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# BUDGET ESTIMATES FISCAL YEAR 1998

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February 1997

U.S. Nuclear Regulatory Commission

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## **SUMMARY**



## INTRODUCTION

The U.S. Congress has determined that the safe use of nuclear materials for peaceful purposes is a legitimate and important national goal. It has entrusted the Nuclear Regulatory Commission (NRC) with the primary Federal responsibility for achieving that goal. The NRC's mission, therefore, is to regulate the Nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, to promote the common defense and security, and to protect the environment.

The NRC's scope of responsibility includes regulation of commercial nuclear power plants; research, test, and training reactors; fuel cycle facilities; medical, academic, and industrial uses of nuclear materials; and transport, storage, and disposal of nuclear materials and wastes. The NRC carries out its mission by setting standards and requirements that licensees must meet to design, construct, and operate safe facilities, in the form of rules, license conditions, and regulatory guidance; inspecting facilities and taking enforcement action, as necessary, to ensure that such standards are followed; and conducting research to support, confirm, or refine judgments used in regulatory decisions. The technologies involved in the use of nuclear energy are relatively new and complex. Regulatory decisions must often be conservative to account for technical uncertainty. These conservative decisions should be modified appropriately as increased understanding of physical phenomena and interactions is achieved. Further, essential functions must be maintained through appropriate combinations of high component and system reliability, redundancy, and diversity to provide multiple barriers to the release of radiation (defense in depth).

**ALL DOLLAR AMOUNTS IN THIS DOCUMENT REPRESENT BUDGET  
AUTHORITY ENACTED FOR FY 1996, ESTIMATED FOR FY 1997, AND  
REQUESTED FOR FY 1998.**

## BUDGET SUMMARY

(Dollar amounts in tables represent thousands of dollars (\$K). In text, whole dollar amounts are used. Staff numbers represent full-time equivalents (FTEs).)

**FUNDS:** The NRC's FY 1998 budget request is \$481,300,000. This is an increase of \$4,500,000 above that for FY 1997.

**FTEs:** The NRC's FY 1998 budget request is 2,991 FTEs. This is a decrease of 70 FTEs below the FY 1997 level.

### TOTAL NRC BUDGET AUTHORITY BY APPROPRIATIONS

	FY 1996 Enacted <sup>1</sup>	FY 1997 Estimate	FY 1998 Estimate	
			Request	Change from FY 1997
NRC Salaries and Expenses (S&E) Appropriation (\$K)				
Salaries and Expenses	467,594	471,800	476,500	4,700
Offsetting Fees Receipts	456,594	457,300	457,500	200
Net Appropriated--S&E	11,000 <sup>2</sup>	14,500 <sup>3</sup>	19,000 <sup>3</sup>	4,500
NRC Office of Inspector General (OIG) Appropriation (\$K)				
Inspector General	4,992	5,000	4,800	-200
Offsetting Fees Receipts	4,992	5,000	4,800	-200
Net Appropriated--OIG	0	0	0	0
Total Net Appropriated--NRC	11,000 <sup>2</sup>	14,500 <sup>3</sup>	19,000 <sup>3</sup>	4,500

<sup>1</sup> FY 1996 Salaries and Expenses appropriation and the Office of Inspector General appropriation accounts: \$714,000 rescinded pursuant to Public Law 104-134, Omnibus Consolidated Rescissions and Appropriations Act, FY 1996.

<sup>2</sup> Appropriated from the Nuclear Waste Fund.

<sup>3</sup> FY 1997: \$11 million appropriated from the Nuclear Waste Fund and \$3.5 million appropriated from general funds; FY 1998: \$17 million to be appropriated from the Nuclear Waste Fund and \$2.0 million to be appropriated from general funds.

