NUREG-1040

BUDGET ESTIMATES FISCAL YEAR 1985

Appropriation: Salaries and Expenses

January 1984

U.S. Nuclear Regulatory Commission

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BUDGET ESTIMATES FOR

U. S. NUCLEAR REGULATORY COMMISSION

FISCAL YEAR 1985

INDEX

U.S. NUCLEAR REGULATORY COMMISSION

FY 1985 Budget Estimates
GENERAL STATEMENT FOR SALARIES AND EXPENSES

(Dollars in thousands, except whole dollars in narrative material;
Staff in full-time equivalent)

Estimates of Appropriation

The budget estimates for Salaries and Expenses for FY 1985 provide for obligations of $468,200,000 to be funded in total by a new appropriation.

Estimates of Obligations and Outlays

This section provides for the summary of obligations by program on page 2; the summary of financing these obligations on page 3; the analysis of outlays on page 4; obligations by function on page 5; the proposed appropriation language and analysis of the appropriation language on pages 6 through 9.

The summaries which address obligations include the NRC's 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 NRC 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 table summarizes the total obligations for NRC's Direct and Reimbursable Programs for FY 1983, FY 1984, and FY 1985. The detailed justifications for direct program activities are presented in the same order as they appear in this summary table.

Staffing

Staffing figures are in Full-Time Equivalents and include both Full-Time Permanent and Other Than Full-Time Permanent People.

U.S. NUCLEAR REGULATORY COMMISSION

SUMMARY OF OBLIGATIONS BY PROGRAM

(Dollars in thousands, except whole dollars in narrative material;
Staff in full-time equivalent)

Obligations by Activity:
Direct Program

	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
Nuclear Reactor Regulation	$ 90,844	$ 92,680	$ 90,950
Inspection and Enforcement	68,487	81,945	92,190
Nuclear Material Safety and Safeguards	34,620	40,355	43,520
Nuclear Regulatory Research	207,295	190,862	168,415
Program Technical Support	27,233	30,350	30,545
Program Direction & Administration	38,638	43,933	42,580
Total Obligations - Direct Program	$467,117	$480,125	$468,200
Reimbursable Program	87	500	500
Total Obligations	$467,204	$480,625	$468,700
Offsetting collections from Federal Funds	-57	-500	-500
Recovery of prior year obligations	-4,802		
Unobligated balance, start of year	-9,296	-12,225	
Unobligated balance, end of year	12,225		
Budget Authority	$465,274	$467,900[1/]	$468,200

1/ Includes $2,100,000 for the proposed FY 1984 pay rais

(Dollars in thousands, except whole dollars in narrative material;
Staff in full-time equivalent)

Financing of Obligations

The financing of the estimated total obligations of $468,200,000 proposed in the budget estimate for FY 1985 is summarized in the following table:

SUMMARY OF FINANCING

	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
Sources of Funds Available for Obligations:			
Recovery of prior year obligations.....	$ 4,802	$ 0	$ 0
Unobligated balance, start of year.....	9,296	12,225	0
Appropriated to NRC.....	465,274	467,900 1/	468,200
Subtotal	$479,372	$480,125	$468,200
Less: Unobligated balance, end of year.....	-12,225	0	0
Total Obligations-Direct Program.....	$467,147	$480,125	$468,200

1/ Includes $2,100,000 for the proposed FY 1984 pay raise supplemental.

(Dollars in thousands, except whole dollars in narrative material;
Staff in full-time equivalent)

Outlays for Salaries and Expenses

Outlays for FY 1985 are estimated at $464,000,000. 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

	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
Unexpended balance, beginning of year:			
Obligated	$206,004	$153,736	$183,861
Unobligated	9,296	12,225	0
Appropriation to NRC	465,274	467,900[1/]	468,200
Total Funds Available for Outlays	$680,574	$633,861	$652,061
Unexpended balance, end of year:			
Obligated	-153,736	-183,861	-188,061
Unobligated	-12,225	0	0
Total Outlays	$514,613	$450,000	$464,000

[1/] Includes $2,100,000 for the proposed FY 1984 pay raise supplemental.

(Dollars in thousands, except whole dollars in narrative material;
Staff in full-time equivalent)

SUMMARY OF BUDGET

OBLIGATIONS BY FUNCTION

Direct Program	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
Salaries and Benefits	$150,772	$160,600	$164,300
Program Support	263,198	252,615	237,500
Administratiave Support	44,061	56,410	55,400
Travel	9,086	10,500	11,000
Total Obligations - Direct Program	$467,117	$480,125[1/]	$468,200
Reimbursable Program	87	500	500
TOTAL OBLIGATIONS	$467,204	$480,625	$468,700

[1/] Includes $2,100,000 for the proposed FY 1984 pay raise supplemental.

U. S. NUCLEAR REGULATORY COMMISSION

PROPOSED LANGUAGE - SALARIES AND EXPENSES

(Dollars in thousands, except whole dollars in narrative material;
Staff in full-time equivalent)

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, repairs, and cleaning of uniforms; official representation expenses (not to exceed $8,000); reimbursement to the General Services Administration for security guard services; hire of passenger motor vehicles and aircraft; $468,200,000, 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 31 U.S.C. 484, and shall remain available until expended.

U.S. NUCLEAR REGULATORY COMMISSION
Analysis of Proposed FY 1985 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. 2011 et. seq.) and the Energy Reorganization Act of 1974, 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 they 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.

Analysis of Proposed Language - continued

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 therefore. 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 therefore 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.

Analysis of Proposed Language - continued

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 laws.

11. 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. Funds are received from foreign governments which in turn will participate in NRC's reactor safety research experiments. These funds will be used to pay for any costs incidental to their participation. Funds are received in the form of fees from licensees for the cost of security investigations associated with access to formula quantities of special nuclear material (SNM). These funds will be used to pay the agency performing the security investigations.

(Dollars in Thousands, except whole dollars in narrative material; Staff in Full-Time Equivalent)

Nuclear Regulatory Commission - continued

Nuclear Reactor Regulation Programs $90,950

SUMMARY OF NUCLEAR REACTOR REGULATION PROGRAMS ESTIMATES BY FUNCTIONS

	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
Total Programs:			
Salaries and Benefits.....	$37,961	$37,710 1/	$37,430
Program Support	39,390	37,900	36,870
Administrative Support.....	12,000	15,340	14,890
Travel	1,493	1,730	1,760
Total obligations	$90,844	$92,680	$90,950
(Staff)	(735)	(716)	(716)

In accordance with the Atomic Energy Act of 1954, the Energy Reorganization Act of 1974, and the National Environmental Policy Act of 1969, the Office of Nuclear Reactor Regulation's (NRR) primary objective continues to be the assurance of adequate protection of public health and safety and the environment in the design, siting, construction, and operation of nuclear reactors. NRR is responsible for performing the safety, environmental and antitrust reviews for applicants for construction permits and operating licenses; changes to operating licenses for power and non-power reactors; and the licensing of reactor operators. Organizationally, the regulatory and licensing effort is divided among NRR's five headquarters divisions, a special project office, and NRC's Regional Offices to (1) carry out project management functions; (2) perform detailed safety, environmental, and antitrust reviews; (3) perform detailed performance-oriented evaluations for nuclear plant systems; (4) perform operational, administrative, and people-oriented reviews for human factors safety; (5) assure that basic safety and environmental policies, goals, and requirements are achieved by the regulatory and licensing process; (6) and provide overall regulatory direction of TMI-2 cleanup operations.

The personnel and program support funding requirements to meet these responsibilities have been allocated to the major programmatic functions shown below. The estimates include resources for those functions to be performed by the NRC headquarters and Regional Offices. The narrative that follows provides justification for each program.

1/ Includes $493,000 for FY 1984 Pay Raise Supplem

(Dollars in Thousands, except whole dollars in narrative material; Staff in Full-Time Equivalent)

Nuclear Reactor Regulation - continued

	Actual FY 1983		Estimate FY 1984		Estimate FY 1985	
	Dollars	Staff	Dollars	Staff	Dollars	Staff
Operating Reactors	$10,561	243	$10,070	281	$12,270	315
Systematic Safety Evaluation of Operating Reactors	485	20	1,330	17	4,200	21
Operator Licensing	4,073	34	3,600	44	2,540	50
Casework	12,935	245	11,350	196	7,810	148
Safety Technology	10,931	131	11,300	112	9,800	115
TMI-2 Cleanup	405	13	250	13	250	13
Management Direction and Support	0	49	0	53	0	54
TOTALS	$39,390	735	$37,900	716	$36,870	716

The budget request for NRR emphasizes programs necessary to provide adequate protection to public health and safety. These programs include 1) completion of operating reactor licensing actions; 2) expeditious review of applications for operating licenses; 3) timely resolution of Unresolved Safety Issues and Generic Safety Issues, including Human Factors Issues; and 4) examinations to qualify and requalify reactor operators. NRR will also continue to place special emphasis on the regulatory activities necessary for the decontamination of TMI-2, defueling the reactor, and disposition of the radioactive waste. Resources are being requested for an Integrated Safety Assessment Program (ISAP), pending final decision in FY 1984.

Operating Reactors	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
	$10,561	$10,070	$12,270
	(243)	(281)	(315)

The regulatory activities associated with operating power reactors that are necessary to protect the public health and safety will continue to be NRR's first priority. To assure that operating facilities achieve and maintain adequate levels of protection of public health and safety and the environment, NRR and the Regional Offices will take the necessary actions to correct identified inadequacies in plant design and operation, review and act upon licensees' requests for amendments to operating licenses, and implement new or revised regulations and criteria for all operating facilities. Accordingly, NRR and the Regional Offices will conduct the technical review necessary to accomplish licensing actions (e.g., amendments, orders, petitions, hearings, fuel reloads, and multiplant issues) and manage the overall technical and procedural aspects of safety and environmental reviews. In doing so, NRR will continue to:

- ensure that plants operate safely by using operational data, design information, results of resolved safety and environmental issues, and inspection and enforcement findings, as the basis for taking necessary action in the form of licensing orders and changes in allowable operating conditions;

- review and evaluate operating reactor events and resolve each issue in a manner consistent with safe plant operation.

- assimilate lessons learned from each operating event into the licensing process to ensure consideration of the event in the review of construction permit and operating license applications.

- prevent unnecessary restrictions in plant operations by prompt review and modification of license conditions based on licensee requests to modify plant systems and reactor fuel load configurations.

The projected number of operating reactors and sites at the end of each fiscal year is as shown below:

	Actual FY 1983	Estimated FY 1984	Estimated FY 1985
Reactor Units	80	94	100
Reactor Sites	53	64	68

To enhance the overall safety of operating reactors, the NRR programs will continue to pursue the goal of providing one project manager for each one-unit site and similarly designed two-unit sites, and two project managers for all three-unit sites and two-unit sites with differently designed reactors.

The licensing actions identified in NUREG-0737, "Clarification of the TMI Action Plan Requirements" will continue to be reviewed and implemented. The implementation of Unresolved Safety Issues (USI) and Generic Issues, including the remaining items from NUREG-0660, "NRC Action Plan Developed as a Result of the TMI-2 Accident," is projected to be uniform over three years following their technical resolution. The projected licensing action workload, including implementation of the TMI Action Plan, resolved USI's and actions resulting from the Systematic Evaluation Program (SEP), as well as other multiplant and plant-specific actions, is:

Licensing Actions	FY 1983	FY 1984	FY 1985
Reviewed and Completed	2,300	2,100	2,100

NRR also is required to conduct rapid initial safety assessments of unanticipated events at operating facilities and to develop generic technical positions on safety or environmental aspects of nuclear power plant design, construction and operation directly related to operating facilities. Examples of recent unanticipated events include: the Salem SCRAM circuit breakers

Nuclear Reactor Regulation - continued

failure, Maine Yankee water hammer, Davis Besse loss of non-nuclear instrumentation, and San Onofre reactor protection system breaker failures. The number of unanticipated events and associated resources is projected to increase commensurate with the increase in the number of operating reactors. The change in resources from FY 1984 to FY 1985 reflects an increase in the number of operating reactors and the distribution of types of licensing actions to be completed.

Systematic Safety Evaluation of Operating Reactors	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
	$ 485	$1,330	$4,200
	(20)	(17)	(21)

SEP Phase II, the review of ten older operating plants, is nearing completion. In FY 1983, NRR completed the technical review of all topics and issued eight of the ten final Integrated Plant Safety Assessment Reports (IPSAR). The final two IPSARs are expected to be completed in FY 1984.

Resources are being requested to continue the Integrated Safety Assessment Program (ISAP); resources for ISAP are based on program initiation in FY 1984, following Commission and Congressional review of the results of SEP Phase II and subsequent Commission approval of the draft ISAP Program Plan. The objective of ISAP is to provide a comprehensive review of selected operating reactors to address all pertinent safety issues and to provide an integrated, cost-effective implementation plan based upon both deterministic and probabilistic evaluation techniques. ISAP will provide the technical basis to resolve outstanding licensing actions, establish over-all plant improvement schedules and serve as a benchmark from which future regulatory actions can be judged on a plant-specific basis. Each plant under the ISAP program will be subject to an integrated assessment of topic evaluations, a probabilistic safety assessment, and an evaluation of operating experience. The integrated assessment will also address outstanding TMI Action Plan requirements, and the implementation of Generic Issues and Unresolved Safety Issues.

(Dollars in Thousands, except whole dollars in narrative material; Staff in Full-Time Equivalent

Nuclear Reactor Regulation - continued

Operator Licensing	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
	$4,073	$3,600	$2,540
	(34)	(44)	(50)

The activities associated with Operator Licensing include the preparation, administration, and grading of examinations for the licensing of Reactor Operators (ROs) and Senior Reactor Operators (SROs), the requalification of ROs and SROs, and the certification of licensee training facility instructors. Other activities include operator examinations for non-power reactors, training program audits, and generic activities.

During FY 1983, operator examinations were conducted at seven new operating reactors to certify the capability of the licensee staff needed for initial startup, testing, and operation; over 180 site visits were made to administer replacement examinations for ROs and SROs at operating reactors, and the program to requalify operators was initiated.

