.

Department of Energy Order 6430.1A requires that any DOE facility whose intended use may result in the employment of physically handicapped persons be designed in accordance with the Uniform Federal Accessibility Standards in 41 CFR 101-19-6. Modifications will be completed to comply with this provision.

This project will renovate portions of the 326 Building to modify the existing egress from the building and upgrade the facility to meet the current requirements of DOE Order 6430.1A. Modifications will be done to the building's architectural, structural, piping, heating, ventilating and air conditioning, fire protection, and communication systems. Since its construction in 1952, the building has been in continuous use. Although the building is structurally sound, it does not meet today's building code and standards of acceptability for health and safety.

1. Title and Location of Project:	Safety Compliance Modifications, 326 Building Pacific Northwest Laboratory (PNL) Richland, Washington	2a. Project No. 92-E-324 2b. Construction Funded

10. Details of Cost Estimates a/

	Item Costs	Total Cost
a. Design and management costs		$ 2,150
1. Engineering design and inspection at approximately 36 percent of construction costs, item b	$ 1,700	
2. Construction management costs	320	
3. Project management at 3 percent of construction costs	130	
b. Construction costs		4,750
1. Building (building modification only)	4,690	
2. Utilities	40	
3. Special facilities	20	
Subtotal b/		$ 6,900
c. Contingencies at approximately 25 percent of the above cost		1,700
Total line item costs c/		$ 8,600

a/ Based on 90 percent completed definitive design.

b/ Engineering costs are higher than normal due to the complexity of this project which is entirely facility modification work. The project contingency was applied at an average of 25%, which is at the upper end of contingency guidelines, due to uncertainties and restraints involved in demolition in areas having asbestos, HVAC ductwork modifications, and electrical tie-ins and based on the status of definitive design.

c/ Includes escalation at the rates of 2.2% (FY 1990), 3.6% (FY 1991), 4.5% (FY 1992), and 5.1% (FY 1993) to midpoint of construction with rates based on the January 1990 Hanford Material and Labor Escalation Study.

11. Method of Performance

Design and inspection of the building modification work will be performed by the onsite architecture engineer. Construction and procurement will be accomplished by the onsite construction contractor.

1. Title and Location of Project: Safety Compliance Modifications, 326 Building
Pacific Northwest Laboratory (PNL)
Richland, Washington

2a. Project No. 92-E-324
2b. Construction Funded

12. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1992	FY 1993	FY 1994	FY 1995	FY 1996	Total
a. Total project funding							
1. Total facility costs							
(a) Line item	$ 0	$ 489	$1,227	$3,850	$2,161	$ 873	$8,600
Total.....	$ 0	$ 489	$1,227	$3,850	$2,161	$ 873	$8,600
2. Other project costs							
(a) Conceptual design costs....	$ 120	$ 0	$ 0	$ 0	$ 0	$ 0	$ 120
(b) Other project related costs	125	55	55	55	55	0	345
Total other project costs..	$ 245	$ 55	$ 55	$ 55	$ 55	0	$ 465
Total project costs (TPC) .	$ 245	$ 544	$1,282	$3,905	$2,216	$ 873	$9,065

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
1. Total facility costs
(a) Line item -- $8,600,000
(b) PE&D -- None
(c) Inventories -- Inventories necessary to put the facility into use are estimated to cost -- $0
2. Other project costs
(a) R&D Necessary to Complete Construction -- Preconceptual design/engineering studies cost -- $0
(b) Conceptual Design was completed in FY 1990 at a total cost of $120,000
(c) Other Project Related Funding -- Project support and start-up are estimated to cost -- $345,000

b. Related annual funding
1. Facility operating costs -- The major elements comprising the annual operating costs are operating and maintenance costs for upkeep of the building HVAC systems and equipment, janitorial costs, steam and electrical utility costs. These costs are estimated to be approximately $715,000 annually.
2. Programmatic operating expenses directly related to the facility -- None
3. Capital equipment not related to construction, but related to programmatic effort in the facility -- None
4. Maintenance, repair, GPP, or other construction related to programmatic effort in the facility -- None

DEPARTMENT OF ENERGY
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(Changes from FY 1994 Congressional Budget Request are denoted with a vertical line in left margin.)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - General Purpose Facilities

1. Title and Location of Project:	East Canyon Electrical Safety Project Lawrence Berkeley Laboratory (LBL) Berkeley, California	2a. Project No. 92-E-322 2b. Construction Funded

SIGNIFICANT CHANGES

- Completion date of 4th quarter FY 1995 changed to 3rd quarter of FY 1996 due to the FY 1993 programmatic general reduction.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1994 Congressional Budget Request are denoted with a vertical line in left margin.)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - General Purpose Facilities

1. Title and Location of Project: East Canyon Electrical Safety Project
Lawrence Berkeley Laboratory (LBL)
Berkeley, California

2a. Project No. 92-E-322
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 4th Qtr. FY 1992

3b. A-E Work (Titles I & II) Duration: 28 Months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $3,900
Total Project Cost (TPC) -- $3,900

4a. Date Physical Construction Starts: 2nd Qtr. FY 1994

4b. Date Construction Ends: 3rd Qtr FY 1996

6. Current Cost Estimate:
TEC -- $3,900
TPC -- $3,940

7. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1992	$ 377	+48 a/	$ 425	$ 19
1993	1,507	-600 b/	907	146
1994	1,568	0	1,568	1,124
1995	1,000	0	1,000	1,461
1996	0	0	0	1,150

a/ Includes internal reprogramming from closed-out projects (87-R-753 - $9,000; 88-R-807 - $5,000; 90-R-107 - $17,725; 90-R-108 - $8,000; 90-R-113 - $8,000).
b/ Application of a portion of the FY 1993 programmatic general reduction of $40,000,000.

1. Title and Location of Project:	East Canyon Electrical Safety Project Lawrence Berkeley Laboratory (LBL) Berkeley, California	2a. Project No. 92-E-322 2b. Construction Funded

8. Brief Physical Description of Project

This project is the third of several rehabilitation elements that are part of a master plan to improve the reliability of the electrical distribution system of the entire laboratory. The project will utilize the new circuit breakers provided in FY 1987 by the improvements to the main substation (Electrical Project #1). The scope includes the installation of a new 12kV switching station near the Centennial Drive overpass and new 12kV distribution circuits to laboratory facilities in the East Site area. Also included will be the installation of a new 500 kVA substation with standby generation at Building 72 (National Center for Electron Microscopy). In essence, these improvements will replace the old existing mode of electrical service for the East Site area.

The new switching station will be in a double-ended configuration and utilize 750 MVA, 13.8kV metalclad switchgear. The new switchgear will be housed in an outdoor metal enclosure and include a protected isle. The switchgear will be located on a concrete slab of about 1,000 sq. ft. From the switching station, redundant 12kV power circuits will radially branch out and distribute electrical energy to building and laboratory substations. These circuits will utilize 250 MCM power cables, which will be installed in new and existing underground ducts. The redundant supply feeders from the Grizzly Peak main substation to the switching station will be sized 500 MCM and installed in new and existing underground ducts.

These improvements to existing government-owned facilities will be located on land owned by the University of California and will serve or be operated in conjunction with other government-owned facilities at the Lawrence Berkeley Laboratory.

9. Purpose, Justification of Need For, and Scope of Project

The existing 12kV power distribution to the East Site facilities consists of one 12kV cable sized at 500 MCM, which is 21 years old. This cable provides power for Buildings 62, 66, 72, 73, 74, 76, 77, and 83. The total load on this cable is about 6,000 kVA.

The major deficiencies of the existing 12kV power system are:

- o No redundancy: A cable fault will cause extended power outage.
- o No individual ground fault protection: A ground fault will open the main circuit breaker at Grizzly Substation, resulting in a loss of power to the entire East Site.

1. Title and Location of Project: East Canyon Electrical Safety Project
Lawrence Berkeley Laboratory (LBL)
Berkeley, California

2a. Project No. 92-E-322
2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

- o Difficult to maintain: Since there is no redundancy, preventive maintenance operations can only be accomplished during scheduled shutdowns of the entire East Site.

- o Age of power cable, reaching end of useful life (25 years maximum) and should be replaced.

A new substation at Building 72 (National Center for Electron Microscopy) is required to provide an urgently needed independent power supply system to this major research facility. Currently, this facility is supplied through a low-voltage (480V) power feeder from Building 62 and does not have standby power backup. Power outages adversely affect the operation of the electron microscopes, requiring long time periods for adjustment and recalibration of these major scientific instruments.

