

BUDGET ESTIMATES FISCAL YEAR 1986/87

**Appropriation:
Salaries and Expenses**

January 1985

U.S. Nuclear Regulatory Commission



**BUDGET
ESTIMATES
FISCAL YEAR
1986/87**

**Appropriation:
Salaries and Expenses**

January 1985

U.S. Nuclear Regulatory Commission



BUDGET ESTIMATES FOR
U. S. NUCLEAR REGULATORY COMMISSION
FISCAL YEAR 1986/1987

CONTENTS

<u>Program Summary</u>	Pages 1-5
Office of Nuclear Reactor Regulation	
Office of Nuclear Material Safety and Safeguards	
Office of Inspection and Enforcement	
Office of Nuclear Regulatory Research	
<u>Salaries and Expenses Summary</u>	Pages 6-14
<u>Nuclear Reactor Regulation Programs</u>	Pages 15-21
Description of Programs	
Operating Reactors Program	
Systematic Safety Evaluation of Operating Reactors Program	
Operator Licensing Program	
Casework Program (licensing new reactors)	
Safety Technology Program	
Unresolved Safety Issues	
Generic Issues	
Human Factors Issues	
Regulatory Improvements	
Advanced Reactors	
TMI-2 Cleanup Program	
Management Direction and Support	
<u>Inspection and Enforcement Programs</u>	Pages 22-33
Description of Programs	
Reactor Construction Program	
Resident Inspectors	
Region-Based Specialists	
Construction Appraisal Team	
Reactor Operations Program	
Resident Inspectors	
Region-Based Specialists	
Performance Appraisal Team	
Emergency Preparedness Reviews	
Vendor and Quality Assurance Programs	
Vendor Program	
Quality Assurance Program	
Design Inspections and Verification Programs	
Enforcement, Technical Support and Incident Response Programs	
Enforcement	
Systematic Assessment License Performance	
Special Inspection Support	
Licensee Event Analysis and Generic Communications	
Incident Response Program	

- Fuel Cycle and Materials Programs
 - Fuel Facilities Inspections
 - Materials Inspections
 - Decommissioning and Closeout Reviews
- Specialized Technical Training Program
- Management Direction and Support Program

Nuclear Materials Safety and Safeguards ProgramsPages 34-44

- Description of Programs
- Fuel Cycle Facility and Nuclear Material Safety Programs
 - Materials Licensing
 - Licensing of Monitored Retrievable Storage Facility for High-Level Waste
 - Licensing of Decommissioning and Stabilization of Special Rare Earth Processing Sites
 - Shipments of Spent Fuel and High-Level Radioactive Waste
 - Dry Cask Spent Fuel Storage
 - Demonstration of High-Level Waste Solidification
 - Decontamination and Decommissioning
 - Technical Assistance to States
 - Incident Response Procedures and Practices
- Safeguards Program
 - Reviews of Safeguards at Operating Reactors
 - Safeguards of Licensed Facilities and Transportation
 - Safeguards Support of the Nuclear Waste Policy Act
 - IAEA Safeguards Program Participation
- High-Level Waste Management Program
 - Preapplication Reviews
 - Guidance on Licensing Issues
- Low-Level Waste Management and Uranium Recovery Programs
 - Disposal of Low-Level Radioactive Waste
 - Licensing Uranium Recovery Facilities
 - Licensing Uranium Mill Tailings Disposal Sites
 - Technical Assistance to States
- Management Direction and Support Program

Nuclear Regulatory Research ProgramsPages 45-57

- Description of Programs
- Reactor Engineering Programs
 - Aging and Deterioration of Operating Reactors
 - Seismic Effects on Operating Reactors
 - Reactor Pressure Vessel Safety
 - Adequacy of Safety Equipment Under Abnormal Conditions
 - Pipe Cracking in Boiling-Water Reactors
 - Steam Generator Inspection and Repair
- Thermal Hydraulic Transient Programs
 - Major Test Facilities
 - Thermal Hydraulic Codes
- Accident Evaluation Programs
 - Damaged Fuel
 - Containment Loading
 - Fission Product Source Term
 - Advanced Reactors

Reactor Operations and Risk Programs
Reliability and Risk Methodology
Data Base Development and Evaluation
Regulatory and Inspection Applications
Severe Accident Risk
Waste Management, Earth Sciences and Health Programs
High-Level Waste
Low-Level Waste
Earth Sciences
Health Effects and Radiation Protection
Management Direction and Support

Program Technical SupportPages 58-64

Advisory Committee on Reactor Safeguards
Atomic Safety and Licensing Board Panel
Atomic Safety and Licensing Appeal Panel
Office of Investigations
Office of the Executive Legal Director
Office of International Programs
Office of State Programs
Office of Analysis and Evaluation of Operational Data

Program Direction and AdministrationPages 65-74

The Commissioners and Staff
Office of the Secretary
Office of the Inspector and Auditor
Office of the General Counsel
Office of Public Affairs
Office of Policy Evaluation
Office of Congressional Affairs
Office of Executive Director for Operations
Office of Small and Disadvantaged Business Utilization
and Civil Rights
Office of Resource Management
Budget and Analysis
Accounting and Finance
Automated Information Services
Office of Administration
Organization and Personnel
Facilities and Operations Support
Technical Information and Document Control
Rules and Records
Contracts
Security
License Fee Management
Management Development and Training
Occupational Safety and Health

Special Supporting TablesPages 75-79

Legislative Program Projections
Consulting Services
Summary of Headquarters and Regional Resources

U. S. NUCLEAR REGULATORY COMMISSION

PROGRAM SUMMARY

The U.S. Nuclear Regulatory Commission was created by enactment of the Energy Reorganization Act of 1974 and began operation in 1975 as an independent agency of the Federal Government. The five Commissioners are nominated by the President and confirmed by the U.S. Senate. The Chairman of the Commission is appointed by the President from among the confirmed Commissioners.

The mission of the agency is to assure that civilian uses of nuclear materials in the United States, as in the operation of nuclear power plants or in medical, industrial or research applications, are carried out with provision for the protection of the public health and safety and protection of the environment, the safeguarding of nuclear materials and facilities from theft and radiological sabotage, and safe transport and disposal of nuclear materials and wastes. The mission is accomplished through the licensing of production, use, transport, and disposal of nuclear materials, the issuance of rules and regulations governing licensed activities, and inspection and enforcement activities to ensure compliance.

The NRC budget request for FY 1986 is \$429 million. It reflects a decrease in the NRC programs compared to FY 1985, primarily in Nuclear Regulatory Research programs and in the Nuclear Reactor Regulation programs. Additionally, \$8.6 million has been deleted from Salaries and Benefits in anticipation of the FY 1986 five percent pay decrease.

There are currently 127 nuclear power reactors in the United States licensed to operate or with a construction permit. As of January 20, 1985, 37 of these are under construction and the remaining 90 are licensed to operate. In addition there are 75 nonpower reactors that are used for testing materials and components, production of radioisotopes, and research and development.

Radioactive and nuclear materials have wide application in medicine, industry, research, and education, with the number of authorizations for possession, use, and transporting these materials in the thousands. The safe disposal of radioactive waste, regulated by NRC, constitutes a significant national program.

A major factor in all programs is the development of the legally enforceable regulations and requirements that govern the licensing, regulation, inspection, and enforcement actions. All regulations are subject to legal rulemaking and are available to the public for review and comment.

Accomplishment of the direct mission of NRC is primarily the responsibility of four major program offices: the Office of Nuclear Reactor Regulation, the Office of Nuclear Material Safety and Safeguards, the Office of Inspection and Enforcement, and the Office of Nuclear Regulatory Research. Sharing in this responsibility for mission accomplishment are the Program Technical Support offices. Except for research, program office responsibilities are conducted by the headquarter's offices and five regional offices. The regional offices are located in King of Prussia, Pennsylvania (Region I); Atlanta, Georgia (Region II); Glen Ellyn, Illinois (Region III); Arlington, Texas (Region IV); and Walnut Creek, California (Region V). In addition there are agency

inspectors who reside at each reactor construction site and operating plant who concentrate on day-to-day activities. The resident inspectors are supported by regional specialized technical, management and administrative staff.

The Commission is continuing to consider possible readjustments in NRC organizational structure and staff utilization in an effort to more effectively use agency resources and possibly reduce further the number of people in offices reporting directly to the Commission.

The programs of the four major offices are briefly summarized below.

Office of Nuclear Reactor Regulation

The Office of Nuclear Reactor Regulation is responsible for the assurance of public health and safety, and the protection of the environment in the design, siting, construction, and operation of nuclear power reactors. The direction of this program is shifting away from reviewing applications and issuing operating licenses, to ensuring that operating reactors maintain adequate levels of protection of public health and safety. Emphasis will also be placed on establishing a sound regulatory framework for the future.

There are five major regulatory and licensing programs. The sixth major program, the Systematic Safety Evaluation of Operating Reactors has been delayed and will not be funded in FY 1986, but is planned to begin in FY 1987. That program includes the pilot Integrated Safety Assessment Program, which will provide for the comprehensive review of selected operating reactors to analyze in an integrated manner all pertinent safety issues and to provide a cost-effective implementation plan for making needed changes. This program was previously reviewed by Congress.

The Operating Reactors Program includes the review of licensing actions necessary to correct inadequacies in plant design and operation that are identified from operating experience, reviews of unanticipated events, resolution of generic issues, and research. The program also includes the reviews of requests from licensees for changes to their operating licenses, and petitions from the public.

The Operator Licensing Program consists of the preparation, administration, and grading of examinations of reactor operators, issuance of operator licenses, and certification of licensee training facility instructors. This program is supported by a computerized examination question bank and operator licensing tracking systems.

The Casework (licensing new reactors) Program consists of the review of applications for reactor construction permits, operating licenses, and standard plant designs. The reviews include all aspects of safety and environmental effects, as well as antitrust implications. Also evaluated as part of these reviews are technical reports submitted by industry organizations on subjects related to classes of nuclear reactors and their associated systems or operation.

The Safety Technology Program addresses significant technical issues that relate to the safety of reactor design, construction, and operation. In FY 1986, this program includes the technical resolution of unresolved safety

issues and only those generic issues that have high priority, the development of a technical basis for regulatory positions on only high-priority human factors issues, and the development of new regulations in areas such as severe accidents and advanced reactor concepts.

The TMI-2 Cleanup program provides for the onsite inspection and oversight of licensee decontamination activities. This effort includes technical inspections and government relations at the facility and in the Middletown, Pennsylvania office. This work will continue to ensure the protection of the public health and safety and the environment during decontamination and disposal of radioactive waste from TMI-2.

Office of Nuclear Material Safety and Safeguards

The Office of Nuclear Material Safety and Safeguards is responsible for licensing all domestic activities regulated by the agency, except reactors. It is also responsible for safeguards review of licensing applications for reactors and the export of special nuclear materials.

These responsibilities specifically include, for activities under NRC jurisdiction, protection of the public health and safety and the environment through the licensing of uranium mills; reactor fuel fabrication; out-of-reactor spent fuel storage; and safe ultimate disposal of both high-level and low-level radioactive wastes and uranium mill tailings. In addition, the Office is responsible for certifying casks and containers to provide for the safe transport of large quantities of radioactive and nuclear material. Office responsibility also covers licensing of a wide range of nuclear and radioactive material uses, ranging from relatively simple medical diagnostic procedures to complex systems for radiopharmaceutical production. These uses, which involve thousands of applications for agency evaluation each year, include diagnostic and therapeutic medical uses, production and distribution of radiopharmaceuticals, basic life-science research, nondestructive testing, industrial sterilization, industrial process control and gauging, industrial research, and a wide variety of applications in academic institutions for teaching and research.

A major undertaking of the Office is to regulate the national program for the disposal of high-level radioactive wastes as mandated under the Nuclear Waste Policy Act of 1982. This first-of-a-kind undertaking involves an integrated program for high-level waste and spent fuel management, culminating in the deep geologic disposal of these materials. In order to provide protection of the public health and safety without unnecessary delay and costly rework in the national program, the Nuclear Regulatory Commission regulation of this long-term Department of Energy undertaking includes very active and early agency consultation with the Department to assure that the Department's program is developed to answer regulatory concerns as well as the Department's operational concerns.

The Office's safeguards program is designed to protect against threats, thefts and radiological sabotage both at fixed facilities and during transit. This area, which involves a large degree of professional judgement, includes the development of adequate safeguards regulations, and the approval, confirmation, and evaluation of safeguards programs implemented by licensees. The licensee safeguards programs include, as appropriate, sophisticated detection and alarm systems, barriers, material control and accounting,

contingency plans for timely response to threatening situations, and appropriate safeguards organization and management. The Office also has responsibility for implementing the U.S./International Atomic Energy Agency (IAEA) Safeguards Agreement that permits IAEA inspection of selected U.S. nuclear facilities, and for support of and participation in U.S. efforts to strengthen IAEA safeguards related to international nuclear installations and activities.

Office of Inspection and Enforcement

The Inspection and Enforcement program constitutes the principal field effort of the agency. Its activities are concerned mainly with: (1) reactor facilities - nuclear power plants (under construction, testing or in

commercial operation), test reactors and research reactors; (2) fuel facilities and nuclear materials licensees - fuel fabrication facilities, processors, distributors or users of byproduct, source and/or special nuclear materials; and (3) vendors - nuclear steam system suppliers, nuclear reactor architect-engineers, suppliers of products or services, and laboratories and facilities performing equipment qualification tests.

There are a number of major elements of the programs. Licensees and their contractors are inspected to determine if these licensees are taking appropriate actions to safeguard nuclear materials and facilities, to protect both the health and safety of the public and the environment, and to ascertain compliance with Commission regulations, rules, orders, and license provisions. License applicants are inspected as a basis for recommending issuance or denial of an authorization, permit or license. Suppliers of safety-related services, components and equipment are inspected to determine that they have established systems to assure the quality of their services and products. Incidents, accidents, allegations, and other unusual circumstances are responded to by ascertaining the facts and taking or recommending appropriate action. Compliance with Commission regulations, rules, orders, and license provisions is ensured through the enforcement program. The results of inspections are evaluated to determine the effectiveness of the Commission's programs and requirements for particular licensed activities and, where necessary, for corrective regulatory action. The Commission, other agency Offices, other government agencies, licensees and the public are informed of occurrences through notices or reports of occurrences.

Office of Nuclear Regulatory Research

The Nuclear Regulatory Research Program will continue to develop an independently verified source of safety information to be used in conjunction with data furnished by licensees as a basis for licensing and regulatory decisions. A stable, continuing program of research is essential to the execution of the Commission's responsibilities for effective nuclear safety regulation. The Nuclear Regulatory Research Program provides NRC the ability to deal with complex technical issues based on sound engineered data. Without this Program, NRC decisions on plant operations will have to be based on very conservative assumptions which could lead to numerous plant shutdowns and delays in licensing plants. Research is also used to develop a safety base and analytical methods in support of Commission rulemaking activities and policy determinations. A complete technology base is required to support the

development of a rule that would be broadly applicable to all nuclear reactors or to a large group of these reactors. In this regard the Commission will use data on the radioactive material released during an accident as one of the research bases for implementation of regulatory actions such as Accident Source Term, Reactor Siting and Emergency Planning Guidelines including graded response capability.

Research efforts in FY 1986 will deal with safety issues that can be expected to occur during the life of a nuclear power plant. Further, efforts associated with accidents beyond the current design basis with fission product releases will be continued along with efforts on developing and improving reliability analysis and methods for quantifying probability consequences associated with reactor accidents. Reactor Engineering work will focus on the qualification, operation and repair of reactor components and systems to provide a basis for evaluating the reactor reliability. The range of magnitude of seismic hazards appropriate to plant sites will be determined.

SALARIES AND EXPENSES SUMMARY

Estimates of Appropriation

The budget estimates for Salaries and Expenses for FY 1986 provide for obligations of \$429,000,000* to be funded in total by a new appropriation.

Estimates of Obligations and Outlays

This section provides for the summary of obligations by program, the summary of financing these obligations, the analysis of outlays, obligations by function, the proposed appropriation language, and an analysis of the appropriation language.

The summaries of obligations include the Reimbursable program. It should be noted that the obligations related to this program are not financed by NRC's appropriated funds, but solely through reimbursable agreements with other federal agencies.

The agency will deposit revenues derived from the license and inspection fees and enforcement actions to Miscellaneous Receipts of the Treasury.

The Summary of Obligations by Program indicates the total obligations for Direct and Reimbursable Programs for FY 1984, FY 1985, and FY 1986. The detailed justifications for direct program activities are presented in the same order as they appear in this summary table.

* Dollars are in thousands, except in text, where whole dollars are used; staff numbers are in full-time equivalents.

SUMMARY OF OBLIGATIONS BY ACTIVITY

	<u>Actual</u> FY 1984	<u>Estimate</u> FY 1985	<u>Estimate</u> FY 1986	<u>Estimate</u> ^{2/} FY 1987
Direct Program:				
Nuclear Reactor Regulation.....	\$ 92,850	\$ 91,178	\$ 88,930	\$ 95,470
Inspection and Enforcement.....	82,495	93,302	92,890	101,330
Nuclear Material Safety and Safeguards.....	37,799	40,302	40,730	44,870
Nuclear Regulatory Research.....	190,675	150,091	135,970	145,800
Program Technical Support.....	29,695	31,266	29,300	30,000
Program Direction & Administration...	<u>41,762</u>	<u>43,431</u>	<u>41,180</u>	<u>42,530</u>
Total Obligations - Direct Program.....	\$475,276	\$449,570	\$429,000	\$460,000
Reimbursable Program.....	<u>85</u>	<u>500</u>	<u>500</u>	<u>500</u>
Total Obligations.....	\$475,361	\$450,070	\$429,500	\$460,500
Offsetting collections from Federal Funds.....	-48	-500	-500	-500
Recovery of prior year obligations....	-2,986			
Unobligated balance, start of year....	-12,226	-5,699		
Unobligated balance, end of year.....	<u>5,699</u>			
Budget Authority.....	\$465,800	\$443,871	\$429,000 ^{1/}	\$460,000

^{1/}Includes \$8,600,000 reduction in Salaries and Benefits estimated for the Administration's proposed 5% pay cut.

^{2/}NRC estimate which has not been approved by the Administration.

FINANCING OF OBLIGATIONS

The financing of the estimated total obligations of \$429,000,000 proposed in the budget estimate for FY 1986 is summarized in the following table:

Summary of Financing

	<u>Actual</u> FY 1984	<u>Estimate</u> FY 1985	<u>Estimate</u> FY 1986	<u>Estimate</u> FY 1987 ^{1/}
Sources of Funds Available for Obligations:				
Recovery of prior year obligations..	\$ 2,986	\$ 0	\$ 0	\$ 0
Unobligated balance, start of year..	12,226	5,699	0	0
Appropriated to NRC.....	<u>465,800</u>	<u>443,871</u>	<u>429,000</u>	<u>460,000</u>
Subtotal	\$481,012	\$449,570	\$429,000	\$460,000
Less: Unobligated balance, end of year.....	<u>5,699</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total Obligations - Direct Program	\$475,313	\$449,570	\$429,000	\$460,000

^{1/} NRC estimate which has not been approved by the Administration.