Resource estimates are based upon administering written, oral, and simulator examinations at reactors having plant-specific simulators and a written exam and an expanded oral exam at reactors without plant-specific simulators. In FY 1985, NRR is planning to increase the number of examinations performed with in-house staff to improve consistency and control over the examination process. This results in decreases in the funds requested and increases in in-house staff.

Anticipated workload for operator licensing is shown in the following table:

Examinations	Site Visits	
	FY 1984	FY 1985
Initial Exams	17	14
Replacement Exams	134	124
Requalification Exams	51	56
Certification Exams	39	32
Non-Power Reactor Exams	50	50

(Dollars in Thousands, except whole dollars in narrative material; Staff in Full-Time Equivalent

Nuclear Reactor Regulation - continued

	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
Casework	$12,935	$11,350	$ 7,810
	(245)	(196)	(148)

The Casework program includes the effort associated with the safety, environmental, and antitrust reviews, including the public hearing process, for applications for a Construction Permit (CP), Operating License (OL), and standard plant design approval. Casework also includes topical report reviews. The CP review includes the review of an applicant's preliminary design of a nuclear facility and a detailed safety and environmental review of the proposed site. This review must be completed prior to the start of any construction, unless an exemption has been requested and granted. The OL review involves the review of the final design of the plant. This phase starts approximately three years prior to the expected fuel load date. The standard plant design concept offers an opportunity for reactor designers and architect/engineers to submit standard designs for review that can be referenced by future license applications. Topical Report reviews are conducted on technical reports submitted by industry organizations (usually reactor vendors or architect/engineers) on subjects related to a class of nuclear reactors, and their associated systems or operation. For all Casework activities, the staff performs independent, detailed audit calculations to verify applicant results in certain selected review areas critical to safety.

NRR will continue to:

- review license applications to ensure that safety and environmental reviews are conducted in a manner that adequately protects the public health and safety, preserves environmental values and prevents situations inconsistent with antitrust laws; and

- schedule reviews to ensure the review process will not be a critical path item that would unnecessarily delay the reactor fuel load and startup testing.

The following table summarizes the casework applications under review and the planned licensing completions in FY 1983-1985.

(Dollars in Thousands, except whole dollars in narrative material; Staff in Full-Time Equivalent)

Nuclear Reactor Regulation - continued

Types of Reviews	FY 1983*	FY 1984*	FY 1985*
Power Reactors			
OL Applications:			
under review	37(55)	34(52)	23(33)
review completed	(3)	(16)	(7)
CP/ML Applications:			
under review	2(3)	1(1)	0
completed	0	0	0
Standard Plant Applications:			
under review	4	4	3
completed	1	2	2
Non-power Reactors			
Renewal Applications:			
under review	21	11	7
completed	11	8	4

*Number in parentheses represents the number of units.

Resource decreases for Casework are primarily a result of the projected decreases in the number of OL applications under review.

Safety Technology	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
	$10,931	$11,300	$ 9,800
	(131)	(112)	(115)

The Safety Technology program is directed at developing independent NRC positions on significant issues that relate to the safety of reactor design, construction and operation. It also includes an integrated program to develop, review and maintain licensing and regulatory requirements. This program includes the following activities:

- Unresolved Safety Issues (USIs) - 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. In FY 1983, the resolution of 3 USI's were completed.Resources are requested to develop resolutions for the ten remaining unresolved USIs currently under review, plus an additional USI is expected to be added in FY 1985.

Nuclear Reactor Regulation - continued

- Generic Issues - Develop technical positions on issues that relate to the safety or environmental aspects of nuclear power plant design, construction, or operation. These tasks are conducted in support of licensing activities. Resources are requested to develop technical resolutions on generic issues (including TMI Action Plan issues) in the areas of engineering and systems integration that have high potential for reducing the risk from nuclear power plant operation. NRR resolved 4 generic safety issues in FY 1983; 15 are planned to be resolved in FY 1984; and 6 in FY 1985.

- Human Factors Program - Develop technical positions on issues that relate to the design, operation, and maintenance of nuclear power reactors that are identified in the Human Factors Program Plan that has been issued. These tasks are conducted in support of licensing activities. NRR expects to resolve 5 of the identified Human Factors Program major issues in FY 1984, and 5 in FY 1985.

- Risk Assessment - Using available information, develop technical positions and guidance for conducting external events probabilistic risk assessments (PRA) and improving the capability for assessing risk from external events. Develop staff review criteria for the audits of licensee submitted PRAs. Modify PRA Procedures Guide and Audit Manual to include treatment of human error failure ratios and external events considerations. Continue development to improve capability for risk resulting from severe core damage accident sequences. Perform technical studies concerning radiological source term releases, modes, and timing of containment failures.

- Research and Standards Coordination - Coordinate activities involving the Office of Nuclear Regulatory Research (RES), including developing NRR research needs to support licensing activities, participation in research review groups, providing technical guidance for each research contract and participating in the review and development of standards (e.g., rules, regulatory guides, industry standards). NRR has prepared and issued a comprehensive statement of long-term research needs related to reactor regulation.

- Regulatory Requirements - Maintain and update the standard technical specifications for operating light water power reactors based on new regulatory requirements, new technical considerations and operating experience. Coordinate updates to the Standard Review Plan (SRP) and the Standard Format and Content Guide. Identify and prioritize new generic safety issues and certain multi-plant licensing actions, rules and regulatory guides. Perform activities to evaluate the preliminary safety goal and develop guidance to implement the preliminary safety goal.

Nuclear Reactor Regulation - continued

- Code Analysis and Maintenance - Evaluate, modify, verify and maintain analytical tools, such as computer codes, for the performance of audit calculations.

TMI-2 Cleanup	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
	$ 405	$ 250	$ 250
	(13)	(13)	(13)

This activity, initiated in April 1980, provides the regulatory review, direction, and oversight of the TMI-2 cleanup operations including the technical and managerial supervision of the related NRC inspection, licensing, analysis, and government relations actions onsite, in the Middletown, PA, office, and in the Washington, DC area. NRC will continue to ensure the maintenance of adequate protection of public health and safety and the environment during decontamination and disposal of radioactive waste from TMI-2.

NRC will continue to maintain coverage by the technical staff at the site and at headquarters, as necessary, to review and approve licensee cleanup activities, to oversee implementation of these activities so as to ensure adequate protection of public health and safety, to verify that NRC rules and regulations are being followed, to prepare necessary environmental assessments for the various phases of the TMI-2 cleanup process, and to revise technical specifications, as needed, to assure adequate protection of the public health and safety. NRC will conduct special evaluations of problems that arise during the course of facility decontamination, and fuel removal and disposal. Also, in cooperation with the utilities, NRC will participate in an investigation of the TMI-2 cleanup process on decontamination technology, radioactive waste handling, and fission-product release, transport, and disposition. Information obtained will be used to ensure that cleanup activities are conducted in a manner that will minimize risk to public health and safety. NRC also will assess the environmental impact of each phase of the TMI-2 cleanup effort and prepare and issue supplements to the Programmatic Environmental Impact Statement as needed.

(Dollars in Thousands, except whole dollars in narrative material; Staff in Full-Time Equivalent)

Nuclear Reactor Regulation - continued

	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
Management Direction and Support	$0	$0	$0
	(49)	(53)	(54)

In Headquarters, this effort includes the Directors Office, Support to Others, and Correspondence, as detailed below. In the Regions, MD&S consists of the NRR programs proportional share for administrative support services such as personnel, budget, travel, etc.

Director's Office - Consists of the Director, Deputy Director, and the Planning and Program Analysis Staff. The Director develops and administers regulations, policies, and procedures required for regulating nuclear reactors; provides overall management and guidance on major program goals and objectives; and performs other functions necessary to execute the NRC reactor licensing program. The Planning and Program Analysis Staff provides administrative support for managing and coordinating NRR programs and resources, and technical coordination and oversight for resolution of special technical problems, including technical assistance to the Director. The staff establishes priorities, schedules, and resource allocations; leads the budget development/execution process; manages all personnel administrative matters; prepares, reviews, and recommends administrative operating procedures, policies, and directives, and serves as the NRR interface with the Advisory Committee on Reactor Safeguards (ACRS) and the Committee to Review Generic Requirements (CRGR).

Support to Others - Direct technical assistance to other NRC offices (except the Office of Nuclear Regulatory Research and Regional Offices), other Federal agencies, and support of international technical exchange programs.

Correspondence - Respond to Freedom of Information Act and Privacy Act requests and to other inquiries from the Administration, Congress, other Federal and State agencies, and the general public.

In FY 1984 and FY 1985, NRR Headquarters will continue to provide the policy management, direction, technical and administrative assistance needed to ensure that the programs functions are carried out efficiently and effectively; provide on a limited basis technical manpower support as requested; and continue to respond, in a timely manner, to the large volume of correspondence.

Staffing increases result from increases to the Regional support staffs as NRR functions such as licensing actions and operator licensing examinations are decentralized.

(Dollars in Thousands, except whole dollars in narrative material; Staff in Full-Time Equivalent)

Nuclear Regulatory Commission - continued

Inspection and Enforcement Programs..... $92,190

SUMMARY OF INSPECTION AND ENFORCEMENT PROGRAM ESTIMATES BY FUNCTION

Total Program:	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
Salaries and Benefits	$ 40,236	$47,240 [1/]	50,510
Program Support	13,059	16,535	21,700
Administrative Support	10,660	13,170	14,680
Travel	4,532	5,000	5,300
Total Obligations	$ 68,487	$ 81,945	$ 92,190
(Staff)	(948)	(1,011)	(1,067)

The Inspection and Enforcement staff requirements and program support funding requirements have been allocated to major programs as shown below. The narrative that follows provides justification to support these requirements.

	Actual FY 1983		Estimate FY 1984		Estimate FY 1985	
	Dollars	Staff	Dollars	Staff	Dollars	Staff
Reactors Under Construction	$ 4,163	(269)	$ 5,860	(280)	$ 6,050	(264)
Reactors in Operation	5,080	(308)	6,069	(372)	9,400	(431)
Fuel Facilities, Safeguards, Materials and Waste Management	737	(91)	834	(89)	1,400	(88)
Enforcement, Technical Support and Incident Response	2,074	(126)	1,896	(115)	2,550	(126)
Specialized Technical Training	1,005	(17)	1,826	(17)	2,250	(17)
Management Direction and Support	0	(137)	50	(138)	50	(141)
TOTALS	$13,059	(948)	$16,535	(1,011)	$21,700	(1,067)

[1/] Includes $618,000, for FY 1984 Pay Raise Supplemental.

(Dollars in Thousands, except whole dollars in narrative material; Staff in Full-Time Equivalent)

Inspection and Enforcement Programs - continued

The purpose of the Inspection and Enforcement (IE) Program is to ensure that facilities and materials under NRC jurisdiction are constructed, operated, and used in a manner which protects the public health and safety, and the environment, and to take prompt and vigorous enforcement action against licensees who do not comply with NRC regulations. Workload primarily consists of: (1) nuclear power plants under construction, being tested, or in commercial operation and non-power (test and research) reactors; (2) fuel facilities and nuclear materials licensees; and (3) nuclear steam system suppliers, nuclear architect/engineers and other major nuclear system component suppliers.

The Inspection and Enforcement Program is conducted by the NRC Headquarters, Office of Inspection and Enforcement (OIE) and NRC's five Regional Offices. The majority of program staff are located in the Regional Offices. OIE has the responsibility for inspection policy and program development and appraisal assessment of Regional program implementation, appraisal inspections to determine licensee and Regional performance, enforcement policy and enforcement program implementation with particular emphasis on escalated enforcement actions, evaluation of licensee events, response to incidents by managing the NRC Operations Center, emergency preparedness including coordination with the Federal Emergency Management Administration (FEMA) and emergency preparedness licensing of reactors, specialized technical training, Quality Assurance (QA) and technical support to the Regions. The Regional component has the responsibility for implementation of the inspection program, initiation of certain enforcement actions, conduct of systematic assessment of licensee performance (SALP), performance of emergency preparedness annual reviews, response to incidents by dispatching personnel to the site in question, and provision of technical support to the Office of Investigations.

Regional implementation of the inspection program is conducted under two basic formats: (1) scheduled, preventive 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 assure the adequacy of licensee response to incidents and accidents or to assess licensee compliance with special requirements imposed through bulletins, orders, etc.; to review licensee event reports; and to respond to allegations of poor licensee performance.

Enforcement is jointly carried out by OIE and the Regions (a) to ensure compliance with NRC regulations and license conditions; (b) to obtain prompt correction of noncompliance; (c) to deter further noncompliance; and (d) 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. Sanctions available to the NRC include notices of violation, civil monetary penalties, orders to cease and desist, and orders to suspend, modify or revoke licenses. NRC emphasizes prompt and vigorous enforcement. Licensees who are unable or unwilling to comply or whose operations represent a threat to the public health and safety will not be permitted to operate.

(Dollars in Thousands, except whole dollars in narrative material; Staff in Full-Time Equivalent)

Inspection and Enforcement Programs - continued

Response to incidents/accidents is carried out jointly by OIE and the Regions. When necessary, the NRC Operations Center in Headquarters is activated and an Emergency Response Team from the Regions is dispatched to the site to (a) monitor and evaluate the situation; and (b) provide advice/information to the licensee, FEMA, state/local government officials, other federal agencies and the public. The NRC Operations Center is continuously staffed to receive calls of reportable events and allegations; to determine, in consultation with Regional and Headquarters management, the appropriate immediate action; and to pass appropriate items to the Regions for follow-up.

Major resource changes are related to: increased operational reactor workload, partially offset by a decrease in the workload for reactors under construction; new initiatives such as identification and inspection of selected facilities requiring more than normal inspection effort; independent design inspections for reactors under construction; and increased enforcement.