## **SUMMARY**

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### **APPROPRIATIONS AND FINANCIAL SUMMARY**

The NRC's FY 1998 budget requests new budget authority of \$481,300,000 to be funded by two appropriations--one is the NRC's Salaries and Expenses appropriation for \$476,500,000, and the other is NRC's Office of Inspector General appropriation for \$4,800,000. Of the funds appropriated to the NRC's Salaries and Expenses, \$17,000,000, shall be derived from the Nuclear Waste Fund and \$2,000,000 shall be derived from general funds. Proposed appropriation language on the use of funds derived from the Nuclear Waste Fund and from the general funds is discussed on page 8, item 10, and page 12, item 14, respectively. The proposed FY 1998 appropriation legislation would also exempt the \$2,000,000 for regulatory reviews and other assistance provided to the Department of Energy (DOE) from the requirement that the NRC collect 100 percent of its budget from fees. The sums appropriated to the NRC's Salaries and Expenses and NRC's Office of Inspector General shall be reduced by the amount of revenues received during FY 1998 from licensing fees, inspection services, and other services and collections, so as to result in a final FY 1998 appropriation for the NRC of an estimated \$19,000,000--the amount appropriated from the Nuclear Waste Fund and from general funds. Revenues derived from enforcement actions shall be deposited to miscellaneous receipts of the Treasury.

The NRC's FY 1998 appropriations legislation and its accompanying analysis are given on pages 4 through 16. This section also contains summaries for budget authority by function and by program, a summary of staffing by program, and an explanation of resource changes by program. The detailed justifications for direct program activities are presented on pages 24 through 121. Note that the funds related to the reimbursable program are not financed by NRC's appropriated funds, but solely through reimbursable agreements with other Federal agencies and non-Federal entities.

## SUMMARY

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### PROPOSED FY 1998 APPROPRIATIONS LEGISLATION

The proposed appropriations legislation 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 of 1954, as amended, including the employment of aliens; services authorized by 5 U.S.C. 3109; publication and dissemination of atomic information; purchase, repair, and cleaning of uniforms; official representation expenses (not to exceed \$20,000); reimbursements to the General Services Administration for security guard services; hire of passenger motor vehicles and aircraft; and \$476,500,000 to remain available until expended: Provided, That of the amount appropriated herein, \$17,000,000 shall be derived from the Nuclear Waste Fund: Provided further, 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: Provided further, That moneys received by the Commission for the cooperative nuclear safety research program, services rendered to State governments, foreign governments, and international organizations, and the material and information access authorization programs, including criminal history checks under section 149 of the Atomic Energy Act, may be retained and used for salaries and expenses associated with those activities, notwithstanding 31 U.S.C. 3302, and shall remain available until expended: Provided further, That revenues from licensing fees, inspection services, and other services and collections estimated at \$457,500,000 in fiscal year 1998 shall be retained and used for necessary salaries and expenses in this account, notwithstanding 31 U.S.C. 3302, and shall remain available until expended: Provided further, That the funds herein appropriated for regulatory reviews and other assistance provided to the Department of Energy and other Federal agencies shall be excluded from license fee revenues, notwithstanding 42 U.S.C. 2214: Provided further, That the sum herein appropriated shall be reduced by the amount of revenues received during fiscal year 1998 from licensing fees, inspection services, and other services and collections, excluding those moneys received for the cooperative nuclear safety research program, services rendered to State governments, foreign governments, and international organizations, and the material and information access authorization programs, so as to result in a final fiscal year 1998 appropriation estimated at not more than \$19,000,000.

**SUMMARY: Proposed FY 1998 Appropriations Legislation**

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**Office of Inspector General**

For necessary expenses of the Office of Inspector General in carrying out the provisions of the Inspector General Act of 1978, as amended, including services authorized by 5 U.S.C. 3109, \$4,800,000, to remain available until expended; and in addition, an amount not to exceed 5 percent of this sum may be transferred from Salaries and Expenses, Nuclear Regulatory Commission: Provided, That notice of such transfers shall be given to the Committees on Appropriations of the House and Senate: Provided further, 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: Provided further, That revenues from licensing fees, inspection services, and other services and collections shall be retained and used for necessary salaries and expenses in this account, notwithstanding 31 U.S.C. 3302, and shall remain available until expended: Provided further, That the sum herein appropriated shall be reduced by the amount of revenues received during fiscal year 1998 from licensing fees, inspection services, and other services and collections, so as to result in a final fiscal year 1998 appropriation estimated at not more than \$0.