OUTLAYS FOR SALARIES AND EXPENSES

Outlays for FY 1986 are estimated at \$438,000,000. The following analysis identifies funds available for outlays for each of the budget periods. This amount less the unexpended balance at the end of the period equals the outlays.

Outlay Analysis

	<u>Actual</u> FY 1984	<u>Estimate</u> FY 1985	<u>Estimate</u> FY 1986	<u>Estimate</u> ^{1/} FY 1987
Unexpended balance, beginning of year:				
Obligated.....	\$153,736	\$163,978	\$162,877	\$153,877
Unobligated.....	12,226	5,699	0	0
Appropriation to NRC.....	<u>465,800</u>	<u>448,200</u>	<u>429,000</u>	<u>460,000</u>
Total Funds Available for Outlays	\$631,762	\$617,877	\$591,877	\$613,877
Unexpended balance, end of year:				
Obligated.....	-163,978	-162,877	-153,877	-152,877
Unobligated.....	<u>-5,699</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total Outlays.....	\$462,085	\$455,000	\$438,000	\$461,000

^{1/}NRC estimate which has not been approved by the Administration.

SUMMARY OF BUDGET
OBLIGATIONS BY FUNCTION

	<u>Actual</u> FY 1984	<u>Estimate</u> FY 1985	<u>Estimate</u> FY 1986	<u>Estimate</u> FY 1987 ^{2/}
Direct Program:				
Salaries and Benefits.....	\$159,932	\$170,522	\$164,000 ^{1/}	\$172,000
Program Support.....	252,460	212,277	195,000	214,000
Administrative Support.....	52,121	56,771	60,000	63,000
Travel.....	<u>10,763</u>	<u>10,000</u>	<u>10,000</u>	<u>11,000</u>
Total Obligations -				
Direct Program.....	\$475,276	\$449,570	\$429,000	\$460,000
Reimbursable Program.....	<u>85</u>	<u>500</u>	<u>500</u>	<u>500</u>
TOTAL OBLIGATIONS.....	\$475,361	\$450,070	\$429,500	\$460,500

^{1/} Includes \$8,600,000 reduction in Salaries and Benefits estimated for the Administration's proposed 5% pay cut.

^{2/} NRC estimate which has not been approved by the Administration.

PROPOSED LANGUAGE - SALARIES AND EXPENSES

The proposed language is as follows:

Salaries and Expenses

For necessary expenses of the Commission in carrying out the purposes of the Energy Reorganization Act of 1974, as amended, and the Atomic Energy Act, as amended, including the employment of aliens; services authorized by 5 U.S.C. 3109; publication and dissemination of atomic information; purchase, repair, and cleaning of uniforms; official representation expenses (not to exceed \$8,000); reimbursements to the General Services Administration for security guard services; hire of passenger motor vehicles and aircraft, \$429,000,000 to remain available until expended: Provided, That from this appropriation, transfer of sums may be made to other agencies of the Government for the performance of the work for which this appropriation is made, and in such cases the sums so transferred may be merged with the appropriation to which transferred: Provided further, That moneys received by the Commission for the cooperative nuclear safety research program and the material access authorization program may be retained and used for salaries and expenses associated with those programs, notwithstanding the provisions of section 3302 of title 31, United States Code, and shall remain available until expended. (Energy and Water Development Appropriation Act, 1985; additional authorizing legislation to be proposed.)

Analysis of Proposed FY 1986 U.S. Nuclear
Regulatory Commission Appropriation Language

1. FOR NECESSARY EXPENSES OF THE COMMISSION IN CARRYING OUT THE PURPOSES OF THE ENERGY REORGANIZATION ACT OF 1974, AS AMENDED, AND THE ATOMIC ENERGY ACT, AS AMENDED:

42 U.S.C. 5841 et. seq.

42 U.S.C. 5841 et. seq., the Energy Reorganization Act of 1974, established the Nuclear Regulatory Commission to perform all the licensing and related regulatory functions of the Atomic Safety and Licensing Board Panel, the Atomic Safety and Licensing Appeal Board, and the Advisory Committee on Reactor Safeguards, and to carry out the performance of other functions including research, for the purpose of confirmatory assessment related to licensing and other regulation, other activities, including research related to nuclear material safety and regulation under the provisions of the Atomic Energy Act of 1954, as amended (42 U.S.C. 5801 et. seq.).

2. EMPLOYMENT OF ALIENS:

42 U.S.C. 2201 (d) of the Atomic Energy Act of 1954, as amended, authorizes the Commission to employ persons and fix their compensation without regard to civil service laws.

3. SERVICES AUTHORIZED BY 5 U.S.C. 3109:

5 U.S.C. 3109 provides in part that the head of an agency may procure by contract the temporary or intermittent services of experts or consultants when authorized by an appropriation.

4. PUBLICATION AND DISSEMINATION OF ATOMIC INFORMATION:

42 U.S.C. 2161 b

42 U.S.C. 2161 b directs the Commission that it shall be guided by the principle that the dissemination of scientific and technical information related to atomic energy should be permitted and encouraged so as to provide that interchange of ideas and criticism which is essential to scientific and industrial progress and public understanding and to enlarge the fund of technical information.

5. PURCHASE, REPAIR AND CLEANING OF UNIFORMS:

5 U.S.C. 5901

5 U.S.C. 5901 authorizes the annual appropriation of funds to each agency of the government as a uniform allowance.

6. OFFICIAL REPRESENTATION EXPENSES:

47 Comp. Gen. 657

43 Comp. Gen. 305

This language is required because of the established rule restricting an agency from charging appropriations with the cost of official representation unless the appropriations involved are specifically available therefor. Congress has appropriated funds for official representation expenses to the NRC and NRC's predecessor AEC each year since FY 1950.

7. REIMBURSEMENT OF THE GENERAL SERVICES ADMINISTRATION FOR SECURITY GUARD SERVICES:

34 Comp. Gen. 42

This language is required because, under the provisions of the Federal Property and Administrative Services Act of 1949, specific appropriation is made to GSA for carrying out the function of protecting public buildings and property, and, therefore, NRC appropriations not specifically made available therefor may not be used to reimburse GSA for security guard services.

8. HIRE OF PASSENGER MOTOR VEHICLES AND AIRCRAFT:

31 U.S.C. 638a

31 U.S.C. 638a provides in part - "(a) unless specifically authorized by the appropriation concerned or other law, no appropriation shall be expended to purchase or hire passenger motor vehicles for any branch of the Government...."

9. TO REMAIN AVAILABLE UNTIL EXPENDED:

31 U.S.C. 718

31 U.S.C. 718 provides in part that no specific or indefinite appropriation shall be construed to be available continuously without reference to a fiscal year unless it is made in terms expressly providing that it shall continue to be available beyond the fiscal year for which the appropriation Act in which it is contained makes provision.

10. THAT FROM THIS APPROPRIATION, TRANSFERS OF SUMS MAY BE MADE TO OTHER AGENCIES OF THE GOVERNMENT FOR THE PERFORMANCE OF THE WORK FOR WHICH THIS APPROPRIATION IS MADE, AND IN SUCH CASES, THE SUMS SO TRANSFERRED MAY BE MERGED WITH THE APPROPRIATION TO WHICH TRANSFERRED:

64 Stat 765, Sec. 1210

64 Stat 765, Sec. 1210 prohibits the transfer of appropriated funds from one account to another or working fund except as authorized by law.

11. THAT MONEYS RECEIVED BY THE COMMISSION FOR THE COOPERATIVE NUCLEAR SAFETY RESEARCH PROGRAMS AND THE MATERIAL ACCESS AUTHORIZATION PROGRAM MAY BE RETAINED AND USED FOR SALARIES AND EXPENSES ASSOCIATED WITH THOSE PROGRAMS, AND SHALL REMAIN AVAILABLE UNTIL EXPENDED:

26 Comp. Gen. 43

2 Comp. Gen. 775

Appropriated funds may not be augmented with funds from other sources unless specifically authorized by law.

NUCLEAR REACTOR REGULATION PROGRAMS

Total FY 1986 estimated obligations.....\$88,930*

Total Funds and Staff

	<u>FY 1984 Actual</u>	<u>FY 1985 Estimate</u>	<u>FY 1986 Estimate</u>	<u>FY 1987 Estimate^{1/}</u>
Salaries and Benefits.....	\$37,212	\$39,410	\$38,000	\$39,420
Program Support.....	39,662	34,978	31,000	35,000
Administrative Support....	14,318	15,130	18,320	19,460
Travel.....	<u>1,658</u>	<u>1,660</u>	<u>1,610</u>	<u>1,590</u>
Total Obligations.....	<u>\$92,850</u>	<u>\$91,178</u>	<u>\$88,930</u>	<u>\$95,470</u>
(Staff).....	(702)	(718)	(718)	(706)

Support Funds and Staff

The Nuclear Reactor Regulation staff and program support funds request is allocated to the major programs shown below. The program support funds are primarily for contractual work by Department of Energy laboratories and commercial contractors. The following narrative describes these programs and the rationale for their existence.

	<u>FY 1984 Actual</u>		<u>FY 1985 Estimate</u>		<u>FY 1986 Estimate</u>		<u>FY 1987 Estimate</u>	
	<u>Funds</u>	<u>Staff</u>	<u>Funds</u>	<u>Staff</u>	<u>Funds</u>	<u>Staff</u>	<u>Funds</u>	<u>Staff</u>
Operating Reactors	\$10,115	241	\$11,786	320	\$13,082	366	\$17,000	385
Systematic Safety Evaluation of Operating Reactors	45	10	0	0	0	0	2,500	17
Operator Licensing	3,114	44	3,491	57	3,280	66	3,500	72
Casework	11,568	228	8,700	162	4,890	124	2,500	80
Safety Technology	14,152	126	10,651	126	9,748	115	9,500	105
TMI-2 Cleanup	303	13	350	13	0	7	0	7
Management, Direction and Support	365	40	0	40	0	40	0	40
TOTALS	<u>\$39,662</u>	<u>702</u>	<u>\$34,978</u>	<u>718</u>	<u>\$31,000</u>	<u>718</u>	<u>\$35,000</u>	<u>706</u>

^{1/} NRC estimate which has not been approved by the Administration.

* Dollars are in thousands, except in text, where whole dollars are used; staff numbers are in full-time equivalents.

Nuclear Reactor Regulation Programs - Continued

Description of Programs

The Office of Nuclear Reactor Regulation (NRR) is responsible for performing licensing activities associated with the construction and operation of nuclear reactors; reviewing applications and issuing licenses for reactor facilities as required by the Atomic Energy Act of 1954; and evaluating the health, safety, and environmental aspects of facilities and sites.

This responsibility involves the following major functions: (1) performing detailed safety, environmental, and antitrust reviews of applications for nuclear power plant construction or operating licenses; (2) conducting safety evaluations of licensees' implementation of cost-effective requirements or changes to correct inadequacies or effect improvements in the design, operation, and economics of licensed reactors; (3) examining and licensing reactor operators; (4) evaluating issues related to the safety and regulation of reactors to determine if regulatory requirements should be deleted, added, or modified to increase the predictability and stability of the regulatory process; (5) providing for regulatory oversight of the TMI-2 cleanup operations.

Operating Reactors Program

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$10,115	\$11,786	\$13,082	\$17,000
(Staff).....	(241)	(320)	(366)	(385)

The Operating Reactors Program ensures that operating facilities maintain adequate levels of protection of public health and safety. This Program includes the licensing actions necessary to correct inadequacies in plant design and operation that are identified from operating experience, reviewing unanticipated events, resolving generic safety issues, and sponsoring needed research. There are two categories of licensing actions: multiplant and plant-specific. A multiplant licensing action applies to an entire class of plants. A plant-specific licensing action is associated with a particular facility. Licensing actions that can affect operating reactors include license amendment requests, requests for exemptions to regulations, new regulations which are specifically backfitted, orders for modification of a license, new generic activities, and review of information supplied by a licensee for resolution of technical issues or for installing new equipment at the facility. To ensure that the implementation of licensing actions for each reactor is consistent with NRC regulations and other safety requirements, the necessary safety evaluations are performed under this program.

Nuclear Reactor Regulation Programs - Continued

The following work is anticipated for this program: (1) completing and issuing the safety evaluations for about 2,700 licensing actions in FY 1985, 3,500 licensing actions in FY 1986, and 3,500 licensing actions in FY 1987; (2) conducting initial technical assessments of reactor events, should they occur, in order to determine, for other operating reactors, the safety implications of an event and determining what, if any, immediate regulatory actions must be taken; (3) developing, in conjunction with the licenses, priority-based schedules for the completion of changes specified by new or revised NRC requirements, and changes proposed by licensees; (4) performing project management activities to ensure that licensing actions are performed efficiently and effectively for 96 operating reactors in FY 1985, 106 in FY 1986, and 114 in FY 1987.

Additional funds and staff are required, over previous fiscal years, to achieve the timely review and completion of licensing actions, and provide the project management functions for the increasing number of operating reactors.

Systematic Safety Evaluation of Operating Reactors Program

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 45	\$ 0	\$ 0	\$ 2,500
(Staff).....	(10)	(0)	(0)	(17)

This program included the Systematic Evaluation Program Phase II and a proposed pilot Integrated Safety Assessment Program. Phase II was completed in FY 1984. The pilot Integrated Safety Assessment Program has been delayed until FY 1987 to provide sufficient resources for other high-priority programs. This pilot program will provide for the comprehensive review of selected operating reactors to analyze, in an integrated manner, all pertinent safety issues and to provide an integrated cost-effective implementation plan for making needed changes. The integrated safety assessment program will be initiated as a pilot effort over two years and is expected to include four plants. Each plant will be subjected to an integrated evaluation, a probabilistic safety assessment, and an evaluation of operating experience.

Nuclear Reactor Regulation Programs - Continued

Operator Licensing Program

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 3,114	\$ 3,491	\$ 3,280	\$ 3,500
(Staff).....	(44)	(57)	(66)	(72)

The Operator Licensing program consists of the preparation, administration, and grading of examinations of reactor operators, issuance of operator licenses, and certification of licensee training facility instructors.

Initial examinations are needed to ensure that power plants are staffed with qualified operators prior to issuance of the plant operating license. Replacement examinations are administered to operators who change to different facilities to ensure that they are qualified to operate at the different facility and that qualified operators are available at operating plants. The requalification program is an audit-type effort to verify the continued proficiency of licensed operators. Operators of nonpower reactors are also examined to ensure that they are qualified.

The anticipated workload for operator licensing is shown below:

<u>Examinations</u>	<u>FY 1985</u>	<u>Site Visits</u>	
		<u>FY 1986</u>	<u>FY 1987</u>
Initial	10	12	3
Replacement	178	174	180
Requalification	16	58	61
Instructor Certification	35	20	18
Nonpower reactor	50	50	50

This program also includes studies of general operator licensing problems, maintenance of an examination question bank, and improvements in the proficiency of examiners through training in examination content and balance, and in the development and writing of questions. These efforts are necessary to maintain and improve the efficiency and effectiveness of the Operator Licensing program. For example, the Examination Question Bank provides computerized questions for inclusion into examinations, thus reducing the time and effort for development of examinations.

The requested increases in resources reflect the conduct of more examinations as the result of the increase in the number of reactor operators needed to staff the increasing number of operating reactors and the full implementation of the requalification program.

Nuclear Reactor Regulation Programs - Continued

Casework Program

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$11,568	\$ 8,700	\$ 4,890	\$ 2,500
(Staff).....	(228)	(162)	(124)	(80)

The Casework Program (licensing new reactors) consists of the review of applications for reactor construction permits, operating licenses, and standard plant designs. The reviews include all aspects of safety and environmental effects, as well as antitrust implications. Also evaluated as part of these reviews are technical reports submitted by industry organizations, primarily vendors, on subjects related to classes of nuclear reactors and their associated systems or operation.

The required reviews will be conducted on a schedule that will not unnecessarily impact reactor startup and operation. It is anticipated that there will be 26 applications under active review in FY 1986 and six in FY 1987. Decisions are expected on operating licenses for 12 power reactors in FY 1985, 15 in FY 1986, and three in FY 1987.

Resources are also required to conduct reviews for new and renewal license applications for nonpower reactors and Navy and Department of Energy projects.

The resources for this program decline as the number of existing licensing applications under review decline. Resources to review potential new applications or reactivation of deferred or cancelled plants are not included.

Safety Technology Program

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$14,152	\$10,651	\$ 9,748	\$ 9,500
(Staff).....	(126)	(126)	(115)	(105)

The Safety Technology Program addresses significant technical issues that relate to the safety of reactor design, construction, and operation, and regulatory issues that relate to the licensing process. In FY 1986, this program includes the technical resolution of unresolved safety issues and high-priority generic issues, the development of a technical basis for regulatory positions on high priority human factors issues, and the development or modification of regulations in areas such as severe accidents and advanced reactor concepts.

Nuclear Reactor Regulation Programs - Continued

Unresolved Safety Issues

Completion is expected on four existing Unresolved Safety Issues (USIs) in FY 1985 and five in FY 1986, as well as the resolution of new USIs within three years after their identification. An Unresolved Safety Issue is a matter that affects a number of nuclear power plants and poses important questions concerning the adequacy of existing safety requirements for which a final resolution has not yet been developed. The issues involve conditions not likely to be acceptable over the lifetime of the plants they affect.

Generic Issues

Priorities will be established for resolution of identified generic safety issues based on their potential safety contribution and cost. Technical positions will be developed on only high-priority generic safety issues that relate to the safety of nuclear power plant design, construction, or operation. Technical resolution of 13 generic issues is expected in FY 1985, nine in FY 1986, and six in FY 1987.

Human Factors Issues

The technical basis will be developed for regulatory positions, guidance, and regulations on high-priority human factors issues related to the design, operation, and maintenance of nuclear power reactors. These issues include training, staffing and qualifications, licensing examinations, and maintenance, as identified in the Human Factors Program Plan (NUREG-0985). Ongoing cooperative efforts with industry groups, such as the Institute for Nuclear Power Operations (INPO), will be continued.

Regulatory Improvements

The first phase of the Severe Accident Program is that funded and managed by the Office of Nuclear Regulatory Research. The second phase, which will concern the Office of Nuclear Reactor Regulation, will incorporate the results of the Severe Accident Program and source term research into NRC regulatory practices for operating reactors and reactors under license review. Priorities will be established for multi-plant licensing actions, and the Standard Review Plan for reactor operating license applications will be updated as necessary. Proposed safety goals will be evaluated to develop guidance for implementing the final safety goal.