Reactors Under Construction	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
	$ 4,163	$ 5,860	$ 6,050
	(269)	(280)	(264)

IE resources associated with the Reactors Under Construction program are for developing and implementing the reactor and vendor/contractor inspection programs and policies related to reactors under construction; conducting Construction Appraisal Team (CAT) inspections and Independent Design Inspections (IDI); Emergency Preparedness and Quality Assurance license reviews; recommending changes in licenses and standards; and notifying licensees of generic problems at reactors under construction. Most of the resources for this program are Regional resources applied to: design, engineering and safety inspections at power reactors under construction; engineering, safety, health physics, emergency preparedness and safeguards inspections at power reactors in preoperation testing; and inspection of licensee contractor and vendor activities.

The Reactors Under Construction inspection program consists of both scheduled preventive and unscheduled reactive inspections by Resident and Region-based inspectors. Resident Inspectors provide a degree of direct verification of licensee performance through direct observation and independent measurements. Region-based inspectors provide in-depth, specialized, technical inspections and follow-up to allegations.

Nuclear reactors inspected under this program are those in early construction (first two years); mid-construction (third and fourth years); late construction (fifth and sixth years); and those in pre-operational testing.

(Dollars in Thousands, except whole dollars in narrative material; Staff in Full-Time Equivalent)

Inspection and Enforcement Programs - continued

Reactor workload in reactor years is displayed below:

	FY 1983	FY 1984	FY 1985
Early Stage Construction	4	2	2
Mid Stage Construction	11	9	6
Late Stage Construction	22	16	8
Pre-operation Test	16	15	18
CRBR	1	0	0

In FY 1983, 100% coverage by resident inspectors was continued at active construction sites having 15% or more of construction work completed. The table below indicates the number of construction resident inspectors budgeted:

FY 1983	FY 1984	FY 1985
33	29	20

In FY 1985, OIE and the Regions will continue to conduct initial emergency preparedness license reviews for reactor near-term operating applicants. Emergency preparedness plans for construction permit applicants are also reviewed for conformance to rules and regulations and input to the Safety Evaluation Report is prepared.

OIE is responsible for the NRC QA program which includes developing improved NRC policies and inspection programs, preparing QA licensing input for near term operating license applicants, and developing QA regulatory guides and standards. In FY 1984, OIE will continue the QA study mandated by Public Law 97-415, Section 13 (NRC's FY 1982-1983 Authorization), and submit a report to Congress by April 1984. The Long Term QA Review will continue in FY 1985 with increasing effort being shifted to QA at reactors in operation. Increased emphasis is being placed on QA inspections in the Regions commencing in FY 1984, and will continue through FY 1985 with new inspections of reactor Heating, Ventilating, and Air Conditioning systems; increase inspections of pipe supports/restraints; increase inspection of "as-built" turnover inspections; increase inspection of the qualifications of craft workers and training programs at reactors under construction; and review of licensee QA program changes.

To avoid duplication of effort and effectively utilize available NRC resources, OIE is continuing development of programs with the Institute of Nuclear Power Operations (INPO) and the American Society of Mechanical Engineers (ASME) for oversight of third-party inspections and evaluation reports.

The CAT program provides a focus on licensee performance to determine inspection program effectiveness and to assess the quality of nuclear power plant construction on a national basis. In addition, CAT inspections are used to monitor INPO's evaluation porgram. The CAT program will continue to conduct four inspec- tions per year in FY 1984-1985.

Inspection and Enforcement Programs - continued

The IDI program provides multi-disciplinary examinations of the adequacy of the design of sample systems at reactors under construction. These examinations review adequacy and consistency as a means of measuring the effectiveness of the design process. Three IDI's are planned each year for FY 1984-1985.

The non-destructive examination (NDE) van is used by the Regions to perform ultrasonic, magnetic particle, fluoroscopic and other NDE examinations of welds, metallic surfaces, concrete samples, and piping. The van will be used mainly for verification of the technical accuracy of construction work at sites where significant allegations have been made and where the routine inspection program identifies a breakdown in the licensees' quality assurance program. In FY 1984-1985, the NDE van will be used for approximately 13 site visits per year.

Vendors and contractors who supply components and materials to reactors under construction are inspected by OIE. Inspectors review documented procedures, interview personnel, and examine both design and hardware, determining if adequate quality control procedures have been prepared and are being followed. Licensees remain responsible for final product acceptance.

The number of planned vendor and contractor inspections are as follows:

Preventive	FY 1983	FY 1984	FY 1985
Reactor System	30	30	30
Components	100	40	50
Equipment Qualification	20	60	60
Reactive	146	160	170

Program support funds in FY 1985 will be used to conduct independent measurement of the composition, strength and fracture toughness of material samples; to conduct ultrasonic, radiographic and metallurgical tests of welds and joints used in reactor construction; and to provide technical assistance in support of the expanded QA inspection program, IDI, and CAT. Program support funds will also provide highly specialized contractor assistance to the Regions, concentrated NDE at selected construction sites using the NDE van, environmental qualification of safety-related equipment and inspection technical support at the Midland and Zimmer sites.

Staffing in FY 1985 decreases as reactors under construction shift to reactors in operation; however, this decrease is partially offset by increases to implement QA inspection initiatives and for IDI's. Funding increases in FY 1985 provide for increased inspection technical support at the Midland and Zimmer sites.

(Dollars in Thousands, except whole dollars in narrative material; Staff in Full-Time Equivalent)

Inspection and Enforcement Programs - continued

Reactors in Operation	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
	$ 5,080	$ 6,069	$ 9,400
	(308)	(372)	(431)

OIE resources associated with the Reactors in Operation program are for developing and implementing the inspection program, assessing Regional implementation, conducting Performance Appraisal Team (PAT) inspections, developing and coordinating third-party inspection programs and agreements, recommending changes in licenses and standards, analyzing operational events, and notifying licensees of generic safety problems and required preventive actions. The majority of resources for this program are Regional staff who conduct safety, health physics, safeguards, engineering and emergency preparedness inspections at power reactors with an operating license.

The inspection program consists of both scheduled preventive and unscheduled reactive inspections. Nuclear reactors inspected are: power reactors in start-up testing and commercial power operation; and non-power (test and research) reactors. The inspection program will continue to place emphasis on direct observation of plant operations at each nuclear reactor unit. A significant portion of this effort is performed by resident inspectors. Inspection program emphasis for the resident inspectors is placed on observation of licensee practices and operational safety verification. Region-based inspectors provide in-depth, specialized, technical inspections and follow-up to allegations.

Operating reactor workload as of end of the fiscal year is displayed below:

	FY 1983	FY 1984	FY 1985
Power Reactor Units	80	97	107
Non-power Reactor Units	84	84	84

Operations resident inspectors are assigned to all sites having one or more power units in operation or pre-operational testing. The table below indicates the number of operations resident inspectors budgeted:

FY 1983	FY 1984	FY 1985
98	106	113

(Dollars in Thousands, except whole dollars in narrative material; Staff in Full-Time Equivalent)

Inspection and Enforcement Programs - continued

Intensive inspections of reactors undergoing outages for safety modifications and repair will continue to be conducted in FY 1985. Increased engineering inspection effort is required to verify licensee quality control measures during these outages.

In response to licensee QA program inadequacies identified as a result of the incidents at Salem in February 1983, additional effort is being expended in review of licensee QA and maintenance programs as well as increased inspection of vendor/contractor QA programs commencing in FY 1984.

The PAT program focuses on inspection program effectiveness and licensee performance from a national perspective. OIE staff conduct comprehensive inspections and compare their results to those documented in Regional inspections. In addition, PAT inspections are used to monitor INPO's evaluation program. Three PAT inspections will be conducted per year in FY 1984-1985.

Program support funds will continue to be used to provide contractual assistance in developing and applying techniques for evaluation of the inspection program, and to support Regional inspection activities and contracts with certain states. These contracts include aerial radiological surveys at reactor sites, confirmatory independent measurements, state environmental monitoring of reactor sites, technical assistance in the performance of evaluations of licensee response and compliance with operating safety bulletins, and the thermoluminescent dosimeter network, an offsite radiation measurement program. Commencing in FY 1985, additional program support funds will be used to provide technical inspection assistance at reactors which require in-depth review and analysis.

Staffing increases ir FY 1985 are due to increased operating reactor workload. Funding increases in FY 1985 provide for technical inspection support at selected facilities requiring more than normal inspection effort, inspection support during outages, inspection support for QA inspections, and technical support for observation and evaluation of emergency preparedness exercises.

Fuel Facilities, Safeguards, Materials and Waste Management	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
	$ 737	$ 834	$ 1,400
	(91)	(89)	(88)

IE resources associated with the Fuel Facilities, Safeguards, Materials, and Waste Management program are for developing, and implementing the radiological safety and safeguards inspection program for fuel facilities, materials licensees, nuclear waste management, and transportation of radioactive materials; assessing Regional implementation; administering inspection programs and policies; recommending changes in licenses and standards; and notifying licensees of generic problems.

Inspection and Enforcement Programs - continued

The majority of resources for this program are Regional staff who conduct three types of preventive and reactive inspections: (1) radiological safety inspections (including transportation); (2) material control and accounting (MC&A) inspections, designed to assess if the licensees are adequately controlling and accounting for special nuclear material (SNM) in their possession; and (3) physical security inspections, designed to assure that licensees are adequately protecting facilities and shipments and their contents against theft, diversion and sabotage.

Licensees inspected include fuel facilities, i.e., uranium mills, uranium hexafluoride (UF-6) facilities, fuel processing and fabrication facilities, spent fuel reprocessing facilities, and fuel and radioactive waste storage and disposal facilities; materials licensees which possess and use byproduct, source and SNM in radiography, medical, academic, research and industrial applications; and licensees who transport SNM or irradiated reactor fuel.

The Fuel Facilities and Materials Inspection Program workload is displayed below:

	FY 1983	FY 1984	FY 1985
Fuel Facilities			
Uranium Fuel Fabrication	15	15	15
Advanced Fuel, R&D and Pilot Facilities	12	12	12
UF-6	2	2	2
Spent Fuel Storage	2	3	4
Uranium Mills	17	17	17
Material Licensees to be Inspected	1,940	2,415	2,415

The safeguards portion of the inspection program includes a Resident Inspector at the Nuclear Fuel Services plant in Erwin, Tennessee.

Inspection of the low level waste requirements of 10 CFR 61, begun in FY 1984, will continue in FY 1985.

Commencing in FY 1985, OIE will develop inspection policies, strategies and program requirements for NRC inspections in response to the Nuclear Waste Policy Act (NWPA) of 1982. The inspection of dry cask storage of spent reactor fuel will commence in FY 1985.

Funds will provide replacement parts for Regional fixed laboratories and for environmental monitoring vans which are an integral part of NRC's independent measurement program, and in FY 1985 will replace the existing van in Region II.

Staffing decreases in FY 1985 are due to reduced level of inspection effort at fuel facilities.

(Dollars in Thousands, except whole dollars in narrative material; Staff in Full-Time Equivalent)

Inspection and Enforcement Programs - continued

Funding increases in FY 1985 will provide technical assistance in the development and implementation of the inspection program for dry storage casks consistent with NWPA.

Enforcement, Technical Support, and Incident Response	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
	$ 2,074	$ 1,896	$ 2,550
	(126)	(115)	(126)

OIE resources associated with the Enforcement, Technical Support, and Incident Response program include: all enforcement activities; conducting the systematic assessment of licensee performance (SALP), emergency response coordination, technical support to the Office of Investigations, and laboratory technical analysis; screening and evaluating events, identification and oversight of selected facilities requiring more than normal inspection effort, preparation and issuance of generic communications; and incident response program development and maintenance, including the NRC Operations Center and it's duty officers.

The goal of the NRC Enforcement Program is to assure licensee compliance with all NRC regulations. Notices of violation, civil penalties and orders are issued, as appropriate, to assure safety and compliance.

OIE reviews all reactor, fuel facility and material licensee events as reported by Licensee Event Reports and as reported to the NRC Operations Center for appropriate immediate action and for generic response. IE Headquarters also reviews all Construction Deficiency Reports, as required by 10 CFR 50.55(e); all reports of defects and noncompliances, as required by 10 CFR 21; daily reports or other items reported by the Regions. These total over 10,000 reports per year. After analysis, information is distributed to the Regions and licensees by NRC through issuance of notices, bulletins, and press releases. As appropriate, recommended or required actions are specified; follow-up inspection procedures are issued; and inspection findings are provided to the Commission, other NRC offices, other government agencies, licensees and the public.

The SALP program is a comprehensive, periodic appraisal by the NRC staff of power reactor licensees. It is designed to improve licensee performance, improve the NRC regulatory performance by determining which areas need increased inspection emphasis, and provide a basis for management allocation of NRC resources.

The objectives of the NRC Incident Response Program are to assure that the NRC is prepared to respond quickly to any incident, involving or affecting NRC licensees, for the purposes of protecting the health and safety of the public and of preserving environmental quality; and to assure that the NRC is prepared to cooperate fully with state, local and other Federal agencies. This

Inspection and Enforcement Programs - continued

is accomplished through coordinated Headquarters and Regional efforts. The hub of NRC's incident response program is the NRC Operations Center which is managed and operated 24 hours per day 7 days per week by IE. In an emergency, teams from IE and other NRC offices would analyze an incident from the NRC Operations Center while Regional teams would be dispatched to the actual emergency site to provide assistance in accordance with NRC's Incident Response Plan.

In support of the NRC's Office of Investigations, Regional inspectors assist investigators by providing technical expertise and forensic engineering skills to their investigations.

Staffing increases in FY 1985 are to handle the increasing number of enforcement cases, to provide for more timely processing of enforcement actions, and for identification and oversight of selected facilities requiring special attention.

Program support funds increase in FY 1985 to provide contractual support for NRC Operations Center operation, technical assistance in response to incidents and Incident Response Program development.

Specialized Technical Training	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
	$ 1,005	$ 1,826	$ 2,250
	(17)	(17)	(17)

The NRC Specialized Technical Training Program is managed by OIE and operated near Chattanooga, Tennessee. This program provides a carefully planned and balanced curriculum tailored to the specific needs of NRC technical staff. The program consists of technical courses in design, codes, technology, and operation of pressurized water reactors and boiling water reactors and other specialized courses in reactor construction, health physics and QA.