## SUMMARY

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### ANALYSIS OF PROPOSED FY 1998 APPROPRIATIONS LEGISLATION

The analysis of the proposed appropriations legislation is as follows:

#### Salaries and Expenses

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 OF 1954, AS AMENDED:

42 U.S.C. 5841 et seq.

The NRC was established by the Energy Reorganization Act of 1974, as amended (42 U.S.C. 5801 et seq.). This act abolished the Atomic Energy Commission and transferred to the NRC all the licensing and related regulatory functions of the Atomic Energy Commission. These functions included those of the Atomic Safety and Licensing Board Panel and the Advisory Committee on Reactor Safeguards; responsibilities for licensing and regulating nuclear facilities and materials; and conducting research for the purpose of confirmatory assessment related to licensing, regulation, and 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.).

2. EMPLOYMENT OF ALIENS:

42 U.S.C. 2201(d)

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.

**SUMMARY: Analysis of Proposed FY 1998 Appropriations Legislation**

4. PUBLICATION AND DISSEMINATION OF ATOMIC INFORMATION:

42 U.S.C. 2161(b)

42 U.S.C. 2161(b) directs that the Commission 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 that is essential to scientific and industrial progress and public understanding and to enlarge the fund of technical information.

5. PURCHASE, REPAIR, AND CLEANING OF UNIFORMS:

5 U.S.C. 5901

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

6. OFFICIAL REPRESENTATION EXPENSES:

47 Comp. Gen. 657

43 Comp. Gen. 305

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

7. REIMBURSEMENTS TO 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 the General Services Administration for carrying out the function of protecting public buildings and property, therefore, NRC appropriations not specifically made available therefor may

**SUMMARY: Analysis of Proposed FY 1998 Appropriations Legislation**

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not be used to reimburse the General Services Administration for security guard services.

8. HIRE OF PASSENGER MOTOR VEHICLES AND AIRCRAFT:

31 U.S.C. 1343

31 U.S.C. 1343 provides that an appropriation may not be expended to purchase or hire passenger motor vehicles for any branch of the Government unless specifically authorized by the appropriation concerned or other law.

9. TO REMAIN AVAILABLE UNTIL EXPENDED:

31 U.S.C. 1301

31 U.S.C. 1301 provides that no regular, annual appropriation shall be construed to be permanent or available continuously unless the appropriation expressly provides that it is available after the fiscal year covered by the law in which it appears.

10. SHALL BE DERIVED FROM THE NUCLEAR WASTE FUND:

42 U.S.C. 10131(b)(4)

42 U.S.C. 10222(a)(4)

42 U.S.C. 10131(b)(4) provides for the establishment of a Nuclear Waste Fund to ensure that the costs of carrying out activities relating to the disposal of high-level radioactive waste and spent nuclear fuel will be borne by the persons responsible for generating such waste and spent fuel.

42 U.S.C. 10222(a)(4) provides that the amounts paid by generators or owners of these materials into the fund shall be reviewed annually to determine if any fee adjustment is needed to ensure full cost recovery.

**SUMMARY: Analysis of Proposed FY 1998 Appropriations Legislation**

42 U.S.C. 10134

42 U.S.C. 10133

42 U.S.C. 10134 specifically requires the NRC to license a repository for the disposal of high-level radioactive waste and spent nuclear fuel and sets forth certain licensing procedures. 42 U.S.C. 10133 also assigns review responsibilities to the NRC in the steps leading to submission of the license application. Thus, the Nuclear Waste Policy Act of 1982, as amended, establishes NRC's responsibility throughout the repository siting process, culminating in the requirement for NRC licensing as a prerequisite to construction and operation of the repository.

42 U.S.C. 10222(d)

42 U.S.C. 10222(d) specifies that expenditures from the Nuclear Waste Fund can be used for purposes of radioactive waste disposal activities, including identification, development, licensing, construction, operation, decommissioning, and post-decommissioning maintenance and monitoring of any repository constructed under the Nuclear Waste Policy Act of 1982, and administrative cost of the radioactive waste disposal program.

11. 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:

31 U.S.C. 1532

31 U.S.C. 1532 permits the transfer of appropriated funds from one account to another or to a working fund only when authorized by law.