Analytical tools, such as computer codes, for the performance of audit calculations will be evaluated, modified, verified and maintained.

Technical positions and guidance will be developed for conducting probabilistic risk assessments (PRA) including improving the capability for assessing risk from external events, developing review criteria for staff audit of licensee-submitted PRAs, and modifying the PRA Procedures Guide and Audit Manual.

Nuclear Reactor Regulation Programs - Continued

Advanced Reactors

Resources are provided for interaction and coordination with industry and DOE on the review of potential advanced reactor concepts and the development of appropriate criteria for such reviews.

In FY 1986, resources for the Safety Technology Program decline as a result of discontinuing resolution of medium-priority generic safety and human factor issues, including some resulting from evaluation of the TMI accident.

TMI-2 Cleanup Program

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 303	\$ 350	\$ 0	\$ 0
(Staff).....	(13)	(13)	(7)	(7)

This activity provides for the on-site inspection and oversight of the TMI-2 cleanup operations, including technical inspections and government relations onsite and in the Middletown, Pennsylvania office. This work will continue to ensure the protection of the public health and safety and the environment during decontamination and disposal of radioactive waste from TMI-2.

Management Direction and Support

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 365	\$ 0	\$ 0	\$ 0
(Staff).....	(40)	(40)	(40)	(40)

The resources requested for Management Direction and Support provide for the overall policy guidance and management direction of the Nuclear Reactor Regulation programs by the Office Director and the Regional Administrators. Requested resources also provide for independent assessments of selected technical programs, proposals and other management issues, which include scheduling of consideration of technical issues, the annual budget submission, proposed mid-year financial reprogramming, executive program analysis reports, staffing plans and reports, congressional budget testimony and responses to congressional inquiries. Finally, required support services in the areas of procurement, administration, and personnel are provided.

INSPECTION AND ENFORCEMENT PROGRAMS

Total FY 1986 estimated obligations.....\$92,890*

Total Funds and Staff

	<u>FY 1984 Actual</u>	<u>FY 1985 Estimate</u>	<u>FY 1986 Estimate</u>	<u>FY 1987 Estimate^{1/}</u>
Salaries and Benefits.....	\$47,316	\$52,440	\$52,520	\$ 56,220
Program Support.....	16,622	19,432	19,000	22,000
Travel.....	5,480	5,130	5,250	6,290
Administrative Support....	<u>13,077</u>	<u>16,300</u>	<u>16,120</u>	<u>16,820</u>
Total Obligations.....	<u>\$82,495</u>	<u>\$93,302</u>	<u>\$92,890</u>	<u>\$101,330</u>
(Staff).....	(1,034)	(1,096)	(1,142)	(1,158)

Support Funds and Staff

The Inspection and Enforcement staff and program support funds are allocated to the major programs shown below. The program support funds are primarily for contractual work by the Department of Energy laboratories and commercial contractors. The narrative that follows describes the programs and the reason they are needed.

	<u>FY 1984 Actual</u>		<u>FY 1985 Estimate</u>		<u>FY 1986 Estimate</u>		<u>FY 1987 Estimate</u>	
	<u>Funds</u>	<u>Staff</u>	<u>Funds</u>	<u>Staff</u>	<u>Funds</u>	<u>Staff</u>	<u>Funds</u>	<u>Staff</u>
Reactor Con- struction	\$ 1,133	107	\$ 1,450	63	\$ 1,900	57	\$ 1,550	37
Reactor Operations	6,685	496	6,821	546	6,240	590	6,740	616
Vendor and Quality Assurance	3,800	57	5,448	78	3,650	85	4,600	85
Enforcement, Technical Support and Incident Response	2,875	130	2,709	158	3,823	154	5,730	166
Fuel Cycle and Materials	781	88	982	94	1,080	97	1,080	95
Specialized Technical Training	1,348	13	2,022	17	2,307	19	2,300	19
Management Direction and Support	0	143	0	140	0	140	0	140
TOTALS	<u>\$16,622</u>	<u>1,034</u>	<u>\$19,432</u>	<u>1,096</u>	<u>\$19,000</u>	<u>1,142</u>	<u>\$22,000</u>	<u>1,158</u>

^{1/} NRC estimate which has not been approved by the Administration.

* Dollars are in thousands, except in text, where whole dollars are used; staff numbers are in full-time equivalents.

Inspection and Enforcement Programs - Continued

Description of Programs

Inspection and Enforcement Programs are conducted to ensure that facilities and materials under agency jurisdiction are designed, constructed, and operated or used safely and in compliance with agency regulations. Prompt enforcement action is taken against licensees who do not comply.

Inspection and Enforcement Programs are conducted by the Office of Inspection and Enforcement and the agency's five Regional Offices, which are located in King of Prussia, Pennsylvania (Region I); Atlanta, Georgia (Region II); Glen Ellyn, Illinois (Region III); Arlington, Texas (Region IV); and Walnut Creek, California (Region V).

The majority of the program staff are located in the Regional Offices. The headquarters staff has responsibility for: (1) inspection policy and program development; (2) assessment of inspection program content and implementation by Regional Offices; (3) appraisal inspections to determine licensee and regional performance; (4) enforcement actions referred by Regional Offices; (5) evaluation of licensee events; (6) response to incidents by managing the agency's Operations Center; (7) emergency preparedness, including coordination with the Federal Emergency Management Agency and emergency preparedness licensing of reactors; (8) specialized technical training; (9) development and licensing of quality assurance programs; (10) development and implementation of the vendor inspection program; (11) construction appraisal team inspections; (12) integrated design inspections and the independent design verification program; (13) and technical support to the Regional Offices.

The Regional inspection staff has responsibility for: (1) conducting inspections at reactors, fuel facilities, and materials licensees; (2) initiating enforcement actions; (3) conducting systematic assessments of licensee performance; (4) performing emergency preparedness annual reviews; (5) responding to incidents by dispatching personnel to the site in question; and (6) providing technical support to the Office of Investigations.

Implementation of the inspection program is conducted under two basic formats: (1) prescribed scheduled routine inspections designed to evaluate the licensee's activities, recognizing that the licensee has primary responsibility for protection of the public health and safety; and (2) unscheduled, reactive inspections to follow up on problems or to assess licensee compliance with special requirements imposed as a result of the evaluation of events at other reactor plants. This program also involves the review of licensee event reports and response to allegations of poor licensee performance.

Response to incidents is carried out jointly by headquarters and the regions. At headquarters, the agency's Operations Center is continuously staffed to receive calls of reportable events and allegations; to determine the appropriate immediate action; and to pass appropriate items to the regions for followup. When necessary, the Center is activated and an emergency response team from the region is dispatched to the site to monitor and evaluate the situation and provide advice and information to the licensee, the Federal Emergency Management Agency, state and local government officials, other Federal agencies, and the public.

Inspection and Enforcement Programs - Continued

The Inspection and Enforcement Programs address the need for increased assurance that reactors being constructed will meet operating license requirements and that those in operation will operate safely.

The resident inspector program (agency inspectors who reside at power plant sites) is being expanded to provide two residents at high priority single unit operating sites and two residents at every reactor construction site, including those sites with plants undergoing preoperational testing.

Reactor Construction Program

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 1,133	\$ 1,450	\$ 1,900	\$ 1,550
(Staff).....	(107)	(63)	(57)	(37)

The Reactor Construction Program consists of developing, conducting, and assessing inspection programs at 13 reactors under construction in FY 1985, 9 in FY 1986, and 8 in FY 1987. The agency's inspection program for those reactors whose construction is nearly complete (i.e., preoperational testing) is discussed in the Reactor Operations Program. The Reactor Construction Program is carried out by resident inspectors, region-based specialists, and construction appraisal team inspectors. Only a small percentage (approximately 1%) of the work activities at construction sites, which typically employ 4000 to 6000 workers, is currently actually observed by NRC inspectors.

Resident Inspectors

The resident inspector applies general experience in construction activities to assure that installations of equipment and structures are in accordance with design requirements and quality assurance procedures. The resident inspector has frequent contact with construction management personnel from the utility. He reviews procedures, observes the work, and audits quality control. He may also participate in agency hearings, licensing meetings and public discussions. The agency plans to assign 12 resident inspectors to reactor construction sites in FY 1985, 11 in FY 1986, and 7 in FY 1987.

Although staff requirements decrease as workload shifts from reactors under construction to operating reactors, staff requirements per facility increase slightly to allow for a second resident inspector at each active construction site. This change recognizes that many construction problems have not been identified early enough in the construction phase. This problem is recognized by the FY 1985 House Appropriation Committee Report (H.R. 98-755) which accompanies the Appropriation Act (P.L. 98-360) and which indicates that more inspection effort needs to be focused on plants under construction. A second resident inspector at each construction site provides a substantial increase in onsite inspection time, and although relatively small when compared with

Inspection and Enforcement Programs - Continued

total construction activities should lead to more timely identification of significant problems associated with complex and multidisciplined construction activities.

Region-Based Specialists

The majority of inspections are in-depth, specialized technical inspections carried out by region-based specialists in the areas of civil, mechanical, and electrical engineering, instrumentation, welding, nondestructive examination and quality assurance. To augment region-based specialists, contractor technical assistance is provided to conduct independent measurements in composition, strength and fracture toughness of material samples, and ultrasonic radiographic and metallurgical tests of welds and joints used in reactor construction. An increase in program support funds is required to augment inspection efforts by hiring experts in specialized areas (e.g., inspection by radiography, other nondestructive examination techniques, and concrete evaluation) who are not necessarily needed on a day-to-day basis but required as problems arise. These experts also assist region-based and resident inspectors in evaluating the corrective measures which are taken by the utilities to resolve identified problems.

Construction Appraisal Team

Major independent team inspections are planned at four construction sites each year in FY 1985-1987 by the Construction Appraisal Team. These inspections help determine through an integrated multidisciplined approach whether a facility is being constructed in accordance with regulatory requirements and appropriate industry practices, and whether the applicant's management and quality control programs are effective. They emphasize verification of the quality of installed components, systems and structures. They are also used to assess regional implementation of the construction inspection program, as well as to determine needed changes. The Construction Appraisal Team inspections are scheduled for selected reactors in mid to late construction and serve to identify construction problems prior to licensing for operation or, conversely, to provide assurance that the plant is ready for licensing.

Reactor Operations Programs

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 6,685	\$ 6,821	\$ 6,240	\$ 6,740
(Staff).....	(496)	(546)	(590)	(616)

The Reactor Operations Program consists of developing, conducting and assessing inspection programs for power and nonpower reactors during the preoperational testing, startup, and operational phases; developing and coordinating third-party inspection programs and agreements; reviewing emergency preparedness license applications and modifications; and providing radiological services to Agreement States and other states.

Inspection and Enforcement Programs - Continued

The Operating Reactor Inspection Program is performed by resident inspectors, region-based specialists and the Performance Appraisal Team. The workload for operating reactor inspections is summarized in the following table:

	<u>FY 1985</u>	<u>FY 1986</u>	<u>FY 1987</u>
No. of reactors in preoperational testing phase	18	12	5
No. of reactors in startup and operation phase	96	106	114
Non-Power Reactors	75	75	75

Resident Inspectors

Resident inspectors are generalists who concentrate on day-to-day operations, event followup, licensee management and staff performance. In addition, they coordinate on-site activities of the various agency offices and participate in emergency exercises. They also serve as the agency contact with local officials, the press and the public. The agency plans to assign 121 resident inspectors to operating reactors and those in preoperational testing in FY 1985, 151 in FY 1986, and 143 in FY 1987. A second resident inspector will be assigned at plants in the preoperational testing phase to allow for additional coverage during the critical period when utility construction and associated quality assurance and quality control inspections are being completed, preoperational testing is in progress, hearings are being conducted and when last minute allegations may be introduced. This increased on-site inspection coverage, which provides additional support for identifying, evaluating and resolving issues, will help reduce the probability of licensing delays. A second resident inspector will be assigned to the highest priority single unit operating sites. This additional coverage will provide better continuity and increased direct inspection of important areas such as licensee maintenance and surveillance activities.

Region-Based Specialists

Region-based inspectors are specialists whose efforts include detailed inspections in such areas as plant operations, systems surveillance, maintenance, modifications, inservice inspection, fire protection, nondestructive testing, training, refueling, radiation protection, quality assurance, emergency planning, environmental protection, management systems, security, and safeguards. Additional Region-based specialists are needed in FY 1986 due to an increased number of operating plants. To augment these region-based specialists, highly specialized technical assistance is provided through contractual assistance. These contracts include aerial radiological surveys, state environmental monitoring at reactor sites and other confirmatory independent measurements.

Inspection and Enforcement Programs - Continued

Performance Appraisal Teams

Three Performance Appraisal Team inspections will be conducted each fiscal year to assess licensee implementation of management control systems and regional implementation of inspection programs, and to determine the effectiveness of the Institute for Nuclear Power Operations', an industry sponsored organization, program for evaluating plant operations.

Emergency Preparedness Reviews

Nuclear power plant applicants and licensees are required by agency regulations (Title 10 Code of Federal Regulations Part 50) to develop and implement onsite and offsite plans for taking protective actions in the event of reactor accidents. The plans for a given reactor site generally involve those prepared by the utility for application to onsite areas and those prepared by State and local governmental authorities for areas beyond the plant boundary. Emergency preparedness activities include: (1) developing licensing policy and guidance; (2) reviewing and evaluating onsite emergency plans and procedures to provide input for Safety Evaluation Reports on applicants' emergency preparedness capabilities (8 in FY 1985, 11 in FY 1986 and 6 in FY 1987); (3) reviewing modifications to existing licenses; and (4) coordinating with the Federal Emergency Management Agency on findings and determinations resulting from their review of offsite emergency preparedness of State and local governments as it affects licensed nuclear facilities.

Vendor and Quality Assurance Programs

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 3,800	\$ 5,448	\$ 3,650	\$ 4,600
(Staff).....	(57)	(78)	(85)	(85)

The Vendor Program focuses on architect-engineering firms, nuclear steam system suppliers and companies producing the piping, valves, pumps, electrical equipment, and instrumentation for reactors and safety-related systems. During inspections conducted at licensed facilities and the offices and plants of vendors, emphasis is placed on design verification, interfaces with plant construction, and the development, verification, and use of computer codes. The Quality Assurance Program integrates agency activities for quality assurance licensing, inspection, standards and research, recognizing that substantive improvements in quality must come from the nuclear industry itself, with NRC efforts oriented to the prevention and early detection of major quality problems.

Vendor Program

Approximately 250 inspections of vendors will be conducted each year. The major portion of the funding is to provide technical assistance in conducting inspections of vendor facilities. The principal inspection categories are:

Inspection and Enforcement Programs - Continued

(1) reactive inspections in response to reports of defects and noncompliance with the regulations (Part 21 of Title 10 of the Code of Federal Regulations), adverse reports on conditions of construction (required by Part 50.55 (e) of Title 10 of the Code of Federal Regulations) and allegations by workers and the public; (2) reactive and routine inspections of the quality assurance programs of architect-engineers and nuclear steam system suppliers, technical areas such as the quality of computer program software, and third-party surveys such as those conducted by the American Society of Mechanical Engineers in accordance with the Boiler and Pressure Vessel Code; and (3) inspections to followup on known technical issues.

Contractor assistance funds permit the agency to conduct more detailed technical inspections at vendor facilities and to provide the capability to hire experts in specialized areas. Experience over the past two years with vendors indicates that this effort is warranted. Reactor operational safety issues have resulted from the breakdown of vendor quality assurance programs, failure of vendors to adequately convey maintenance procedures to licensees, and improperly certified (and in some cases fraudulent) work and materials provided to major vendors by second- and third-level vendors. Major problems throughout the industry can be avoided if properly considered and resolved. Failure to consider these issues in a thorough and timely manner can result in additional costs to licensees, delays in licensing and the shutdown of operating plants to replace or repair defective components. Additional staff are also required in FY 1986 to provide for regional followup and closeout actions at licensed facilities to ensure that licensee corrective action is carried out with respect to vendor problems discovered during vendor inspections.

Quality Assurance Program

A revised program for quality assurance will be developed and carried out as recommended in "A Report to Congress on Improving Quality and the Assurance of Quality in the Design and Construction of Nuclear Power Plants," USNRC Report NUREG-1055. The Report to Congress identified a number of areas in which current agency practices should be altered to increase the likelihood of achieving quality and the assurance of quality in design and construction. While the focus of the report was on construction, many of the corrections will be applied to reactor operations. These changes include: (1) reductions in agency prescriptiveness and greater emphasis on performance objectives, (2) reduction or alteration of requirements which have resulted in attempts to inspect quality into a plant rather than to place reliance on those responsible for a project, and (3) methods to resolve quality assurance contentions earlier in the licensing process so as to avoid the necessity for considering a large number of allegations in the final stages of a project when the consequences of delay are much greater. These changes will also make the nuclear licensing and regulatory process more predictable and stable.

Additional staff and contractor support are required to initiate the quality assurance improvements identified in the Report to Congress and to process increased quality assurance licensing actions. Quality Assurance initiatives will focus on existing plants in construction and operation as opposed to future generations of reactors.

Inspection and Enforcement Programs - Continued

Design Inspections and Verification Programs

There will be three Integrated Design Inspections and Independent Design Verification Program reviews of selected reactors under construction each fiscal year. Following discovery of the Diablo Canyon mirror-image design error, it was necessary for the agency to provide assurance that plant designs meet all regulatory requirements. The results of just completed design reviews have been extremely useful in evaluating the safety significance of design contentions introduced by intervenors in a number of recent operating license hearings. Integrated design inspections are the principal means whereby the agency verifies that the commitments made by applicants during the licensing process have actually been incorporated in the plant design. They are also the principal means to confirm that the licensees' internal design quality assurance procedures have detected and corrected errors in design.

The Independent Design Verification Program covers review and assessment of the licensee's self-initiated efforts to provide assurance that the design of the plant conforms to all regulations and licensing commitments and that the internal design quality assurance procedures have detected and corrected errors in design. An independent design verification program is carried out for those plants which, due to resource limitations, have not received direct design inspection.

Enforcement, Technical Support, and Incident
Response Programs

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 2,875	\$ 2,709	\$ 3,823	\$ 5,730
(Staff).....	(130)	(158)	(154)	(166)

The Enforcement Program is to assure safety through licensee compliance with agency regulations. A program for the systematic assessment of licensee performance is aimed at improving both NRC regulatory efforts and licensee performance in the construction and operation of nuclear power plants. Technical support provides necessary assistance to conduct investigations, inspect problem facilities, followup allegations, analyze licensee events for their safety significance and the appropriateness of corrective actions, communicate common problems to staff and licensees, and maintain fixed and mobile laboratories (e.g. Non-Destructive Examination van) and technical equipment. The Incident Response Program affords assurance that the agency is prepared to respond to incidents, including twenty-four hour staffing of the agency's Operations Center.