All NRC inspectors, as well as other staff, must be knowledgeable of nuclear facilities, and their associated processes and activities, as well as licensing inspection procedures within their technical purview. Technical training is provided to assure that necessary levels of knowledge are developed and maintained. Moreover, existing inspectors must be kept abreast of industry state-of-the-art. Students receive this training through: classroom instruction by NRC instructors; technology and codes courses developed and taught by contractors; simulator training by NRC instructors at TVA and other simulator facilities, enabling NRC personnel to obtain "hands on" experience; and programmed self-study training and "off-the-shelf" courses related to inspection.

In FY 1984 and FY 1985, 1,700 student-weeks of technical training for IE inspectors and NRC staff are planned.

Inspection and Enforcement Programs - continued

Program support funds will be used to provide training time on reactor simulators and for contracted courses in reactor design, technology, codes, construction practices and operation. Also, funds are for the support associated with maintaining the Technical Training Center in which the training is conducted and the classrooms and instructors are located.

Funding increases in FY 1985 will provide for increased simulator time; increased simulator leasing rates; commencement of new courses, e.g.: Advanced Health Physics and site specific simulator courses for Operator Licensing Examiners, Resident and Region-based inspectors; expansion of existing courses; and revision to QA courses.

Management Direction and Support	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
	$ 0	$ 50	$ 50
	(137)	(138)	(141)

IE resources associated with the Management Direction and Support program are used to provide overall support to Inspection and Enforcement programs. For OIE, it includes the Office of the Director and the Headquarters administrative staff. For the Regions, it includes that portion of the Regional office administration that is allocable to Inspection and Enforcement Programs.

The administrative support activities include:

Plan, budget, evaluate, and control resource utilization;
Administer contracts;
Operate and maintain office-wide management information systems;
Provide centralized headquarters administrative support
(e.g., mail distribution, word processing);
Respond to Freedom of Information Act (FOIA) requests;
Conduct studies on alternative policies and programs.

Program support funds included are for information system studies, management studies, and organization effectiveness studies.

(Dollars in Thousands, except whole dollars in narrative material;
Staff in Full-Time Equivalent)

Nuclear Regulatory Commission - continued

Nuclear Material Safety and Safeguards Programs..... $43,520

Summary of Nuclear Material Safety and Safeguards Programs
Estimates by Function

Total Program	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
Salaries & Benefits	$ 14,013	$ 16,060[1/]	$ 16,400
Program Support	16,140	17,175	20,200
Administrative Support	3,855	6,270	6,010
Travel	612	850	910
Total Obligations	$ 34,620	$ 40,355	$ 43,520
Staff	(319)	(346)	(361)

In accordance with the Atomic Energy Act of 1954, as amended, the National Environmental Policy Act of 1969, the Energy Reorganization Act of 1974, and the Nuclear Waste Policy Act of 1982, the Office of Nuclear Material Safety and Safeguards (NMSS) has the primary objective of ensuring adequate protection of the public health and safety and the environment in the design, siting, construction, and operation of nuclear fuel cycle facilities including nuclear waste storage and disposal facilities, and the utilization and transportation of nuclear materials. NMSS is responsible for performing the safety, environmental, and safeguards reviews of applications for fuel cycle facility licenses, and the amendment and renewal of such licenses. NMSS is also responsible for licensing the utilization of nuclear materials and for regulating the design of containers, as required by 10 CFR 71, used for transporting nuclear materials. In addition, NMSS is responsible for conducting reviews of the safeguards plans for power and non-power reactors.

Organizationally, the NMSS regulatory and licensing effort is divided among the three NMSS divisions and the NRC Regional Offices. Functionally, the personnel and program support funding requirements to meet these responsibilities are allocated to the three major NMSS programs: Fuel Cycle Facility and Nuclear Material Safety, Safeguards, and Waste Management. These programs are supported by the Management Direction and Support Program. The narrative that follows provides justification for the NRC Headquarters and Regional Office resources required to implement each program. The Nuclear Waste Policy Act of 1982 (NWPA) has significantly increased the NMSS resource requirements during the budget years. Activities associated with NWPA are highlighted in the following narrative.

1/ Includes $210,000 for FY 1984 Pay Raise Supplemental.

(Dollars in Thousands, except whole dollars in narrative material;
Staff in Full-Time Equivalent)

Nuclear Material Safety and Safeguards - continued

	Actual FY 1983		Estimate FY 1984		Estimate FY 1985	
	Dollars	Staff	Dollars	Staff	Dollars	Staff
Fuel Cycle Facility and Nuclear Material Safety Program						
Fuel Cycle Facility Safety	$ 1,809	(38)	$ 2,515	(37)	$ 3,100	(39)
Transportation Safety	733	(17)	500	(19)	1,300	(19)
Nuclear Material Safety	494	(52)	400	(46)	200	(46)
Subtotal	$ 3,036	(107)	$ 3,415	(102)	$ 4,600	(104)
Safeguards Program						
Reactor Safeguards	$ 1,081	(35)	$ 1,000	(35)	$ 1,150	(40)
Fuel Cycle Facilities Safeguards	1,317	(33)	900	(26)	850	(24)
Safeguards Transportation & Export	1,477	(17)	1,780	(15)	2,030	(13)
Subtotal	$ 3,875	(85)	$ 3,680	(76)	$ 4,030	(77)
Waste Management Program						
High-Level Waste Management	$ 5,810	(47)	$ 6,300	(80)	$ 7,700	(97)
Low-Level Waste Management	2,132	(26)	2,000	(28)	2,350	(24)
Uranium Recovery	1,287	(29)	1,680	(32)	1,420	(30)
Subtotal	$ 9,229	(102)	$ 9,980	(140)	$11,470	(151)
Management Direction & Support Program	$ 0	(25)	$ 100	(28)	$ 100	(29)
Totals	$16,140	(319)	$17,175	(346)	$20,200	(361)

(Dollars in Thousands, except whole dollars in narrative material;
Staff in Full-Time Equivalent)

Nuclear Material Safety and Safeguards - continued

Fuel Cycle Facility Safety

	FY 1983	FY 1984	FY 1985
	$ 1,809	$ 2,515	$ 3,100
	(38)	(37)	(39)

The resources requested for Fuel Cycle Facility Safety provide for the licensing and regulation of uranium fuel fabrication facilities, advanced fuel R&D facilities, uranium hexafluoride production facilities, storage of fresh fuel at reactors, storage of low-level waste at reactors, interim "out of reactor pool" storage of spent fuel at reactor sites, and independent spent fuel storage facilities. Fuel Cycle Facility Safety also includes the remedial action program whereby formerly licensed sites which have residual radioactive contamination are identified and controlled, and performs safety overview of the DOE demonstration project at West Valley, New York, under the provisions of the West Valley Demonstration Project Act.

The major accomplishments planned are:

(1) Complete approximately 110 licensing cases in FY 1984 and approximately 115 in FY 1985. These licensing cases include safety reviews of topical reports submitted by vendors for proposed dry spent fuel storage casks as well as safety and environmental reviews for the facilities delineated above.

(2) In FY 1984-1985 in support of the NWPA, review and comment on DOE's Monitored Retrievable Storage Facility (MRS) proposal and complete in FY 1985 revisions to 10 CFR 72 for MRS licensing.

(3) Continue review of decontamination and decommissioning activities at sites formerly used for processing nuclear materials and assure they are appropriately decontaminated before being released for unrestricted use, to enable completion of this work in FY 1985.

(4) Assess the adequacy of offsite emergency preparedness plans filed by fuel cycle and materials licensees under regulations presently being developed to enable completion of this work in FY 1986.

(5) In FY 1984-1985, continue close coordination with DOE on demonstrations and research efforts for spent fuel dry storage technologies required by the NWPA.

(6) Continue to consult with DOE regarding the DOE plan and safety analysis report for the West Valley high level waste solidification project.

(7) As required by the NWPA, continue development of decommissioning, decontamination, stabilization, and financial criteria and standards for sites containing low-level radioactive waste resulting from licensed activities to recover zirconium, hafnium, and rare earths from source material. This work will be completed in FY 1986.

(Dollars in Thousands, except whole dollars in narrative material;
Staff in Full-Time Equivalent)

Nuclear Material Safety and Safeguards - continued

Resource increases from FY 1984 to FY 1985 result primarily from the NWPA requirements.

Transportation Safety	FY 1983	FY 1984	FY 1985
	$ 733	$ 500	$ 1,300
	(17)	(19)	(19)

The resources requested for Transportation Safety provide for the safety review and certification of containers proposed for transportation of nuclear materials as required by 10 CFR 71. They also provide for the certification of dry spent fuel storage cask designs for use as transport containers, the assessment of safety and environment related transportation issues associated with confirming the safety requirements applicable to high-level waste and spent fuel transportation and storage container designs, and the MRS.

The major accomplishments planned are:

(1) Complete approximately 70 licensing cases per year in FY 1984-1985.

(2) Continue to maintain a registry of licensed containers and container users.

(3) Continue to maintain criticality, shielding, structural engineering and heat transfer computer programs and data base required to evaluate container designs.

(4) Review the proposed revisions to the International Atomic Energy Agency (IAEA) transportation regulations scheduled for issue in 1984 and formulate revisions to 10 CFR 71, as appropriate, in the interest of maintaining compatibility between domestic and international regulations.

(5) Consult with and advise industry, DOE, DOT, and State and local governments on transportation aspects of the MRS. Evaluate DOE and industry designs for transportation casks for high-level waste and spent fuel transport. Assess environmental and safety related transportation issues associated with certifying dry spent fuel storage casks for use as transport containers.

Program support increases from FY 1984 to FY 1985 result from the NWPA requirements.

(Dollars in Thousands, except whole dollars in narrative material;
Staff in Full-Time Equivalent)

Nuclear Material Safety and Safeguards - continued

Nuclear Material Safety	FY 1983	FY 1984	FY 1985
	$ 494	$ 400	$ 200
	(52)	(46)	(46)

The resources requested for Nuclear Material Safety provide for the licensing and regulation of the industrial, academic, and medical use of nuclear materials. Industrial uses of nuclear materials include radiography, gauges, gas chromatography, well logging, and smoke detectors. Academic institutions use radioactive materials for education and biomedical research. Nuclear medicine involves both diagnostic procedures and therapeutic treatment of patients.

The major accomplishments planned are:

(1) Complete approximately 5,700 licensing cases in FY 1984 and approximately 5,900 licensing cases in FY 1985.

(2) Continue to provide technical assistance to Agreement States in the assessment of license applications for which they have licensing responsibility.

(3) Continue to conduct on-site licensing evaluations in order to confirm the validity of licensing actions and to ensure that current licensing policies are both necessary and sufficient to adequately protect public health and safety with a minimum of government regulation.

(4) Complete development of the Licensing Management System in FY 1984. Improve and expand the system as required in FY 1985.

Program support decreases from FY 1984 to FY 1985 result from the completion of the development of the Licensing Management System in FY 1984.

Reactor Safeguards	FY 1983	FY 1984	FY 1985
	$ 1,081	$ 1,000	$ 1,150
	(35)	(35)	(40)

Resources requested for Reactor Safeguards provide for safeguards regulatory activities associated with U.S. power and non-power reactors, including implementation of the International Atomic Energy Agency Agreement at selected U.S. reactors, and support of U.S. efforts to strengthen and implement IAEA reactor safeguards.

The major accomplishments planned are:

(1) In FY 1984, complete reviews of safeguards plans for eight power reactor operating license (OL) applications; complete approximately 190 reviews of safeguards plan revisions for operating power reactors (OR); and complete approximately 20 reviews of safeguards plan revisions for operating non-power reactors (NPR). In FY 1985, the corresponding numbers of reviews are eight OLs, 320 ORs, and 30 NPRs.

Nuclear Material Safety and Safeguards - continued

(2) In FY 1984, complete six regulatory effectiveness reviews (RERs) to evaluate and assess the effectiveness of NRC safeguards rules and licensee safeguards programs. In FY 1985 complete 18 RERs.

(3) Analyze and resolve generic safeguards policy and technical issues applicable to power and non-power reactors, and incorporate required changes into the regulatory base.

(4) In FY 1984-1985, complete five reviews per year of design information questionnaires (DIQs) and facility attachments (FAs) in order to implement IAEA safeguards at IAEA-designated U.S. power reactors. Continue to participate in the interagency action plan working group (APWG) to strengthen IAEA safeguards and support the U.S. program to provide technical assistance to IAEA safeguards.

Resource increases from FY 1984 to FY 1985 result primarily from increased requirements for RERs and reactor licensing casework.

Fuel Cycle Facilities Safeguards

	FY 1983	FY 1984	FY 1985
	$ 1,317	$ 900	$ 850
	(33)	(26)	(24)

The resources requested for Fuel Cycle Facility Safeguards provide for the safeguards regulatory activities associated with U.S. fuel cycle facilities, including implementation of the International Atomic Energy Agency Agreement at selected U.S. fuel cycle facilities, and support of U.S. efforts to strengthen and implement IAEA fuel facility safeguards.

The major accomplishments planned are:

(1) In FY 1984, complete approximately 150 licensing cases comprising reviews of safeguards plans for fuel cycle facilities. Complete approximately 120 licensing cases in FY 1985.

(2) Analyze and resolve generic safeguards policy and technical issues applicable to fuel cycle facilities, and incorporate required changes into the regulatory base.

(3) In FY 1984-1985, complete six reviews of DIQs and FAs to implement IAEA safeguards at IAEA-designated U.S. fuel cycle facilities in FY 1984 and four in FY 1985. Continue to participate in the APWG to strengthen IAEA safeguards and support the U.S. program to provide technical assistance to IAEA safeguards.

Nuclear Material Safety and Safeguards - continued

(4) In FY 1985, implement NWPA requirements associated with safeguards for federal interim spent fuel storage facilities, monitored retrievable storage, and more effective utilization of existing reactor storage pools.

Staffing decreases from FY 1984 to FY 1985 result primarily from reduced activities associated with the development of regulatory guidance, analysis of generic safeguards policy and technical issues, and licensing casework. Program support decreases from FY 1984 to FY 1985 result primarily from reduced activities associated with material control and accounting data analysis.