12. MONEYS RECEIVED BY THE COMMISSION FOR THE COOPERATIVE NUCLEAR SAFETY RESEARCH PROGRAM, SERVICES RENDERED TO STATE GOVERNMENTS, FOREIGN GOVERNMENTS, AND INTERNATIONAL ORGANIZATIONS, AND THE MATERIAL AND INFORMATION ACCESS AUTHORIZATION PROGRAMS, INCLUDING CRIMINAL HISTORY CHECKS UNDER SECTION 149 OF THE ATOMIC ENERGY ACT OF 1954, MAY BE RETAINED AND USED FOR SALARIES AND EXPENSES ASSOCIATED WITH

**SUMMARY: Analysis of Proposed FY 1998 Appropriations Legislation**

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THOSE ACTIVITIES, NOTWITHSTANDING 31 U.S.C. 3302, AND SHALL REMAIN AVAILABLE UNTIL EXPENDED:

31 U.S.C. 3302

The NRC is required to deposit all revenues collected to miscellaneous receipts of the Treasury unless specifically authorized by an appropriation to retain and use such revenue.

2 Comp. Gen. 775

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

Under the cooperative nuclear safety research program, funds are received from domestic entities, foreign governments, and international organizations for their participation in NRC's reactor safety research experiments. Funds are also received from foreign governments and international organizations for providing safety assistance and other services related to promoting public health and safety. The NRC would be authorized to receive directly, retain, and expend these funds.

42 U.S.C. sec. 2021

42 U.S.C. sec. 2021 authorizes the Commission in carrying out its licensing and regulatory responsibilities under the Atomic Energy Act to enter into agreements with States to provide services such as training, travel, and direct inspections and licensing activities, with or without charge to the States. Absent specific statutory authority, if a charge were imposed for these services, the funds received would be deposited in the Treasury as miscellaneous receipts.

Funds are also received in the form of fees from licensees for the cost of security investigations and related processing associated with access to formula quantities of special nuclear material. These funds will be used to pay the related NRC processing costs and the agency conducting the security investigations. Pursuant to 42 U.S.C. 2169, funds will be received in the form of fees from licensees for the cost of fingerprint examinations and criminal history checks of each individual granted access to safeguards information or unescorted access to a nuclear power plant. These funds will be used to pay for processing and performing the fingerprint examinations and criminal history checks. The NRC will also use the money currently collected under

## **SUMMARY: Analysis of Proposed FY 1998 Appropriations Legislation**

Part 25 of Title 10 of the Code of Federal Regulations (10 CFR Part 25) to pay the NRC processing costs and the Office of Personnel Management for conducting background investigations used as a basis for NRC security clearances for designated licensee representatives and other personnel requiring access to classified information.

13. REVENUES FROM LICENSING FEES, INSPECTION SERVICES, AND OTHER SERVICES AND COLLECTIONS SHALL BE RETAINED AND USED FOR NECESSARY SALARIES AND EXPENSES IN THIS ACCOUNT, NOTWITHSTANDING 31 U.S.C. 3302, AND SHALL REMAIN AVAILABLE UNTIL EXPENDED:

31 U.S.C. 9701

The NRC is authorized under Title V of the Independent Offices Appropriation Act of 1952 to collect license fees. Pursuant to 31 U.S.C. 9701, any person who receives a service or thing of value from the Commission shall pay fees to cover the NRC's cost in providing such service or thing of value.

42 U.S.C. 2213

42 U.S.C. 2214

Pursuant to 42 U.S.C. 2213, the NRC is required to assess and collect annual charges from persons licensed by the Commission. Except for the holder of any license for a federally owned research reactor used primarily for educational training and academic research purposes, 42 U.S.C. 2214 requires the Commission to assess and collect annual charges from persons licensed by the Commission, and the aggregate amount of such charges must equal an amount that approximates 100 percent of the Commission's budget authority, less any amount appropriated to the Commission from the Nuclear Waste Fund and the amount of fees collected under the Independent Offices Appropriation Act of 1952 (31 U.S.C. 9701), for each year of FY 1991 through FY 1998.