Inspection and Enforcement Programs - Continued

Enforcement

The Enforcement Program is carried out to ensure compliance with regulations and license conditions; to obtain prompt correction of noncompliance; to deter further noncompliance; and to encourage improvement of licensee performance. The enforcement program employs a series of sanctions that escalate according to the seriousness of the noncompliance and the past history of licensee performance. Notices of violation, civil penalties and orders are issued, as appropriate, to assure safety and compliance. In FY 1984, 135 escalated enforcement cases were processed and civil penalties of \$2,300,000 were issued.

Systematic Assessment of Licensee Performance

Systematic assessments of licensee performance are conducted for operating power reactors and reactors under construction. The program involves collecting information on a periodic basis about the overall performance of a licensee in a number of important areas (e.g., management involvement in assuring quality, enforcement history, and reporting and analysis of events). Emphasis is placed on understanding the reasons for licensee performance in these areas, sharing the understanding with the licensee, and then focusing agency inspection accordingly.

Special Inspection Support

Expertise is needed to assist in inspections and investigations. Facilities where major problems have been identified have drained resources from other programs and facilities. Plants such as Midland, Zimmer, Waterford, Comanche Peak, and Diablo Canyon have required hundreds of staff months of additional inspection and millions of dollars of technical assistance funds to resolve last minute problems and allegations. Special inspections are also required to assist in investigations responding to allegations of safety and safeguards violations at nuclear facilities. Funds and staffing provide a minimum level of support to these activities.

Licensee Event Analysis and Generic Communications

Licensee event reports are analyzed to identify problems with potential safety significance which may be common to specific types of plants. Bulletins and information notices are then prepared to inform licensees, vendors and the agency staff of these problem areas, and to recommend or require corrective actions. More than 10,000 event reports will be reviewed and approximately 100 communications will be issued annually.

Incident Response Program

A new agency Operations Center will be opened in FY 1985, improving the agency's capability to respond to incidents. In addition, systems and programs for supporting reactor safety assessment, protective measures, information management, response training, and communication of information will be upgraded. An increase of funds in FY 1986 will provide for initiating upgrades and improved communications during an emergency by using data already available in licensee computerized data systems, such as safety parameter display systems.

Inspection and Enforcement Programs - Continued

Fuel Cycle and Materials Programs

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 781	\$ 982	\$ 1,080	\$ 1,080
(Staff).....	(88)	(94)	(97)	(95)

The Fuel Cycle and Materials Programs consist of inspecting the processing of nuclear materials at fuel cycle facilities, the use of nuclear and radioactive material at medical, academic and industrial institutions, and the transportation of such materials.

Fuel Facilities Inspections

Radiological safety, safeguards, and material control and accountability inspections will be conducted at 48 fuel facilities in FY 1985-1987. These facilities include uranium mills, uranium conversion facilities, and fuel production plants. Inspection of these facilities helps to ensure that unsafe conditions involving unnecessary and harmful radiation exposure to employees and the public do not develop, that materials are properly controlled to prevent a nuclear criticality accident, and that security and material control practices are adequate to prevent diversion or theft of fissionable materials.

Materials Inspections

Approximately 2800 onsite radiological safety and safeguards inspections will be conducted per year in FY 1986-1987 to help ensure that unsafe conditions involving unnecessary and harmful radiation exposure to employees and the public do not develop. Nuclear materials are used by firms dealing with source, byproduct, or special nuclear materials in nuclear medicine, radiography, industrial testing, well-logging, and academic research. Inspections of the handling and storage of radioactive wastes are also required.

A program is being initiated to inspect a wide variety of gauges and measuring devices which previously have never been inspected. These devices have radioactive sources which, if improperly handled, have the potential of causing serious occupational and public health problems from radiation injury.

Inspections of U.S. Department of Agriculture facilities where radioactive materials are used are to be expanded. Currently, one license covers 400 separate locations throughout the country, only nine of which were inspected in FY 1984. The expanded program will include inspection of 40 locations in each of the next two fiscal years.

The consequences of improper control of radioactive material are illustrated by the fatalities in Morocco in June 1984 from exposure to a radiography source and the large radiation exposures received by Mexican citizens as a result of the inadvertent introduction of a teletherapy source into steel.

Inspection and Enforcement Programs - Continued

In the U.S., four recent cases of radiation treatment of patients resulted in radiation exposures far above the amount intended before the error was discovered. The requested resources will allow the NRC to resume fully its previously established level of inspection. For example, this means that nuclear medicine programs in hospitals will be inspected one time in three years instead of once in four years.

Decommissioning and Closeout Reviews

Decommissioning and closeout reviews at materials licensees and waste management facilities will be conducted as required by Part 61 Title 10 of the Code of Federal Regulations (Licensing Requirements for Land Disposal of Radioactive Waste). Additional funding is requested to provide for expanded contractor support primarily in the area of assisting the regional inspection staff in determinations of whether grounds and buildings can be released for unrestricted use after having been contaminated with radioactive materials. These determinations are based on independent radiation surveys to ascertain whether the licensee has successfully decontaminated its property.

Specialized Technical Training Program

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 1,348	\$ 2,022	\$ 2,307	\$ 2,300
(Staff).....	(13)	(17)	(19)	(19)

The Specialized Technical Training Program is managed by the Office of Inspection and Enforcement and operated at the Technical Training Center near Chattanooga, Tennessee. This program provides training to regional-based and resident inspectors, other agency technical staff, and state and foreign government employees. Courses are offered in design, computer codes, technology and operation of pressurized and boiling water reactors, and other specialized areas of reactor construction, health physics, quality assurance, probabilistic risk assessment, and operator license examiner training. Training is conducted in conventional classrooms, scientific laboratories, nuclear power plants, and reactor control room simulators. This specialized training provides added technical experience for staff to perform inspections and safety reviews for reactors and fuel cycle facilities and materials-use activities.

Courses will be developed and conducted on pressurized and boiling water reactors as follows: 82 courses in FY 1985; 96 courses in FY 1986. Other specialized technical training courses will be developed and conducted in a wide variety of specialties; for example, electrical codes, welding, health physics, risk assessments, etc. This will include 49 courses in FY 1985 and 70 courses in FY 1986. Reactor simulators will be used for inspector and operator license examiner training. Increases in resources are based on

Inspection and Enforcement Programs - Continued

increased numbers of inspectors and the need to conduct new courses to train and qualify more operator license examiners given the increased number of operating reactors coming on-line.

Management Direction and Support Program

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 0	\$ 0	\$ 0	\$ 0
(Staff).....	(143)	(140)	(140)	(140)

The resources requested for management direction and support provide for the overall policy guidance and management direction of the Inspection and Enforcement programs by the Office Director and the Regional Administrators. Requested resources also provide for technical and administrative support to the Director and Regional Administrators.

NUCLEAR MATERIAL SAFETY AND SAFEGUARDS PROGRAMS

Total FY 1986 estimated obligations.....\$40,730*

Total Funds and Staff

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u> ^{1/}
Salaries and Benefits..	\$15,391	\$16,450	\$16,720	\$17,650
Program Support.....	16,718	17,437	17,000	20,000
Administrative Support.	4,854	5,660	6,230	6,440
Travel.....	<u>836</u>	<u>755</u>	<u>780</u>	<u>780</u>
Total Obligations....	<u>\$37,799</u>	<u>\$40,302</u>	<u>\$40,730</u>	<u>\$44,870</u>
(Staff).....	(347)	(350)	(370)	(370)

Support Funds and Staff

The Nuclear Materials Safety and Safeguards staff and program support funds are allocated to the major programs shown below. The program support funds are primarily for contractual work by the Department of Energy laboratories and commercial contractors. The narrative that follows describes these programs and the reason they are needed.

	<u>FY 1984</u>		<u>FY 1985</u>		<u>FY 1986</u>		<u>FY 1987</u>	
	<u>Actual</u>		<u>Estimate</u>		<u>Estimate</u>		<u>Estimate</u>	
	<u>Funds</u>	<u>Staff</u>	<u>Funds</u>	<u>Staff</u>	<u>Funds</u>	<u>Staff</u>	<u>Funds</u>	<u>Staff</u>
Fuel Cycle Facility and Nuclear Material Safety	\$ 3,389	105	\$ 3,812	96	\$ 3,712	102	\$ 5,450	102
Safeguards	3,686	79	3,680	77	3,400	77	3,730	77
High-Level Waste Management	6,378	77	6,570	102	6,745	116	8,450	116
Low-Level Waste Management and Uranium Recovery	3,260	58	3,275	47	3,043	47	2,270	47
Management Direction and Support	<u>5</u>	<u>28</u>	<u>100</u>	<u>28</u>	<u>100</u>	<u>28</u>	<u>100</u>	<u>28</u>
TOTALS	<u>\$16,718</u>	<u>347</u>	<u>\$17,437</u>	<u>350</u>	<u>\$17,000</u>	<u>370</u>	<u>\$20,000</u>	<u>370</u>

^{1/} NRC estimate which has not been approved by the Administration.

* Dollars are in thousands, except in text, where whole dollars are used; staff numbers are in full-time equivalents.

Nuclear Materials Safety and Safeguards Programs - Continued

Description of Programs

The Office of Nuclear Material Safety and Safeguards is responsible for the health and safety licensing and environmental protection reviews for all activities regulated by the agency, except reactors, and for total agency safeguards technical review of licensing applications including reactors and the export of special nuclear material. These responsibilities include development and implementation of agency policy for the regulation of nuclear and radioactive materials such as uranium milling; fuel fabrication and fuel development; medical, industrial, academic and commercial uses of radioactive isotopes; certification of containers for transport of large quantities of radioactive and nuclear material; out-of-reactor spent fuel storage; and safe disposal of low-level and high-level radioactive waste. Safeguards responsibilities include those licensing and review activities appropriate to deter and protect against threats of radiological sabotage and threats of theft or diversion of special nuclear material both at fixed facilities and during transport. These responsibilities are administered under four programs: (1) Fuel Cycle Facility and Nuclear Material Safety, (2) Safeguards, (3) High-Level Waste Management, and (4) Low-Level Waste Management and Uranium Recovery.

The safety and environmental regulatory programs are designed to assure that workers, the public health and safety, and the environment are protected during both normal and off-normal operations. These programs regulate activities ranging from complex operations--such as disposal of high-level radioactive waste in deep geologic repositories, reactor fuel development and fabrication, and medical radiopharmaceutical production--to relatively simple operations--such as medical diagnostic use of small quantities of radioisotopes. Implementation of these programs provides appropriate assurances for adequate and safe facilities; trained and competent personnel; appropriate practices to control personnel exposures and environmental releases; contingency planning; transport casks to withstand conditions of normal transport and of accidents; and appropriate handling of radioactive wastes.

The safeguards regulatory program is designed to deter, detect, and protect against threats both within and outside of facilities, and during transport. In addition to providing for appropriate theft protection, the safeguards program includes appropriate planning to protect against and to respond to intentional plant damage by radiological sabotage sufficient to cause significant off-site releases. All safeguards activities are designed to assure that safeguards protective measures do not interfere with the safe operation of a facility both during normal and off-normal situations.

The Nuclear Material Safety and Safeguards Programs have been strongly affected by the Uranium Mill Tailings Radiation Control Act of 1978, the Low-Level Radioactive Waste Policy Act of 1980, and the Nuclear Waste Policy Act of 1982. The Uranium Mill Tailings Act directed the agency to develop regulations and to license the disposal of mill tailings from licensed uranium mills. Congressional action has directed that the agency regulations be amended in recognition of the Environmental Protection Agency standards both for radiation and groundwater protection. In addition to revised regulations for licensees and approval of licensee mill tailings disposal plans, the Uranium Mill Tailings Act directed the agency to review and approve the site-by-site

Nuclear Materials Safety and Safeguards Programs - Continued

implementation of the Department of Energy program for mill tailings remedial actions, and to eventually license possession of these sites by the Department of Energy. The Low-Level Radioactive Waste Policy Act placed the responsibility on the states to provide for disposal capacity for low-level waste generated within a state. The agency must ensure that appropriate regulations exist for both agency and state licensing of disposal sites and must be prepared to provide technical assistance to states in reaching decisions on disposal facilities.

The Nuclear Waste Policy Act lays out a detailed approach for high-level waste disposal--an extensive, long-range undertaking with the Department of Energy having operational responsibility and the Commission having regulatory responsibility. This undertaking involves a complex, integrated system of waste handling, transportation, interim and retrievable storage, and ultimate deep geologic disposal of high-level radioactive waste requiring a high certainty of acceptable environmental and health impacts over thousands of years.

Fuel Cycle Facility and Nuclear Material
Safety Program

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 3,389	\$ 3,812	\$ 3,712	\$ 5,450
(Staff).....	(105)	(96)	(102)	(102)

The Fuel Cycle Facility and Nuclear Material Safety Program includes all licensed activities for the "front-end" of the fuel cycle after the uranium ore has been mined and milled. This includes the processing of ore concentrates (yellow cake) into a suitable form for fuel, the development and fabrication of the fuel, and the safe transport and storage of fresh fuel at reactor sites until the reactor core is initially loaded with fuel. This program also includes regulating several thousand medical, academic, industrial, and commercial uses of nuclear and radioactive material such as diagnostic and therapeutic uses of radioisotopes; medical and biological research; academic training and research; industrial gauging and nondestructive testing; production of radiopharmaceuticals; and fabrication of commercial products such as smoke detectors.

The Fuel Cycle Facility and Nuclear Material Safety Program also involves, for operations under NMSS purview, the safe handling of radioactive wastes by industrial licensees and the safe interim storage of both low-level and high-level wastes at facilities prior to disposal at commercial facilities or by the Department of Energy. This includes out-of-reactor storage of spent fuel at reactor sites or at any licensed retrievable fuel storage facilities that the Department of Energy may develop. Also included are the safety overview of the Department of Energy waste demonstration activities at the closed-down West Valley, New York reprocessing facility, and the safety assessment of containers used to transport large quantities of radioactive and nuclear material such as spent fuel and high-level waste. Transportation activities are closely coordinated with the Department of Transportation and, as appropriate, with the Department of Energy and the Federal Emergency Management Administration.

Nuclear Materials Safety and Safeguards Programs - Continued

Materials Licensing

Licensing casework includes safety and environmental reviews required for the licensing and regulation of byproduct, source and special nuclear material. Approximately 6,000 cases will be completed in FY 1985 and approximately 5,900 cases will be completed in FY 1986. The backlog of uncompleted cases will be approximately 2,400 at the end of FY 1985, approximately 2,700 at the end of FY 1986, and will continue to increase in FY 1987.

Licensing of Monitored Retrievable Storage Facility for High-Level Waste

Monitored retrievable storage involves the long-term storage of spent fuel and high-level waste in facilities that permit continuous monitoring and ready retrieval. In compliance with the Nuclear Waste Policy Act of 1982, the Department of Energy's monitored retrievable storage facility construction proposal to Congress will be reviewed by the Nuclear Regulatory Commission and comments will be provided to the Department. Since the Commission is responsible for licensing these facilities under the Act, the licensing requirements for the storage of spent fuel in an independent spent fuel storage installation (Part 72 of Title 10 of the Code of Federal Regulations) will be revised to provide for licensing monitored retrievable storage facilities.

Licensing of Decommissioning and Stabilization of Special Rare Earth Processing Sites

As required by the Nuclear Waste Policy Act, development work will be continued on decommissioning, decontamination, and stabilization requirements, and long-term financial requirements to apply to sites containing low-level radioactive waste from licensed activities for recovering zirconium, hafnium, and rare earths from source material. This work will be completed in FY 1986.

Shipments of Spent Fuel and High-Level Radioactive Waste

A new generation of transport containers for spent fuel and high-level waste is being developed by the Department of Energy and will be certified by the Nuclear Regulatory Commission. Ongoing interaction with the Department in the early design phase will continue through construction and testing to ensure that casks meet safety performance requirements. In support of the Nuclear Waste Policy Act, additional resources have been included to provide technical guidance to the Department of Energy, the Department of Transportation, the States, and industry on safety and environmental policies and regulations for the shipment of spent fuel and high-level radioactive waste to any monitored retrievable storage facility, the high-level waste repository, and any Federal interim storage facility.

Dry Cask Spent Fuel Storage

Review and evaluation work will continue on applications for site-specific interim storage of spent fuel outside of reactor pools. Additional resources have been included to permit the timely review of such applications. Also, review work will continue on evaluation of "Topical Reports" for approval of dry storage casks. As required by the Nuclear Waste Policy Act, development work will continue on safety and environmental criteria and standards for

Nuclear Materials Safety and Safeguards Programs - Continued

generic licensing of dry spent fuel storage casks. This will require continued close coordination with the Department of Energy on their development and demonstrations of dry cask storage.

Demonstration of High-Level Waste Solidification

As required by the West Valley Demonstration Project Act, consultation with the Department of Energy will continue regarding the planning and safety analyses for the West Valley, New York project for the solidification of high-level radioactive waste. Close consultation is particularly important to ensure that the resulting solidified high-level waste will be acceptable for disposal in the high-level waste repository.

Decontamination and Decommissioning

The review will be completed in FY 1985 of decontamination and decommissioning activities at sites formerly used for processing nuclear materials, exclusive of sites under Department of Energy remedial action programs, to assure that they are appropriately decontaminated before release for unrestricted use. Decontamination activities will be reviewed for any currently licensed facilities decommissioned in FY 1986 and FY 1987.

Technical Assistance to States

The 27 NRC Agreement States with approved responsibility to regulate certain nuclear materials activities will continue to receive technical assistance needed for the assessment of license applications for which they have licensing responsibility. For example, in FY 1985, safety evaluations were performed by the agency for cesium sealed sources to be used in commercial product irradiators.

Incident Response Procedures and Practices

In FY 1986 and FY 1987, it may be necessary to respond to operational events involving nuclear materials, such as the recent event in Mexico involving distribution within the United States of contaminated steel and the resultant exposures to radiation. It is essential to respond to such incidents by providing immediate technical support to determine the extent of the problem and to undertake the actions required to protect the public. This budget includes minimal resources for responding to such incidents.

Nuclear Materials Safety and Safeguards Programs - Continued

	<u>Safeguards Program</u>			
	<u>FY 1984</u>	<u>FY 1985</u>	<u>FY 1986</u>	<u>FY 1987</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>
Funds.....	\$ 3,686	\$ 3,680	\$ 3,400	\$ 3,730
(Staff).....	(79)	(77)	(77)	(77)

The Safeguards Program is designed to appropriately deter, detect and protect against threats, radiological sabotage and theft, or diversion involving special nuclear material, both at licensed fixed facilities and during transport. The program involves a large degree of professional judgement and is influenced by security or terrorist-type activities within society. Failure of safeguards has the potential for unusually high impacts on society, including theft of special nuclear material for extortion purposes or in quantities sufficient to make an explosive device, and intentional damage sufficient to cause significant off-site releases from licensed facilities. Special care must be exercised to assure that licensee implemented safeguards programs do not affect the operation of a facility (in both normal and off-normal situations) to the extent that a significant safety problem results.