Safeguards Transportation and Export

FY 1983	FY 1984	FY 1985
$ 1,477	$ 1,780	$ 2,030
(17)	(15)	(13)

The resources requested for Safeguards Transportation and Export provide for the safeguards regulatory activities associated with the transportation of nuclear materials and for the review of applications for the export of nuclear materials.

The major accomplishments are:

(1) In FY 1984, complete approximately 55 licensing cases for the transportation of nuclear materials. In FY 1985, complete approximately 50 licensing cases.

(2) In support of licensing decisions for the transportation of nuclear materials, conduct route surveys and associated contingency planning.

(3) In FY 1984-1985, complete safeguards reviews for approximately 130 applications per year for the export of nuclear materials.

(4) Analyze and resolve generic safeguards policy and technical issues associated with the transportation of nuclear materials, and incorporate required changes into the regulatory base.

(5) In support of current domestic and international nuclear material accounting information requirements, continue to support operation of the joint DOE/NRC Nuclear Materials Management and Safeguards System (NMMSS).

Staffing decreases from FY 1984 to FY 1985 result primarily from cancellation of the Integrated Safeguards Information System Material Accounting Module and a decrease in resources for export licensing data base. Program support increases in FY 1984-1985 result primarily from increased costs for NMMSS.

(Dollars in Thousands, except whole dollars in narrative material;
Staff in Full-Time Equivalent)

Nuclear Material Safety and Safeguards - continued

High Level Waste Management	FY 1983	FY 1984	FY 1985
	$ 5,810	$ 6,300	$ 7,700
	(47)	(80)	(97)

Under the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, the principal role of the NRC in high-level waste management is to provide an independent determination that DOE's execution of their responsibilities is adequately performed so as to protect the public health and safety and the environment. Under the Nuclear Waste Policy Act of 1982, NRC is mandated to undertake certain actions on a specified schedule in coordination with DOE to meet legislated dates. Among these is the requirement for NRC to issue a decision within three years on DOE's license application. The NWPA identifies procedures and schedules for the development of Federal coordination plans, promulgation of regulations, and for activities leading to and through the licensing and operation of two high-level waste repositories, as well as NRC overview of DOE's activities in developing and operating a Test and Evaluation Facility. The NRC has formulated the program needed to effectively and efficiently carry out its requirements under NWPA on a schedule that will not delay the Executive Branch's program in the absence of unresolved safety issues. The resources identified are based on the current DOE plans and schedules.

The major accomplishments planned are:

(1) Review and comment on DOE site screening activities and environmental assessments for five nominated sites.

(2) Continue extensive pre-application review of DOE's site investigations and interaction with DOE, the States, and affected Indian tribes to identify and begin the resolution of safety issues at the earliest possible date and to prepare for responding to the Site Characterization Plans.

(3) Review Site Characterization Plans (SCPs) for three potential repository sites, prepare a Site Characterization Analysis (SCA) for each, and issue the NMSS Director's comments on DOE proceeding with the described characterization of each site.

(4) Amend the high-level waste regulation (10 CFR 60) to be consistent with the NWPA and the EPA applicable environmental standards for high-level waste disposal. Technical positions on issues concerning compliance with the regulations will be prepared.

(5) Prepare a format and content guide for the DOE Preliminary Safety Analysis Report. This guide informs DOE of the information which should be provided in the application for construction authorization.

(Dollars in Thousands, except whole dollars in narrative material;
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Nuclear Material Safety and Safeguards - continued

(6) Locate NRC licensing staff on-site to observe DOE site characterization activities, thereby obtaining access to field data as it is collected and improving interaction with DOE as to the type and quality of data required for licensing.

(7) Consult with DOE on the Test and Evaluation Facility and conclude a written agreement with DOE on procedures for interaction.

(8) Continue development of technical performance assessment capabilities and guidance for license reviews in the areas of waste form and packaging, engineered barriers to radioactive material transport, and geologic setting for basalt, tuff and salt. Initiate work for crystalline rock in FY 1985.

(9) Continue to work with DOE, the technical community, and the public to develop technical guidance so that licensing information needs are established early enough to prevent delay of the Executive Branch's program.

(10) Consult with DOE on alternative approaches to managing the construction and operation of all civilian radioactive waste management facilities.

Resource increases from FY 1984 to FY 1985 result from new requirements and revised DOE schedules resulting from the NWPA.

Low-Level Waste Management	FY 1983	FY 1984	FY 1985
	$ 2,132	$ 2,000	$ 2,350
	(26)	(28)	(24)

NRC licenses low-level waste (LLW) disposal facilities in Non-Agreement States and provides requested technical assistance, as resources permit, to Agreement States in the licensing of disposal facilities within State jurisdiction. NRC also provides, as resources permit, technical assistance to States in the process of developing compacts for disposal of low-level waste. The resources requested for Low-Level Waste Management provide for these and other associated activities.

There are presently three operating commercial LLW sites in the United States, all of which are in Agreement States (Nevada, South Carolina, and Washington). The three host States, concerned about bearing the LLW disposal burden for the entire country, began restricting the use of their sites in late 1979. With the passage of the Low-Level Radioactive Waste Policy Act of 1980, Congress established as national policy that each State is responsible for assuring capacity either within or outside the State for the disposal of LLW generated within its borders; and authorizes States to form compacts, subject to Congressional approval, and to exclude waste from outside the compact after January 1, 1986.

Nuclear Material Safety and Safeguards - continued

NRC's caseload forecast for LLW disposal sites is largely based on an assessment of the progress of State compact development within the limitations of the January 1, 1986 deadline. Six compacts are currently being negotiated, and two States, Texas and California, plan to develop their own sites. Two of the compacts plan to use existing sites (Barnwell, South Carolina and Hanford, Washington). Therefore, the NRC currently expects to receive applications or requests for technical assistance for six new sites in FY 1984-1986.

The major accomplishments planned are:

(1) Review and make licensing decisions on applications for low-level waste disposal facilities. NRC expects to receive three applications by the end of FY 1986.

(2) Provide technical assistance to Agreement States, individual States entering compacts, and the State compacts. NRC expects requests from Texas in FY 1984, and from California and Colorado in FY 1985.

(3) During FY 1984-1985, continue to examine requirements for a range of near-surface and other alternative disposal methods to determine additional guidance needed for licensing such methods.

(4) As required by the NWPA, develop amendments to 10 CFR 61 dealing with financial arrangements for long-term care of LLW disposal sites and criteria for evaluating requests for transfer of LLW sites to DOE. NRC expects to publish a proposed rule in FY 1985.

Staffing decreases from FY 1984 to FY 1985 result primarily from the completion in FY 1984 of efforts to implement the new regulation, and the reduction of efforts to evaluate waste generation, processing, and storage. Program support increases from FY 1984 to FY 1985 result from increased efforts to examine a range of disposal methods for low-level waste.

Uranium Recovery	FY 1983	FY 1984	FY 1985
	$ 1,287	$ 1,680	$ 1,420
	(29)	(32)	(30)

The resources requested for Uranium Recovery provide for the licensing and regulation of uranium mills, heap leaching facilities, ore buying stations, commercial solution mining (in-situ) operations, and research and development uranium extraction projects.

The major accomplishments planned during the budget period are:

(1) In FY 1984-1985, continue to carry out statutory responsibilities for oversight of DOE on their uranium mill tailings remedial action program.

Nuclear Material Safety and Safeguards - continued

(2) In FY 1984-1985, complete approximately 70 licensing cases per year for uranium recovery facilities.

(3) In FY 1984-1985, review over 100 monitoring and inspection reports per year and assess the need for additional generic license conditions or regulatory guidance to improve licensee performance.

(4) In FY 1984-1985, provide technical assistance to Agreement States in completing licensing cases for which they have licensing responsibility. NRC expects to receive three requests in FY 1984 for such assistance and two requests in FY 1985.

(5) In FY 1984-1985, develop regulatory guidance needed by licensees, applicants, Agreement States, and the NRC staff. Approximately 15 new or revised guides are planned covering such topics as monitoring and data requirements for evaluating groundwater systems at mills and in-situ operations, decommissioning and monitoring criteria for mill and in-situ facilities, stabilization and erosion protection for disposal sites, and criteria for long-term government ownership of disposal areas.

(6) Revise 10 CFR 40 as necessary to conform to final EPA standards which were issued September 30, 1983 (PL 97-415). NRC conforming actions are required by March 31, 1984.

Resource decreases from FY 1984 to FY 1985 result from reduced rulemaking and licensing support efforts.

Management Direction and Support

	FY 1983	FY 1984	FY 1985
	$ 0	$ 100	$ 100
	(25)	(28)	(29)

The resources requested for Management Direction and Support provide for the NMSS Director's office, the NMSS program support staff, and a pro rata share of Regional program support staffs.

The major accomplishments planned are:

(1) Provide policy guidance and management direction for NMSS programs.

(2) Provide to the NMSS Director and Regional Administrators, at their request, independent assessments of selected technical programs, proposals and other management issues which include the proposed annual budget submission, proposed mid-year financial reprogramming, executive program analysis reports, congressional budget testimony and responses to congressional inquiries.

Nuclear Material Safety and Safeguards - continued

(3) Continue to manage the Program Planning and Status Assessment System and provide appropriate management information reports to NMSS management and the EDO staff.

(4) Continue to provide required support services in the areas of procurement, administration, and personnel to the NMSS Director and Regional Adminstrators.

Staffing increases from FY 1984 to FY 1985 result from increases to the Regional support staffs as NMSS functions are decentralized.

(Dollars in Thousands, except whole dollars in narrative material;
Staff in Full Time Equivalent)

Nuclear Regulatory Commission - continued

Nuclear Regulatory Research $168,415

Summary of Nuclear Regulatory Research Estimates by Function

Total Program	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
Salaries & Benefits	$ 13,223	$ 12,730[1/]	$ 12,760
Program Support	189,315	173,037	151,000
Administrative Support	4,060	4,370	3,930
Travel	697	725	725
Total Obligations	$207,295	$190,862	$168,415
Staff	(268)	(244)	(244)

The Nuclear Regulatory Research personnel and program funding requirements have been allocated to major programmatic functions as shown below. The narrative that follows provides justification in support of these requirements.

	Actual FY 1983		Estimate FY 1984		Estimate FY 1985	
	Dollars	Staff	Dollars	Staff	Dollars	Staff
Reactor & Facility Engineering	$ 35,300	54	$ 37,606	52	$ 39,400	52
Facility Operations	11,769	49	12,885	35	8,800	35
Thermal Hydraulic Transients	22,775	9	27,500	11	21,000	11
Siting & Health	8,311	26	8,400	20	6,500	20
Risk Analysis	13,935	53	16,200	48	15,900	48
Accident Evaluation & Mitigation	57,116	22	51,500	25	44,500	25
Loss-of-Coolant Accidents	27,834	10	10,000	7	5,500	7
Waste Management	12,275	22	8,946	22	9,400	22
Management Direction & Support	0	23	0	24	0	24
Totals	$189,315	268	$173,037	244	$151,000	244

The Office of Nuclear Regulatory Research has the responsibility and authority under the Energy Reorganization Act of 1974 to perform research in support of the nuclear regulatory process. A basic objective of the research program is to develop a sound and complete base of technical information on basic safety issues and an independently verified source of safety, health, and environmental information to be used together with information furnished by applicants or licensees as a basis for licensing and regulatory decisions. An important part of this activity is the development of safety data and analytical methods to support Commission rulemaking activities and policy determinations, and the formulation of rules and regulatory requirements for Commission consideration.

[1/] Includes $164,000 for FY 1984 Pay Raise Supplemental.

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Nuclear Regulatory Research - continued

This Office also provides the principal interface between NRC and other organizations involved in the national standards effort.

The highest priority for research efforts is the safety of operating light water reactors followed by plants under construction with proposed standard designs being treated as a subset of current designs. The program is being conducted with fewer resources, which requires the application of business-like methods such as the consolidation of programs with industry. As part of this effort, programs at government-owned NRC experimental facilities are being examined and defined to establish cost-effective end points. There are no current plans for sole NRC sponsorship of the construction or operation of any new large facilities. To fill any needs requiring a new facility, joint or coordinated research programs with industry groups, other government agencies, and foreign groups are being pursued, both to expand the technical breadth provided to projects and to maximize the benefit to be derived from limited resources.

Reactor and Facility Engineering	FY 1983	FY 1984	FY 1985
	$35,300	$37,606	$39,400
	(54)	(52)	(52)

The Reactor and Facility Engineering Research program is directed at ensuring the safety of operating plants and involves the qualification, operation, and repair of structures and components. This program addresses the need to develop tools and data for the reevaluation of operating plants for conditions not anticipated when the plants were originally approved to ensure continued safety.

Equipment relied upon to ensure plant safety must remain functional for its entire range of operations including abnormal conditions such as accidents and severe natural phenomena. Thus it is essential that the methods used to qualify this equipment be demonstrated to be acceptable. Research is being conducted to validate the adequacy of qualification methodologies in current standards and to develop generic criteria and methods to verify the adequacy, including margins, of safety equipment based on industry qualification testing.

Containment design technology was developed on the basis of ensuring essentially leak-tight performance under design basis accident conditions. No explicit consideration was given to performance under severe accidents. The planned research program emphasizes experiments that will permit validation of analytical methods to predict the behavior of the containment, including penetrations, when subjected to severe accident loads.

During FY 1985, expanded experimental results will be obtained for comparison with predictions of the capacity of steel containments under dynamic loads. Tests will be performed to validate methods for predicting leaks at major containment penetrations as a function of pressure-temperature environments, and

criteria will be developed for structural load combinations for seismic Category I structures. The results of this experimental program is expected to be used by the NRC and industry groups such as the Electric Power Research Institute to validate analytical methods. Uncertainty in seismic analysis as applied to operating reactors is a fundamental issue which includes the analytical modeling of the response of piping systems and structures to seismic motions. In the past the NRC has developed the needed analytical codes and in FY 1985 RES will increase work involved with model validation through a comprehensive experimental program. This is a necessary step prior to general application of these models.