31 U.S.C. 3302

The NRC is required to deposit all revenues collected to miscellaneous receipts of the Treasury unless specifically authorized by an appropriation to retain and use such revenue.

**SUMMARY: Analysis of Proposed FY 1998 Appropriations Legislation**

14. THAT THE FUNDS HEREIN APPROPRIATED FOR REGULATORY REVIEWS AND OTHER ASSISTANCE PROVIDED FOR THE DEPARTMENT OF ENERGY AND OTHER FEDERAL AGENCIES SHALL BE EXCLUDED FROM LICENSE FEE REVENUES, NOTWITHSTANDING 42 U.S.C. 2214:

42 U.S.C. 2214

42 U.S.C. 2214 requires the Commission to assess and collect annual charges from persons licensed by the Commission that approximate 100 percent of the Commission's budget authority, less any amount appropriated to the Commission from the Nuclear Waste Fund and the amount of fees collected pursuant to 31 U.S.C. 9701 (the Independent Offices Appropriation Act of 1952), for each year of FY 1991 through FY 1998.

31 U.S.C. 9701

Under the Independent Offices Appropriation Act of 1952, 31 U.S.C. 9701, the NRC is not authorized to charge fees to DOE or other Federal agencies for these activities. Rather than having the NRC recover these costs by assessing fees to its licensees under its 100-percent cost recovery requirement, the costs of these consultation and review activities would be derived from appropriated funds.

31 U.S.C. 1535 et seq.

33 Comp. Gen. 27

The Economy Act, 31 U.S.C. 1535 et seq., permits a Federal agency to perform work or services for another Federal agency on a reimbursable basis. A Federal agency may not be reimbursed for rendering services to another Federal agency if the services are required by law in carrying out the normal functions of the performing agency and for which appropriations are specifically provided.

The NRC performs the following types of activities for DOE and other Federal agencies for which it cannot directly charge the benefiting Federal agency license fees under 42 U.S.C. 2214:

- a. Review of applications for the issuance of new licenses or approvals. Under the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, as amended, the NRC performs these functions to provide licenses,

## **SUMMARY: Analysis of Proposed FY 1998 Appropriations Legislation**

certificates of compliance, and other approvals to other Federal agencies. An example of such activity would include a DOE application for a large pressurized water reactor dual-purpose cask system for certification as a transportation cask and approval as a storage system.

- b. Consultation and safety review activities for other Federal agencies that the NRC is not statutorily required to perform. Examples of such activities follow:
- DOE is proceeding with a two-phased program of remediation for high-level waste currently contained in tanks located on the Hanford Reservation in Richland, Washington. Phase 1 involves a pilot-scale feasibility demonstration by private contractors under the regulatory control of DOE; Phase 2 would involve full-scale operation by private contractors, possibly licensed by the NRC. At DOE's request, the NRC has undertaken consultation and safety review activities for DOE during Phase 1.
  - At DOE's request, the NRC is providing assistance in assessing and resolving technical and licensing issues with respect to DOE's possible acquisition of commercial light water reactors, or acquisition of irradiation services from commercial light water reactors, for the production of tritium.

15. THE SUM HEREIN APPROPRIATED SHALL BE REDUCED BY THE AMOUNT OF REVENUES RECEIVED FROM LICENSING FEES, INSPECTION SERVICES, AND OTHER SERVICES AND COLLECTIONS, EXCLUDING THOSE MONEYS RECEIVED FOR THE COOPERATIVE NUCLEAR SAFETY RESEARCH PROGRAM, SERVICES RENDERED TO STATE GOVERNMENTS, FOREIGN GOVERNMENTS, AND INTERNATIONAL ORGANIZATIONS, AND THE MATERIAL AND INFORMATION ACCESS AUTHORIZATION PROGRAMS:

42 U.S.C. 2214

The total fees to be collected in FY 1998 are to approximate 100 percent of the Commission's budget authority. Pursuant to 42 U.S.C. 2214, the aggregate amount of the annual charges collected from all licensees shall equal an amount that approximates 100 percent of the budget authority of the Commission in the fiscal year in which such charges are collected, less any amount appropriated to the Commission from the

**SUMMARY: Analysis of Proposed FY 1998 Appropriations Legislation**

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Nuclear Waste Fund and the amount of fees collected under the Independent Offices Appropriation Act of 1952 (31 U.S.C. 9701), for each year of FY 1991 through FY 1998.