Safeguards requirements are appropriately applied to nuclear material licensees possessing enriched uranium or plutonium, to reactors, and to the transport of enriched uranium or plutonium and nuclear reactor spent fuel. The requirements involve, as appropriate, detailed planning, procedures, and operational systems for maintaining accountability of material, as well as for deterring and responding to suspected theft or diversion of nuclear material, acts of radiological sabotage, or illegal seizure of material or facilities. Techniques used by licensees include sophisticated detection and alarm systems, barriers, material control and accounting, contingency plans for timely responses to threatening situations, and appropriate safeguards organizations staffed with trained and competent expert personnel. This program also includes agency implementation of the Safeguards Agreement between the United States and the International Atomic Energy Agency (IAEA).

Reviews of Safeguards at Operating Reactors

Safeguards regulatory effectiveness reviews at operating power reactors have the objective of assuring that the safeguards required by the regulations and implemented by the licensees provide adequate protection without compromising safe operations at the licensees' facilities. At the end of FY 1986, approximately 45 reviews will have been completed at the currently budgeted level of 18 reviews per year.

Safeguards of Licensed Facilities and Transportation

Licensee operational data will continue to be compiled and analyzed to look for early warning patterns and trends in safeguards events and data and to identify and resolve any related generic issues through rule and regulatory guidance revisions. Approximately 640 licensing cases should be completed in FY 1985, 680 in FY 1986 and a commensurate number in FY 1987. These licensing cases

Nuclear Materials Safety and Safeguards Programs - Continued

include technical reviews of safeguards plans or revisions of those plans for power reactors, nonpower reactors, fuel cycle facilities, the transport of nuclear materials, and the export of nuclear materials.

Safeguards Support of the Nuclear Waste Policy Act

In support of the Nuclear Waste Policy Act of 1982, the safeguards aspects of the monitored retrievable storage facility as proposed by the Department of Energy will be reviewed and prelicensing guidance will be provided consistent with Department of Energy schedules. Guidance will also be provided to the Department of Energy, the Department of Transportation, the States, and industry regarding safeguards policies on shipments of spent fuel to any monitored retrievable storage facility, any Federal interim storage facility, and the high-level waste repository. As required by the Nuclear Waste Policy Act, development work will continue on safeguards requirements for generic licensing of dry cask spent fuel storage.

IAEA Safeguards Program Participation

Consistent with the objectives of Title II of the Nuclear Nonproliferation Act, participation will continue in the Interagency Action Plan Working Group to strengthen IAEA safeguards and support the U.S. program to provide technical assistance to IAEA.

In support of the US/IAEA Safeguards Agreement, which places selected U.S. nuclear facilities under IAEA safeguards, documentation of facility descriptions and the formal specific arrangements for implementing IAEA safeguards at the facility will be completed, nuclear materials transaction and inventory data will be compiled and reported to IAEA, and IAEA inspection activities at selected U.S. facilities will be assisted during the period FY 1985 - FY 1987.

High-Level Waste Management Program

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 6,378	\$ 6,570	\$ 6,745	\$ 8,450
(Staff).....	(77)	(102)	(116)	(116)

The Nuclear Regulatory Commission's principal responsibility in the high-level waste program is to license the high level waste repository providing that an independent NRC determination shows that the Department of Energy's performance of its responsibilities meets regulatory requirements and is adequate to protect the public health and safety and the environment. To fulfill this responsibility without causing costly delay or rework in the Department of Energy program, early, ongoing interaction and prelicensing consultation is necessary between the Nuclear Regulatory Commission and the Department of Energy. Licensing decisions will be based on independent analyses of programs now being planned and implemented by the Department of Energy. The Nuclear Regulatory Commission must demonstrate with appropriate certainty in a formal licensing proceeding that the public health and safety and the environment are adequately protected. In order to provide for an effective and efficient licensing process for this first-of-a-kind undertaking, the Nuclear Regulatory Commission, in a timely manner, must

Nuclear Materials Safety and Safeguards Programs - Continued

develop the methods for demonstrating compliance with performance objectives to permit independent determination of the adequacy of the Department of Energy program; provide guidance to assure that the Department of Energy program provides essential and acceptable data without costly delay or rework; provide onsite overview of activities; identify and resolve issues; and provide appropriate and timely review and evaluation of Department of Energy submittals.

Preapplication Reviews

Extensive Nuclear Regulatory Commission preapplication reviews of the Department of Energy's site investigations will continue at a level that keeps delays to the Department of Energy's program to a minimum. These investigations include construction of shafts, testing of geologic properties, and other technical activities. Every effort will be made to maintain close interaction with the Department of Energy, the States, affected Indian Tribes, the technical community and other interested members of the public to identify and begin the resolution of licensing issues at the earliest possible date to minimize costly delays or reworks by the Department of Energy.

The Department of Energy's site characterization plans for three potential sites for the first repository will be reviewed in the FY 1985 - FY 1987 period. Staff will strive to complete the critical portion of these reviews on a schedule that results in a minimum of disruption to the Department of Energy's activities. As required by the Nuclear Waste Policy Act, updates of the plans will continue until a site is selected (1991).

An issue management system will be developed and implemented in FY 1985 - FY 1987 to help ensure that critical program issues are properly addressed and tracked to resolution.

Additional resources have been requested for FY 1986 and FY 1987 to provide for the increasing consultation that will be required with the Department of Energy, the States, affected Indian Tribes, the technical community, and other interested members of the public to identify and agree on approaches to resolve issues identified during site characterization.

Guidance on Licensing Issues

To prepare for review of an application for construction authorization for the first repository in FY 1991, development work will continue on technical positions, system performance assessment, and guidance for licensing reviews in the areas of waste form and packaging, barriers to radionuclide migration and geologic setting.

Additional resources have been requested in FY 1986 and FY 1987 for rulemaking to amend regulations (Parts 51 and 60 of Title 10 of the Code of Federal Regulations) to conform to the requirement of the Nuclear Waste Policy Act that the Nuclear Regulatory Commission, to the extent possible, adopt the environmental impact statements prepared by the Department of Energy in

Nuclear Materials Safety and Safeguards Programs - Continued

connection with the proposed repository. It will also be necessary to clarify the definition of high-level waste (Part 60) and to establish methods for demonstrating compliance with performance objectives for barriers, waste packages, and groundwater travel times (Part 60). Licensing guidance will be prepared and provided to the Department of Energy on issues concerning the geologic settings and repository design and performance.

Additional resources are also included for development of performance assessment models and computer codes necessary for licensing reviews. These models and computer codes will contribute to rulemaking activities, the preparation of technical positions, and site characterization analyses.

Low-Level Waste Management and
Uranium Recovery Programs

	<u>FY 1984 Actual</u>	<u>FY 1985 Estimate</u>	<u>FY 1986 Estimate</u>	<u>FY 1987 Estimate</u>
Funds.....	\$ 3,260	\$ 3,275	\$ 3,043	\$ 2,270
(Staff).....	(58)	(47)	(47)	(47)

The Low-Level Waste Management Program includes development of regulatory guidance for implementing 10 CFR Part 61 regulatory requirements at existing and new shallow land disposal sites, alternatives to conventional shallow land disposal practices, wastes that are below regulatory concern, and wastes which are generally unsuitable for near surface disposal; assistance to States in their development of disposal facilities; reviewing and processing licensing documents as necessary to ensure continued safe operation of currently operating commercial disposal facilities; and efforts to develop criteria for disposal of low-level wastes that are also chemically hazardous.

The Uranium Recovery Program involves the licensing of those facilities under agency jurisdiction that are engaged in uranium extraction activities (other than mining) and ore milling activities; the modification and development of rules that are consistent with the Environmental Protection Agency rules for regulating mill tailings and approval, on a site-by-site basis, of each licensee's plan for disposal of mill tailings to meet requirements for public and environmental protection. In addition, the Nuclear Regulatory Commission must review, for concurrence and licensing, the actions taken by the Department of Energy in their Uranium Mill Tailings Remedial Action Program.

Disposal of Low-Level Radioactive Waste

This program in conjunction with the agency's High-Level Waste Management Program will continue efforts to more clearly define appropriate management approaches for the entire spectrum of radioactive wastes. This will reduce uncertainties regarding those wastes containing radionuclides in concentrations and quantities above levels generally acceptable for near surface disposal

Nuclear Materials Safety and Safeguards Programs - Continued

and the uncertainty regarding State or Federal responsibilities for its disposal. It is anticipated that a proposed rule will be published in FY 1986. Efforts continue to identify sources and characteristics of radioactive wastes to reduce or eliminate uncertainties as to responsibility for disposal and to assure that a regulatory framework exists covering the disposal of all radioactive wastes.

Regulatory guidance is now being developed for alternatives to conventional shallow land disposal practices; wastes such as decontamination and decommissioning wastes that were not specifically considered in the current waste classification scheme; wastes with radiation levels low enough not to warrant regulatory concern; and wastes containing radionuclides in concentrations above levels generally acceptable for near surface disposal. Work is underway to study any nonradiological hazard associated with low-level radioactive wastes, and any applicability of regulations promulgated by the Environmental Protection Agency (EPA) pursuant to the Resource Conservation and Recovery Act to the disposal of low-level radioactive wastes. Within budgeted resources every effort will be made to ensure that this regulatory guidance is prepared and the NRC/EPA jurisdictional issue is resolved in a timely manner.

Amendments to Part 61 (Licensing Requirements for Land Disposal of Radioactive Waste) are being developed to establish financial arrangements for long-term care of disposal sites and criteria for evaluating requests for transfer of sites to the jurisdiction of the Federal Government. A proposed rule is to be published in late FY 1985 or early FY 1986 and a final rule two years later.

One application for an NRC license for a commercial low-level radioactive waste disposal facility is expected in FY 1986. To ensure prompt and efficient implementation of new 10 CFR 61 regulation requirements applicable to low-level wastes currently being shipped to commercial low-level waste disposal sites, reviews of generic topical reports on waste solidification processes and improved disposal containers will continue.

Licensing Uranium Recovery Facilities

Licensing uranium recovery facilities will require completing approximately 60 licensing cases in FY 1986 and a commensurate number in subsequent years. These licensing cases include safety and environmental reviews of applications for new licenses, as well as applications for amendments to or renewal of existing licenses for uranium mills, heap leaching facilities, ore-buying stations, commercial solution mining, and uranium extraction research and development projects.

To ensure protection of the public health and safety it is necessary to review approximately 100 licensee monitoring and agency inspection reports per year and to assess the need for improvements in regulatory guidance and licensee performance.

Nuclear Materials Safety and Safeguards Programs - Continued

Congress has mandated that the agency revise Part 40 of the regulations (Domestic Licensing of Source Material) to conform to final Environmental Protection Agency standards. This rulemaking will focus on groundwater protection from radiological and chemical hazards at mill tailing sites. Every effort will be made to complete this rulemaking in a timely manner to reduce uncertainties for the regulated community.

Licensing Uranium Mill Tailings Disposal Sites

As required by the Uranium Mill Tailings Radiation Control Act, reviews will be conducted of the remedial actions that will be taken by the Department of Energy at 24 mill tailings sites and several thousand associated vicinity properties. Before the remedial actions can begin, the Nuclear Regulatory Commission must review and approve the Department of Energy plans for the disposal of mill tailings for inactive mills which generated mill tailings due to Atomic Energy Commission and/or Department of Energy activities. The regulation of these mill tailings sites involves approval of plans to assure adequate long-term control of radiation or radioactive releases from the sites, protection of groundwater, and eventual licensing of the sites. The Act's provision for early Nuclear Regulatory Commission review and approval of Department of Energy plans helps ensure that the final action can be licensed by the Nuclear Regulatory Commission, thereby precluding costly delay or rework by the Department of Energy. The Act requires completion of the program in 1990, which results in the greatest Nuclear Regulatory Commission involvement occurring in the 1985-1988 period.

Technical Assistance to States

Technical assistance on low-level waste disposal will continue in FY 1985 and FY 1986, including assistance in reviewing two applications to Agreement States for licenses. Beginning in FY 1987, we anticipate that sufficient guidance will be available on shallow land burial that assistance should no longer be needed and no resources are budgeted.

Assistance will continue to be needed in the licensing of uranium recovery facilities. Two requests for such assistance are anticipated each year.

Management Direction and Support Program

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 5	\$ 100	\$ 100	\$ 100
(Staff).....	(28)	(28)	(28)	(28)

The resources requested for management direction and support provide for the overall policy guidance and management direction of the Nuclear Materials Safety and Safeguards Programs by the Office Director and the Regional Administrators. Requested resources also provide for technical and administrative support to the Director and the Regional Administrators.

NUCLEAR REGULATORY RESEARCH PROGRAMS

Total Estimated FY 1986 Obligations.....\$135,970*

TOTAL FUNDS AND STAFF

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u> ^{1/}
Salaries and Benefits.....	\$ 12,934	\$ 12,700	\$ 11,080	\$ 11,680
Program Support.....	172,896	133,191	121,000	130,000
Administrative Support.....	4,142	3,600	3,320	3,560
Travel.....	703	600	570	560
Total Obligations.....	<u>\$190,675</u>	<u>\$150,091</u>	<u>\$135,970</u>	<u>\$145,800</u>
(Staff).....	(244)	(230)	(208)	(208)

Support Funds and Staff

The Nuclear Regulatory Research staff and program support funds are allocated to major programs, as shown below. The program support funds are primarily for contractual work by the Department of Energy laboratories (e.g., Argonne National Laboratory, Brookhaven National Laboratory, Idaho National Engineering Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory, Sandia National Laboratories), commercial contractors, nonprofit organizations (universities, foundations, etc.), and grantees. The narrative that follows describes the programs and the reason they are needed.

	<u>FY 1984</u>		<u>FY 1985</u>		<u>FY 1986</u>		<u>FY 1987</u>	
	<u>Funds</u>	<u>Staff</u>	<u>Funds</u>	<u>Staff</u>	<u>Funds</u>	<u>Staff</u>	<u>Funds</u>	<u>Staff</u>
Reactor Engineering	\$ 43,390	54	\$ 40,065	54	\$ 40,300	53	\$ 45,000	53
Thermal-Hydraulic Transients	36,915	19	21,996	19	21,700	16	22,000	16
Accident Evaluation	53,415	27	39,985	27	30,700	23	31,000	23
Reactor Operations & Risk	20,044	62	17,625	57	16,500	52	18,000	52
Waste Mgmt, Earth Sciences & Health	19,132	57	13,520	49	11,800	42	14,000	42
Mgmt. Dir. and Support	0	25	0	24	0	22	0	22
TOTALS	<u>\$172,896</u>	<u>244</u>	<u>\$133,191</u>	<u>230</u>	<u>\$121,000</u>	<u>208</u>	<u>\$130,000</u>	<u>208</u>

^{1/} NRC estimate which has not been approved by the Administration.
 * Dollars are in thousands, except in the text, where whole dollars are used; Staff numbers are in Full Time Equivalent.

Description of Programs

The Nuclear Regulatory Research Program is an integral part of the regulatory process. This program identifies and solves many problems before they become safety issues that would prohibit plant operation. A stable, continuing program of research is essential to the execution of the Commission's responsibilities for effective nuclear safety regulation.

The Nuclear Regulatory Research Program provides NRC with a base of sound technical information for dealing with complex technical issues. Without adequate resources to provide this information, NRC decisions on plant operations will be based on more conservative assumptions that could lead to numerous plant shutdowns and delays in licensing plants. Recent examples of situations where available research results made it possible to make prompt technical decisions that precluded long plant shutdowns without compromising safety include: (1) reactor vessel brittle fracture, a potential problem of at least 15 older Pressurized Water Reactors, and (2) cracking in large pipes of about 20 boiling water reactors. The cost savings to ratepayers of not having to purchase replacement power for these two examples dwarf the entire NRC budget.

Research is also used to develop a safety information bases and analytical methods in support of Commission rulemaking activities and policy determinations. The many nonstandard characteristics of current U.S. plants often render the solution to a problem at one plant of limited value for developing a general solution for formulating rules and regulations. A complete technology base is required to support the development of regulations that would be broadly applicable to all nuclear reactors or to a large group of these reactors.

National and international consensus among the major users of nuclear power is that regulatory safety issues will occur in the following broad areas:

1. Aging and degradation of operating nuclear power plants.
2. Operational and thermal hydraulic transients.
3. Severe accidents and their regulatory implications.
4. Plant operations and risk assessment.
5. Seismic design analysis.
6. Nuclear waste management.

The NRC research program described on the following pages is focused on these high priority safety issues.

Nuclear Regulatory Research Program - Continued

	<u>Reactor Engineering Program</u>			
	<u>FY 1984</u>	<u>FY 1985</u>	<u>FY 1986</u>	<u>FY 1987</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>
Funds.....	\$43,390	\$40,065	\$40,300	\$45,000
(Staff).....	(54)	(54)	(53)	(53)

The Reactor Engineering Program involves the assessment of the suitability of nuclear power plant structures and components to perform their intended functions during normal and anticipated accident conditions and focuses on (1) aging and deterioration of operating reactor systems and components, (2) seismic effects on operating reactors, (3) reactor pressure vessel safety, (4) adequacy of safety equipment under abnormal conditions, (5) pipe cracking in boiling water reactors, and (6) steam generator inspection and repair. The program assesses the effects of time, operational environment (e.g., temperature, humidity, radiation), and conditions of operation on those structures and components, and the means for their surveillance, inspection, testing, maintenance, repair, and replacement.

The information developed provides the basis for taking timely action regarding the safety of operating reactors and the determination of whether to permit continued operation or require shutdown or modification of plants. Events that would require such decisions are adverse experience with components in one or more operating plants, problems found by inspectors, changes in safety requirements from those for which a plant was approved, results of domestic and foreign research, and operating experience.

Aging and Deterioration of Operating Reactors

Research is being conducted to identify effects of aging and service wear on the structures and components that would have an impact on the safety of operating reactors and to evaluate such measures as surveillance, inspection, testing, maintenance, repair and replacement that can be cost effective in dealing with such effects. This research will provide a basis for assessing the safety of older plants and could facilitate extending effective plant life beyond that originally anticipated.

Research will characterize the age-related degradation of equipment such as reactor pressure vessels, piping, cables, postaccident monitoring instruments, valves, pumps, and motors in operating service conditions. Examinations will be made of samples and components taken from the Shippingport Nuclear Power Plant at Shippingport, Pennsylvania during decommissioning. The availability of Shippingport materials and equipment provides a unique opportunity to check aging predictions against actual deterioration during operation. The equipment and materials selected will be based on those used in currently operating nuclear plants, and the results will contribute to regulatory decisions regarding the continued safety of operating reactors.

