MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT

PROGRAM MISSION

The Multiprogram Energy Laboratories - Facilities Support (MEL-FS) program provides line item construction funding to support the general purpose infrastructure of the Energy Research's five multiprogram national laboratories. These are: Argonne National Laboratory - East (ANL-E), Brookhaven National Laboratory (BNL), Lawrence Berkeley National Laboratory (LBNL), Oak Ridge National Laboratory (ORNL), and Pacific Northwest National Laboratory (PNNL). These laboratories have over 1,100 buildings with 14.3 million gross square feet of space and an estimated replacement value of over $9,000,000,000. All facilities at these laboratories are government-owned, contractor-operated (GOCO). Total operating funding for these laboratories is over $3,000,000,000 a year. The Office of Energy Research manages this program to provide a comprehensive, prioritized and equitable approach to its stewardship responsibility for the general purpose support infrastructure of these laboratories.

The GOAL of the MEL-FS program is:

To ensure that the multiprogram laboratories' support facilities can meet the Department's research needs primarily by refurbishing or replacing deteriorated, outmoded, unsafe, and inefficient general purpose infrastructure.

The OBJECTIVES related to these goals are:

1. To correct environment, safety and health (ES&H) inadequacies.
2. To reduce risk of operational interruptions due to failed support systems.
3. To provide cost effective operations and reduce maintenance costs.
4. To provide quality space for multiprogram research and support activities.
5. To preserve the government investment in the physical plant of the laboratories.
6. To promote performance based infrastructure management.

PROGRAM MISSION - MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT (Cont'd)

PERFORMANCE MEASURES:

Performance measures related to the MEL-FS program are continuously being refined to ensure that they: 1) incorporate external/internal customers' inputs; 2) drive performance; 3) address the strategic plan; and 4) focus on the effectiveness of the laboratory system. Current performance measures include:

1. Support line item construction funding to reduce risk, ensure continuity of operations, avoid or save costs and increase productivity.

   Expectation: Fund highest priority needs based on scoring from Life Cycle Asset Management (LCAM) Cost-Risk-Impact Matrix.

2. Overall condition of laboratory buildings

   Expectation: Percentage of facilities rated adequate.

3. Excellence in project management

   Expectation: Percentage of projects completed within baseline cost and schedule.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- Progress in Line Item Projects - Nine projects were completed in FY 1996. Three projects are scheduled for completion in FY 1997. The three projects scheduled for completion in FY 1998 are the Loss Prevention Upgrades at Brookhaven National Laboratory, Phase III Fire Safety Improvements at Argonne National Laboratory, and the Sanitary Sewer Restoration Phase I at Lawrence Berkeley National Laboratory.

- Beginning with FY 1997 this program no longer funds ES&H inadequacies with operating funds consistent with FY 1997 Congressional direction.

MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT

PROGRAM FUNDING PROFILE
(Dollars in thousands)

Subprogram	FY 1996 Current Appropriation	FY 1997 Original Appropriation	FY 1997 Adjustments	FY 1997 Current Appropriation	FY 1998 Request
Infrastructure Support	$6,506	$0	$0	$0	$0
Subtotal	$6,506	$0	$0	$0	$0
Construction	27,538	21,260	0	21,260	40,267
Subtotal Multiprogram Energy Laboratories - Facilities Support	$34,044	$21,260	$0	$21,260	$40,267
Adjustment	-4,352 a/	-107 b/	0	-107 b/	
TOTAL, MEL-FS	$29,692 c/	$21,153	$0	$21,153	$40,267 d/

a/ $4,352,068 was recovered from prior year projects. Those funds were distributed as follows: $800,900 was added to FY 1996 line item funding; $3,476,168 was used to offset the general reduction for use of prior year balances; and $75,000 was provided for Indian Energy Resources programs.

b/ Share of Energy Supply, Research and Development general reduction assigned to this program. The total general reduction is applied at the appropriation level.

c/ Excludes $135,000 which was transferred to the SBIR program and $10,000 which was transferred to the STTR program.

d/ Includes $19,007,000 of up front funding for FY 1999-2002 fixed assets requirements for Multiprogram Energy Laboratories Infrastructure Project, Multipgrogram Energy Laboratories Upgrades, and Roofing Improvements.