Office of Inspector General

16. FOR NECESSARY EXPENSES OF THE OFFICE OF INSPECTOR GENERAL IN CARRYING OUT THE PROVISIONS OF THE INSPECTOR GENERAL ACT OF 1978, AS AMENDED:

Public Law 95-452, 5 U.S.C. app., as amended by Public Law 100-504

Public Law 100-504 amended Public Law 95-452 to establish the Office of Inspector General within the NRC effective April 17, 1989, and to require the establishment of a separate appropriation account to fund the Office of Inspector General.

17. 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.

18. TO REMAIN AVAILABLE UNTIL EXPENDED:

31 U.S.C. 1301

31 U.S.C. 1301 provides that no regular, annual appropriation shall be construed to be permanent or available continuously unless the appropriation expressly provides that it is available after the fiscal year covered by the law in which it appears.

19. AN AMOUNT NOT TO EXCEED 5 PERCENT OF THIS SUM MAY BE TRANSFERRED FROM SALARIES AND EXPENSES, NUCLEAR REGULATORY COMMISSION: PROVIDED, THAT NOTICE OF SUCH TRANSFERS SHALL BE GIVEN TO THE COMMITTEES ON APPROPRIATIONS OF THE HOUSE AND SENATE:

**SUMMARY: Analysis of Proposed FY 1998 Appropriations Legislation**

31 U.S.C. 1301

31 U.S.C. 1301 prohibits the transfer of funds between appropriations without specific statutory authority. This language provides for limited authority to transfer funds from NRC's Salaries and Expenses appropriation to its Office of Inspector General appropriation. This will permit the NRC to augment the Office of Inspector General appropriation on a limited basis, if it becomes necessary, without seeking additional appropriations for that fiscal year.

20. 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:

31 U.S.C. 1532

31 U.S.C. 1532 permits the transfer of appropriated funds from one account to another or to a working fund only when authorized by law.

21. REVENUES FROM LICENSING FEES, INSPECTION SERVICES, AND OTHER SERVICES AND COLLECTIONS SHALL BE RETAINED AND USED FOR NECESSARY SALARIES AND EXPENSES IN THIS ACCOUNT, NOTWITHSTANDING 31 U.S.C. 3302, AND SHALL REMAIN AVAILABLE UNTIL EXPENDED:

31 U.S.C. 9701

The NRC is authorized under Title V of the Independent Offices Appropriation Act of 1952 to collect license fees. Pursuant to 31 U.S.C. 9701, any person who receives a service or thing of value from the Commission shall pay fees to cover the NRC's cost in providing such service or thing of value.

42 U.S.C. 2213

42 U.S.C. 2214

Pursuant to 42 U.S.C. 2213, the NRC is required to assess and collect annual charges from persons licensed by the Commission. Except for the holder of any license for a

**SUMMARY: Analysis of Proposed FY 1998 Appropriations Legislation**

federally owned research reactor used primarily for educational training and academic research purposes, 42 U.S.C. 2214 requires the Commission to assess and collect annual charges from persons licensed by the Commission and the aggregate amount of such charges shall equal an amount that approximates 100 percent of the Commission's budget authority, less any amount appropriated to the Commission from the Nuclear Waste Fund and the amount of fees collected under the Independent Offices Appropriation Act of 1952 (31 U.S.C. 9701), for each year of FY 1991 through FY 1998.

31 U.S.C. 3302

The NRC is required to deposit all revenues collected to miscellaneous receipts of the Treasury unless specifically authorized by an appropriation to retain and use such revenue.