Nuclear Regulatory Research Program - Continued

Seismic Effects on Operating Reactors

Reevaluation of many operating nuclear plants, particularly in the Eastern United States, may be required because the seismic design of structures and components was based on recommendations provided by the U.S. Geological Survey, which are now being reevaluated by that agency. NRC is conducting studies to improve its analysis of the effects of possible earthquakes and provide a more realistic basis for regulatory decisions regarding continued operation in the event that the U.S. Geological Survey specifies more severe earthquakes at reactor sites than those for which the reactors were originally designed. Analytical methods for evaluating the risks have been developed and will be evaluated in detailed experiments. These experiments will test selected components (e.g., piping systems and electrical equipment) to determine the possibility of failure caused by a seismic event and the effect of such failures on safety.

Reactor Pressure Vessel Safety

Research to determine the effects of heat and neutron damage on the components of the reactor's primary cooling system will assess the validity of the current regulatory position that pressure vessels will not fail by brittle fracture during service. Experiments using large model pressure vessels (about 25 percent full size) will be completed in FY 1986, and the analysis and application of the results will continue in FY 1987.

Adequacy of Safety Equipment Under Abnormal Conditions

Safety equipment (e.g., valves, batteries, radiation monitors) must remain in operation in the event of possible accidents and the occurrence of such severe natural phenomena as earthquakes, floods, tornadoes, and hurricanes. The methods used by industry to qualify equipment for these operating conditions will be validated to assure their reliability. In FY 1986, research will be conducted to determine the adequacy of methods for qualifying safety equipment and to develop modified methods when the need for such is shown.

Work is now underway to predict the effect of accidents, earthquakes, and other natural phenomena beyond the severity contemplated during the design of the current generation of reactors. A major focus of this research is the containment building, which is designed to prevent the release of radioactivity in the event of an accident. Work already completed has shown that metal containments can withstand loads well beyond those for which they were designed. As such, additional conservative measures to accommodate severe accidents may therefore be unnecessary for those designs. In FY 1986 similar studies will be performed for concrete containments similar to those at about 60 operating reactors. These studies will also focus on penetration in the containment (e.g. entrance doors and other points where pipes, instrumentation, and electrical lines pass through the containment) since penetrations are likely locations where release of radioactive materials may occur as a result of an accident.

Nuclear Regulatory Research Program - Continued

Pipe Cracking in Boiling Water Reactors

Cracks have been detected and will continue to be found in large-diameter pipes of operating boiling water reactors. Research is underway to provide a basis for regulatory decisions regarding whether plants can continue to operate safely or must be shut down for repairs. Work will be completed on the suitability of replacement piping materials and the remedies and repairs proposed by industry to ensure that the remedies and repairs do not create possibilities of failures. In FY 1986-1987, procedures to accurately detect flaws and determine their sizes in cast stainless steel piping will be established and presented to the Code Committee of the American Society of Mechanical Engineers to be considered for inclusion in Section XI of the Boiler and Pressure Vessel Code. Adherence to Section XI is required by the agency regulations.

Steam Generator Inspection and Repair

Steam generator tubes at about 50 operating pressurized water reactors have been damaged during operation by corrosion and stress from vibration, cleaning, and other causes. It is essential that damaged tubes be detected and evaluated for removal from service, since continued service could result in multiple tube breaks and lead to a loss-of-coolant accident. Studies that will be completed in FY 1986 are underway at Pacific Northwest Laboratory in Hanford, Washington, on methods for nondestructive examination to detect flaws and improve methods for cleaning to reduce radiation and corrosion. A technical basis will be established for decisions to allow steam generators with degraded tubes to be put back into service, or require tube plugging or require replacement of the steam generator. This research is jointly sponsored with the Electric Power Research Institute in the United States and with the countries of France, Italy, and Japan.

Thermal Hydraulic Transients Program

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$36,915	\$21,996	\$21,700	\$22,000
(Staff).....	(19)	(19)	(16)	(16)

The Thermal Hydraulic Transients Program provides the NRC licensing staff with verified scientific and engineering models referred to as computer codes for use in evaluating nuclear power plant safety response to a wide range of possible transients (temporary changes in reactor conditions) and accidents such as small and large break loss-of-coolant accidents, feedwater or steam-line breaks, and pressurized thermal shock. The accuracy and limitations of these computer codes are determined by testing them against data from large and small-scale experiments. All of the facilities for large-scale experiments, which provide the closest simulation, are located in other countries and are made available to NRC through cooperative programs with foreign governments and the U.S. industry. NRC's contribution to these programs is generally in the form of advanced computer codes and instrumentation which is used to gather detailed measurements

Nuclear Regulatory Research Program - Continued

of system behavior during the experiment. The prevention or mitigation of thermal hydraulic transients are the first line of defense against the occurrence of more severe accidents investigated under the Accident Evaluation Program discussed later.

Major Test Facilities

Test facilities that provide data to assess the accuracy and reliability of computer codes and assist in understanding specific transients and reactor phenomena include: (1) the Upper Plenum Test Facility (UPTF) in West Germany and the Slab Core Test Facility (SCTF) in Japan will provide validation of emergency core cooling bypass, steam binding, and thermal mixing models; (2) the ROSA-IV large-scale thermal-hydraulic test facility in Japan which will provide data to be used to evaluate whether computer codes derived from small-scale tests yield accurate results when applied to full-size reactor systems and will help validate steam generator and decay heat removal computer codes; (3) the Semiscale Facility in Idaho will complete experiments in FY 1986 to revalidate computer codes for prediction of reactor system behavior during small break loss of coolant accidents; (4) the Multiloop Integral Systems Test (MIST) facility, operated by Babcock and Wilcox (B&W) for owners of its reactors, Electric Power Research Institute, and NRC in a cooperative venture, will provide the only validation data for computer codes that evaluate plant recovery after small break loss-of-coolant accidents and steam generator response after a series of transients. These MIST tests apply specifically to reactors such as Three Mile Island (Pennsylvania) and others in Ohio, Florida, Arkansas, South Carolina, and California. The system test facilities are jointly funded with foreign governments or U.S. industry.

Thermal Hydraulic Codes

Almost every light water reactor safety issue involves the dynamics of behavior of reactor coolant. For this reason, the development and application of analytical methods capable of predicting coolant behavior is a major focus of the NRC's safety research program. Throughout the history of reactor safety development, analysts have used sophisticated computer codes to model and predict the complex, interactive behavior of coolant, system components, and controls during accidents. The credibility and accuracy of these codes is based on continued testing against relevant integral and separate effects experiments. The computer codes will also form the basis for the development of a Nuclear Plant Analyzer, which will be operational in FY 1986, and will provide a tool to be used by the licensing staff for investigating safety problems in operating reactors. The analyzer will provide the ability to explore the effects of various operator actions and safety system failures during postulated plant transients. The results of this work are directly applicable to plant operations by incorporating them into operating procedures or into operator training programs.

Nuclear Regulatory Research Program - Continued

	<u>Accident Evaluation Program</u>			
	<u>FY 1984</u>	<u>FY 1985</u>	<u>FY 1986</u>	<u>FY 1987</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>
Funds.....	\$53,415	\$39,985	\$30,700	\$31,000
(Staff).....	(27)	(27)	(23)	(23)

The Accident Evaluation program obtains data on the phenomena of radioactive source terms (i.e., the radioactive material released during an accident) and develops and experimentally validates analytical methods that can be used to better understand severe reactor accidents. The accident at TMI-2 showed that accidents involving severe core damage can occur and that they can also be managed. However, the technical understanding of phenomena that would govern accident sequences more severe than those at TMI-2 must be improved. The improved technical understanding that will result from this research will provide for regulation with less excessive conservatism and should permit sounder emergency planning regulations based on realistic assessments of the fission products that could be released during an accident.

Large technical uncertainties seriously limit current ability to estimate the consequences of an accident in which the reactor core would melt. Current methods of making predictions are based on limited information. To reduce the uncertainties, new data and models will be integrated into complete analytical descriptions of severe accidents, and experiments will test the adequacy and completeness of the analytical methods with respect to their predictions of accident consequences. The Commission will use this data for implementing such regulatory actions as: (1) emergency planning guidelines that will provide the basis for a graded response, including minimum required evacuations, (2) the final determination of the need for mitigating engineering features in nuclear reactors and (3) a regulation clarifying the NRC requirements for siting future nuclear power plants. If this work is not carried out, regulatory decisions regarding severe accidents and emergency planning for such accidents will continue to be made by traditional conservative approaches that could result in high-cost plant modification. The Accident Evaluation Program focuses on damaged fuel, containment loading, and fission product source term.

Damaged Fuel

The work on damaged fuel will provide characterization of the reactor core during core-melt progression as input for determining the core hydrogen generation, fission-product release and behavior, and the core-melt threat to the containment integrity. In FY 1986 this work includes small integral tests in the Annular Core Research Reactor test reactor in New Mexico on melt progression to fuel-melt temperatures, hydrogen generation, and fission product behavior in the risk-dominant severe accident sequences. The Power Burst Facility experiments will be completed in FY 1985. Post-test examination, analysis, and evaluation of completed Severe Fuel Damage test series in the Power Burst Facility will be completed. Results of German and NRC laboratory work will be used along with results of the DOE and NRC-funded TMI-2

Nuclear Regulatory Research Program - Continued

core examination for the validation and development of the mechanistic Melt Progression Code and Severe Core Damage Analysis Package codes for use in source term assessment and for benchmarking simplified risk codes such as the new Methods for Estimating the Leakage and Consequences of Releases codes.

Containment Loading

Research on the effects of a damaged core on the containment will be used to validate computer codes that predict containment performance in a severe reactor accident. Probabilistic risk analysis research has shown the importance to public health of accident sequences that may lead to early containment failure. By contrast, a delayed containment failure is expected to greatly reduce the impact on public health. Thus, it is important for the codes to accurately estimate the timing of failure for postulated accident sequences. Research will be continued on the threat to containment integrity from hydrogen burn or detonation, overpressure, and on the consequent damage to safety equipment in the containment. Determination of the rate of progression of the core melt and the timing of vessel melt-through is also important since it influences containment failure times.

Fission Product Source Term

The fission product research is needed to furnish a technical basis for Commission decisions regarding source term reevaluation and severe accident policy. Needed work includes separate effect experiments on fission product and aerosol release and transport, both in the laboratory, and under severe accident conditions in the Annular Core Research Reactor. Confirmatory integral (multi-effect) validation tests with full length test fuel bundles are also needed for determining fission product release rates and hydrogen generation. Important complementary data will be available from Electric Power Research Institute experiments and the international Marviken aerosol tests. These results will be used for benchmarking the current source term methodology.

Advanced Reactors

In FY 1986 and 1987, no funding is requested for research on the high-temperature gas-cooled reactor or other advanced reactor designs.

Reactor Operations and Risk Program

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$20,044	\$17,625	\$16,500	\$18,000
(Staff).....	(62)	(57)	(52)	(52)

The Reactor Operations and Risk Program is being conducted to achieve three primary objectives: (1) develop a coherent data base of plant design, reliability, operational, and risk-related information; (2) complete development of risk and regulatory methods to permit the determination of the nature of the risk profile associated with specific reactor designs; and (3) apply this information to help resolve regulatory issues as they arise. To accomplish these objectives, research is performed in the following areas:

Nuclear Regulatory Research Program - Continued

(1) Reliability and Risk Methodology, (2) Data Base Development and Evaluation, (3) Regulatory and Inspection Applications and (4) Severe Accidents Risk.

Reliability and Risk Methodology

Reliability and risk methods development for regulatory uses will be largely completed in FY 1986-1987. An integrated dependent failure analysis methodology will be completed which will include consideration of both internal and external common cause failure initiators, including fires, floods, earthquakes and environmental stresses. These improved probabilistic risk assessment techniques will be employed to aid in the resolution of regulatory issues identified later.

Efforts have also been initiated to examine the effectiveness of selected regulatory requirements to determine whether they should be eliminated, relaxed, or improved. Work is also in progress to institute more realistic regulatory requirements in areas of allowed outage times and surveillance requirements which recognizes the adverse effects on safety of the plant transients associated with forced shutdowns and balances these with the need for assuring sufficient system and component reliability. This will result in more efficient plant operation, a reduction in unnecessary "downtime", and improved plant safety.

Data Base Development and Evaluation

Data analysis efforts have been underway and serve as a foundation for the application of risk methods. This effort will continue in FY 1986 to obtain improved information regarding both random and dependent failures of components to support quantitative risk evaluations, to codify and analyze risk-based information gleaned from existing PRAs for generic applications, and to integrate the various data collection efforts of both industry and NRC into a comprehensive coherent package suitable for risk and reliability analyses.

Regulatory and Inspection Applications

As the evaluation of data and development of risk methods proceed, they will be available to aid in the resolution of current regulatory issues. For example, the availability of risk analysis methods for the analysis of pressurized thermal shock, which provided information regarding this low probability-high consequence event, contributed to a decision that avoided the unnecessary shutdown of several nuclear power plants, thereby avoiding millions of dollars in costs to the ratepayers for replacement power. Similarly, the proposed modifications to plants to respond to anticipated transients without scram (i.e., situations where the reactor failed to shut down in response to some transients) were evaluated using risk-based value-impact analyses which illustrated the marginal value of certain modifications, permitting the Commission to make an informed decision which was significantly less costly to the utility (and ultimately the public) than that which would be associated with a conservative approach not relying on risk-based information.

Nuclear Regulatory Research Program - Continued

Work currently underway together with that planned for FY 1986 will aid in the resolution of unresolved safety issues associated with station blackout, decay heat removal, and loss of DC power supplies. This will lead to a better determination of required backup alternate power and heat removal sources which will be less costly than those which could be required if realistic risk-based techniques were not employed. In the absence of this information, the NRC would have to take a more conservative approach to resolving these issues, which could involve the installation of a fully independent decay heat removal system with its own power source, at a cost of over \$100,000,000 per plant.

At present, the NRC cannot assume that plants are maintained at the same level of safety after they are licensed, since equipment failure rates and operational practices vary as time progresses. Research in this area will be conducted in concert with utilities to develop a means for tracking and maintaining the safety level of a plant throughout its life.

Accident sequences for classes of plants will be provided as vital assessment tools for many regulatory activities, including providing sound projections of any ongoing events on which to base recommendations to the NRC Commission or state and local governments. Strategies for identifying simple procedural changes or minor equipment modifications to reduce the risk associated with severe accidents in a cost-effective manner will be developed.

Severe Accident Risk

Analysis of severe accident sequences incorporating recent source term research will be conducted and appropriate sensitivity analyses performed to permit an improved characterization of the risk profile. Regulatory guides and affected portions of the Standard Review Plan will be reviewed with respect to new source terms, and revisions will be recommended where the technical bases are sound. Uncertainty in timing of containment failure for certain severe accident scenarios will require additional research in order to achieve reasonably complete revised source term estimates. This work will significantly affect consequence estimates and hence the cost-benefit analyses in support of Commission decisions in the areas of emergency planning and siting.

Waste Management, Earth Sciences and Health Program

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$19,132	\$13,520	\$11,800	\$14,000
(Staff).....	(57)	(49)	(42)	(42)

The Waste Management, Earth Sciences and Health Program includes developing information essential to evaluating and licensing high level waste and low level waste disposal facilities, measuring and evaluating environmental seismic conditions affecting nuclear power plants, developing improved seismic information for probabilistic risk assessment, and conducting research on the health risks from radiation exposure.

Nuclear Regulatory Research Program - Continued

High Level Waste

In response to the Nuclear Waste Policy Act, the NRC is developing the capability for evaluating independently the adequacy of information being developed by the Department of Energy on the disposal of high-level waste in geologic repositories. The agency research program is developing the technical basis for this independent evaluation. The Nuclear Waste Policy Act sets forth statutory milestones for repository development. The Department of Energy is working within the statutory process as it develops its plans and conducts its activities related to site screening, selection, and characterization. It is necessary for this first-of-a-kind undertaking for the NRC to have a competent methodology for evaluating the adequacy of the DOE submission.

This program performs the necessary research to support the licensing staff in identifying the critical regulatory issues to ensure that technical problems associated with these issues are identified early in the review process and are understood sufficiently to support licensing decisions. These research efforts will focus primarily on waste package performance and ground water hydrology. Waste package performance work will evaluate corrosion, geochemical and thermal effects on containment. Also, leach rate and solubility effects on controlled release of radionuclides will be evaluated. Ground water hydrology work will evaluate the reliability of data extrapolation for predicting ground water travel time.

However, the technical support for NRC's high level waste management performance assessment capability is characterized by large uncertainties due to the lack of any previous experience with high level waste disposal and the very long periods of time involved (10,000 years). This funding level in high level waste research will require deferment of research to validate the performance assessment models to FY 1987. This may cause some difficulty in accommodating the mandated schedule as well as require the application of some conservatism in licensing decisions.

Low Level Waste

This program is directed at supporting the NRC and the states in their regulation of low level waste disposal. The identification and evaluation of the potential safety hazards of alternatives to presently used shallow land burial for storage or disposal of low level waste will be an important aspect of NRC and state activities in FY 1986. Research on low level waste is planned to evaluate the potential safety hazards of shallow land burial and alternatives to establish a firm technical basis for regulation and advice to the states. An adequate and well focused NRC research effort is critical to maintaining a national safety perspective and a uniform technical basis for efforts by the states to safely dispose of low level waste.

Efforts underway or planned include research to permit NRC to provide regulatory guidance relative to site suitability, facility design, operational monitoring and postoperational care, and the performance of low level waste shallow land burial sites over long periods of time (several hundred years).

Nuclear Regulatory Research Program - Continued

Earth Sciences

Earth Sciences provides agency expertise in seismology, geology and geotechnical engineering, and provides technical information and advice on natural external phenomena hazards (e.g., tornadoes and floods) to licensed facilities.

During FY 1986, research will continue to better determine the seismic hazards (earthquake magnitude and occurrence intervals) for power plant sites and to predict the response of the site and the plant to earthquakes within the range of magnitudes appropriate to the site, especially for the eastern U.S. Information is needed on ground motions, soil-structure interactions, and the response of structures, systems, and components during earthquakes. This information will permit assessment of the safety and adequacy of plants with greater certainty than currently exists.

For some of the older nuclear power plants, it is likely that reevaluation of the design using present knowledge of geology and seismicity could lead to substantially increased values for seismic loads. Uncertainties in the current data contribute to difficulties in assessing whether the present seismic safety margins are adequate. Therefore, the primary program objective is to obtain the improved understanding needed to reevaluate the ground accelerations used in establishing these safety margins. The information from this program is essential for conducting the seismic program which evaluates reactor design requirements.

Health Effects and Radiation Protection

This program provides technical information and advice on radiation dose reduction, health effects of radiation exposure, radiation monitoring, and occupational exposure data and analysis.

Research in this area identifies methods and controls for reducing radiation exposure to the public and workers from nuclear power plants and other NRC licensed facilities and activities. Ongoing work is aimed at updating NRC radiation protection standards to be consistent with new national and international standards. These efforts will provide an improved basis for the Commission's basic radiation protection policies and regulations and their efficient and effective administration.