Public Law Authorizations:

Public Law 95-91, "Department of Energy Organization Act"

MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT

(Dollars in thousands)

PROGRAM FUNDING BY SITE

Field Offices/Sites	FY 1996 Current Appropriation	FY 1997 Original Appropriation	FY 1997 Adjustments	FY 1997 Current Appropriation	FY 1998 Request
Chicago Operations Office					
Argonne National Lab (East)	$8,762	$4,868	$0	$4,868	$17,321
Brookhaven National Laboratory	9,907	11,932	0	11,932	568
Oakland Operations Office					
Lawrence Berkeley National Laboratory	6,243	0	0	0	6,500
Oak Ridge Operations Office					
Oak Ridge National Laboratory	4,134	0	0	0	15,878
Richland Operations Office					
Pacific Northwest National Laboratory	4,740	4,353	0	4,353	0
All Other Sites a/	258	107	0	107	0
Subtotal	34,044	21,260	0	21,260	40,267
Adjustment	-4,352 b/	-107 c/	0	-107 c/	0
TOTAL	$29,692 d/	$21,153	$0	$21,153	$40,267

a/ Funding provided to industry, other Federal agencies and contractors.

b/ $4,352,068 was recovered from prior year projects. Those funds were distributed as follows: $800,900 was added to FY 1996 line item funding; $3,476,168 was used to offset general reduction for use of prior year balances: and $75,000 was provided for Indian Energy Resources programs.

c/ Share of Energy Supply, Research and Development general reduction for use of prior year balances assigned to this program. The total reduction is applied at the appropriation level.

d/ Excludes $135,000 which was transferred to the SBIR program and $10,000 which was transferred to the STTR program.

Public Law Authorizations:

Public Law 95-91, "Department of Energy Organization Act"

MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT
INFRASTRUCTURE SUPPORT

I. **Mission Supporting Goals and Objectives**: The Environment, Safety and Health (ES&H) Support activities provided support to correct the highest priority ES&H deficiencies identified in the ES&H Management Plan. Deficiencies have been identified in the environmental area (e.g., air, water, hazardous materials), and in occupational safety and health, fire protection, emergency preparedness, safety and hazards analyses, conduct of operations, configuration management, work practices and radiation protection.

II. **Funding Schedule**:

Program Activity	FY 1996	FY 1997	FY 1998	$ Change	% Change
Infrastructure Support					
Environment, Safety & Health Support . .	$6,506	$ 0	$ 0	$ 0	.0%
Total, Infrastructure Support	$6,506	$ 0	$ 0	$ 0	.0%

III. **Performance Summary - Accomplishments:**

	FY 1996	FY 1997	FY 1998
- Supported highest priority actions and compliance issues including electrical service upgrades, natural hazard mitigation, asbestos characterization and remediation, worker safety enhancement, fuel storage and transfer facility upgrade, fire and life safety vegetation management, seismic safety engineering upgrades, laser access control, communication equipment upgrades, nuclear criticality safety upgrades.	$6,506	$0	$0
Total Infrastructure Support	$6,506	$0	$0

EXPLANATION OF FUNDING CHANGES FROM FY 1997 to FY 1998:

Not applicable.

MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT

CONSTRUCTION

I. **Mission Supporting Goals and Objectives**: This subprogram supports the program's goal to ensure that the multiprogram laboratories' support facilities can meet the Department's research needs primarily by refurbishing or replacing deteriorated, outmoded, unsafe, and inefficient general purpose infrastructure. This is accomplished by refurbishing or replacing inadequate general purpose facilities and infrastructure that support research needs. Facility deficiencies are due to age, obsolescence, extensive use and changing requirements, including Environment, Safety and Health (ES&H) requirements. This subprogram achieves this by funding line item construction projects (i.e., projects with a total estimated cost of $2,000,000 or above) for general purpose facilities. General purpose facilities are general use, service and support facilities such as administrative space, cafeterias, general office/laboratory space, utility systems, sanitary sewers, roads, etc. There are over 1,100 buildings at the five multiprogram laboratories covered by this program. These buildings have over 14.3 million gross square feet of space. Approximately half of the space is considered fully adequate, while the remainder needs rehabilitation or replacement/demolition. The large percentage of inadequate space reflects the age of the facilities (average age of 33 years), changing research needs that require more office space and light laboratory space, environmental, safety and health requirements and obsolete systems.

Capital investment requirements are identified in laboratory Institutional Plans which address needs through year 2001 based on expected programmatic support. The project needs through the period total over $425,000,000. Forty one percent of this amount is to rehabilitate or replace buildings; 35% is for utility projects; and 24% for environment, safety and health projects. All projects are first ranked using a prioritization model that takes into account risk, impacts, and mission need. The projects that have environment, safety and health as the principal driver are further prioritized using the Risk Prioritization Model from the DOE ES&H Management Plan process.

MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT

CONSTRUCTION

II. Funding Schedule:

Program Activity	FY 1996	FY 1997	FY 1998	$ Change	% Change
General Purpose Facilities	$13,064	$ 6,960	$19,320	$+12,360	+177.6%
ES&H	14,474	14,300	20,947	+6,647	+46.0%
Total, Construction	$27,538	$21,260	$40,267	$+19,007	89.4%

III. Performance Summary - Accomplishments: Construction	FY 1996	FY 1997	FY 1998
- Supports completion/continuation of General Purpose. Facility subprojects. Support the initiation of one new General Purpose Facility subproject - Upgrade Steam Plant at ORNL under the combined Multiprogram Energy Laboratories Infrastructure Project (MEL-001).	$13,064	$ 6,960	$19,320
- Support completion/continuation of Environment, Safety and Health subprojects consistent with planned schedules. Support the initiation of 2 new Environment, Safety and Health subprojects: the Electrical System Rehab., Phase IV at LBNL and Electrical System Upgrade, Phase III at ANL under the combined Multiprogram Energy Laboratories Infrastructure Project (MEL-001).	14,474	14,300	20,947
Total Construction	$27,538	$21,260	$40,267

MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT

CONSTRUCTION

EXPLANATION OF FUNDING CHANGES FROM FY 1997 to FY 1998:

Increase in funding reflects full funding of FY 1999-2002 fixed asset requirements for projects funded in FY 1998.	$+19,007,000
Total Funding Change, Construction	$+19,007,000

MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT
CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY
(Dollars in thousands)

	FY 1996	FY 1997	FY 1998	$ Change	% Change
Capital Operating Expenses					
Capital Equipment (total)	$106	$0	$0	$0	--

Construction Project Summary (Construction Funded)

Project No.	Project Title	TEC	Previous Appropriated	FY 1996 Appropriated	FY 1997 Appropriated	FY 1998 Request	Unapprop. Balance
MEL-001	Multiprogram Energy Laboratories Infrastructure Project	N/A	N/A	N/A	N/A	$19,420	$0
96-E-333	Multiprogram Energy Laboratories Upgrades, Various Locations	17,365	0	4,400	7,424	5,541	0
95-E-308	Sanitary System Mods, II, BNL	4,250	960	1,690	1	568	0
95-E-307	Fire Safety Improvements, III, ANL-E	3,003	210	1,075	1,000	718	0
95-E-301	Central Heat Plant Rehab, I, ANL-E	9,880	1,307	2,631	2,500	3,442	0
94-E-363	Roofing Improvements, ORNL	16,000	3,333	2,089	0	10,578	0
Total Multiprogram Energy Laboratories - Facilities Support		XXXXX	XXXXX	XXXXX	XXXXX	$40,267	$0

Department of Energy
FY 1998 Congressional Budget Request
Energy Assets Acquisition