22. THE SUM HEREIN APPROPRIATED SHALL BE REDUCED BY THE AMOUNT OF REVENUES RECEIVED FROM LICENSING FEES, INSPECTION SERVICES, AND OTHER SERVICES AND COLLECTIONS:

42 U.S.C. 2214

The total fees to be collected in FY 1998 are to approximate 100 percent of the Commission's budget authority. Pursuant to 42 U.S.C. 2214, the aggregate amount of the annual charges collected from all licensees shall equal an amount that approximates 100 percent of the budget authority of the Commission in the fiscal year in which such charges are collected, less any amount appropriated to the Commission from the Nuclear Waste Fund and the amount of fees collected under the Independent Offices Appropriation Act of 1952 (31 U.S.C. 9701), for each year of FY 1991 through FY 1998.

## SUMMARY

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### SUMMARY OF BUDGET AUTHORITY BY FUNCTION

	FY 1996 Enacted <sup>1</sup>	FY 1997 Estimate	FY 1998 Estimate	
			Request	Change from FY 1997
NRC Appropriation: Salaries and Expenses (S&E) (\$K)				
Salaries and Benefits	254,281	269,986	274,697	4,711
Contract Support	198,713	188,226	187,943	-283
Travel	14,600	13,588	13,860	272
Total (S&E)	467,594	471,800	476,500	4,700
NRC Appropriation: Office of Inspector General (OIG) (\$K)				
Salaries and Benefits	4,391	4,400	4,200	-200
Contract Support	360	360	360	0
Travel	241	240	240	0
Total (OIG)	4,992	5,000	4,800	-200
Total NRC Budget Authority by Function (\$K)				
Salaries and Benefits	258,672	274,386	278,897	4,511
Contract Support	199,073	188,586	188,303	-283
Travel	14,841	13,828	14,100	272
Total NRC	472,586	476,800	481,300	4,500

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<sup>1</sup>FY 1996 Salaries and Expenses appropriation and the Office of Inspector General appropriation accounts: \$714,000 rescinded pursuant to Public Law 104-134, Omnibus Consolidated Rescissions and Appropriations Act, FY 1996.

## SUMMARY

### SUMMARY OF BUDGET AUTHORITY BY PROGRAM AND BY COST CENTER

	FY 1996 Enacted <sup>1</sup>	FY 1997 Estimate	FY 1998 Estimate	
			Request	Change from FY 1997
Reactor Program by Cost Center (\$K)				
Reactor Regulation	213,861	226,505	230,895	4,390
Standard Reactor Designs	19,398	10,554	3,592	-6,962
Test and Research Reactors	2,156	2,252	2,730	478
Subtotal	235,415	239,311	237,217	-2,094
Nuclear Materials and Nuclear Waste Program by Cost Center (\$K)				
Fuel Facilities	10,858	14,764	12,988	-1,776
Materials Users	28,225	28,833	30,174	1,341
Low-Level Waste and Decommissioning	17,227	17,765	17,427	-338
Other Nuclear Materials and Waste Activities	6,786	7,739	7,215	-524
High-Level Waste	11,000	11,000	17,000	6,000
Subtotal	74,096	80,101	84,804	4,703
Management and Support Program by Cost Center (\$K)				
Policy and Direction	17,421	17,920	18,457	537
Resource and Administration	129,563	124,383	126,152	1,769
Special Technical Programs	11,099	10,085	9,870	-215
Subtotal	158,083	152,388	154,479	2,091
Inspector General Program (\$K)				
Inspector General Program (\$K)	4,992	5,000	4,800	-200
Total NRC	472,586	476,800	481,300	4,500

<sup>1</sup>FY 1996 Salaries and Expenses appropriation and the Office of Inspector General appropriation accounts: \$714,000 rescinded pursuant to Public Law 104-134 Omnibus Consolidated Rescissions and Appropriations Act, FY 1996.