10. Details of Cost Estimate a/

	Item Costs	Total Cost
a. 1. Engineering design and inspection at approximately 15 percent of construction costs, item b		$ 425
2. Project management at approximately 7 percent of construction costs, item b		185
b. Construction costs		2,740
1. Utilities	$ 1,817	
2. Special facilities engineered equipment	923	
Subtotal		3,350
c. Contingencies at approximately 16 percent above costs		550
Total line item cost		$3,900

a/ Construction costs have been escalated at 1.4% for FY 1987, 4.0% for FY 1988, 4.4% for FY 1989, 4.3% for FY 1990, 4.7% for FY 1991, 5.5% for FY 1992, 5.7% for FY 1993, 5.8% for FY 1994, and 1.5% for FY 1995, compounded to midpoint of construction, December 1994, for a total of 43.6%. Procurement costs have been escalated at 1.4% for FY 1987, 4.0% for FY 1988, 4.4% for FY 1989, 4.3% for FY 1990, 4.7% for FY 1991, 5.5% for FY 1992, 5.7% for FY 1993, and 2.4% for FY 1994, compounded to midpoint of procurement, February 1994, for a total of 37.3%. Conceptual design is complete. PED requirements: None.

1. Title and Location of Project:	East Canyon Electrical Safety Project Lawrence Berkeley Laboratory (LBL) Berkeley, California	2a. Project No. 92-E-322 2b. Construction Funded

11. Method of Performance

Engineering design will be performed under a negotiated Architect/Engineer subcontract. Inspection and some engineering will be done by LBL personnel. Construction and procurement will be accomplished by fixed price subcontracts awarded on the basis of competitive bids.

12. Schedule of Project Funding and Other Related Funding Requirements

Not required on projects with a TEC of less than $5,000,000 per draft DOE Order 5100.3a.

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

Not required on projects with a TEC of less than $5,000,000 per draft DOE Order 5100.3a.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - Environment, Safety and Health Support

1. Title and Location of Project: Loss Prevention Upgrades
Electrical Substations
Brookhaven National Laboratory
Upton, New York

2a. Project No. 95-E-309
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1995

3b. A-E Work (Title I & II) Duration: 24 Months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- None
Total Project Cost (TPC) -- None

4a. Date Physical Construction Starts: 4th Qtr. 1996

4b. Date Construction Ends: 3rd Qtr. FY 1998

6. Current Cost Estimate:
TEC -- $ 6,970
TPC -- $ 7,020

7. Financial Schedule:

Fiscal Year	Appropriation	Obligations	Costs
1995	$ 600	$ 600	$ 315
1996	2,480	2,480	585
1997	3,890	3,890	3,499
1998	0	0	2,571

1. Title and Location of Project:	Loss Prevention Upgrades Electrical Substations Brookhaven National Laboratory Upton, New York	2a. Project No. 95-E-309 2b. Construction Funded

8. Brief Physical Description of Project

This project provides for the upgrade of approximately 96 existing substations to bring the installations back into compliance with codes and regulations, the restoral and repair of personnel protection equipment, and the restoral or improvement of substation enclosures.

The work with respect to fire protection includes: relocating transformers, replacing oil-filled transformers with dry type, replacing oil-filled transformers with less flammable fluid, providing fire stand pipes and hose stations, providing fire deluge systems, providing dry chemical extinguishing systems, providing fire walls and barriers, providing wire glass, providing fire seals, relocating combustible materials and trailers, providing curbing, and providing oil retention pits.

Substation enclosures work includes: extending existing fence to proper heights, providing new fence to replace deteriorating fence, providing new fence for relocated transformers, replacing existing fences at proper clearances, providing non-combustible door for vaults, providing panic hardware on vault doors, and providing protective screens.

The work to be performed with respect to grounding includes: replacing deteriorating ground connection, replacing deteriorating ground cable, providing new grounding for relocated substations, providing ground jumpers for gates, providing equipment grounds, and reshaping arrestor grounding.

9. Purpose, Justification of Need for, and Scope of Project

This project was initiated as a result of the T.S.A. Tiger Team Funding FP 4-2 identifying the site's vulnerability to being shut down for an unacceptable period of time as a result of a credible fire. A survey of the site was conducted. The survey reviewed over 100 substations containing over 300 transformers. Applicable standards and codes were utilized to perform the evaluation.

This project is justified by minimizing potential harmful situations to personnel due to inadequate grounding and physical protection as well as minimizing the potential loss of property and experimental program time due to fire.

1. Title and Location of Project:	Loss Prevention Upgrades Electrical Substations Brookhaven National Laboratory Upton, New York	2a. Project No. 95-E-309 2b. Construction Funded

9. Purpose, Justification of Need for, and Scope of Project (Continued)

Existing conditions at some of the substations are as follows:

- Transformer location being too close to buildings as outlined in Factory Mutual guidelines.
- Fire standpipe and hose stations are required as outlined in Factory Mutual guidelines.
- Curbing to contain oil spills is required as outlined in Factory Mutual guidelines.
- Fire extinguishing system is required as outlined in Factory Mutual guidelines.
- Oil retention pit is required by EPA and as outlined in Institute of Electrical and Electronic Engineers (IEEE) Standard 980.
- Relocate trailer, combustible material, and gas storage shed to minimize potential fires as required by NFPA.
- Provide fire dampers in ductwork, wire glass in windows and fire seals in fire wall penetrations to prevent the spread of fires as required by NFPA.
- Provide new fence to replace deteriorating fences.
- Provide new fence with proper clearances as required by National Electrical Code (NEC) and National Electric Safety Code (NESC).
- Provide fence or modify existing fence to have proper height per NEC and NESC.
- Provide lockable access gates or doors with proper hardware per NEC and NESC.
- Replace new or supplemental grounding to gates, fence, and equipment as required.

Project work is divided into two major groups. The first group (A) is a higher priority due to immediate personnel protection concerns and life safety considerations. The second group (B) is the remainder of the substations.

1. Title and Location of Project:	Loss Prevention Upgrades Electrical Substations Brookhaven National Laboratory Upton, New York	2a. Project No. 95-E-309 2b. Construction Funded

10. Details of Cost Estimate a/	Item Cost	Total Cost
a. Design and management costs		$ 987
1. Engineering, design and inspection at approximately 15 percent of construction costs, Item b	$ 822	
2. Project management at approximately 3 percent of construction costs (Item b) and EDI (Item a.1)	165	
b. Construction costs		5,353
1. Substation modifications group A (First Priority)	3,560	
2. Substation modifications group B (Second Priority)	1,793	
Subtotal		6,340
c. Contingencies at approximately 10 percent of above costs		630
Total Line item cost		$ 6,970 a/b/

a/ Estimate is based Conceptual Design Report dated January 1993.
b/ Escalation rates used were taken from DOE Departmental Price Change Index - FY 95 Guidance, August 1992 Update.

11. Method of Performance

Engineering, design and inspection will be performed by the operating contractor. Construction and procurement will be accomplished by fixed price contracts awarded on the basis of competitive bidding.

1. Title and Location of Project: Loss Prevention Upgrades
Electrical Substations
Brookhaven National Laboratory
Upton, New York

2a. Project No. 95-E-309
2b. Construction Funded

12. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	FY 1998	Total
a. Total project costs						
1. Total facility costs						
(a) Line Item	0	$ 315	$ 585	$3,499	$2,571	$6,970
Total facility cost	0	$ 315	$ 585	$3,499	$2,571	$6,970
2. Other project costs						
(a) Conceptual design costs.....	50	0	0	0	0	50
Total project cost.....	$ 50	$ 315	$ 585	$3,499	$2,571	$7,020

b. Related annual funding
Not applicable.

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
1. Total facility costs
(a) Line item--Narrative not required.
(b) PE&D--None.
(c) Expense-funded equipment--None.
(d) Inventories--None.
(e) Non-Federal Contribution--None.
2. Other project costs
(a) R & D --None
(b) Conceptual design--No narrative required.
(c) D&d --None
(d) Other project related costs--None.
(e) Non-Federal Contribution --None.

b. Related annual funding--Not required.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST

ENERGY SUPPLY RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - Environment, Safety and Health Support

1. Title and location of project: Sanitary System Modifications
Phase II
Brookhaven National Laboratory
Upton, New York

2a. Project No. 95-E-308
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1994

3b. A-E Work (Title I & II) Duration: 10 Months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- None
Total Project Cost (TPC) -- None

4a. Date Physical Construction Starts: 1st Qtr. FY 1996

4b. Date Construction Ends: 2nd Qtr. FY 1997

6. Current Cost Estimate:
TEC -- $ 3,532
TPC -- $ 3,772

7. Financial Schedule:

Fiscal Year	Appropriation	Obligations	Costs
1995	$ 960	$ 960	$ 700
1996	1,540	1,540	1,200
1997	1,032	1,032	1,300
1998	0	0	332

1. Title and location of project:	Sanitary System Modifications Phase II Brookhaven National Laboratory Upton, New York	2a. Project No. 95-E-308 2b. Construction Funded

8. Brief Physical Description of Project

This project is the second phase of the upgrade of the laboratory sanitary waste system. Under phase I, Project No. 92-E-309 with a TEC of $4,000,000, scheduled for fiscal years 1992 through 1994, major operational systems of the waste treatment plant will be upgraded and about 7,000 linear feet of trunk sewer lines and 26 manholes upstream of the treatment plant will be replaced. This phase continues with replacement of the balance of defective sewer lines and implements treatment plant building improvements.