MEL-FS Project Data Sheets
Table of Contents

DEPARTMENT OF ENERGY
FY 1998 CONGRESSIONAL BUDGET REQUEST

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

Multiprogram Energy Laboratories - Facilities Support

1. Title and Location of Project:	Multiprogram Energy Laboratories Infrastructure Project Various Locations	2a. Project No. MEL-001 2b. Construction Funded
3a. Date A-E Work Initiated, (Title I Design Start Scheduled): Varies by subproject 3b. A-E Work (Title I & II) Duration: 6-12 Months		5. Previous Cost Estimate: Total Estimated Cost (TEC) -- N/A Total Project Cost (TPC) -- N/A
4a. Date Physical Construction Starts: See subproject details 4b. Date Construction Ends: See subproject details		6. Current Cost Estimate: TEC -- N/A TPC -- N/A

7. Financial Schedule: (Federal Funds)

Fiscal Year	Appropriation	Obligations	Cost
FY 1998	$ 19,420	$ 7,259	$ 3,600
FY 1999	0	12,000	7,500
FY 2000	0	161	5,920
FY 2001	0	0	2,400

1. Title and Location of Project:	Multiprogram Energy Laboratories Infrastructure Project Various Locations	2a. Project No. MEL-001 2b. Construction Funded

8. Project Description, Justification and Scope

This project funds two types of subprojects:

- Projects to correct ES&H deficiencies including fire safety improvements, sanitary system upgrades and electrical system replacements; and

- Projects that renovate or replace inefficient and unreliable general purpose facilities (GPF) including general use, service and support facilities such as administrative space, cafeterias, utility systems, and roads.

General Purpose Facility Projects:

a. Subproject 01 - Upgrade Steam Plant, ORNL

TEC	Prev.	FY 1996	FY 1997	FY 1998	Outyear	Construction Start - Completion Dates
5,300	----	0	0	5,300	0	1st Qtr FY 1998 - 4th Qtr. FY 1999

This project will upgrade the ORNL steam plant by adding a new steam boiler of approximately 100,000 pounds per hour capacity and capable of burning both natural gas and fuel oil. The boiler will be procured with all necessary ancillary equipment, such as blowers, feedwater pumps, and controls. Suitable weather protection will be provided.

This project is needed because of the age of the five existing boilers. Three are 46 years old, one is 44 years old, and the fifth is 32 years old. The new boiler capacity will allow decreased firing time on the oldest boilers and will extend their useful life. In addition, the new boiler will improve the efficiency of the steam plant.

1.	Title and Location of Project:	Multiprogram Energy Laboratories Infrastructure Project Various Locations	2a. Project No. MEL-001 2b. Construction Funded

8. Project Description, Justification and Scope

ES&H PROJECTS:

a. Subproject 02 - Electrical Systems Rehab. Phase IV, (LBNL)

TEC	Prev.	FY 1996	FY 1997	FY 1998	Outyear	Construction Start - Completion Dates
6,500	---	0	0	6,500	0	2nd Qtr FY 1998 - 4th Qtr FY 2000

The Blackberry Switching Station Replacement Project is the last major planned rehabilitation to the LBNL electrical power system, maintain its reliability and improve its safety. The project will upgrade the existing 12 kV power system and utilize circuit breakers installed in the FY 1987 MEL-FS project improvement to the main Grizzly Substation.

The project will correct existing deficiencies in the power distribution system that serves the Blackberry Canyon Service Area. The improvements will replace the existing electrical system, which consists of aged and underrated electrical equipment, 20 to 30 years old in many instances, that is difficult to maintain and unsafe to operate. It will provide the Laboratory with increased operational flexibility as well as improvements in reliability, maintainability and safety.

b. Subproject 03-Electrical System Upgrade, Phase III, (ANL)

TEC	Prev.	FY 1996	FY 1997	FY 1998	Outyear	Construction Start - Completion Dates
7,620	---	0	0	7,620	0	2nd Qtr FY 1998 - 1st Qtr FY 2001

The project provides for the upgrade of the main electrical substation at Facility 543 and Facility 549A.