Nuclear Regulatory Research Program - Continued

Management Direction and Support Program

	<u>FY 1984 Actual</u>	<u>FY 1985 Estimate</u>	<u>FY 1986 Estimate</u>	<u>FY 1987 Estimate</u>
(Staff)	(25)	(24)	(22)	(22)

The personnel requirements for this area consist of the Director's Office, administration support staff, and the resource control and contract execution staff. The staff provides the Director of Nuclear Regulatory Research with assistance and support in the direction and evaluation of complex technical research projects and program plans and coordinates, directs, and executes the business matters of the Office, including contractual agreements, budget formulation, fiscal management, personnel administration, long-range research planning, management information systems and travel assistance. Among the staff's most important functions are coordination with the licensing and regulatory groups within NRC to identify their needs and to assure that the research program is responsive to the maximum extent practicable, and coordination with industry and foreign agencies to develop and execute multiparty agreements on safety research.

PROGRAM TECHNICAL SUPPORT

Total FY 1986 estimated obligations.....\$29,300*

Total Funds and Staff

	<u>FY 1984</u> Actual	<u>FY 1985</u> Estimate	<u>FY 1986</u> Estimate	<u>FY 1987</u> Estimate ^{1/}
Salaries and Benefits.....	\$ 17,858	\$ 18,720	\$ 17,390	\$ 18,140
Program Support.....	5,345	5,581	5,000	5,000
Administrative Support.....	5,169	5,760	5,760	5,720
Travel.....	<u>1,323</u>	<u>1,205</u>	<u>1,150</u>	<u>1,140</u>
Total Obligations.....	<u>\$ 29,695</u>	<u>\$ 31,266</u>	<u>\$ 29,300</u>	<u>\$ 30,000</u>
(Staff).....	(367)	(365)	(352)	(348)

Support Funds and Staff

This activity provides direct technical support to agency programs. At headquarters these are the Advisory Committee on Reactor Safeguards (ACRS), the Atomic Safety and Licensing Board Panel (ASLBP), the Atomic Safety and Licensing Appeal Panel (ASLAP), the Office of International Programs (OIP), and the Office for Analysis and Evaluation of Operational Data (AEOD). Technical support is provided at both headquarters and the regions by the Office of Investigations (OI), the Office of State Programs (SP) and the Office of the Executive Legal Director (ELD).

^{1/} NRC estimate which has not been approved by the Administration.

* Dollars are in thousands, except in text, where whole dollars are used; staff numbers are in full-time equivalents.

Program Technical Support - Continued

	FY 1984 Actual		FY 1985 Estimate		FY 1986 Estimate		FY 1987 Estimate	
	Funds	Staff	Funds	Staff	Funds	Staff	Funds	Staff
ACRS	\$ 292	55	\$ 254	56	\$ 250	50	\$ 250	50
ASLBP	1,181	57	867	52	822	48	822	43
ASLAP	8	17	40	16	10	15	10	14
OI	0	37	0	38	0	44	0	44
ELD	53	102	80	102	60	96	60	96
OIP	9	28	130	28	50	27	50	27
SP	657	35	800	34	700	33	700	33
AEOD	3,145	36	3,410	39	3,108	39	3,108	41
Totals	\$5,345	367	\$5,581	365	\$5,000	352	\$5,000	348

Advisory Committee on Reactor Safeguards

	FY 1984 Actual	FY 1985 Estimate	FY 1986 Estimate	FY 1987 Estimate
Funds.....	\$ 292	\$ 254	\$ 250	\$ 250
(Staff).....	(55)	(56)	(50)	(50)

The Advisory Committee on Reactor Safeguards (ACRS), established in 1957 by statute, advises the Commission on potential hazards of proposed or existing reactor facilities and the adequacy of proposed safety standards. Section 29 of the Atomic Energy Act of 1954 also requires that the ACRS advise the Commission with respect to the safety of operating reactors, and Public Law 95-209 requires an annual report to the Congress on the NRC Safety Research Program.

The ACRS reviews requests for preapplication site and standard plant approvals; applications for construction permits and operating licenses for production and utilization facilities; amendments to operating licenses for power reactors, test reactors, spent fuel reprocessing plants and waste disposal facilities; and assists in matters related to nuclear facilities as outlined in the Memorandum of Understanding with the Department of Energy.

Program Technical Support - Continued

Atomic Safety Licensing Board Panel

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 1,181	\$ 867	\$ 822	\$ 822
(Staff).....	(57)	(52)	(48)	(43)

The Atomic Safety Licensing Board Panel (ASLBP) is the statutory adjudicatory office of the agency. Three-member Boards drawn from the panel conduct adjudicatory hearings pursuant to the Administrative Procedure Act, the Atomic Energy Act and the National Environmental Policy Act. Boards hear and decide issues granting, suspending, revoking or amending licenses to construct and operate nuclear power plants and other nuclear facilities. Hearings address matters such as health, safety, environment, and economic considerations, including civil penalties and antitrust. Currently the Boards' workload includes a large number of cases involving applications by utilities for nuclear power plant operating licenses. In addition, the Board conducts any other proceedings which the Commission may direct or the regulations of the agency may require.

Atomic Safety and Licensing Appeal Panel

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 8	\$ 40	\$ 10	\$ 10
(Staff).....	(17)	(16)	(15)	(14)

The Atomic Safety and Licensing Appeal Panel's three member tribunals review decisions of administrative law judges and the Atomic Safety and Licensing Boards rendered in (1) proceedings on applications under 10 CFR Part 50; and (2) such other licensing proceedings as the Commission may specify. In discharging this review function, the Panel is governed by the applicable provisions of the Administrative Procedure Act and the agency's Rules of Practice.

Program Technical Support - Continued

Office of Investigations

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 0	\$ 0	\$ 0	\$ 0
(Staff).....	(37)	(38)	(44)	(44)

The Office of Investigations is an independent office which conducts and supervises agency investigations of all allegations of wrongdoing by other than employees and contractors, including reactor licensees, fuel cycle licensees, and materials safety and safeguards and facilities licensees. During this planning period a significantly increased investigative caseload must be dealt with. Each case must be thoroughly and completely examined to assure prompt attention to safety concerns. All subsequent findings must be evaluated and disseminated so as to avoid undue delay to licensing activities. Quality control standards are being developed, administered, and maintained to oversee the conduct of investigations. The Commission and appropriate agency offices are apprised of matters under investigation which may affect public health and safety or other aspects of the agency's mission. The Office of Investigations maintains liaison with other agencies and organizations to ensure the timely exchange of information of mutual interest and makes appropriate referrals to the Department of Justice on criminal matters.

Office of the Executive Legal Director

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 53	\$ 80	\$ 60	\$ 60
(Staff).....	(102)	(102)	(96)	(96)

The staff of the Office of the Executive Legal Director provides legal advice and services to the Executive Director for Operations and the offices which report to that official. They provide legal representation and legal advice to the NRC staff in administrative proceedings involving the licensing of nuclear facilities and materials, enforcement actions, and rulemaking. Specifically, assistance is provided in the areas of health and safety; environmental impact and antitrust aspects of licensing and regulation; research programs; general agency administration, including contracts, patents, personnel, security and labor regulations; safeguards and waste management programs; and the export/import licensing program.

Program Technical Support - Continued

Office of International Programs

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 9	\$ 130	\$ 50	\$ 50
(Staff).....	(28)	(28)	(27)	(27)

The Office of International Programs was established to develop and direct a program of cooperation with foreign regulatory agencies and to administer the Commission's responsibilities in the areas of nonproliferation, international safeguards and nuclear exports and imports. This Office provides informational support to the Commission and staff on international matters, maintains liaison with other U.S. agencies, and performs a key function in facilitating the flow of nuclear health and safety related information between the United States and foreign countries.

It also oversees the Commission's export/import licensing procedures, assists in the development of improved international safeguards and physical security arrangements and participates in the ongoing implementation of the Commission's regulations in support of the U.S./International Atomic Energy Agency (IAEA) safeguards agreement.

Office of State Programs

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 657	\$ 800	\$ 700	\$ 700
(Staff).....	(35)	(34)	(33)	(33)

The Office of State Programs manages a program of cooperation and liaison with States, local governments and interstate organizations. This Office administers the Agreement States program, which includes 27 Agreement States, which in turn administer about 13,000 licenses involving the regulation of certain classes of radioactive materials, including uranium milling and low-level radioactive waste disposal.

The Office also administers the Price-Anderson Act, which provides liability insurance and government indemnity for nuclear accidents, and administers activities relating to financing decommissioning, financing relating to accidents, and monitoring of TMI-2 cleanup financing. It provides guidance, training and assistance to State and local governments in radiation control and coordinates with other NRC office and U.S. Government agencies having State and interstate responsibilities.

The office also supports the Conference of Radiation Control Program Directors, Inc. (an association of State Radiation Control Program Director's) along with the States and other Federal agencies.

Program Technical Support - Continued

Office for Analysis and Evaluation of Operational Data

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 3,145	\$ 3,410	\$ 3,108	\$ 3,108
(Staff).....	(36)	(39)	(39)	(41)

The Office for Analysis and Evaluation of Operational Data collects, analyzes, and disseminates information about operating experience from all agency licensed activities. This Office reviews operating experience to identify significant events or situations that warrant detailed evaluation and then studies those significant events or situations to determine the lessons of experience and safety concerns that should be considered.

Specific tasks and activities of the Office are the following:

- Collect, screen, analyze, and feedback operating experience to agency staff, the nuclear industry and the public on all agency licensed activities.
- Screen U.S. and foreign operational events for significance and systematically and independently analyze those events.
- Analyze operational experience data to identify trends and patterns that indicate potential safety problems.
- Make recommendations for agency action for resolution of safety issues detected through these activities.
- Analyze all licensee event reports, recommend to the Commission which events constitute abnormal occurrence and document those occurrences on a quarterly basis to Congress and the public.
- Maintain operational data storage and retrieval systems, including: (1) development and operation of several data bases of selected operational experience data, and (2) coordination with the Institute for Nuclear Power Operations (a nuclear-industry-funded organization) which supports and manages the Nuclear Plant Reliability Data System.
- Report U.S. events to the International Nuclear Energy Agency's incident reporting system.
- Serve as contact point for data collection in relation to the agency staff, the Advisory Committee on Reactor Safeguards, and industry groups.

Program Technical Support - Continued

The screening work requires the review of 2200 reactor licensee event reports per year, as well as the review of extensive documentation of events involving foreign reactors, inspection reports, and U.S. industry reports. In the evaluation of nonreactor events associated with the use, transportation, safeguarding and disposal of nuclear materials, about 6000 reports are reviewed each year that are received from approximately 8300 licensees. These reports involve operational events such as overexposures to radioactive materials, spills, or medical misadministration. In addition the reports of 8000 Agreement State licensees are reported to the agency semiannually by the Agreement States.

The improved data bases associated with this activity are now sizeable and collection mechanisms are in place. It is now incumbent on the agency to analyze trends and patterns based on these data. The lessons of operating experience often cannot be derived from viewing a single event; they must be developed by associating events. Through trends and patterns an evolving picture can be developed that can lead to appropriate corrective actions being identified and taken before the situation becomes a serious incident. It is toward that end that the data bases have been established. The analyses that are now possible to identify the trends and patterns and to integrate the risk perspective into the analyses require the additional staff requested.

PROGRAM DIRECTION AND ADMINISTRATION

Total FY 1986 estimated obligations.....\$41,180*

Total Funds and Staff

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u> ^{1/}
Salaries and Benefits.....	\$ 29,221	\$ 30,802	\$ 28,290	\$ 28,890
Program Support.....	1,217	1,658	2,000	2,000
Administrative Support.....	10,561	10,321	10,250	11,000
Travel.....	<u>763</u>	<u>650</u>	<u>640</u>	<u>640</u>
Total Obligations.....	<u>\$ 41,762</u>	<u>\$ 43,431</u>	<u>\$ 41,180</u>	<u>\$ 42,530</u>
(Staff).....	(747)	(732)	(701)	(701)

Support Funds and Staff

Program Direction and Administration offices collectively provide overall policy direction, resource management, administration and logistic support for the agency. The staff offices are the Commission (OCM), Secretary (SECY), Inspector and Auditor (OIA), General Counsel (OGC), Public Affairs (OPA), Policy Evaluation (OPE), Congressional Affairs (OCA), Executive Director for Operations (EDO), Small and Disadvantaged Business Utilization and Civil Rights (SBDU/CR), Resource Management (RM), and Administration (ADM). Staff have been redirected from this function to more directly support the agency's health, safety, inspection and enforcement programs.

^{1/} NRC estimate which has not been approved by the Administration.

* Dollars are in thousands, except in text, where whole dollars are used; staff numbers are in full-time equivalents.

Program Direction and Administration - Continued

	FY 1984 Actual		FY 1985 Estimate		FY 1986 Estimate		FY 1987 Estimate	
	Funds	Staff	Funds	Staff	Funds	Staff	Funds	Staff
OCM	\$ 8	32*	\$ 100	32*	\$ 100	35	\$ 100	35
SECY	649	37	218	32	230	31	240	31
GIA	0	26	0	27	0	26	0	26
OGC	8	25	30	31	32	31	32	31
OPA	6	22	12	21	10	18	10	18
OPE	21	17	50	18	65	17	65	17
QCA	0	9	1	9	1	9	1	9
EDO	10	22	50	21	50	21	50	21
SDBU/CR	25	8	190	9	190	8	175	8
RM	490	135	1,007	131	1,322	127	1,327	127
ADM	0	410	0	401	0	378	0	378
TOTALS	<u>\$1,217</u>	<u>747</u>	<u>\$1,658</u>	<u>732</u>	<u>\$2,000</u>	<u>701</u>	<u>\$2,000</u>	<u>701</u>

The Commissioners and Staff

	FY 1984 Actual	FY 1985 Estimate	FY 1986 Estimate	FY 1987 Estimate
Funds.....	\$ 8	\$ 100	\$ 100	\$ 100
(Staff).....	(32)*	(32)*	(35)	(35)

The Office of the Commissioners is the governing body which must exercise the overall NRC responsibilities. This body provides fundamental policy guidance to assure that the civilian use of nuclear energy is regulated in a manner consistent with the public health and safety, environmental quality, national security and antitrust laws.

Office of the Secretary

	FY 1984 Actual	FY 1985 Estimate	FY 1986 Estimate	FY 1987 Estimate
Funds.....	\$ 649	\$ 218	\$ 230	\$ 240
(Staff).....	(37)	(32)	(31)	(31)

The Office of the Secretary provides general management services to support the Commission and to implement Commission decisions; advises and assists the

* Does not include long term assignments from other offices to Commissioners' staffs.

Program Direction and Administration - Continued

Commission and staff on the planning, scheduling and conduct of Commission business; prepares for and records Commission meetings; manages the Commission staff paper system and monitors the status of all items requiring action; maintains a forecast of matters for future Commission consideration; processes and controls Commission correspondence; maintains the Commission's official records; maintains the official Commission adjudicatory docket, issues decisions, orders and rulings of the Commission, and records and serves documents in legal matters; administers the NRC historical program; and directs and administers agency's NRC Public Document Room.

Program support funds provide verbatim transcription services for meetings and licensing hearings.

Office of the Inspector and Auditor

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 0	\$ 0	\$ 0	\$ 0
(Staff).....	(26)	(27)	(26)	(26)

The Office of Inspector and Auditor functions as the agency Inspector General, providing the Commission with an independent review and appraisal of programs and operations. The office is responsible for developing policies and standards that govern the financial and management audit program; planning, directing and executing the long-range, comprehensive audit program; conducting and reporting on investigations and inspections, as necessary, to ascertain and verify the facts with regard to the integrity of internal agency operations, employees, contractors, organization's programs and activities; and referring suspected or alleged criminal violations concerning NRC employees or contractors to the Department of Justice/Federal Bureau of Investigation.

It also administers the Commission's "open door" policy; serves as point of contact with the General Accounting Office (GAO); and maintaining liaison with GAO and Government audit and law enforcement agencies.

Office of General Counsel

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 8	\$ 30	\$ 32	\$ 32
(Staff).....	(29)	(31)	(31)	(31)

The Office of General Counsel is the chief legal advisor and provides legal advice to the Commission in connection with the quasi-judicial

Program Direction and Administration - Continued

responsibilities of the Commission and in the development of substantive policy matters. The OGC staff represent the Commission in Courts of Appeal proceedings to review Commission orders and rules, and in cooperation with the Department of Justice, represents the Commission in court proceedings affecting the agency program in the Federal District Courts.

The office also provides legal advice with respect to legislative matters of concern to the agency, including drafting of legislation, preparation and review of testimony, and preparation and transmission of statements of views requested on proposed legislation. In the past year, OGC's Federal Court litigation caseload had increased substantially and is expected to continue at a high level.

Substantially more resources are also being devoted to implementation of the Freedom of Information Act. In addition, the Commission has reserved for itself the determination whether Licensing Board decisions authorizing full power operation should be made immediately effective. Each of the immediate effectiveness reviews requires substantial effort, particularly in contested cases. The staff also provides legal advice to the Office of Investigations, including attorneys to participate in certain major field investigations.

Office of Public Affairs

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 6	\$ 12	\$ 10	\$ 10
(Staff).....	(22)	(21)	(18)	(18)

The Office of Public Affairs issues public announcements from both headquarters and the regional offices; responds to telephone inquiries from the news media and the public; and responds to letters from the media and the public, including the bulk of the NRC referrals from the White House. In addition, the staff arranges press conferences in the Washington area, as well as in the regions in the vicinity of nuclear facilities, and coordinates requests for Commission speakers before civic groups and other organizations interested in the role of the agency.

The office also assists the licensing boards, the appeal boards and the Advisory Committee on Reactor Safeguards whenever hearings and meetings are held in which a high degree of public and press interest is evidenced; advises the Commission and senior staff on public affairs impacts of planned programs and other activities; and advises and assists the Commission and the public on the conduct of public meetings and rulemaking hearings of broad general interest.

Program Direction and Administration - Continued

Office of Policy Evaluation

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 21	\$ 50	\$ 65	\$ 65
(Staff).....	(17)	(18)	(17)	(17)

The Office of Policy Evaluation advises the Commission on a broad range of substantive policy matters to enhance the information base on which Commission decisions are made. The Office provides the Commission with an independent evaluation of program policy objectives; reviews staff papers; provides independent technical evaluation of issues presented to the Commission, including cases under adjudication; and contributes technical and policy advice for projects being conducted and managed by other offices for outside agencies. Use of outside specialist consultants is anticipated in the licensing and rulemaking proceedings.