Included in this second phase are the following upgrades:

a. Replacement of approximately 15,440 linear feet of defective sewer pipe with cement-lined ductile iron or heavy wall PVC pipe. The pipe size varies from 6 inch to 30 inch.
b. Hyperchlorite Building (No. 576) - demolish plywood structure and replace with masonry structure.
c. Barminator Building (No. 583) - demolish plywood structure and replace with masonry structure.
d. Influent Measuring Building (No. 584) - demolish plywood structure and replace with masonry structure.
e. Service Building (No. 575) - replace adjacent lunch and spare parts trailer with masonry addition.

9. Purpose, Justification of Need for, and Scope of Project

Deteriorating Sewer Lines and Manholes

The laboratory is situated over Long Island's sole source aquifer. The 1990 Tiger Team Assessment states "...sound environmental management practices dictate that sewage collection systems be repaired and maintained to minimize contamination of soils and groundwater through sewer lines exfiltration or, conversely, to prevent overloading of waste treatment facilities due to infiltration of storm water." A video inspection of the sewage collection system, conducted in 1988, identified areas where pipes are cracked, broken, and in some cases, near collapse. Root intrusion is prevalent and lines contain dips or slope the wrong way giving rise to areas, which are continually flooded and contain standing debris. Most of the lines are vitrified tile with joints at 4 foot intervals. Twenty-six defective sanitary manholes were also identified.

To generally eliminate or minimize present and future infiltration to the groundwater and exfiltration to the sewage collection system, existing defective sewer piping will be replaced with approximately 15,440 linear feet of new

1. Title and location of project: Sanitary System Modifications Phase II, Brookhaven National Laboratory, Upton, New York

2a. Project No. 95-E-308
2b. Construction Funded

9. Purpose, Justification of Need for, and Scope of Project (Continued)
Deteriorating Sewer Lines and Manholes

cement lined ductile iron or heavy wall PVC pipe from manhole to manhole. Piping will be installed in 18 to 20 foot lengths and be connected with the highest quality gasketed joints.

Wastewater Treatment Plant Building Improvements

Building Nos. 576, 583 and 584 are plywood structures that do not presently meet the standards of the New York State Building Code and are in violation of OSHA and NEC codes in that heating and electrical systems are not suitable for the existing hazardous atmospheres and adequate ventilation is not provided. The structures will be demolished and replaced with new block structures.

In Bldg. 575 (Service Building) an adjacent trailer serves as lunch room and spare parts storage area. The trailer is old, cramped and in deteriorated condition. The spare parts area is inaccessible to large parts storage as it lacks a double door at ground level. The trailer will be replaced with a masonry addition large enough for a storage area with hoisting equipment and a separate lunch room.

10. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and management costs		$ 431
1. Engineering, design, and inspection at approximately 14% of construction costs, item b	$ 371	
2. Project management at 2 percent of construction costs (item b) and (item a.1.)	60	
b. Construction costs		2,650
1. Pipe Replacement Contract No. 1	930	
2. Pipe Replacement Contract No. 2	1,400	
3. WWTF Building Improvements	320	
Subtotal		$3,081
c. Contingency at approximately 14% of above costs		451
Total line item costs		$3,532 b/

a/ Estimate is based on a Conceptual Design Report dated March 1992.
b/ Escalation rates used were taken from DOE Departmental Price Change Index - FY 1993 Guidance, August 1991 update.

1. Title and location of project:	Sanitary System Modifications Phase II Brookhaven National Laboratory Upton, New York	2a. Project No. 95-E-308 2b. Construction Funded

11. Method of Performance

Design will be accomplished under a negotiated architect-engineering contract and project management, quality assurance and inspection will be accomplished by Design and Construction Division of Plant Engineering. Construction and procurement will be accomplished by three or more competitively obtained lump sum contracts.

12. Schedule of Project Funding and Other Related Funding Requirements

Not required on projects with a TEC of less than $5,000,000 per draft DOE Order 5100.3a.

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

Conceptual design completed at $50,000. Other data not required on projects with a TEC of less than $5,000,000 per draft DOE Order 5100.3a.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST

ENERGY SUPPLY RESEARCH & DEVELOPMENT - PLANT & CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - Environment, Safety and Health Support

1. Title and Location of Project: Fire Safety Improvements - Phase III
Argonne National Laboratory
Argonne, Illinois

2a. Project No. 95-E-307
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Schedule): 2nd Qtr. FY 1995

3b. A-E Work (Title I & II) Duration: 10 Months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- None
Total Project Cost (TPC) -- None

4a. Date Physical Construction Starts: 2nd Qtr. FY 1996

4b. Date Construction Ends: 4th Qtr. FY 1998

6. Current Cost Estimate:
TEC -- $ 2,880
TPC -- $ 2,946

7. Financial Schedule:

Fiscal Year	Appropriation	Obligations	Costs
1995	$ 210	$ 210	$ 170
1996	1,000	1,000	920
1997	1,000	1,000	840
1998	670	670	950

1. Title and Location of Project:	Fire Safety Improvements - Phase III Argonne National Laboratory Argonne, Illinois	2a. Project No: 95-E-307 2b. Construction Funded

8. Brief Physical Description of Project

a. General

This project encompasses the third phase of site wide fire safety modifications at Argonne National Laboratory (ANL).

This project will provide new exit routes and upgrade existing exit routes in various facilities. Typical improvements will vary with each facility and will include the following:

a. Widen existing corridors
b. Provide required stairwell and corridor fire ratings
c. Upgrade fire rating of doors
d. Provide new corridors and aisles
e. Provide new building exits
f. Provide new stairwells
g. Replace obsolete fire alarm system components and add to fire sprinkler protection.

Preliminary building surveys are in progress to ascertain specific building component deficiencies. These surveys are directed in two areas of review. 1) means of egress and 2) fire separation/fire protection of building elements. This phase, Phase III, will address building means of egress life safety deficiencies. (i.e., those building exit components not in compliance with the NFPA 101 "Life Safety Code"). Phase IV and V will address the upgrading of the site fire alarm communications system and building fire separation/fire protection deficiencies as defined during the 1992 and 1993 fire protection surveys.

b. Means of Egress

ANL has completed the 1991 multiple building surveys of "means of egress" deficiencies. The deficiencies, in general, cover lack of required exit routes for building occupants.

1. Title and Location of Project:	Fire Safety Improvements - Phase III Argonne National Laboratory Argonne, Illinois	2a. Project No: 95-E-307 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project

The ANL Fire Safety Improvements project is a multi-year multiple phase project being implemented to correct building fire protection and life safety deficiencies. The first two phases will address Factory Mutual survey recommendations, replace obsolete fire alarm system components and provide fire sprinkler protection to areas presently unprotected.

a. This project is proposed as part of ANL's 1991 Action Plan #AP165, which was developed in response to DOE Tiger Team findings. Finding #FP.2-1 "Life Safety Code NFPA 101" and #WS.4-6 "Non-Compliance-Means of Egress" identified that ANL's building exit routes were not in compliance with 29 CFR 1910.36(b)(6), and NFPA 101.

b. This project is required to comply with the following DOE Orders and national codes.

DOE Order 5480.7 "Fire Protection"
Section 5480.7 (10)(b)(5) - requiring limitations of fire spread with appropriate fire barriers.
Section 5480.7 (10)(b)(7) - requiring adequate fire resistive construction of enclosures such as stairwells.

DOE Order 5480.4 "Environmental Protection, Safety and Health Protection Standards" Appendix 2 - listing NFPA Fire Codes as mandatory standards.

Alternatives to the Proposed Actions

There appear to be two alternatives to Phase III of the Fire Safety Improvements Projects. These are: (1) take no action and (2) make only minimal repairs and renovate only progressively when absolutely necessary.

No Action, Alternative No. 1

This alternative would allow existing fire and life safety deficiencies to continue their present condition. The existing buildings covered in this report are not in compliance with the Life Safety Code, NFPA 101, which is a mandatory DOE code. If no action is taken, employees working within these buildings would be subject to high risk of injury or death resulting from fire. This action would be in violation of ANL's Tiger Team Assessment Plan items as approved by DOE. This action is not recommended.

1. Title and Location of Project: Fire Safety Improvements - Phase III
Argonne National Laboratory
Argonne, Illinois

2a. Project No: 95-E-307
2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

Alternative No. 2

This alternative is more expensive over a long period and allows existing fire and life safety violations to continue until renovation occurs. This piecemeal rectification approach over a long period of time increases the number of times that buildings and research projects must be disturbed for renovation. This action would be in violation of ANL's Tiger Team Assessment Action Plan as approved by DOE. This action is not recommended.

Recommendation

The renovation work as described herein is the recommended approach to expediently correct the fire and life safety deficiencies in the existing buildings.

10. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and management costs		$ 430
1. Engineering design and inspection at approximately 16 percent of construction costs	$ 305	
2. Construction management at approximately 4 percent of construction costs	76	
3. Project management costs at approximately 3 percent of construction costs	49	
b. Construction costs		1,950
Subtotal		$ 2,380
c. Contingencies at approximately 15 percent of above costs		360
d. Laboratory overhead assessment		140
Total line item cost		$ 2,880 b/

a/ Estimates are based on a completed conceptual design and current cost data.
b/ All costs have been escalated from January 1992 to the midpoint of construction at the rate of 17.3%. Escalation rate methodology is based upon DOE FY 1993 Guidance dated August 1991: FY 1992 - 2.5%, FY 1993 - 3.9%, FY 1994 - 4.7%, FY 1995 - 4.8%, and FY 1996 - 4.9%.

1. Title and Location of Project:	Fire Safety Improvements - Phase III Argonne National Laboratory Argonne, Illinois	2a. Project No: 95-E-307 2b. Construction Funded

11. Method of Performance

Engineering and design will be performed under a negotiated A/E contract with guidance, review and monitoring by laboratory personnel. Inspection will be performed by laboratory personnel aided by the A/E firm. Construction management and project management will be performed by laboratory personnel. Construction will be accomplished by fixed-price lump sum contract(s) awarded on the basis of competitive bidding.

12. Schedule of Project Funding and Other Related Funding Requirements

Not required on projects with a TEC of less than $5,000,000 per draft DOE Order 5100.3a.

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

Conceptual design completed at a cost of $62,000. No other data required on projects with a TEC of less than $5,000,000 per draft DOE Order 5100.3a.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1994 Congressional Budget Request are denoted with a vertical line in left margin.)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - Environment, Safety and Health Support

1.	Title and Location of Project:	Hazardous Materials Safeguards, Phase I Lawrence Berkeley Laboratory Berkeley, California	2a. Project No. 93-E-324 2b. Construction Funded

SIGNIFICANT CHANGES

o Scope changes:

- Project scope modified due to reduction of hazardous materials stored in Building 70. Reduction achieved through use of off-site storage and administration costs.

- Modifications include deletion of chemical delivery system, ventilation system upgrades and central monitoring and alarm system.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1994 Congressional Budget Request are denoted with a vertical line in left margin.)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - Environment, Safety and Health Support

1. Title and Location of Project: Hazardous Materials Safeguards, Phase I
Lawrence Berkeley Laboratory
Berkeley, California

2a. Project No. 93-E-324
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1993

3b. A-E Work (Titles I & II) Duration: 15 Months

5. Previous Cost Estimate: None
Total Estimated Cost (TEC) -- $5,100
Total Project Cost (TPC) -- $5,160

4a. Date Physical Construction Starts: 3rd Qtr. FY 1994

4b. Date Construction Ends: 2nd Qtr. FY 1996

6. Current Cost Estimate:
TEC -- $4,720
TPC -- $4,780

7. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
FY 1993	$ 1,500	-1,000 a/	$ 500	$ 70
FY 1994	1,000	0	1,000	670
FY 1995	1,962	0	1,962	1,970
FY 1996	1,258	0	1,258	2,010

a/ Application of a portion (-$1,000,000) of the FY 1993 programmatic general reduction of $40,000,000.

1. Title and location of project: Hazardous Materials Safeguards, Phase I
Lawrence Berkeley Laboratory
Berkeley, California

2a. Project No. 93-E-324
2b. Construction Funded

8. Brief Physical Description of Project

Due to budgetary constraints, this project has been stretched out from the 2nd quarter of FY 1995 to the 2nd quarter of FY 1996.

The project scope has been modified due to the reduction of hazardous materials stored at Building 70. This reduction was achieved through use of off-site storage and administrative controls. The Building's current B-2 Occupancy classification can now be maintained. Modifications include the deletion of the chemical delivery system, ventilation system upgrades and the central monitoring and alarm system.

This project will upgrade Building 70 to add safety, health and environmental protection safeguards to meet or exceed current standards of public health and safety. When completed the building will meet the requirements of the ~~1988~~ 1991 editions of the Uniform Fire Code (UBC and UFC) and safety standards for the storage, dispensing and use of hazardous materials required for research facilities using hazardous materials as well as state and Federal regulations and best business practices.

Building 70 contains 62,237 gross square feet (GSF) of space of which approximately 38,000 net square feet (NSF) is research laboratory area. Building modifications will include the separation of various types of research activities which require individualized control areas and safeguards as well as improved separations of normal laboratory-office occupancies. The separations will include new walls, doors, door frames and proper penetration seals. Also, vertical shafts will be upgraded to meet required separations for wall penetrations.

~~A separate chemical delivery system will be provided consisting of exterior walkways and vertical dumbwaiter in order to separate delivery of hazardous materials from exit corridors used by occupants. An exterior walkway will be constructed on the southwall of the building to provide chemical deliveries to laboratories within the building. These delivery routes will be "dedicated" chemical delivery corridors and not used as a means of ingress/egress for the building. An internally situated dumbwaiter (serviced from the exterior) will connect the chemical delivery walkways and be accessible from the 1st floor loading dock level of the building.~~

Additional exits will be provided from laboratories which do not currently have a second means of egress.

~~The ventilation system will be upgraded to meet new code requirements and mitigate hazards throughout the building. This will include increased capacities for airflow chilled water and the heating system.~~

1. Title and location of project:	Hazardous Materials Safeguards, Phase I Lawrence Berkeley Laboratory Berkeley, California	2a. Project No. 93-E-324 2b. Construction Funded

8. Brief Physical Description of Project (Continued)

Electrical systems will also be upgraded to mitigate health and safety hazards throughout the building. The emergency power system will be upgraded to meet the requirements of NFPA 110, Level 1 operations. ~~A central supervised monitoring and alarm system will be provided for monitoring hazardous materials.~~ Emergency egress lighting will be provided in laboratories and corridors as required by ANSI Standard 446-1987.

These improvements to existing government-owned facilities will be located on land owned by the University of California and will serve or be operated in conjunction with other government-owned facilities at Lawrence Berkeley Laboratory (LBL).

9. Purpose, Justification of Need For, and Scope of Project

The existing Building 70 is an aged laboratory facility used for materials sciences and semi-conductor research which are pertinent to the programs of Materials and Chemical Sciences, Nuclear Science, High Energy Physics, and Health and Environmental Research. These operations employ a wide variation of chemicals and gases which are flammable and/or toxic. The current configuration and distribution of research activities in Building 70 makes it impractical to apply operational and passive safeguards recently incorporated in the 1988 Uniform Building and Fire Codes and various new state and Federal regulations governing the use of hazardous materials in research activities. Major building and building systems renovations are required to meet new standards for safeguarding health, safety and the environment.

If this project is not funded, research operations at the existing facility must be restricted, thus either seriously curtailing and/or eliminating LBL operations in these fields of research.

1. Title and location of project:	Hazardous Materials Safeguards, Phase I Lawrence Berkeley Laboratory Berkeley, California	2a. Project No. 93-E-324 2b. Construction Funded

10. Details of Cost Estimate a/	Item Costs	Total Cost
a. Design and management costs		$ 736
1. Engineering design and inspection at approximately 16 percent of construction costs, Item b	$ 536	
2. Project management at approximately 6 percent of construction costs	200	
b. Construction costs		3,350
1. Buildings	3,350	
Subtotal		4,086
c. Contingencies at approximately 15 percent of above costs		634
Total line item cost		$ 4,720

a/ Costs have been escalated at 3.6% for FY 1991, 4.5% for FY 1992, 5.1% for FY 1993, and 5.6% for FY 1994; compounded to the midpoint of construction, August 1994 for a total of 18.5%.

Conceptual design is complete.
PED requirements: None.

11. Method of Performance

Engineering design will be performed under a negotiated architect-engineer subcontract after a Pre-Title I survey and report for the facility has been prepared by a qualified chemical consultant. Inspection and some engineering may be done by LBL personnel. Construction and procurement will be accomplished by fixed price subcontracts awarded on the basis of competitive bids. Minor construction work may be done using LBL forces.