Safety-related structures and components will degrade with the passage of time. Since their continued integrity is essential for safety, research is directed toward developing and validating analytical techniques necessary to ensure that adequate safety margins exist for these structures and components over their anticipated lifetimes. This research covers vessels, piping and steam generators, and nondestructive examination.

A systematic research program has been instituted to develop methods for monitoring equipment degradation so that significant functional degradation can be anticipated and corrected before failure occurs. Of particular concern is the probability of simultaneous failure of safety equipment that are designed to operate independently to ensure no single failure will compromise plant safety.

Research on service-related degradation constitutes a significant part of the Reactor and Facility Engineering program. Pressurized thermal shock experiments to be conducted in FY 1985 will be used to update and validate the techniques used in the licensing process to evaluate possible failure modes in pressure vessels. Work will be completed on the correlation of fracture toughness between small surveillance specimens and material taken from an actual pressure vessel wall.

Testing of large-scale degraded and cracked pipes will be expanded in FY 1985 to provide a data base for regulatory decisions on industry-proposed fixes for pipe cracking. This effort will contribute to evaluations of ways to reduce intergranular stress corrosion cracking in boiling water reactor (BWR) piping.

A steam generator inservice inspection plan will be completed in FY 1985 and validated in subsequent years. This work is based largely on studies of eddy-current inspection reliability and flaw distribution in a steam generator that has been removed from service. Validation of an improved ultrasonic test flaw-sizing method (SAFT-UT) for volumetric inspection will also be completed and submitted to the ASME Code Committee to be considered for inclusion in the ASME code. Acoustic emission, an on-line monitoring method, will be validated for flaw detection in FY 1985.

The equipment qualification program will develop and evaluate methods of qualifying electrical and mechanical components for operability during and

Nuclear Regulatory Research - continued

after an accident or earthquake to ensure that the plant can be shut down and then maintained in a safe condition. Planned accomplishments in FY 1985 include completing tests on isolation and purge valves and evaluating the effects of scaling for use in developing improved qualification criteria for mechanical equipment. Also to be undertaken are qualification assessment of equipment removed from TMI-2 and qualification tests of prototype electric motors and valve actuators to evaluate qualification procedures and to identify potential failure modes under accident conditions.

Facility Operations	FY 1983	FY 1984	FY 1985
	$11,769	$12,885	$ 8,800
	(49)	(35)	(35)

Facility Operations Research is primarily concerned with control systems and human performance. Issues of plant operation are the effects of human errors on plant safety, the correlation between qualification and training of operating personnel and reactor safety with an emphasis on identifying areas of maximum safety impact, and the adequacy of plant control information systems in operator decisionmaking. Plant instrumentation and control issues being addressed are the safety implications of control system failure including non-safety systems and the detection and diagnostics for providing early detection of impending component failures. In light of current licensing activity, work on advanced instrumentation and control concepts will be limited in FY 1985. Efforts to develop criteria for training and qualification of personnel and to improve the design of control room equipment will continue.

The information developed as part of the severe accident analysis program will be used to identify the plant indicators most appropriate to be used as the basis for determining emergency action levels. An assessment of the safety implications of control systems for typical operating LWRs will be completed in FY 1985. In FY 1985, research needed to address specific issues of human factors in safety/safeguards interactions identified in the NRC Safety/Safeguards Task Force Report will continue.

Although the occupational exposure program has been reduced, sufficient funding remains to allow for our active participation with industry, the Electric Power Research Institute (EPRI), and the Institute of Nuclear Power Operations (INPO) to encourage the implementation of all available technology in support of further reductions in occupational exposure levels through implementation of the as-low-as-reasonably-achievable (ALARA) concept.

Thermal Hydraulic Transients	FY 1983	FY 1984	FY 1985
	$22,775	$27,500	$21,000
	(9)	(11)	(11)

Nuclear Regulatory Research - continued

The Thermal Hydraulic Transients program deals with abnormal reactor system conditions. Operator actions or errors, equipment malfunctions, and inadvertent actuation of plant control systems are typical causes of abnormal operating transients. While the transients themselves may not be serious, they have the potential to lead to a severe accident. The manner in which the reactor coolant system behaves under transient conditions is predicted by computer codes using mathematical models that describe the system behavior. These models are developed from data obtained through the experimental test programs. Unique design features of each nuclear plant vendor make it necessary to develop programs that address specific safety concerns associated with each reactor design.

In FY 1985, thermal hydraulic transients having potential for core uncovery or overcooling will continue to be experimentally investigated using large electrically heated engineered facilities that simulate power reactor configurations. These facilities are Semiscale, Full Integral Simulation Test (FIST), and Multi Loop Integral System Test (MIST). Transient testing will simulate breaks in the steam generator feedwater lines and steam lines and transitions from one emergency operating mode to another to stabilize plant conditions. Data from these tests will be used to validate and correct best-estimate codes currently in use by the NRC staff. Both the FIST (BWR) and the MIST (B&W pressurized water reactor (PWR)) test programs are jointly funded with EPRI and the industry.

The ROSA-IV large-scale thermal hydraulic test program being conducted will include Three-Mile Island (TMI) simulation tests, anticipated transient without scram (ATWS) tests, small-break tests, and plant recovery technique tests. Japan is providing the facility and operating funds while the NRC will provide the instrumentation and analysis in exchange for the experimental data. This program will augment the information developed at the three smaller domestic test facilities. The NRC contribution will amount to less than 10 percent of the total project cost.

In FY 1985, work on transient models and codes will shift from code development to limited (1) assessment of the accuracy and range of applicability of the codes by applying them to test data and to transient data from full-scale LWRs and (2) adaption of the PWR codes to video screen computer terminals for use by the NRC staff for evaluating accident avoidance and mitigation guidelines, training, and plant safety design analysis.

Siting and Health	FY 1983	FY 1984	FY 1985
	$ 8,311	$ 8,400	$ 6,500
	(26)	(20)	(20)

The Siting and Health research program is aimed at reducing uncertainties associated with evaluating risk. The major objective of this research area is the establishment and improvement of the NRC capability to provide estimates and

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make informed decisions relative to nuclear safety, occupational exposure and routine emissions.

The Commission's goal of maintaining the radiological risk to the public arising from licensed activities and the routine radiation exposure of workers to levels as low as reasonably achievable below established limits requires estimates of the risks arising from various modes and degrees of exposure and of the effectiveness (and costs) of various radiation control strategies and means.

Assessing the risk of reactor accidents includes an evaluation of the likelihood of serious damage to a nuclear power plant from natural causes (tornado, earthquake). Events that are extreme enough to present such a hazard are so rare that the assessment must be based on scarce and uncertain data. A specific problem exists with respect to earthquakes in the Eastern United States. The seismologic record of large earthquakes is too sparse to allow a satisfactory estimate of their frequency or recurrence interval. Furthermore, it is difficult to locate the sources of eastern earthquakes because of the limited knowledge of seismicity and structural geology in the east.

To resolve this problem, the efforts in FY 1985 will provide data for verification of earthquake risk assessments, analyses of seismically induced soil failures, and seismic recording data on the location, magnitude, and propagation of earthquakes in the Eastern United States. Seismic risk calculations will be improved to identify potential seismogenic structures for geological investigation and to establish the seismic characteristics of the regions surrounding nuclear power plants. Specific program goals are to develop tectonic models of the Charleston, SC, and New Madrid, MO, seismogenic zones; to complete analyses of existing methods for predicting soil liquefaction; and the development of seismic zonation maps. In FY 1984 and continuing into FY 1985, efforts have been undertaken to broaden the base of financial support for regional seismic networks by including sources other than the NRC, such as local utilities and industry groups.

Health effects work will obtain data on radionuclide metabolism, dosimetry, and health effects particularly applicable to NRC licensed activities to permit more accurate risk assessment. Although this program is being reduced, sufficient effort will be maintained to allow our participation on government and industry groups that are applying new technology and information that may affect NRC regulatory positions.

Risk Analysis	FY 1983	FY 1984	FY 1985
	$13,935	$16,200	$15,900
	(53)	(48)	(48)

Reactor risk analysis research provides support for Commission decisions on major issues such as severe accident policy, siting policy, and the resolution of unresolved safety issues. Information regarding fission product source terms and the behavior of containments under severe accident conditions will be considered in the assessment of risk from degraded core accidents.

Nuclear Regulatory Research - continued

Probabilistic Risk Assessment (PRA) methods will continue to be used within NRC in a broad range of applications. These include studies addressing prioritization of regulatory issues, resolution of unresolved safety issues, analysis of generic requirements, evaluation of plant-specific backfit requirements, and means to ensure that the reliability of safety systems is maintained at needed levels. Because PRAs that address a variety of safety issues are being submitted to NRC by industry, there is an increasing need for well-defined, demonstrated, and broadly accepted PRA methods. These methods can then be used to develop prescriptive procedures for use in reviewing industry PRAs and evaluating plant-specific risk reduction alternatives. In particular, these procedures will facilitate PRA reviews of specific standard designs, interactive reviews of PRAs supporting proposed plant-specific reliability and risk management programs, and value/impact analyses in support of proposed new regulatory requirements.

To use PRA effectively in these roles requires methods that are practical and well-defined and provide results that are both consistent and readily comparable with similar portions of other PRAs. Risk Analysis research will develop and improve methods for quantifying probabilities, uncertainties, and consequences associated with reactor operations, including offsite emergency response scenarios. Research in the area of common-cause failure will continue to permit better assessment of human and system interactions and extends current methods to the assessment of risk from seismic events and external accident initiators such as fire and floods.

An event on the Salem Reactor, an anticipated transient without scram (ATWS), pointed out the importance of common-cause failure. Analysis of this type of failure will continue during FY 1985. This period will also see the completion of an integrated methodology that can evaluate the unavailability of risk-important systems such as shutdown systems due to all forms of common cause failure, including the effects of seismic and external events.

Research on accident sequence evaluation will provide a final catalogue of accident sequences and risk reduction features generic to each class of plants. This will be aided by the continuing development of the MELCOR computer code, which will improve the capability to analyze the physical phenomena (including consequence evaluation) associated with an accident sequence.

Research on reliability assurance could assist in the prevention of events such as occurred at the Salem Reactor by developing useful methods for assessing and maintaining the availability of systems and components important to safety during a plant's lifetime. The Precursor Program is part of the development of a data base that will be maintained and improved. This data base will provide Licensee Event Report-derived trend estimates of the type and frequency of accident sequences that could progress to severe core damage.

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Nuclear Regulatory Research - continued

Accident Evaluation and Mitigation	FY 1983	FY 1984	FY 1985
	$57,116	$51,500	$44,500
	(22)	(25)	(25)

The major safety issues addressed in this program arise from concern over accident sequences that are more severe than the Design Basis Accidents which limit fuel temperatures under consideration to 2200°F. Such an accident occurred at TMI-2. The safety issues to be resolved are: When and under what conditions might the containment fail? What radiological dose might be released, and to what extent would the public be exposed? How can operator actions be guided either to prevent or delay containment failure and to arrest core damage so as to minimize the threat to the public? How may the damaged core be safely cooled over the long term? These issues are addressed in rules on emergency planning, hydrogen control, and other proposed severe accident rules. The most immediate impact of this research should be in revision of the siting regulation and on implementation of the emergency planning rule. Extension of the hydrogen rule to those accidents in which the core melts through the primary system can also be achieved, and operator action guidelines are already being addressed. Other possible severe accident rules, including consideration of special features to better cope with severe accident will be considered based on experimental results.

The objective of the accident evaluation program is the development of analytical methods that can be used to assess severe accidents and the experimental validation of these methods. The overall program includes the following elements:

- develop understanding and basic data on phenomena involved in severe reactor accidents
- integrate data and models into complete analytical descriptions of these accidents
- provide integrated experiments to test the adequacy and completeness of the analytical descriptions in their predictions of accident sequences and consequences

The analytical methods of safety analysis must be established on a sound engineering basis and must be suitably tested. The conditions that might start a severe reactor accident and the conditions that occur afterward are outside ordinary engineering experience. In addition, the analytical methods used to describe such accidents do not exist and must be developed.

The Severe Accident Analysis Program investigates the progression of events in accident sequences that could result in significant impact on the public. This program evaluates operating procedures with respect to providing reliable

Nuclear Regulatory Research - continued

procedures to handle rapid transients and accidents, improving operator training by providing knowledge of proper actions, and improving the understanding of transient sequences, including accident fission product transport and containment management.

Research on damaged fuel will be used (1) to provide a data base and verified analytical models for use in assessing the consequences of LWR accidents that involve severe core damage, (2) to reduce the error band in existing codes, and (3) to provide a benchmark in the improvement of risk, fuel damage, and source term codes. Preparation for final Power Burst Facility severe fuel damage tests will be initiated in FY 1984 with test completion scheduled for FY 1985. This program will provide information on the fission product source term from the fuel for reactor accidents similar to the one that occurred at Three Mile Island Unit 2. The last two tests will use highly irradiated fuel specimens, with the final test also including control rod materials.

The second of two severe-fuel-damage tests performed in the Canadian test reactor (NRU) will be performed in FY 1985 to provide full-length (12-foot) verification of the fuel-damage computer code models. The final separate effects experiments on the dominant mechanisms in the development of severe fuel damage under core-recovery and reflood-quench conditions will be performed in the ACRR test reactor in FY 1985. RES will study the TMI core debris as data becomes available. The NRC Severe Accident program has been coordinated with the Electric Power Research Institute program which sponsors tests at the Department of Energy TREAT reactor, as well as a significant international effort through a series of specific exchange agreements.

The results of the experimental programs will be used to benchmark computer codes that provide essential analyses in the estimation of source terms used in risk assessments. A mechanistic severe-accident systems code has also been developed for use with the thermal hydraulics codes.

The hydrogen research efforts which have been coordinated with the Electric Power Research Institute will use advanced core-melt analysis codes to provide hydrogen generation rates for the assessment of flame acceleration and the potential for a transition from hydrogen deflagration to detonation in various containment types. Tests of the interaction of the molten core with concrete and other specific basemat materials will be conducted in FY 1985 and the effects of dumping coolant onto a reacting molten-core/concrete bed will be assessed to provide information on the potential for such cooling methods.