The work consists of the following items: install a new 138 kV overhead steel pole transmission line and upgrade the existing transmission line, relocate an existing transformer, upgrade existing transformers, replace existing 13.2 kV outdoor switchgear, and replace existing oil circuit breaker.

1.	Title and Location of Project:	Multiprogram Energy Laboratories Infrastructure Project Various Locations	2a. Project No. MEL-001 2b. Construction Funded

The intended project will accomplish several objectives related to system reliability, personnel safety, environmental hazards, risk reduction and system expansion.

9. Details of Cost Estimate

Based on preliminary or conceptual design.

10. Method of Performance

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

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

Multiprogram Energy Laboratories - Facilities Support

1. Title and Location of Project: Multiprogram Energy Laboratories Upgrades, Various Locations

2a. Project No. 96-E-333
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): Varies by subproject

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

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $17,365
Total Project Cost (TPC) -- $17,510

4a. Date Physical Construction Starts: See subproject details

4b. Date Construction Ends: See subproject details

6. Current Cost Estimate:
TEC -- $17,365
TPC -- $17,510

7. Financial Schedule: (Federal Funds)

Fiscal Year	Appropriation	Adjustments	Obligations	Cost
FY 1996	4,400		4,400	675
FY 1997	7,424		7,424	4,400
FY 1998	5,541		5,273	6,500
FY 1999	0		268	4,782
FY 2000	0		0	1,008

1. Title and Location of Project:	Multiprogram Energy Laboratories Upgrades Various Locations	2a. Project No. 96-E-333 2b. Construction Funded

Project Description, Justification and Scope

This project funds subprojects to correct ES&H deficiencies:

a. Subproject 01 - Building Electrical Service Upgrade, I (ANL)

TEC	Prev.	FY 1996	FY 1997	FY 1998	Outyear	Construction Start - Completion Dates
7,885	7,617	1,200	1,144	5,541	0	2nd Qtr FY 1997 - 4th Qtr FY 1999

This project will provide the most urgently needed replacement of emergency generators and the upgrade of building's main electrical services (circuit breaker retrofits, bus duct replacement and emergency generator replacements) that are no longer adequate, reliable, efficient, or in accordance with existing electrical codes/standards and environment, safety and health standards.

Failure to fund this project would increase frequency and duration of general maintenance resulting in increased parts and labor costs, negative impact on scientific programs and non-compliance with safety regulations.

b. Subproject 02 - Hot Lab Renovation, Bldg 801 (BNL)

TEC	Prev.	FY 1996	FY 1997	FY 1998	Outyear	Construction Start - Completion Dates
7,080	--	800	6,280	0	0	2nd Qtr FY 1997 - 4th Qtr FY 1998

This project, in the west side of Building 801 (the Hot Lab), is part of a comprehensive effort to: upgrade the production of radionuclides and radiopharmaceuticals for supply to the pharmaceutical/medical community outside the laboratory; upgrade major research program leading to new and more effective diagnostic and therapeutic agents; comply with DOE Order 5820.2A, which requires that the generation of low-level radioactive waste be reduced; and bring Brookhaven National Laboratory (BNL) into conformance with Federal, state, and local environmental laws and regulatory requirements. The unique location of BNL over an EPA designated "sole-source" aquifer has heightened regulatory concern over potential ground water contamination from BNL facilities.

Failure to fund this project would increase the potential for ground water contamination and non-compliance with safety regulations.

8. Project Description, Justification and Scope (Continued)

c. Subproject 03 - Sanitary Sewer Restoration Phase I (LBNL)

TEC	Prev.	FY 1996	FY 1997	FY 1998	Outyear	Construction Start - Completion Dates
2,400	--	2,400	0	0	0	3rd Qtr FY 1997 - 4th Qtr FY 1998

Portions of the underground sanitary sewer system will be replaced based upon video camera surveys of site sanitary sewer lines, including approximately 3,480 feet of sanitary sewer lines ranging in diameter from three (3) inches to eight (8) inches. Soil samples will be tested during construction for possible contamination. All excavated material that is contaminated will be either remediated or removed to an authorized hazardous waste site.