1. Title and location of project: Hazardous Materials Safeguards, Phase I
Lawrence Berkeley Laboratory
Berkeley, California

2a. Project No. 93-E-324
2b. Construction Funded

12. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1993	FY 1994	FY 1995	FY 1996	Total
a. Total project funding						
1. Total facility costs						
(a) Line item	$ 0	$ 70	$ 670	$ 1,970	$ 2,010	$4,720
Total facility costs	$ 0	$ 70	$ 670	$ 1,970	$ 2,010	$4,720
b. Related annual funding						
2. Operating expenses (Conceptual Design)	$ 60	$ 0	$ 0	$ 0	$ 0	$ 60
Total project cost (TPC)	$ 60	$ 70	$ 670	$ 1,970	$ 2,010	$4,780

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
1. Total facility
The major elements of the Building 70 Rehabilitation have been described in Item 8.
2. Other project funding
(a) Conceptual Design Report (CDR) was accomplished in FY 1991 by LBL personnel.
(b) Environmental (NEPA) and Safety (SAR) documentation costs - Required for environmental evaluation and, if required, preparation of an Environmental Assessment (EA). For safety documentation, includes preparation of preliminary safety analysis documents (PSAD).

b. Related annual funding (estimated life of project -- 40 years)
1. Facility operating costs - Includes estimated cost for maintenance, custodial service and utilities.
2. Programs already exist that will be using this facility.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1994 Congressional Budget Request are denoted with a vertical line in left margin.)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - Environment, Safety and Health Support

1. Title and location of project: Fire and Safety Systems Upgrade, Phase I
Lawrence Berkeley Laboratory
Berkeley, California

2a. Project No. 93-E-323
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1993

3b. A-E Work (Titles I & II) Duration: 28 Months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $4,600
Total Project Cost (TPC) -- $4,600

4a. Date Physical Construction Starts: 2nd Qtr. FY 1994

4b. Date Construction Ends: 3rd Qtr. FY 1997

6. Current Cost Estimate:
TEC -- $4,600
TPC -- $4,630

7. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
FY 1993	$ 1,500	-1,000 a/	$ 500	$ 80
FY 1994	1,000	0	1,000	900
FY 1995	2,000	0	2,000	1,200
FY 1996	1,100	0	1,100	1,600
FY 1997	0	0	0	820

a/ Application of a portion (-$1,000,000) of the FY 1993 programmatic general reduction of $40,000,000.

1. Title and location of project:	Fire and Safety Systems Upgrade, Phase I Lawrence Berkeley Laboratory Berkeley, California	2a. Project No. 93-E-323 2b. Construction Funded

8. Brief Physical Description of Project

Due to budgetary constraints, this project has been stretched out from the 3rd quarter of FY 1996 to the 3rd quarter FY 1997.

The 1989 Technical Safety Appraisal (TSA) identified Lawrence Berkeley Laboratory (LBL) facilities that were not in compliance with the Uniform Building Code, Uniform Fire Code, NFPA 101 Life Safety Code, NFPA 80 Fire Doors and Windows, NFPA 13 Installation of Sprinkler Systems, NFPA 14 Standpipe and Hose System, NFPA 72 Installation Maintenance and Use of Protective Signaling Systems, and DOE Order 5480.7 Fire Protection Improved Risk Program. This project is the first of several projects which will bring LBL facilities in compliance with recent building, fire and life safety codes. Corrective measures resulting from a facility-wide fire protection engineering survey will be prioritized and incorporated in the project. In general, some or all of the following modifications will be made where deficiencies exist:

- Repair or replace fire rated assemblies which include fire rated doors, fire/smoke dampers, fire stopping at through-wall penetrations and patching of openings in wall and floors to provide integrity of the fire rated barriers.
- Provide fire rated wall assemblies for occupancy separation as a result of change in use from the original building design.
- Provide required number of exits per NFPA 101, the Uniform Building Code, and the Uniform Fire Code.
- Retrofit exit doors with proper hardware.
- Replace door latches which will not open in the event of a fire due to the pressure differences on both sides of the door.
- Provide additional exit signs in areas per the requirements of NFPA 101 where the exits are not obvious.
- Provide adequate exit lighting and emergency lighting per the requirements of NFPA 101.
- Relocate and add automatic sprinklers in areas where the existing systems do not conform to the requirements of NFPA 13, e.g., under wood structures in Building 51B and the platform in Building 52.

1. Title and location of project:	Fire and Safety Systems Upgrade, Phase I Lawrence Berkeley Laboratory Berkeley, California	2a. Project No. 93-E-323 2b. Construction Funded

8. Brief Physical Description of Project (Continued)

- o Provide heat detectors and/or smoke detectors in addition to automatic sprinklers in areas where redundant systems are warranted due to the high replacement values and mission criticality of the facilities.
- o Repair and upgrade fire alarm systems to ensure the audibility is adequate to warn occupants in the event of fire including workers on the roof.
- o Remove and replace excess combustible construction in exit corridors, e.g., non fire retardant treated wood used as pipe supports and abandoned nonplenum rated telephone/electrical cables in the spaces above the corridor ceiling.
- o Provide flammable/combustible liquid storage cabinets.
- o In buildings where exiting deficiencies cannot be upgraded in a practical and/or a cost effective manner, upgrade air supply and exhaust systems to make provisions for incorporation of smoke control systems in the future.

These improvements to existing government-owned facilities will be located on land owned by the University of California and will serve or be operated in conjunction with other government-owned facilities at LBL.

9. Purpose, Justification of Need For, and Scope of Project

Facilities at LBL were largely constructed from the 1940s to the mid 1960s and provided national scientific leadership during a historically significant period of high energy and nuclear physics research. Building design, including installation of fire protection systems, was based upon the applicable building and fire codes and intended occupancy at the time of construction. During this period, major changes occurred in the building, fire, and life safety codes. Furthermore, the conversion of LBL to a multiprogram research facility necessitated reassignment of space for different occupancies than originally intended. While sprinklers have been installed in most facilities, modifications are required to meet new codes and correct noncompliance conditions. Adequate compartmentalization (fire barriers) to prevent fire spread in some facilities does not exist. Fire alarm systems are inadequate in providing early warning signals to occupants in parts of these buildings. Fire resistive ratings of the exit corridors have been comprised by through-wall penetrations and nonrated fire assemblies.

1. Title and location of project: Fire and Safety Systems Upgrade, Phase I
Lawrence Berkeley Laboratory
Berkeley, California

2a. Project No. 93-E-323
2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

Dead end corridors exceed the long distance permitted by applicable codes, creating life safety hazards. Exit doors are not provided or have been replaced with hardware which does not conform to applicable codes.

10. Details of Cost Estimate a/

	Item Costs	Total Cost
a. Design and management costs		$ 730
1. Engineering design and inspection at approximately 17 percent of construction costs, Items b	$ 540	
2. Project management at approximately 6 percent of construction costs (Item b)	190	
b. Construction costs		3,200
1. Improvements to land	3,200	
Subtotal		3,930
c. Contingencies at approximately 17 percent of above costs		670
Total line item cost		$ 4,600

a/ Costs have been escalated at 3.6% for FY 1991, 4.5% for FY 1992, 5.1% for FY 1993, and 5.6% for FY 1994, 5.7% for FY 1995; compounded to the midpoint of construction, September 1994 for a subcontract A, for a total of 19%, and November, 1995 for subcontract B for a total of 27.2%.

Conceptual design is complete.

11. Method of Performance

Design will be accomplished on basis of a negotiated architect-engineer contract. Construction and procurement will be accomplished by fixed price contracts awarded on basis of competitive bidding.

12. Schedule of Project Funding and Other Related Funding Requirements

Not required on projects with a TEC of less than $5,000,000 per draft DOE Order 5100.3a.

1. Title and location of project:	Fire and Safety Systems Upgrade, Phase I Lawrence Berkeley Laboratory Berkeley, California	2a. Project No. 93-E-323 2b. Construction Funded

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

Conceptual design completed at a cost of $30,000. Other data not required on projects with a TEC of less than $5,000,000 per draft DOE Order 5100.3a.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1994 Congressional Budget Request are denoted with a vertical line in left margin.)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - Environment, Safety and Health Support

1.	Title and Location of Project:	Fire and Safety Improvements, Phase II Argonne National Laboratory Argonne, Illinois	2a.	Project No. 93-E-320
			2b.	Construction Funded

SIGNIFICANT CHANGES

- Date A-E work initiated changed from 2nd quarter FY 1993 to 3rd quarter FY 1993 due to delayed availability of funding in FY 1993. This delay was a result of a programmatic general reduction of $40,000,000 and a reprogramming of FY 1993 finding consistent with requested resources in FY 1994.

- Start date changed from 4th quarter FY 1993 to 1st quarter FY 1994 to accommodate the revised financial schedule and to optimize the use of available funds.

- Completion date changed from 4th quarter FY 1996 to 1st quarter FY 1997 due to delayed availability of funding in FY 1993. This delay was a result of a programmatic general reduction of $40,000,000 and a reprogramming of FY 1993 funding consistent with requested resources in FY 1994.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1994 Congressional Budget Request are denoted with a vertical line in left margin.)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - Environment, Safety and Health Support

1. Title and Location of Project: Fire and Safety Improvements, Phase II
Argonne National Laboratory
Argonne, Illinois

2a. Project No. 93-E-320
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 3rd Qtr. FY 1993

3b. A-E Work (Title 1 & 11) Duration: 28 Months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $5,350
Total Project Cost (TPC) -- $5,462

4a. Date Physical Construction Starts: 1st Qtr. FY 1994

4b. Date Construction Ends: 1st Qtr. FY 1997

6. Current Cost Estimate:
TEC -- $5,350
TPC -- $5,462

7. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1993	$ 1,870	-1,480 a/	$ 390	$ 122
1994	850	0	850	838
1995	1,500	0	1,500	1,290
1996	2,610	0	2,610	1,900
1997	0	0	0	1,200

a/ Application of a portion (-$1,020,000) of the FY 1993 programmatic general reduction of $40,000,000 and a reprogramming (-$460,000).