Office of Congressional Affairs

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 0	\$ 1	\$ 1	\$ 1
(Staff).....	(9)	(9)	(9)	(9)

The Office of Congressional Affairs assists and advises the Commission and senior staff on Congressional matters, coordinates agency Congressional relations activities and is the principal liaison for the Commission with Congressional committees and members of Congress.

The primary objective is to assure that the Congress, through its designated oversight committees, is kept fully and currently informed of agency activities and that Congressional requests and inquiries are responded to promptly. The Office provides the Commission and senior NRC staff with relevant and current information as to major legislative activities likely to affect the agency. Additionally, the office seeks to assure that individual members of Congress are kept currently and adequately informed of significant NRC licensing activities that impact their respective states and districts.

Program Direction and Administration - Continued

Office of the Executive Director for Operations

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 10	\$ 50	\$ 50	\$ 50
(Staff).....	(22)	(21)	(21)	(21)

The Office of the Executive Director for Operations supervises and coordinates operational activities and policy development of both line and staff offices and implements the Commission's policy directives pertaining to these offices.

Office of Small and Disadvantaged
Business Utilization and Civil Rights

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 25	\$ 190	\$ 190	\$ 175
(Staff).....	(8)	(9)	(8)	(8)

The Office of Small and Disadvantaged Business Utilization and Civil Rights is responsible for the implementation and execution of the functions and duties under Sections 8 and 15 of the Small Business Act, as amended; those functions and duties under the Civil Rights Act of 1964, as amended; and those functions and duties relating to equal employment opportunity and civil rights matters within the agency.

Office of Resource Management

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 490	\$ 1,007	\$ 1,322	\$ 1,327
(Staff).....	(135)	(131)	(127)	(127)

The Office of Resource Management provides budgetary and fiscal management for the agency, including the development and maintenance of a financial control system and a system of accounting designed to conform to the standards prescribed by the Comptroller General; management information and analyses for a variety of users within the agency; and is the office responsible for developing and maintaining the agency's principal management information systems and centralized automatic data and word processing.

Program Direction and Administration - Continued

It provided analyses to assess the relationship between program workload and resource allocation; collects, reviews and issues various periodic and special reports on nuclear power plant data reported by licensees for use by agency offices, Congress, other parts of the government and the public at large; and manages and coordinates special projects, including Congressionally mandated reports, such as the agency's Annual Report.

The Office has the following functions:

Budget and Analysis

This work consists of developing and maintaining policies and procedures and performing the operations needed for formulating and obtaining approval for agency budgets; developing and administering agency authorization and appropriation funding legislation, and presenting budget estimates and information to agency management, the Office of Management and Budget, and Congress; designing and developing systems and criteria for resource planning; validating staff resource requirements (people and funds) and utilization; developing cost analyses of agency programs; and maintaining liaison with the Office of Management and Budget and Congress.

Accounting and Finance

The agency's financial management responsibilities are carried out by developing and applying policies, principles, standards, and procedures for financial and cost accounting and reporting systems; maintaining accounting and internal controls over agency appropriations; maintaining centralized payroll and travel accounting and reporting functions; maintaining centralized governmental and commercial contractor accounting and reporting; developing and maintaining the agency's financial management information systems; maintaining liaison with the General Accounting Office, the Treasury Department, and other agencies on financial procedures and related matters; and developing policies, standards, and practices governing cost principles and other financial arrangements under agency contracts and participating in contractor selections and negotiations.

Automated Information Services

The agency's automated data and word processing functions, including the procurement of equipment and software provide support throughout the agency in developing automated systems and applications. Management is provided for interagency and contractor computer time-sharing contracts and coordinating automatic data processing activities with other Federal agencies.

Program Direction and Administration - Continued

Office of Administration

	<u>FY 1984</u> <u>Actual</u>	<u>FY 1985</u> <u>Estimate</u>	<u>FY 1986</u> <u>Estimate</u>	<u>FY 1987</u> <u>Estimate</u>
Funds.....	\$ 0	\$ 0	\$ 0	\$ 0
(Staff).....	(410)	(401)	(378)	(378)

The Office of Administration provides the administrative and logistical support services for headquarters and some services for the regional offices. The services provided to all segments of the agency include: administration of the NRC Personnel Management Program which includes recruitment and staffing, position classification and evaluation, labor relations, organization and management analysis and managing the Cooperative Education Program; contracting and purchasing activities for the agency; transportation and travel services; agency telecommunications services, including facsimile, radio, teletype, telephone, data transmission and the Emergency Notification System; space acquisition and utilization including planning for consolidation of space into fewer buildings; providing for the security of facilities and safeguarding of classified and sensitive unclassified documents; technical information management and document control services for the agency; administration of the Freedom of Information Act and Privacy Act activities; and administration of a system of 112 local public document rooms throughout the United States.

It also provides printing and reproduction services for the agency; management of the headquarters administrative support funds; administration of the Facilities and Materials License Fee Program; direction of the Occupational Health and Safety Program; and other agencywide services, such as interviewee and change-of-station travel and the agency's Alcohol and Drug Abuse Program.

The Office has the following functions:

Organization and Personnel

Programs for personnel management and organization activities, include staffing and placement services, recruitment, position classification and evaluation, personnel policy and program development, Federal labor relations and employee relations services, organization and staffing analyses, management analyses, and the agency's position management program; and provides secretarial services, liaison, and support to the Executive Resources Board and its subgroups.

Program Direction and Administration - Continued

Facilities and Operations Support

This function develops and administers the agency telecommunications activities; represents the agency in liaison with Federal and State agencies on telecommunications matters; provides mail and messenger services; issues and processes travel authorization requests; develops and administers programs for space acquisition and utilization, motor vehicle operation, building management, and transportation services; and develops and administers programs for property management, supply and warehouse operations, and office and equipment moves.

Technical Information and Document Control

This function provides centralized agencywide publication control and processing, technical writing and editing service, and translation service; publishes agency books, regulatory and technical reports, pamphlets and periodicals; provides direction and coordination for agencywide provision of document composition, printing, graphics, photography, and audiovisual and related services; provides agencywide service for receipt, dissemination, storage and retrieval of agency publications; and provides for paperwork management under the Paperwork Reduction Act, the Federal Records Act, and related Federal statutes.

It maintains centralized, official reactor licensing records, classified documents, and accountability records; acquires and maintains library collections to support official agency actions; and provides automated reports processing and proofreading service agencywide, including, electronic communication with the regional offices and contractors.

Rules and Records

This function develops policies, procedures and rules for implementing the Freedom of Information Act, Privacy Act, and the Regulatory Flexibility Act; develops and reviews amendments to agency regulations and petitions for rulemaking; provides advice and assistance to offices and the public regarding regulations and procedures for filing petitions for rulemaking; and directs and coordinates Local Public Document Room activities near reactor sites throughout the United States.

Contracts

This function develops and implements agencywide contracting and financial assistance policies and procedures; and directs and coordinates contracting and financial assistance activities, including selection, negotiation, administration and closeout. It provides advice and assistance to program officials on procurement regulations and requirements and methods of meeting program objectives consistent with such requirements; executes and modifies contracts, financial assistance relationships and interagency actions; settles claims and terminations; and performs other normal duties of a contracting office specified in the Federal Procurement Regulations.

Program Direction and Administration - Continued

Security

This function administers the agency's overall security program, including the safeguarding of Restricted Data and National Security Information documents or material (e.g., classified matter) at Headquarters facilities, Regional Offices, contractor, licensee and other plants containing such matter; the safeguarding of sensitive intelligence; and physical protection at NRC Headquarters, Regional Offices, and other agency locations; and the processing and maintenance of access authorizations (clearances) for agency employees, consultants, contractors, and others.

License Fee Management

This function administers the agency's license fee program whereby applicants for licenses are assessed the cost of reviewing and approving the licenses; develops policies and procedures for cost recovery and fees for Commission consideration; prepares fee regulations, fee schedules, and procedures; periodically reviews schedules for updating and modification; and, annually analyzes agency licensing costs for determining fee bases.

It also institutes enforcement procedures when appropriate to assure fee payments; and works with other Government agencies to provide consistency in fee programs.

Management Development and Training

This function plans and develops policies and programs for the training and development of agency executives and Senior Executive Service candidates; provides management and supervisory training and development programs to improve managerial performance; administers the Intern and Upward Mobility programs; and develops training and education programs in response to Commission, statutory, and interagency requirements.

It also assists in identifying training needs and programs; develops and administers the agencywide training budget (excluding the Reactor Training Center programs); and provides career development counseling.

Occupational Safety and Health

This function administers the agencywide occupational health and safety program to provide a safe working environment for employees and the public using agency facilities.

LEGISLATIVE PROGRAM PROJECTIONS

(Dollars in Millions)

	Actual	Estimate					
	<u>FY 1984</u>	<u>FY 1985</u>	<u>FY 1986</u>	<u>FY 1987^{1/}</u>	<u>FY 1988^{1/}</u>	<u>FY 1989^{1/}</u>	<u>FY 1990^{1/}</u>
NRC Total							
Budget Authority	\$466	\$444	\$429	\$460	\$460	\$460	\$460
Budget Outlays	\$462	\$451	\$438	\$461	\$461	\$461	\$461

^{1/}NRC estimate which has not been approved by the Administration.

Consulting Services*

<u>Account Title</u>	<u>Type</u>	<u>Obligations</u>			
		<u>FY 1984</u>	<u>FY 1985</u>	<u>FY 1986</u>	<u>FY 1987</u>
Nuclear Reactor Regulation	Contractual Services	\$107	\$ 94	\$ 81	\$ 78
	Personnel Appts.	75	53	45	44
	Advisory Committee Consultants	0	0	0	0
	Total	<u>\$182</u>	<u>\$147</u>	<u>\$126</u>	<u>\$122</u>
Inspection and Enforcement	Contractual Services	\$ 0	\$ 0	\$ 0	\$ 0
	Personnel Appts.	0	0	0	0
	Advisory Committee Consultants	0	0	0	0
	Total	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>
Nuclear Material Safety and Safeguards	Contractual Services	\$ 0	\$ 0	\$ 0	\$ 0
	Personnel Appts.	44	45	45	45
	Advisory Committee Consultants	0	24	27	27
	Total	<u>\$ 44</u>	<u>\$ 69</u>	<u>\$ 72</u>	<u>\$ 72</u>
Nuclear Regulatory Research	Contractual Services	\$ 0	\$ 0	\$ 0	\$ 0
	Personnel Appts.	0	0	0	0
	Advisory Committee Consultants	0	0	0	0
	Total	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>
Program Technical Support	Contractual Services	\$ 0	\$ 0	\$ 0	\$ 0
	Personnel Appts.	0	8	0	0
	Advisory Committee Consultants	95	140	120	120
	Total	<u>\$ 95</u>	<u>\$148</u>	<u>\$120</u>	<u>\$120</u>
Program Direction and Administra- tion	Contractual Services	\$206	\$206	\$206	\$206
	Personnel Appts.	145	145	145	145
	Advisory Committee Consultants	0	0	0	0
	Total	<u>\$351</u>	<u>\$351</u>	<u>\$351</u>	<u>\$351</u>
Total Nuclear Regulatory Commission	Contractual Services	\$313	\$300	\$287	\$284
	Personnel Appts.	264	251	235	234
	Advisory Committee Consultants	95	164	147	147
	Total	<u>\$672</u>	<u>\$715</u>	<u>\$669</u>	<u>\$665</u>

* Dollars are in thousands, except in text, where whole dollars are used; staff numbers are in full-time equivalents.

MAJOR PROGRAM AREAS

NUCLEAR REACTOR
REGULATION

Consulting services are used to obtain advice/opinions on highly complex and controversial areas on an intermittent basis to enhance the quality and diversity of views and to provide outside independent viewpoints that lend greater credibility and technical support to agency licensing positions. Personnel appointments provide engineering and scientific expertise not otherwise available to NRR.

NUCLEAR MATERIAL
SAFETY & SAFEGUARDS

Consulting services are used to provide (1) technical advice on fuel processing operations, including high-level waste solidification activities; (2) advice on review of critical technical data associated with repository site performance and evaluation; and (3) assistance to staff in evaluating low-level waste generation, processing and storage from the disposal perspective to ascertain long-term burial ground performance. Advisory Committee expenses include the Advisory Committee on Medical Uses of Isotopes which considers medical questions referred to it by staff, renders expert opinion regarding medical uses of radioisotopes, and advises on matters of policy. FY 1984 Advisory Committee expenses reflect the postponement of the Committee meeting until FY 1985. Annual meetings are planned for FY 1985 through FY 1987.

PROGRAM TECHNICAL
SUPPORT

Consulting services will be used to perform a feasibility study to determine the advisability of using an automated litigation support system to support the hearing process. Advisory Committee consultants assist the membership of the Advisory Committee on Reactor Safeguards (ACRS), established by statute in 1957. The ACRS advises the Commission on potential hazards of proposed or existing reactor facilities and prepares a report to Congress as required by Public Law 95-209 on the NRC Safety Program. The Commission has also established an Advisory Committee for review of the enforcement policy. This Committee will receive input from the NRC staff, industry representatives, and members of the public on the effectiveness of current enforcement practices. The Committee will assess whether the current policy is improving compliance, whether it has any negative impacts on safety and whether alternative enforcement options might improve the Commission's programs.

Consulting Services - continued

PROGRAM DIRECTION
& ADMINISTRATION

Contractual services provide career counseling for NRC employees and development of a five-year telecommunications plan. Personnel appointments provide the agency with advice and assistance (1) to the public concerning the retrieval and maintenance of documents in the Local Public Document Rooms; (2) in recruitment of technical staff members; (3) in evaluating current and proposed automated document control systems, and in codes, standards, and reports collection; (4) on security clearance applications; and (5) to evaluate proposed revisions for security-related standards, procedures, rules, and regulations.

U.S. NUCLEAR REGULATORY COMMISSION
SUMMARY OF HEADQUARTERS - REGIONAL RESOURCES
(DOLLARS IN THOUSANDS, EXCEPT WHOLE DOLLARS IN NARRATIVE MATERIAL,
STAFF IN FULL-TIME EQUIVALENT)

	FY 1984		FY 1985 ESTIMATE		FY 1986 ESTIMATE		FY 1987 ESTIMATE ^{1/}	
	DOLLARS	(STAFF)	DOLLARS	(STAFF)	DOLLARS	(STAFF)	DOLLARS	(STAFF)
<u>HEADQUARTERS PROGRAMS</u>								
NUCLEAR REACTOR REGULATION	\$89,141	644	\$85,988	640	\$83,995	640	\$90,310	628
INSPECTION AND ENFORCEMENT	27,545	209	35,060	242	34,690	248	39,100	252
NUCLEAR MATERIAL SAFETY								
AND SAFEGUARDS	33,629	294	36,072	297	36,520	315	40,300	310
NUCLEAR REGULATORY RESEARCH	190,675	244	150,091	230	135,970	208	145,800	208
PROGRAM TECHNICAL SUPPORT	28,578	349	30,071	347	28,160	334	28,800	330
PROGRAM DIRECTION AND								
ADMINISTRATION	41,537	743	43,250	729	41,180	701	42,530	701
SUBTOTAL	\$411,105	2,483	\$380,532	2,485	\$360,515	2,446	\$386,940	2,429
<u>REGIONAL PROGRAMS</u>								
NUCLEAR REACTOR REGULATION	\$3,709	58	\$5,190	78	\$4,935	78	\$5,160	78
INSPECTION AND ENFORCEMENT	54,950	825	58,242	854	58,200	894	62,230	906
NUCLEAR MATERIAL SAFETY								
AND SAFEGUARDS	4,170	53	4,230	53	4,210	55	4,570	60
PROGRAM TECHNICAL SUPPORT	1,117	18	1,195	18	1,140	18	1,200	18
PROGRAM DIRECTION AND								
ADMINISTRATION	225	4	181	3	0	0	0	0
SUBTOTAL	\$64,171	958	\$69,038	1,006	\$68,485	1,045	\$73,160	1,062
<u>TOTAL PROGRAMS</u>								
NUCLEAR REACTOR REGULATION	\$92,850	702	\$91,178	718	\$88,930	718	\$95,470	706
INSPECTION AND ENFORCEMENT	82,495	1,034	93,302	1,096	92,890	1,142	101,330	1,158
NUCLEAR MATERIAL SAFETY								
AND SAFEGUARDS	37,799	347	40,302	350	40,730	370	44,870	370
NUCLEAR REGULATORY RESEARCH	190,675	244	150,091	230	135,970	208	145,800	208
PROGRAM TECHNICAL SUPPORT	29,695	367	31,266	365	29,300	352	30,000	348
PROGRAM DIRECTION AND								
ADMINISTRATION	41,762	747	43,431	732	41,180	701	42,530	701
TOTAL	\$475,276	3,441	\$449,570	3,491	\$429,000	3,491	\$460,000	3,491

^{1/} NRC estimate which has not been approved by the Administration.

NRC FORM 326
(2-84)
NRCM 1102,
3201, 3202

U.S. NUCLEAR REGULATORY COMMISSION

1. REPORT NUMBER (Assigned by TIDC, add Vol. No., if any)

BIBLIOGRAPHIC DATA SHEET

NUREG-1100, VOLUME 1

SEE INSTRUCTIONS ON THE REVERSE

2. TITLE AND SUBTITLE

FY 1986 Budget Estimates

3. LEAVE BLANK

4. DATE REPORT COMPLETED

MONTH

YEAR

January

1985

5. DATE REPORT ISSUED

MONTH

YEAR

January

1985

5. AUTHOR(S)

7. PERFORMING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)

Division of Budget and Analysis
Office of Resource Management
U.S. Nuclear Regulatory Commission
Washington, DC 20555

8. PROJECT/TASK/WORK UNIT NUMBER

9. FIN OR GRANT NUMBER

10. SPONSORING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)

Division of Budget and Analysis
Office of Resource Management
U.S. Nuclear Regulatory Commission
Washington, DC 20555

11a. TYPE OF REPORT

FY 1986/87 Congressional
Budget Submissions

b. PERIOD COVERED (Inclusive dates)

10/1/85 - 9/30/86

12. SUPPLEMENTARY NOTES

13. ABSTRACT (200 words or less)

This report contains the fiscal year budget justifications to Congress. The budget estimates for salaries and expenses for fiscal year 1986-87 provide for obligations of \$429,000,000 to be funded in total by a new appropriation.

14. DOCUMENT ANALYSIS - a. KEYWORDS/DESCRIPTORS

b. IDENTIFIERS/OPEN-ENDED TERMS

15. AVAILABILITY STATEMENT

Unlimited

16. SECURITY CLASSIFICATION

(This page)

(This report)

Unclassified

17. NUMBER OF PAGES

18. PRICE

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

FOURTH CLASS MAIL
POSTAGE & FEES PAID
USNRC
WASH. D.C.
PERMIT No. G-87

120555073877 1 1AN
US NRC
ADM-DIV OF TIDC
POLICY & PUB MGT BR-POR NUREG
W-501
WASHINGTON DC 20555