Failure to fund this project would increase the potential for ground water contamination, excessive maintenance costs, and non-compliance with safety regulations.

9. Details of Cost Estimate

Based on preliminary or conceptual design.

10. Method of Performance

Design will be by negotiated architect-engineer contracts or laboratory personnel. 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 1998 CONGRESSIONAL BUDGET REQUEST

(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) -- $4,250
Total Project Cost (TPC) -- $4,300

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

4b. Date Construction Ends: 4th Qtr. FY 1998

6. Current Cost Estimate:
TEC -- $ 4,250
TPC -- $ 4,300

7. Financial Schedule:

Fiscal Year	Appropriation	Obligations	Costs
1995	$ 960	$ 960	$ 530
1996	1,690	1,690	254
1997	1,032	1,032	1,300
1998	568	568	1,000
1999	0	0	1,166

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. Project Description, Justification and Scope

This project is the second phase of the upgrade of the laboratory sanitary waste system. Major operational systems of the waste treatment plant were upgraded and about 3,500 linear feet of defective sewer lines and 26 manholes upstream of the treatment plant were replaced. This phase continues with replacement of 7,500 l.f. defective sewer lines and implements additional treatment plant process and building improvements.

Included in this second phase are the following upgrades:

a. Replacement or rehabilitation of approximately 7,500 linear feet of defective sewer pipe with cement-lined ductile iron, heavy wall PVC pipe or polyethylene linear. The pipe size varies from 6 inches to 30 inches.
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.
f. Install modular aeration tank for secondary treatment.
g. Install ultra-violet (UV) disinfection system.
h. Install tertiary treatment system to reduce nitrogen in STP effluent.

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 were cracked, broken, and in some cases, nearly collapsed. Root intrusion is prevalent and some lines contain dips or may 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.

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. Project Description, Justification and Scope (Continued)

To generally eliminate or minimize present and future exfiltration to the groundwater and infiltration to the sewage collection system, existing defective sewer piping will be replaced with approximately 7,500 linear feet of new cement lined ductile iron or heavy wall PVC, or polyethylene liner from manhole to manhole. Piping will be installed in 18 to 20 foot lengths and be connected with the highest quality gasketed joints. Installation of 3,500 l.f. of piping has been completed under this project and an additional 4,000 l.f. will be completed with funding received in FY 1998.

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 since 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 a 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.

Wastewater Treatment Plant Process Upgrades

This project will complete upgrades of the BNL Sewage Treatment Plant (STP) begun under Sanitary System Upgrade - Phase I (SSU-I), Project 92-E-309. The SSU-I project upgraded the STP from primary treatment capability to secondary treatment by installing a modular aeration tank system and a low lift primary effluent pump station. This project will install an additional modular aeration tank to provide necessary capacity at peak flow conditions. The SSU-II project will also improve the treatment process from secondary to tertiary treatment, and install an ultra-violet disinfection system.

During the construction of the SSU - Phase I project, there was tremendous public, regulatory and political attention focused on the proposed upgrade to the STP and the method of construction. Issues of concern were the environmental impacts of the dewatering discharges required for construction performance of the plant given new, more stringent SPDES permit requirements, and nitrogen levels in the effluent given the recent

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. Project Description, Justification and Scope (Continued)

inclusion of the Peconic River under the Peconic Bay National Estuary Program. Due to these concerns, the SSU-I project was put on hold to evaluate alternate methods of construction and the feasibility of installing enhanced treatment methods now, rather than as planned in the SSU-III project slated for funding in FY 1999.

This project will enable all the near-term STP improvements to be completed under one contract. This approach is more cost effective, will assure compliance of the STP and addresses the concerns of the regulators and public. This revised project will complete the original scope of the SSU-I and SSU-II projects (except for a portion of pipe replacements) and provide the additional treatment capability needed at the STP due to changing SPDES and environmental requirements.

9. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and management costs		$ 569
1. Engineering, design, and inspection at approximately 16% of construction costs, item b	$ 494	
2. Project management at 2 percent of construction costs	75	
b. Construction costs 3,127		
1. Pipe Replacement Contract No. 1	401	
2. Pipe Replacement Contract No. 2	525	
3. WWTF Building Improvements	386	
4. WWTF Modular Aeration Tank b/	1,268	
5. UV Disinfection System b/	290	
6. Tertiary Treatment Upgrade b/	257	
Subtotal	$3,696	

a/ Estimate is based on a Conceptual Design Report dated March 1992 and Title I Report dated 6/95.

b/ The net difference of this additional scope less the reduced piping scope accounts for $552,000 increase from the previous estimate when engineering, contingency and associated indirect costs are combined.

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. Details of Cost Estimate a/ (Continued)	Item Cost	Total Cost
c. Contingency at approximately 15% of above costs	554	
Total line item costs	$4,250	c/

10. 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.

11. 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.

12. 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.

13. Incorporation of Fallout Shelters in Future Federal Buildings

Not applicable.

c/ Includes $405,000 of Brookhaven National Laboratory's indirect costs in accordance with Cost Accounting Standards. This includes $166,000 increase from the previous estimate due to revised FY 1995 DOE guidance on calculation of indirect costs.

Note: Escalation rates used were taken from DOE Departmental Price Change Index - FY 1993 Guidance, August 1991 update.

DEPARTMENT OF ENERGY
FY 1998 CONGRESSIONAL BUDGET REQUEST

(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 - East
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) -- $3,003
Total Project Cost (TPC) -- $3,069

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

4b. Date Construction Ends: 4th Qtr. FY 1998

6. Current Cost Estimate:
TEC -- $3,003
TPC -- $3,069

7. Financial Schedule:

Fiscal Year	Appropriation	Obligations	Costs
1995	$ 210	$ 210	$ 137
1996	1,075	1,075	387
1997	1,000	1,000	1,200
1998	718	718	765
1999	0	0	514

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. Project Description, Justification and Scope

a. General

This project encompasses the third phase of site wide fire safety modifications at Argonne National Laboratory - East (ANL-E).

This project provides new exit routes and upgrade existing exit routes in various facilities. Typical improvements will vary with each facility and will include the following:

1. Widen existing corridors
2. Provide required stairwell and corridor fire ratings
3. Upgrade fire rating of doors
4. Provide new corridors and aisles
5. Provide new building exits
6. 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").

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

8. Project Description, Justification and Scope (Continued)

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 in 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

8. Project Description, Justification and Scope (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.

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and management costs		$ 501
1. Engineering design and inspection at approximately 17.6 percent of construction costs	$ 370	
2. Construction management at approximately 4 percent of construction costs	80	
3. Project management costs at approximately 3 percent of construction costs	51	
b. Construction costs		2,108
Subtotal		2,609
c. Contingencies at approximately 15 percent of above costs		394
Total line item cost		$ 3,003 a/ 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 17.7%. Escalation rate methodology is based upon DOE FY 1995 Guidance dated August 1993: FY 1992 - 2.5%, FY 1993 - 2.4%, FY 1994 - 3.3%, FY 1995 - 3.6%, FY 1996 - 3.6%, and FY 1997 - $3.7%.

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

10. 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.

11. Schedule of Project Funding and Other Related Funding Requirements

Not required on projects with a TEC of less than $5,000,000.

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

Conceptual design completed at a cost of $66,000. No other data required on projects with a TEC of less than $5,000,000.

13. Incorporation of Fallout Shelters in Future Federal Buildings

No new buildings are planned under this project.