1. Title and Location of Project:	Fire and Safety Improvements, Phase II Argonne National Laboratory Argonne, Illinois	2a. Project No. 93-E-320 2b. Construction Funded

8. Brief Physical Description of Project

a. General Description

ANL management began its current review of its fire protection systems in 1985 with a Factory Mutual study which recommended improvements in the most critical areas. These recommendations formed the basis for the first phase of ANL's Fire Safety Upgrade program, the 1992 line item funding request "Fire Safety Improvements," which is currently included in the FY 1992 budget. This project, Phase II, is a continuation of those improvements.

The Phase II of the Fire Safety Improvements project will encompass fire protection system extensions, new installations, and system replacement in 80 existing ANL-E buildings. The project can be grouped into three areas:

1. Fire suppression system improvement
2. Fire detection and fire alarm system improvements
3. Construction for fire protection

This project will complete the upgrading of existing fire alarm and suppression systems and expand fire suppression systems to cover areas requiring protection as per current DOE orders.

b. Fire Suppression System Improvements

Of the 80 buildings identified for improvements, 26 require installation or modification of fire suppression systems, and 18 of the 26 buildings will require both alarm/detection as stated in Item 8.c. and suppression system installations.

66 carbon dioxide fire suppression systems with radioactive exhaust fume hoods will be replaced.

The antifreeze solution fire suppression systems for protection of cooling towers or other unheated areas will be converted to dry-pipe sprinkler systems.

1. Title and Location of Project:	Fire and Safety Improvements, Phase II Argonne National Laboratory Argonne, Illinois	2a. Project No. 93-E-320 2b. Construction Funded

8. Brief Physical Description of Project (Continued)

c. Fire Detection and Fire Alarm System Improvements

63 buildings require fire detection and alarm systems replacement.

d. Construction for Fire Protection

A new 8-inch underground water main will be installed east of Building 202 to provide a loop around the building.

Fire separation construction will be improved to meet required fire separation ratings for computer rooms per DOE/EP-0108 in three buildings.

9. Purpose, Justification of Need For, and Scope of Project

a. General

This project's funding request timetable, originally scheduled to begin in the mid 1990s, has been accelerated due to the recent DOE Tiger Team Assessment.

This project was approved as part of ANL's 1990 Action Plan developed in response to DOE Tiger Team findings.

1. Finding No. FP.2-2 of the Tiger Team Assessment Section 4.5.18 "Fire Protection" states that the requirements for emergency alarms, as detailed in NFPA 72 and mandated by DOE 5480.4, are not met at ANL Facilities. Action Plan item AP294 responding to this finding, states that line item funding will be requested for site wide building fire alarm system upgrading.

2. Finding No. FP.4-1 of the Tiger Team Assessment Section 4.5.18 "Fire Protection" states that automatic fire suppression systems are not provided throughout ANL facilities as required by DOE 5480.7. Action Plan item AP25 responding to this finding, states that ANL will request funding to upgrade those areas of ANL not in compliance.

1. Title and Location of Project:	Fire and Safety Improvements, Phase II Argonne National Laboratory Argonne, Illinois	2a. Project No. 93-E-320 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

The action plan milestones dictate complete implementation of the fire alarm upgrades by 1996 and fire suppression upgrades by 1997. This project's schedule, as proposed, will meet these milestones.

b. Fire Detection and Alarm System Improvements

The existing systems in the 63 identified buildings are 25-30 years old. These systems have numerous shortcomings:

1. They are at or near capacity, thereby prohibiting expansion for occupancy changes or building additions.

2. The components are no longer manufactured or sold.

3. Smoke detectors cannot be installed where preferred over the use of heat detectors since some systems will not accommodate smoke detectors. This can result in slower detection in areas with high value electronics and computer systems.

4. Many of the systems do not meet current National Fire Protection Association Standards.

5. The existing and aging fire alarm systems are 220V DC. The existing fire alarm panels have unprotected, hot 220V terminals, exposed to personnel contact during routine maintenance or inspection. This poses a threat of minor to serious injury. The new systems proposed are of reduced voltage, 24 V DC, significantly reducing any change of personal injury to very low or rare levels.

6. Reliability of the existing systems has decreased which results in an increased number of false alarms and failures to report alarms.

1. Title and Location of Project:	Fire and Safety Improvements, Phase II Argonne National Laboratory Argonne, Illinois	2a. Project No. 93-E-320 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

7. A number of existing smoke detectors installed in several buildings at ANL contain detector elements fabricated from Radium Sulfate (Radium 226). Although these sources produce less than 1 Rem/year exposure levels, ANL's "ALARA" program dictates the removal of these detectors. Proposed smoke detectors use Americium 241 and have an emittance level several orders of magnitude lower than Radium 226. This significantly reduces possible exposure levels to building occupants and alarm system maintenance personnel.

8. This project will allow ANL to utilize new and improved technologies in fire protection. New low voltage addressable fire alarm systems will allow more accurate communication of a fire condition to building occupants and the ANL Fire Department. This will reduce Fire Department response time, improve reliability, and improve the Fire Department's ability to locate the actual fire area.

c. Fire Suppression System Improvements

1. The purpose of this part of Phase II of the Fire Safety Improvements Project is to complete the progress of selected buildings towards the "Improved Risk" concept as defined in DOE Order 5480.7 Fire Protection. That order established objectives for an "improved risk" level of fire protection which are applicable throughout its facilities. Objectives are as follows:

   a. No threats to the public health or welfare will result from fire.
   b. There are no undue hazards to employees from fire.
   c. Vital Department of Energy programs will not suffer unacceptable delays as a result of fire.
   d. Property damage will be held to manageable levels as defined in DOE Order 5480.7.

2. Automatic Sprinkler Systems

   Automatic fire protection systems shall be provided in Buildings 24, 40, 108, 129, 368, 377 and 583 as the maximum possible fire loss is in the range of 1 to 25 million dollars, so that property damage is limited to $1 million or less in either case.

   Automatic fire protection systems shall be provided in 19 buildings to keep property damage at manageable levels, and eliminate any hazards to life from fire. A number of these 19 buildings have some portions of the buildings protected with suppression systems at this time.

1. Title and Location of Project:	Fire and Safety Improvements, Phase II Argonne National Laboratory Argonne, Illinois	2a. Project No. 93-E-320 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

2. Automatic Sprinkler Systems (Continued)

As programmatic needs change with time, facility fire alarm systems and fire suppression systems must provide adequate protection for the research and scientific programs. Major DOE initiatives could be affected due to facility shutdowns resulting from lack of required fire sprinkler and alarm systems. National fire protection codes mandate that all facilities modified for new programs must also have their fire protection systems upgraded to meet current code requirements for existing facilities.

The modifications proposed herein will remedy the identified risks to the laboratory's program, personnel, and physical plant.

3. Antifreeze Suppression Systems

Existing antifreeze filled fire suppression systems pose a concern to the environment and increase waste management costs. Maintenance of these systems requires draining the antifreeze and using appropriate waste management procedures to dispose of the solution. Leaks, breaks in a system or activation of an antifreeze system poses potential environmental hazards from the discharged antifreeze. Replacement of these systems with dry pipe type suppression systems will remove this potential hazard.

3. Antifreeze Suppression Systems

The antifreeze solution sprinkler systems protecting cooling towers and unheated storage buildings are required to have reduced pressure zone backflow preventers to comply with Section 890.1540 of the State of Illinois Plumbing Code. The reduced pressure zone backflow preventers are required to prevent the antifreeze solution from contaminating the potable water supply. Installation of reduced pressure zone backflow preventers on these systems is undesirable because of the pressure loss (approximately 10 psi) encountered through the device, rendering the system ineffective against fires. In addition, water from the relief valves on these devices cannot be readily discharged to drain in these areas. To eliminate the need for reduced pressure zone backflow preventers, the antifreeze systems will be converted to dry-pipe sprinkler systems.

1. Title and Location of Project:	Fire and Safety Improvements, Phase II Argonne National Laboratory Argonne, Illinois	2a. Project No. 93-E-320 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

4. Carbon Dioxide Suppression Systems

Sixty-five new carbon dioxide fire suppression systems are required to protect glove boxes, hoods, and other areas in Buildings 200, 203, 205, 211, 213 and 360, and to replace existing systems which are antiquated and unreliable. The existing systems are not electrically supervised nor equipped with standby power. The majority of the heat detectors which activate these systems are corroded and may not be operable.