The research on fission product source terms includes experimentation and the development of analytical methods to verify the source term of radiological releases from the primary system and from containment. Large-scale out-of-pile integral tests aimed specifically at verifying modeling of reactor coolant system and fission product transport will be completed in FY 1985. Tests on fission product releases from overheated fuel will be performed to investigate the release of fission products and aerosols from high-burnup fuel with

Nuclear Regulatory Research - continued

emphasis on in situ determination of fission product chemical forms. The predictions of the advanced version of the fission product transport code will be compared with experimental results, and improvements to update the code models will be completed. This code is used in "best-estimate" analyses of severe accident source terms.

The fast breeder safety research program has been reduced to a minimum level consistent with CRBR termination. The remaining effort is intended only to allow the continued participation in existing foreign agreements so that the NRC can stay abreast of the latest technology, and to maintain and assess the NRC Fast Breeder computer models using available foreign experimental results. Should a clear focus develop for fast breeder reactor research and development aimed at an eventual demonstration plant, the NRC will need to augment its program to carry on a fast breeder reactor safety research program of appropriate size keyed to the scheduled and anticipated needs of licensing actions.

The FY 1985 plan for high-temperature gas-cooled reactor (HTGR) research recognizes the industry intent to develop a lead-plant concept (a steam cycle cogeneration plant) suitable for siting near an industrial zone. The research work provides a framework to back up the NRC licensing activity if a license request for a specific HTGR is forthcoming. In FY 1985 analytical studies will support the revisions, as needed, of the Standard Review Plan and General Design Criteria. The HTGR Safety/Licensing Handbook (containing HTGR-specific guides, standards, data, and analytical techniques) for NRC evaluations will be maintained and updated as appropriate.

Loss-of-Coolant Accidents	FY 1983	FY 1984	FY 1985
	$27,834	$10,000	$ 5,500
	(10)	(7)	(7)

This program provides the experimental data and analytical methods needed to predict and understand the behavior of primary and secondary coolant systems during large-break loss-of-coolant accidents. The major safety issue being dealt with by this program has been the quantification of safety margins of Appendix K, 10 CFR 50. This research program is nearing completion and significant analytical support is not planned beyond FY 1984.

The 2D/3D program is being conducted under a trilateral agreement between the NRC, the Japan Atomic Energy Research Institute (JAERI), and the German Ministry of the Federal Republic for Research and Technology (BMFT), with the latter two contributing the majority of funding. The program is evaluating three-dimensional effects of ECC bypass during reflood and core blockage. The program includes the Cylindrical Core Test Facility (CCTF) and the Slab Core Test Facility (SCTF) in Japan and the Upper Plenum Test Facility (UPTF) and the Primary Blowdown Loop (PKL) facility in West Germany. The majority of the NRC-supplied instrumentation and data acquisition equipment will have been delivered in FY 1984 or early FY 1985. The FY 1985 activities will include installation assistance, maintenance and refurbishing of NRC-supplied equipment, and limited

(Dollars in Thousands, except whole dollars in narrative material;
Staff in Full Time Equivalent)

Nuclear Regulatory Research - continued

additional instrumentation. The current 2D/3D agreement expires in mid-1985, and NRC expects to renegotiate the agreement to provide the most cost-beneficial agreement possible, as it will have essentially completed its obligations by that time.

Waste Management	FY 1983	FY 1984	FY 1985
	$12,275	$ 8,946	$ 9,400
	(22)	(22)	(22)

Waste management in the United States involves the disposal in deep geological structures of the high-level waste (HLW) resulting from nuclear power generation; the disposal at lesser depths of low-level waste (LLW) resulting from medical, research, and industrial uses of radioactive materials; and the management of the tailings resulting from refining uranium ore. NRC regulates operational safety during active operations at the waste disposal sites as well as long-term isolation of radionuclides after closure.

Achieving reasonable assurance that HLW will be isolated for thousands of years or that LLW will be isolated for hundreds of years requires that the NRC be able to evaluate predictions of repository performance and to assess whether all relevant factors that could affect performance are taken into account.

There is limited information available on the deep geological structures and processes that could affect waste isolation performance. The existing simplified descriptions of groundwater movement through rock are not directly applicable to the movement of radionuclides being carried by the water. They do not adequately account for differences due to chemical effects or movement through fractured rather than porous rock. Other sources of uncertainty in predicting repository performance arise from the need to extrapolate over thousands of years the thermal, chemical, and hydrological effects of the repository on its surroundings.

These issues are reflected in the technical requirements of 10 CFR Part 60 and are the subject of ongoing discussions by NRC with DOE.

In FY 1985, NRC will complete the development of certain regulatory guides and revisions to 10 CFR Part 60 that are required by the Nuclear Waste Policy Act (NWPA). Technical support of NRC licensing assessments and findings relative to the High Level Waste facility, geologic media, geologic environmental conditions, and repository and waste package designs and materials that are proposed by DOE will be continued; also, efforts will identify those phenomena and sources of uncertainty that will have a major bearing on the Commission's ability to arrive at the required safety determinations in the licensing process. This work will include laboratory experiments and model development related to the long-term stability of matrix materials, the methods for predicting canister degradation and failure, and the major limitations and sources of uncertainty in the geochemical bases for DOE retardation calculations.

(Dollars in Thousands, except whole dollars in narrative material;
Staff in Full Time Equivalent)

Nuclear Regulatory Research - continued

Low Level Waste efforts in FY 1985 will provide technical guidance and licensing assistance to States involved under interstate compacts in the operation and licensing of low-level waste disposal sites pursuant to the NRC Low Level Waste Rule (10 CFR Part 61).

Work will also proceed on development of acceptable methods for determining the characteristics of waste treated to meet the requirements of Part 61, investigation of radionuclide migration and mobility in various types of soil-climate combinations, and development of methods for predicting the waste isolation performance of the overall repository relative to the dose limits in Part 61.

Management Direction and Support	FY 1983	FY 1984	FY 1985
	$ 0	$ 0	$ 0
	(23)	(24)	(24)

The personnel requirements for this area consist of the Director's Office, the administration support staff, and the resource control and contract execution staff. This staff provides the Director of Nuclear Regulatory Research with assistance and support in the direction and evaluation of complex technical research projects and plans, coordinates, directs, and executes the business matters of the Office, including contractual agreements, budget formulation, fiscal management, personnel administration, travel assistance, and research coordination with other Offices, industry, and foreign governments. The increased emphasis on maximizing the NRC's involvement in international research efforts has developed the need for stronger central control to allow a coordinated approach to all negotiations. The resources to accomplish this are being shifted directly to the Office Directors Staff in FY 1984.

(Dollars in Thousands, except whole dollars in narrative material;
Staff in Full Time Equivalent)

Nuclear Regulatory Commission - continued

Program Technical Support Programs $30.545

Summary of Program Technical Support Programs Estimates by Function

Total Programs	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
Salaries and Benefits	$ 17,654	$ 18,080[1/]	$ 18,380
Program Support	3,439	4,525	4,810
Administrative Support	4,971	6,270	5,850
Travel	1,169	1,475	1,505
Total Obligations	$ 27,233	$ 30,350	$ 30,545
Staff	(381)	(371)	(375)

The Program Technical Support offices are integral to the agency's process of licensing and regulating nuclear facilities and materials for the protection of public health, safety and environment. These programs are the Advisory Committee on Reactor Safeguards (ACRS), the Atomic Safety and Licensing Board Panel (ASLBP), the Atomic Safety and Licensing Appeal Panel (ASLAP), Investigations (OI), Executive Legal Director (ELD), International Programs (OIP), State Programs (SP), and Analysis and Evaluation of Operational Data (AEOD). These programs will continue the conduct of and the legal representation at hearings to license the operation of nuclear power plants. Post-OL activities and assessment of potentially significant nuclear related operational events are emphasized. Staffing decreases reflect the decreasing number of Operating Licenses to be granted each year for those PTS programs that are directly involved in the licensing process. Increases in staffing reflect greater emphasis placed on Investigations and trends and patterns analysis of operational experience.

	Actual FY 1983		Estimate FY 1984		Estimate FY 1985	
	Dollars	People	Dollars	People	Dollars	People
ACRS	$ 289	60	$ 250	56	$ 250	56
ASLBP	103	63	150	53	100	52
ASLAP	0	20	40	18	40	16
OI	0	36	0	44	0	49
ELD	37	106	60	102	60	102
OIP	81	29	150	28	150	28
SP	629	35	730	33	800	33
AEOD	2,300	32	3,145	37	3,410	39
Totals	$ 3,439	381	$ 4,525	371	$ 4,810	375

1/ Included are $236,000 for FY 1984 pay raise supplemental.

Program Technical Support Programs - continued

a. 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 DOE nuclear facilities as outlined in the Memorandum of Understanding dated February 24, 1978.

b. The Atomic Safety Licensing Board Panel (ASLBP) is by statute one of the principal adjudicatory offices of the NRC. 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, 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 ASLBP conducts any other proceedings which the Commission may direct or the regulations of the agency may require.

c. The Atomic Safety and Licensing Appeal Panel (ASLAP) is administratively established and requires Congressional notification of any revision to the organizational structure of the panel. In three-member Appeal Boards, the ASLAP reviews all initial decisions and certain interlocutory orders of Administrative Law Judges and Atomic Safety and Licensing Boards in proceedings on license applications for production and utilization facilities (under 10 CFR Part 50) and such other proceedings as the Commission may specify. The ASLAP holds appellate reviews according to the applicable provisions of the Commission's rules of practice.

d. Investigations is an independent office established to conduct, supervise and provide quality control for investigations of licensees, applicants, contractors and vendors including investigations of all allegations of wrong doing by other than NRC employees. Quality control procedures are being developed, administered and maintained to oversee the initiation, conduct and supervision of all inquiries and investigations. The IE and Regional inspection program is monitored to determine possible areas for investigations. Systems and procedures have been established to ensure that appropriate organization components of NRC are promptly notified and fully informed of those matters under investigation which may affect public health and safety and other aspects of the NRC mission.

Program Technical Support Programs - continued

e. The Executive Legal Director (ELD) is responsible for providing legal advice and services to the Executive Director for Operations and to offices which report to that official. The diverse responsibilities of ELD are performed by four divisions: Hearing Division, Regulations Division, Regional Operations and Enforcement Division and the Operations and Administration Division. ELD provides legal representation of the NRC staff at administrative proceedings involving the licensing of nuclear facilities and materials, enforcement actions and rulemaking. Legal advice and services are provided at Headquarters and in the Regions for health and safety, environmental impact and antitrust aspects of licensing and regulation; research programs; general agency administration, including contracts, patents, personnel, security and labor relations; safeguards and waste management programs; and the export/import licensing program. This office has a major role in nuclear power plant amendment proceedings, which have increased with the addition of on-line nuclear power plants.

f. International Programs (OIP) develops and directs a program of cooperation with foreign regulatory agencies and administers the Commission's responsibilities in the areas of non-proliferation, international safeguards, nuclear exports and imports. OIP keeps the Commission and staff informed about international matters, maintains liaison with other U.S. agencies, and is key to facilitating the exchange of nuclear health and safety related information between the U.S. and foreign countries. It reviews, processes and issues licenses for export of nuclear reactors, fuel and components; consults with the Departments of Energy and Commerce on nuclear related exports which they approve; coordinates the policy aspects of NRC's international safeguards and physical security activities; participates in implementation of the U.S./IAEA safeguards agreement; and is the liaison to the U.S. Intelligence Community for nuclear related intelligence matters.

g. State Programs (OSP) provides a program of cooperation and liaison with states, local governments and interstate organizations. The State Agreements Program, established under the provisions of Section 274 of the Atomic Energy Act of 1954 as amended, is carried out by the NRC Regional Offices with policy, direction and oversight by OSP. The program now includes 26 Agreement States which administer about 13,000 licenses involving the regulation of certain classes of radioactive materials, including uranium milling, mill tailings and low-level radioactive waste disposal. The NRC must determine adequacy of Agreement State programs to protect health and safety and compatibility of such programs with those of NRC. OSP provides guidance, training and assistance to state and local governments, Indian tribes and organizations having state and interstate responsibilities. Thus the state and local governments and Indian tribes have access to a central organization to obtain guidance and direction for their programs. OSP also administers the Price-Anderson Act providing liability insurance and government indemnity for nuclear accidents, and performs functions relating to nuclear property and decontamination insurance, financial reviews of licensees including the financing of decommissioning, financing relating to accidents and monitoring of TMI cleanup financing.

(Dollars in Thousands, except whole dollars in narrative material;
Staff in Full Time Equivalent)

Nuclear Regulatory Commission - continued

Program Direction and Administration Programs $42,580

Summary of Program Direction and Administration Programs Estimates by Function

Total Program	Actual FY 1983	Estimate FY 1984	Estimate FY 1985
Salaries & Benefits	$ 27,685	$ 28,780[1/]	$ 28,820
Program Support	1,855	3,443	2,920
Administrative Support	8,515	10,990	10,040
Travel	583	720	800
Total Obligations	$ 38,638	$ 43,933	$ 42,580
Staff	(752)	(728)	(728)

Program Direction and Administration (PDA) offices collectively provide overall policy direction, resource management, administration and logistic support for the agency. The program reductions are in keeping with the Administration's efforts to minimize costs. The following staff offices of the Commission and the Executive Director for Operations (EDO) are included:

The Commission:
Commission (OCM)
Secretary (SECY)
Inspector and Auditor (OIA)
General Counsel (OGC)
Public Affairs (OPA)
Policy Evaluation (OPE)
Congressional Affairs (OCA)

EDO:
Executive Director for Operations (EDO)
Small & Disadvantaged Business Utilization and Civil Rights (SDBU/CR)
Resource Management (RM)
Administration (ADM)

	Actual FY 1983		Estimate FY 1984		Estimate FY 1985	
	Dollars	Staff	Dollars	Staff	Dollars	Staff
OCM	$ 8	(33)	$ 100	(32)	$ 100	(32)
SECY	1,115	(37)	1,260	(36)	1,150	(36)
OIA	0	(27)	0	(27)	0	(27)
OGC	41	(28)	30	(31)	30	(31)
OPA	6	(19)	4	(21)	9	(21)
OPE	3	(16)	215	(18)	115	(18)
OCA	0	(9)	1	(9)	1	(9)
EDO	20	(21)	100	(21)	100	(21)
SDBU/CR	55	(9)	90	(9)	90	(9)
RM	607	(143)	1,643	(127)	1,325	(127)
ADM	0	(410)	0	(397)	0	(397)
Totals	$ 1,855	(752)	$ 3,443	(728)	$ 2,920	(728)

1/ Included are $379,000 for FY 1984 pay raise supplemental.