DEPARTMENT OF ENERGY
FY 1998 CONGRESSIONAL BUDGET REQUEST

(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 -- $9,880 Total Project Cost --- $10,055
4a. Date Physical Construction Starts: 3rd Qtr. FY 1996 4b. Date construction ends: 2nd Qtr. FY 1999		6. Current Cost Estimate: TEC -- $9,880 TPC -- $10,055

7. Financial Schedule:

Fiscal Year	Appropriation	Obligations	Costs
1995	$ 1,307	$ 1,307	$ 443
1996	2,631	2,631	2,870
1997	2,500	2,500	2,400
1998	3,442	3,442	2,152
1999	0	0	2,015

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. Project Description, Justification and Scope

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.

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

8. Project Description, Justification and Scope (Continued)

Nearly all equipment in the Central Heating Plant is 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 blowdown 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

8. Project Description, Justification and Scope (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 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 bandaid 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.

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. Project Description, Justification and Scope (Continued)

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.

Recommendation

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

9. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and management costs		$1,354
1. Engineering design and inspection at approximately 14 percent of construction costs	1,030	
2. Project management at approximately 2.8 percent of construction costs	206	
3. Construction management at approximately 1.6 percent of construction costs	118	
b. Construction Costs		7,238
Subtotal		8,592
c. Contingencies at approximately 15 percent of above costs		1,288
Total line item cost		$ 9,880 a/b/

a/ Estimates are based on a completed conceptual design and current cost data.

b/ Laboratory overhead costs have been applied based on cost element type at the rate of 6.2% for materials and sub-contracts, i.e., 7% for service centers, 20.2% for common support (19.2% for FY 1996 and outyears) and 1.9% for general and administrative expenses (applied to all cost elements).

Note: All costs have been escalated from January 1994 to the midpoint of construction at the rate of 18.6%. Escalation rate methodology is based upon DOE FY 1995 Guidance, dated August 1993: FY 1992 - 2.5%; FY 1993 - 2.4%; FY 1994 - 3.3%; FY 1995 - 3.6%; FY 1996 - 3.7%; and FY 1997 - 3.7%..

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

10. 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.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1996	FY 1997	FY 1998	FY 1999	Total
a. Total project funding						
1. Total facility costs						
(a) Line item	$ 443	$ 2,620	$ 2,730	$ 3,110	$ 977	$ 9,880
Total direct cost	443	2,620	2,730	3,110	977	9,880
2. Other project costs						
(a) Conceptual design costs .	170	0	0	0	0	170
(c) Documentation costs . . .	5	0	0	0	0	5
Total other project costs	175	0	0	0	0	175
Total project costs (TPC) . . .	$ 618	$ 2,620	$ 2,730	$ 3,110	$ 977	$10,055

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

12. 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.

12. 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.

13. Incorporation of Fallout Shelters in Future Federal Buildings

Not applicable.

(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

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

4b. Date Construction Ends: 2nd Qtr. FY 2001

5. Previous cost estimate:
Total Estimated Cost (TEC) -- $16,000
Total Project Cost (TPC) -- $16,132

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	- 164 b/	3,136	75
1995	3,000	-2,803 c/	197	2,463
1996	2,089	0	2,089	1,431
1997	0	0	0	600
1998	10,578	0	4,000	3,000
1999	0	0	6,578	4,200
2000	0	0	0	3,462
2001	0	0	0	769

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.
b/ Reflects reductions as follows: $-68,000 Contractor Salary Freeze; $-96,000 rescission.
c/ Reflects application of a portion ($-2,803,000) of Energy Supply Research and Development reductions.

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

8. Project Description, Justification and Scope

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.

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 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.

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

8. Project Description, Justification and Scope

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.

9. 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 items b and c	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

10. 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.

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

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	Total
a. Total project costs							
1. Total facility costs							
(a) Line item	$ 2,538	$ 2,500	$ 300	$ 3,000	$ 4,200	$ 3,462	$16,000
Total direct costs	2,578	2,500	300	3,000	4,200	3,462	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)	$ 2,670	$ 2,500	$ 300	$ 3,000	$ 4,200	$ 3,462	$16,132

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

12. 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

12. 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 - Design criteria 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.

13. Incorporation of Fallout Shelters in Future Federal Buildings

This project does not include the construction of new buildings or building additions, therefore, the provision for fallout shelters is not applicable.