The existing carbon dioxide system protecting the kitchen hoods in Building 213 will be replaced by a wet chemical fire extinguishing system. A wet chemical system is more appropriate for this hazard to control re-ignition of a fire. As this building is heavily occupied during kitchen use, maximum protection should be provided to prevent any undue loss of life or property.

5. Fire Main Extension

Installation of a new 8-inch water main on the east side of Building 202 would create a water main loop around the building. This would provide an improved and redundant water supply for automatic sprinkler systems and fire department hose streams use should a portion of the water main be broken, obstructed, or out of service. Building 202 is used for biological and medical research and has a maximum possible fire loss exceeding $25,000,000. Provision of a redundant water supply is required by Section 1530-2.3.5 of DOE Order 6430.1A for buildings with a maximum possible fire loss exceeding $25,000,000.

d. Construction for Fire Protection

Existing walls between 3 computer rooms and surrounding offices/areas in Buildings 201, 203, and 205 will be upgraded to provide a 1 hour fire resistance rating. DOE/EP-0108. Standard for Fire Protection of DOE Electronic Computer/Data Processing Systems requires a 1 hour rated fire separation around computer rooms which have a monetary value of $1,000,000 or are critical to a DOE mission. The computer rooms in Buildings 201 and 205 have equipment which are considered mission critical. The computer room in Building 203 is valued at over $1,000,000.

1. Title and Location of Project: Fire and Safety Improvements, Phase II
Argonne National Laboratory
Argonne, Illinois

2a. Project No. 93-E-320
2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project (Continued)

e. Project Delay Ramifications

Delays in project approval would leave employees of ANL exposed to undue hazards of life and safety as a result of fire and could impair continued operations of vital DOE Programs caused by extensive property damage to facilities due to fire. New programs may not be allowed to start due to lack of adequate fire alarm or suppression systems. The existing systems are not capable of required expansion to meet current and future programmatic needs.

10. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and management costs		$ 706
1. Engineering design and inspection at approximately 12 percent of construction costs, item b	$ 462	
2. Construction management at approximately 4 percent of construction costs, (item b)	150	
3. Project management at approximately 3 percent of construction costs,(item b)	94	
b. Construction costs		3,750
1. Fire suppression systems	1,993	
2. Fire detection and alarm systems	1,688	
3. Construction for Fire Protection	69	
Subtotal		$4,456
c. Contingencies at approximately 20 percent of above costs		894
Total line item cost		$5,350

a/ The above estimates are based upon a completed conceptual design and current cost data. All costs have been escalated from January 1991 to the midpoint of construction. Escalation rate is based upon DOE FY 1992 Guidance dated August 1990: FY 1991 - 3.6%, FY 1992 - 4.5%, FY 1993 - 5.1%, FY 1994 - 5.6%, and FY 1995 - 5.7% and FY 1996 - 5.7%.

1. Title and Location of Project: Fire and Safety Improvements, Phase II
Argonne National Laboratory
Argonne, Illinois

2a. Project No. 93-E-320
2b. Construction Funded

11. Method of Performance

Engineering and design will be performed under a negotiated A-E contract with guidance, review and monitoring by laboratory personnel. Inspection will be performed by laboratory personnel aided by the A/E firm. Construction management and project management will be performed by laboratory personnel. Construction will be accomplished by fixed-price lump sum contract(s) awarded on the basis of competitive bidding.

12. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	Total
a. Total project costs							
1. Total project costs							
(a) Line item	$ 0	$ 122	$ 838	$ 1,290	$ 1,900	$ 1,200	$ 5,350
Total direct costs	$ 0	$ 122	$ 838	$ 1,290	$ 1,900	$ 1,200	$ 5,350
2. Other project costs							
(a) Conceptual design costs	$ 97	$ 0	$ 0	$ 0	$ 0	$ 0	$ 97
(b) Documentation costs	15	0	0	0	0	0	15
Total other project costs	$ 112	$ 0	$ 0	$ 0	$ 0	0	$ 112
Total project costs (TPC)	$ 112	$ 122	$ 838	$ 1,290	$ 1,900	$ 1,200	$ 5,462

b. Related annual funding
None.

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
1. Total facility costs
(a) Line item -- No narrative required
2. Other project funding
(a) A conceptual design was completed by an outside Fire Protection Engineering firm.
(b) Documentation costs include preparation of project data sheets, design reviews, and Environmental Evaluation Notification Form (DOE - CH560).

1. Title and Location of Project: Fire and Safety Improvements, Phase II
Argonne National Laboratory
Argonne, Illinois

2a. Project No. 93-E-320
2b. Construction Funded

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

b. Related annual funding
Operating costs will be reduced as the new system components require less maintenance than the previous fire alarm system. Expansion of fire suppression system will not require any increase in maintenance personnel. No additional costs are expected.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1994 Congressional Budget Request are denoted with a vertical line in left margin.)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - Environment, Safety and Health Support

1. Title and Location of Project: Life Safety Code Compliance
Pacific Northwest Laboratory
Richland, Washington

2a. Project No. 93-E-317
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1993

3b. A-E Work (Titles I & II) Duration: 28 Months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $2,300
Total Project Cost (TPC) -- $2,330

4a. Date Physical Construction Starts: 1st Qtr. FY 1994

4b. Date Construction Ends: 4th Qtr. FY 1995

6. Current Cost Estimate:
TEC -- $2,000
TPC -- $2,200

7. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1993	$ 1,000	-500 a/	$ 500	$ 25
1994	1,000	- 6	994	750
1995	506	0	506	850
1996	0	0	0	375

a/ Application of a portion (-$500,000) of the FY 1993 programmatic general reduction of $40,000,000.

1. Title and Location of Project: Life Safety Code Compliance
Pacific Northwest Laboratory
Richland, Washington

2a. Project No. 93-E-317
2b. Construction Funded

8. Brief Physical Description of Project

This project will provide upgrades to selected 300 area PNL multiprogram facilities. These modifications will mitigate known deficiencies to current requirements of the Life Safety Code, the National Fire Protection Association Code and DOE Order 6430.1A as they apply to existing facilities. The facilities included in this project are the Life Sciences Laboratory (331); the Technical Management Center (337); the Materials Development Laboratory (306W); and the Chemistry and Metals Science Laboratory (3720).

Design and construction activities will be necessary to correct the deficiencies associated with these facilities. Included in this work are modifications to firewalls, fire doors, vertical openings, exit corridors and egress pathways. Also included is the renovation of the 331 Building elevators.

The 306W work will include fire wall modifications to the east wall of Room 152, modifications to Room 119 to provide space for a hand and shoe counter in order to move the counter out of the corridor, and modification of the copier area to relocate the copier out of the egress corridor.

Modifications to the 331 Building will consist of numerous modifications on all three floors. The first floor lobby area will be provided with additional fire separations and doors. Eight doors and fifteen fire rated partitions have been identified as having unsealed, empty holes, pipe conduit, and duct penetrations to be repaired. The second floor Mechanical Room has approximately 577 ceiling and floor penetrations to be sealed. The existing elevators will be completely upgraded with a new shaft, fluids, cab and entry doors to meet current standards.

The 337 Building is composed of three open bay floors with interconnecting stairwells and a lobby area on the second floor for a primary exit. The main stairway and lobby area are not presently separated from the office wings by a complete fire wall assembly meeting requirements of the Life Safety Code and Uniform Building Code (UBC). Presently, nine areas have been identified for remodeling to bring the building into compliance.

Presently, the use of hand and shoe counters are located in the corridors of 3720. These locations are in violation of the Life Safety Code since they are in the path of egress from the building. New alcoves will be provided to remove counters from corridors. These counters are located in three places; in the basement, in the intersection of corridors 200 and 500, and at the east end of corridor 500.

1. Title and Location of Project:	Life Safety Code Compliance Pacific Northwest Laboratory Richland, Washington	2a. Project No. 93-E-317 2b. Construction Funded

9. Purpose, Justification of Need For, and Scope of Project

The purpose of this project is to ensure continuity of operations in vital multiprogram laboratories at PNL. Department of Energy Order 6430.1A requires facilities to comply with the requirements of NFPA 101, Life Safety Code.

The Life Safety Code (National Fire Protection Association Standard #101) specifies how buildings must be arranged and constructed to protect occupants in the event of the need for evacuation because of fire or other emergency situations. DOE Order 480.4B "Environmental Protection Safety and Health Protection Standards" and DOE Order 6430.1A, "General Design Criteria" mandate that DOE facilities must comply with requirements of this code. The code violations cause significant concern and correction of these violations are made by this project.

The code's scope addresses hazards to life safety from fire and similar emergencies. It also addresses those construction protection and occupancy features necessary to minimize hazards to life from fire, smoke, fumes, or panic. The code identifies the minimum criteria for the design of egress facilities so as to permit prompt escape of occupants from buildings, or where desirable, into safe areas within the building. The code also applies to both new construction and existing buildings. Failure to comply with the Life Safety Code jeopardizes the safety of staff members and visitors if emergency evacuation of a facility is needed. Violations to the Life Safety Code are continuing and facility shutdown is possible. In addition, upgrading of the fire walls to meet Life Safety Code requirements will also help reduce potential property loss due to fire.