(Dollars in Thousands, except whole dollars in narrative material;
Staff in Full Time Equivalent)

Program Direction and Administration Programs - continued

a. The Office of the Commissioners (OCM) is the governing body which must exercise the overall NRC responsibilities of the Energy Reorganization Act of 1974 and the Atomic Energy Act of 1954, as amended. This body provides fundamental policy guidance and administration and management direction necessary 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.

b. The Office of the Secretary (SECY) provides general management, administrative and limited logistical services to support the Commission and to implement Commission decisions; advises and assists the Commission and staff on the planning, scheduling and conduct of Commission business; prepares for and records Commission meetings in accordance with requirements of the Sunshine Act; 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; controls the handling and service of documents issued and received in all adjudicatory matters and public proceedings; administers the NRC Historical Program; provides personnel, administrative and logistical support services to the Commission and other NRC offices located in Washington, D.C.; and supervises and administers the NRC Public Document Room to maintain and provide to the public regulatory information, reference services and access to docket material pertaining to NRC regulatory and adjudicatory activities. Program Support funds provide verbatim transcription services for meetings and licensing hearings.

c. The Office of Inspector and Auditor (OIA) functions as the Agency Inspector General and 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 all agency operations, employees, organizations, programs and activities; referring suspected or alleged criminal violations to the Department of Justice (DOJ); administering the Commission's "open door" policy; serving as point of contact with the General Accounting Office (GAO); and maintaining liaison with GAO, DOJ and other audit and law enforcement agencies.

The objective of OIA is to provide the Commission with an independent review and appraisal of internal programs and operations to assure that responsibilities are discharged with effectiveness and efficiency; and to provide a capability to verify facts to assure continued maintenance of the highest standards of integrity of all NRC organizations, programs and activities.

d. The Office of the General Counsel (OGC) is the chief legal advisor to the Commission. The General Counsel provides legal advice to the Commission in connection with its quasi-judicial responsibilities, its compliance with government openness legislation, its development of substantive policy ar its consideration of any other matters involving direct Commission part

tion. The General Counsel represents the Commission in all United States Courts of Appeals proceedings to review Commission orders and rules, and, in cooperation with the Department of Justice, represents the Commission in Federal District Court proceedings involving or affecting the NRC, including challenges to the Commission's compliance with Federal openness statutes. The General Counsel also provides legal advice on legislative matters affecting the NRC, including the drafting of proposed legislation, the preparation and review of testimony before Congress, and the preparation of statements of views on proposed legislation which could affect the NRC.

The office's litigation caseload is expected to increase substantially, especially involvement in time consuming District Court litigation arising from challenges to the Commission's compliance with Federal openness laws; recent expanded activity in the enforcement of NRC subpoenaes; requests for attorney's fees under the Equal Access to Justice Act; tort and contract claims involving NRC; heavy discovery burdens in Atlas v. U.S. and possible similar burdens in GPU v. NRC if the case is not dismissed by the Court of Appeals; and a recent court decision shifting the reviewability of NRC denials of petitions under 10 CFR 2.206 to the District Courts from the Courts of Appeals. Litigation in the Court's of Appeals is also expected to increase significantly if the current rate of challenges to NRC rules continues and as the Commission takes licensing actions on several highly controversial plants: Three Mile Island, Unit 1; Diablo Canyon; Zimmer; Shoreham; South Texas; Comanche Peak; and Midland. Such cases also present the possibility of Court of Appeals litigation of claims for attorney's fees under the Equal Access to Justice Act. Expected increases in licensing activity will also increase the General Counsel's workload in adjudicatory matters, as it provides advice to the Commission on whether to make immediately effective Licensing Board decisions on full power operation.

The General Counsel's involvement in waste disposal issues continues to increase due to direct Commission involvement in actions required under the Nuclear Waste Policy Act of 1982. OGC continues to provide legal advice to the Office of Investigation at an increasing level as OI increases its activities.

e. The Office of Public Affairs (OPA) 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, OPA arranges press conferences in the Washington area as well as in the regions in the vicinity of nuclear facilities, coordinating requests for Commission speakers before civic groups and other organizations interested in the role of the NRC. The office also assists the licensing board, the appeal board and the Advisory Committee on Reactor Safeguards wherever hearings and meetings are held in which a high degree of public and press interest is evidenced; advises the Commission and senior NRC 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.

(Dollars in Thousands, except whole dollars in narrative material;
Staff in Full Time Equivalent)

Program Direction and Administration Programs - continued

f. The Office of Policy Evaluation (OPE) 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 NRC offices for outside agencies.

g. The Office of Congressional Affairs (OCA) 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 of the office is to assure that the Congress is kept fully and currently informed of NRC activities as required by Section 202 of the Atomic Energy Act of 1954, as amended. The office provides the Commission and senior NRC staff with relevant and current information as to major legislative activities likely to effect NRC. Additionally, the office seeks to assure that individual members of Congress are kept currently and adequately informed of significant NRC licensing activities that impact on their respective states and districts.

h. The Executive Director for Operations (EDO) 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. The office consists of the Executive Director, the Deputy Executive Director for Regional Operations and Generic Requirements, their immediate staffs and the Administrative and Correspondence Branch which is responsible for the assignment, review and coordination of all correspondence.

i. The Office of Small and Disadvantaged Business Utilization and Civil Rights (SDBU/CR) is responsible for the implementation and execution of the functions and duties under Sections 8 and 15 of the Small Business Act, as amended; and those functions and duties related to equal employment opportunity and civil rights matters within the NRC.

Major objectives of the office are to locate both small and small disadvantaged businesses capable of performing NRC contractual requirements and provide information to such firms interested in NRC programs and contracting procedures; increase employment of minorities and women in the agency; promote continued growth of Upward Mobility Programs; and assure a climate for improved employee morale by promoting and maintaining counseling activities and supporting advisory committees made up of special emphasis groups.

j. The Office of Resource Management (RM) provides budgetary and fiscal management for the NRC, 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 informatic

analyses for a variety of users within the NRC; and is the office responsible for developing and maintaining the agency's key management information systems and centralized automatic data processing. It provides analyses to assess the relationship between program workload and resource allocation; manages and coordinates special projects including Congressionally mandated reports such as the NRC Annual Report; and performs cost/benefit analyses of proposed NRC regulatory requirements.

k. The Office of Administration (ADM) provides the administrative and logistical support services for the headquarters and certain services for the regional offices. These services 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 NRC; transportation and travel services; agency telecommunications services including facsimile, radio, teletype, telephone, data transmission and the Emergency Notification System; space acquisition and utilization; 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 NRC's Freedom of Information Act and Privacy Act activities; administration of a system of 152 local public document rooms throughout the United States; printing and reproduction services for the agency; management of the headquarters administrative support funds; administration of the NRC Facilities and Materials License Fee Program; direction of the NRC Occupational Health and Safety Program; and other agency-wide services such as providing for interviewee and change-of-station travel and administering the agency's Alcohol and Drug Abuse Program.

This work is performed by the Management Development and Training Staff, the License Fee Management Branch, the Program Support Branch, and the following six operating divisions: Organization and Personnel, Security, Facilities and Operations Support, Technical Information and Document Control, Rules and Records, and Contracts.

U.S. NUCLEAR REGULATORY COMMISSION

FY 1985 Budget Estimates

(Dollars in Millions)

LEGISLATIVE PROGRAM PROJECTIONS

	Actual FY 1983	Estimate FY 1984	FY 1985	FY 1986	FY 1987	FY 1988	FY 1989
NRC Total Budget Authority	$ 465	$ 466	$ 468	$ 458	$ 458	$ 458	$ 458
Budget Outlays	$ 515	$ 450	$ 464	$ 454	$ 454	$ 454	$ 454

(Dollars in Thousands, except whole dollars in narrative material;
Staff in Full Time Equivalent)

Nuclear Regulatory Commission - continued

Consulting Services

Account Title	Type	Obligations (in thousands) FY 1983	FY 1984	FY 1985
Nuclear Reactor Regulation	Contractual Services	$ 99	$139	$ 50
	Personnel Appts.	25	41	30
	Advisory Committee Consultants	0	0	-
	Total	$124	$180	$80
Inspection and Enforcement	Contractual Services	$ 0	$ 0	$ 0
	Personnel Appts.	0	0	0
	Advisory Committee Consultants	0	0	0
	Total	$ 0	$ 0	$ 0
Nuclear Material Safety and Safeguards	Contractual Services	$ 0	$ 0	$ 0
	Personnel Appts.	42	70	70
	Advisory Committee Consultants	, 1	24	24
	Total	$ 43	$ 94	$ 94
Nuclear Regulatory Research	Contractual Services	$ 0	$ 0	$ 0
	Personnel Appts.	0	0	0
	Advisory Committee Consultants	0	0	0
	Total	$ 0	$ 0	$ 0
Program Technical Support	Contractual Services	$ 0	$ 0	$ 0
	Personnel Appts.	0	0	0
	Advisory Committee Consultants	136	150	150
	Total	$136	$150	$150
Program Direction and Administration	Contractual Services	$154	$154	$154
	Personnel Appts.	78	78	78
	Advisory Committee Consultants	0	0	0
	Total	$232	$232	$232
Total Nuclear Regulatory Commission	Contractual Services	$253	$293	$204
	Personnel Appts.	145	189	178
	Advisory Committee Consultants	137	174	174
	Total	$535	$656	556

Consulting Services - continued

	MAJOR PROGRAM AREAS
NUCLEAR REACTOR REGULATION	Consulting services provide technical advice on highly complex and controversial areas or an intermittent basis to enhance the quality and diversity of views and to provide outside independent view points that lend greater creditability and technical support to agency licensing positions. Contractual services are used primarily to assist the BWR Pipe Crack Review Group and for completion of the assistance to the SEP integrated plant safety assessment reports. Personnel appointments provide assistance in the area of occupational dose reduction, preparation of a severe accident policy statement, and an integrated approach to equipment classification.
NUCLEAR MATERIAL SAFETY & SAFEGUARDS	Consulting services are used to provide: technical advice on fuel processing operations, including high level waste solidification activities; advice on review of critical technical data associated with repository site performance and evaluation; and assistance to staff in evaluating LLW generation, processing and storage from 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 NRC staff and renders expert opinion regarding medical uses of radioisotopes and advises NRC staff on matters of policy.
PROGRAM TECHNICAL SUPPORT	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.
PROGRAM DIRECTION & ADMINISTRATION	Consultants adivse the agency in such areas as employee grievances and an EEO class action suit; psychiatric advice and other advice on security clearance applications; technical and engineering support services for communications; NRC documentation systems; local public document rooms; development of publication policy standards and procedures; and an agency offical file station network and vital records schedule.

U.S. Nuclear Regulatory Commission
Summary of Headquarters-Regional Resources
(Dollars in thousands; Staff in Full-Time Equivalent)

	ACTUAL FY1983		ESTIMATE FY1984		ESTIMATE FY1985	
	DOLLARS	STAFF	DOLLARS	STAFF	DOLLARS	STAFF
HEADQUARTERS PROGRAM						
NUCLEAR REACTOR REGULATION	$97,170	(691)	$87,930	(642)	$85,820	(630)
INSPECTION AND ENFORCEMENT	22,140	(204)	28,182	(225)	31,940	(232)
NUCLEAR MATERIAL SAFETY AND SAFEGUARDS	31,622	(283)	36,135	(294)	39,420	(297)
NUCLEAR REGULATORY RESEARCH	207,295	(268)	190,862	(244)	168,415	(244)
PROGRAM TECHNICAL SUPPORT	26,230	(366)	29,167	(353)	29,268	(357)
PROGRAM DIRECTION AND ADMINSTRATION	38,608	(750)	43,898	(725)	42,540	(725)
SUBTOTAL	$413.065	(2,562)	$416,174	(2,483)	$397,403	(2,485)
REGIONAL PROGRAM						
NUCLEAR REACTOR REGULATION	$3,674	(44)	$4,750	(74)	$5,130	(86)
INSPECTION AND ENFORCEMENT	46,347	(744)	53,763	(786)	60,250	(835)
NUCLEAR MATERIAL SAFETY AND SAFEGUARDS	2,998	(36)	4,220	(52)	4,100	(64)
PROGRAM TECHNICAL SUPPORT	1,003	(15)	1,183	(18)	1,277	(18)
PROGRAM DIRECTION AND ADMINSTRATION	30	(2)	75	(3)	40	(3)
SUBTOTAL	$54,052	(841)	$63,951	(933)	$70,797	(1,006)
TOTAL PROGRAMS						
NUCLEAR REACTOR REGULATION	$90,844	(735)	$92,680	(716)	$90,950	(716)
INSPECTION AND ENFORCEMENT	68,487	(948)	81,945	(1,011)	92,190	(1,067)
NUCLEAR MATERIAL SAFETY AND SAFEGUARDS	34,620	(319)	40,355	(346)	43,520	(361)
NUCLEAR REGULATORY RESEARCH	207,295	(268)	190,862	(244)	168,415	(244)
PROGRAM TECHNICAL SUPPORT	27,233	(381)	30,350	(371)	30,545	(375)
PROGRAM DIRECTION AND ADMINSTRATION	38,638	(752)	43,933	(728)	42,580	(728)
TOTAL	$467,117	(3,403)	$480,125	(3,416)	$468,200	(3,491)

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13 SUPPLEMENTARY NOTES

14 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 1985 provide for obligations of $468,200,000 to be funded in total by a new appropriation.

15a KEY WORDS AND DOCUMENT ANALYSIS

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