The current condition of these buildings has raised many concerns about their adequacy to continue operations. The PNL research missions can be continued by completing the work proposed in this project. This project also corrects Tiger Team priority 3 deficiencies addressed in TS.3-2.

1. Title and Location of Project: Life Safety Code Compliance
Pacific Northwest Laboratory
Richland, Washington

2a. Project No. 93-E-317
2b. Construction Funded

10. Details of Cost Estimate a/

	Item Costs	Total Cost
a. Design and management costs		$ 426
1. Engineering design and inspection at approximately 25 percent of construction costs, Item b	$ 318	
2. Construction management costs	70	
3. Project management at 3 percent of construction costs	38	
b. Construction costs		1,270
1. Buildings	1,270	
Subtotal		1,696
c. Contingencies at approximately 18 percent of above costs		304
Total line item costs (Section 12.a.1.(a))		$2,000 b/

a/ Based on conceptual cost estimate.
b/ Includes escalation rates based on the February, 1993 Hanford Material and Labor Escalation Study.

11. Method of Performance

Design will be accomplished on the basis of a negotiated architect-engineer contract. Construction and procurement will be accomplished by the onsite CPAF construction contractor.

12. Schedule of Project Funding and Other Related Funding Requirements

Not required on projects with a TEC of less than $5,000,000 per draft DOE Order 5100.3a.

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

Not required on projects with a TEC of less than $5,000,000 per draft DOE Order 5100.3a.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1994 Congressional Budget Request are denoted with a vertical line in left margin.)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - Environment, Safety and Health Support

1. Title and Location of Project:	Roof Replacement, Phase I Brookhaven National Laboratory Upton, New York	2a. Project No. 93-E-315 2b. Construction Funded

SIGNIFICANT CHANGES

- Date A-E work initiated changed from 1st quarter FY 1993 to 2nd quarter FY 1993 due to delayed availability of funding in FY 1993. This delay was a result of a programmatic general reduction of $40,000,000 and a reprogramming of FY 1993 funding consistent with requested resources in FY 1994.

- Start date changed from 3rd quarter FY 1993 to 4th quarter FY 1993 due to delayed availability of funding in FY 1993. This delay was a result of a programmatic general reduction of $40,000,000 and a reprogramming of FY 1993 funding consistent with requested resources in FY 1994.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1994 Congressional Budget Request are denoted with a vertical line in left margin.)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support
Multiprogram Energy Laboratories - Environment, Safety and Health Support

1. Title and Location of Project: Roof Replacement, Phase I
Brookhaven National Laboratory
Upton, New York

2a. Project No. 93-E-315
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1993

3b. A-E Work (Title I & II) Duration: 10 Months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $3,130
Total Project Cost (TPC) -- $3,130

4a. Date Physical Construction Starts: 4th Qtr. FY 1993

4b. Date Construction Ends: 4th Qtr. FY 1995

6. Current Cost Estimate:
TEC -- $ 2,930
TPC -- $ 2,930

7. Financial Schedule:

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
FY 1993	$ 1,130	-226 a/	$ 904	$ 31
FY 1994	1,926	0	1,926	1,530
FY 1995	100	0	100	1,369

a/ Application of a portion (-$330,000) of the FY 1993 programmatic general reduction of $40,000,000 and a reprogramming (+$104,000).

1. Title and Location of Project: Roof Replacement, Phase I
Brookhaven National Laboratory
Upton, New York

2a. Project No. 93-E-315
2b. Construction Funded

8. Brief Physical Description of Project

This proposal provides for the roof replacement on ~~13~~ laboratory buildings. Approximately ~~385,000~~ 263,000 sq. ft. of re-roofing for permanent structures will be accomplished in this phase. Existing roofs and wet insulation will be removed. Deteriorated and/or rusted metal decks will be repaired or replaced. Built up roofing systems or mechanically fastened single-ply systems suitable to the existing conditions will be installed.

9. Purpose, Justification of Need For, and Scope of Project

Roofs of primary structures totaling 1,859,200 sq. ft. were surveyed in 1989 by BNL consultants. The roofs were rated from failed to good. Forty-six roofs totaling 1,195,500 sq. ft. were further investigated and core samples from these roofs were analyzed. Life expectancy of each roof was calculated based on laboratory core sample data, infrared thermography moisture detection surveys, and severity of roof conditions. Sixty percent of roof area of 46 buildings is in poor or failed conditions and replacement in the next 5 years is required.

10. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and management costs		$ 185
1. Engineering design and inspection at approximately 7 percent of construction costs, Item b	$ 185	
b. Construction costs		2,500
1. Removal of existing roofs	800	
2. Roof insulation	600	
3. Re-roofing	1,100	
Subtotal		2,685
c. Contingencies at approximately 9 percent of above costs		245
Total line item cost		$2,930

a/ This estimate is based on Conceptual Design Report dated January 1990. Escalation rates used were taken from DOE Departmental Price Change Index - FY 92 Guidance, August 1990 Update.

1. Title and Location of Project:	Roof Replacement, Phase I Brookhaven National Laboratory Upton, New York	2a. Project No. 93-E-315 2b. Construction Funded

11. Method of Performance

Roof replacement design will be on the basis of a negotiated architect-engineer contract. Construction and procurement will be accomplished by a fixed contract and purchase orders awarded on the basis of competitive bidding.

12. Schedule of Project Funding and Other Related Funding Requirements

Not required on projects with a TEC of less than $5,000,000 per draft DOE Order 5100.3a.

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

Not required on projects with a TEC of less than $5,000,000 per draft DOE Order 5100.3a.

DEPARTMENT OF ENERGY
FY 1995 CONGRESSIONAL BUDGET REQUEST
CONSTRUCTION PROJECT DATA SHEET
ENERGY SUPPLY RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT

In-house Energy Management
(Tabular dollars in thousands. Narrative material in whole dollars.)

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1. Title and Location of Project: Modifications for Energy Management, Various Locations

2. Project No. IHE-500

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3. Date A-E work initiated: 2nd Qtr. FY 1995

3a. Date physical construction starts: 4th Qtr. FY 1995

4. Date construction ends: 3rd Qtr. FY 1997

5. Previous cost estimate:
Date: None

6. Current cost estimate:
$24,700
Date: January 1994

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7. Financial Schedule:

Fiscal Year	Authorizations	Appropriations	Obligations	Costs
1995	$24,700	$24,700	$24,700	$8,700
1996				12,000
1997				4,000
1998				0

8. Brief Physical Description of Project:

This project provides for the design and construction of various small retrofit projects to reduce energy consumption. These small modifications will be selected on the basis of return on investment and energy savings. Projects compete on a DOE-wide basis for funding under this lump sum item, thus assuring the greatest return and greatest energy savings per investment dollar for the Department of Energy. The average payback for this line item based on past experience, is slightly greater than 3 years. This line item also provides for the design and construction of a life-cycle cost effective project to demonstrate a new or emerging energy savings technology, that advances the state of the art in energy conservation and the generation and use of energy, at a DOE site.

CONSTRUCTION PROJECT DATA SHEET

1. Title and Location of Project: Modifications for Energy Management, Various Locations

2. Project No. IHE-500

9. Purpose, Justification of Need for, and Scope of Project:

Fewer than 95 of the most economical projects will be initiated. The projects range from less than $5,000 to $5,000,000. The projects are for HVAC modifications, insulation of buildings, waste heat recovery, installation of more efficient lighting, steam line modifications, power factor improvements, etc. Some of these projects will generate rebate funds through utility company energy incentive programs. Up to 50% of these rebate funds will be used at DOE sites for energy manager training, administering beneficial suggestion programs, and energy awareness activities that generate additional savings. The quick payback projects selected for this line item will have the following total life-cycle cost effect utilizing a present value analysis:

Average Savings to Investment Ratio (SIR)	3.5
Average Payback Period	3.5 years
Total Annual Energy Savings	460 billion Btus
Annual Dollar Savings	$7,057,000

Initiate projects to demonstrate a new or emerging energy saving technology, that advances the state of the art in energy conservation and the generation and use of energy, at a DOE site.

10. Details of Cost Estimate:

There are approximately 95 projects each with total estimated cost (TEC) less than $5,000,000 which will be initiated by this project. The projects will be selected on the basis of economic return.

11. Method of Performance:

Design and inspection will be performed under negotiated architect-engineer contracts. Construction and procurement will be accomplished by fixed-price contracts awarded on the basis of competitive bidding.

12. Funding Schedule of Project Funding and Other Related Requirements:

Not required.

CONSTRUCTION PROJECT DATA SHEET

1. Title and Location of Project:	Modifications for Energy Management, Various Locations	2. Project No.	IHE-500

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements:

Not required.