## SUMMARY

### SUMMARY OF STAFFING BY PROGRAM AND BY COST CENTER

	FY 1996 FTE	FY 1997 FTE	FY 1998 FTE Estimate	
			FTE Request	Change from FY 1997
Reactor Program by Cost Center				
Reactor Regulation	1,604	1,604	1,603	-1
Standard Reactor Designs	121	61	22	-39
Test and Research Reactors	20	20	24	4
Subtotal	1,745	1,685	1,649	-36
Nuclear Materials and Nuclear Waste Program by Cost Center				
Fuel Facilities	108	120	117	-3
Materials Users	258	242	238	-4
Low-Level Waste and Decommissioning	115	115	110	-5
Other Nuclear Materials and Waste Activities	67	70	66	-4
High-Level Waste	43	43	44	1
Subtotal	591	590	575	-15
Management and Support Program by Cost Center				
Policy and Direction	177	172	170	-2
Resource and Administration	513	490	476	-14
Special Technical Programs	90	81	78	-3
Subtotal	780	743	724	-19
Inspector General Program	44	43	43	0
Total NRC	3,160	3,061	2,991	-70

## **SUMMARY**

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### **EXPLANATION OF RESOURCE CHANGES**

#### **REACTOR PROGRAM**

FY 1998 Change From FY 1997 ..... -\$2,094,000

The resource decrease in FY 1998 primarily results from completion of standard reactor design certification and research efforts, completion of site licensing and environmental work, completion of significant aging research associated with reactor pressure vessel embrittlement and fracture analysis methods, and reduced overhead resulting from NRC's continued streamlining efforts. These decreases are partially offset by increased personnel costs (pay raises, within-grade increases, and benefits costs increases); work to consolidate thermal-hydraulic analysis codes; increased efforts to develop regulatory guidance governing the use of digital instrumentation and control systems technology and to complete the examination of individual plant susceptibilities to severe accidents and external events; increased staff training and development programs to ensure that critical reactor licensing and inspection expertise continues to be maintained; and additional technical staff support for conducting license reviews and operator licensing activities at nonpower reactors.

#### **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM**

FY 1998 Change From FY 1997 ..... \$4,703,000

The resource increase in FY 1998 primarily results from maintenance of the minimal NRC focused high-level waste repository program and increased personnel costs (pay raises, within-grade increases, and benefits costs increases). These increases are partially offset by decreases resulting from decreased NRC efforts pertaining to the proposed high-level radioactive waste solidification system at Hanford, Washington; anticipated reduction in NRC's materials inspection workload as a result of Massachusetts becoming an Agreement State; and savings from consolidating all of the NRC's nuclear materials event evaluation activities.

## **SUMMARY**

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### **MANAGEMENT AND SUPPORT PROGRAM**

FY 1998 Change From FY 1997 ..... \$2,091,000

The resource increase in FY 1998 results from increased personnel costs (pay raises, within-grade increases and benefits costs increases), increased rent costs, and improvement of the NRC's payroll/personnel system. These increases are partially offset by reductions in administrative and overhead staff as a result of agency streamlining efforts, reduction in NRC's support of the educational grants program, and elimination of travel for Agreement State personnel attending NRC-sponsored training.

### **INSPECTOR GENERAL PROGRAM**

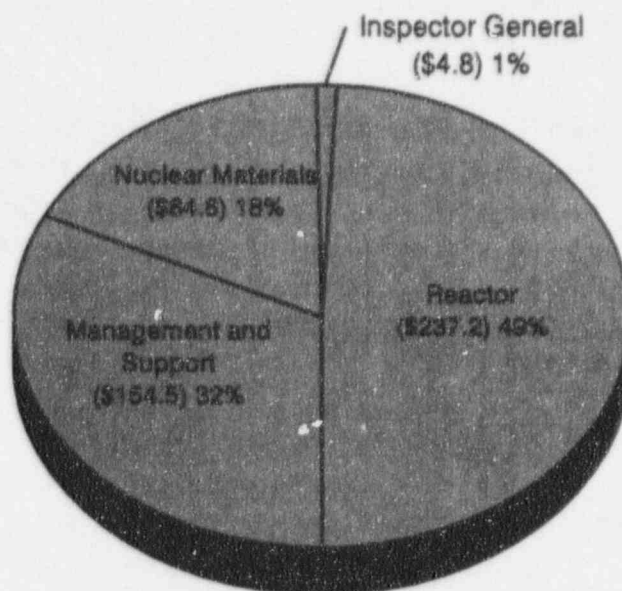
FY 1998 Change From FY 1997 ..... -\$200,000

Resources for this program remain essentially level. There are no significant program changes.

## SUMMARY

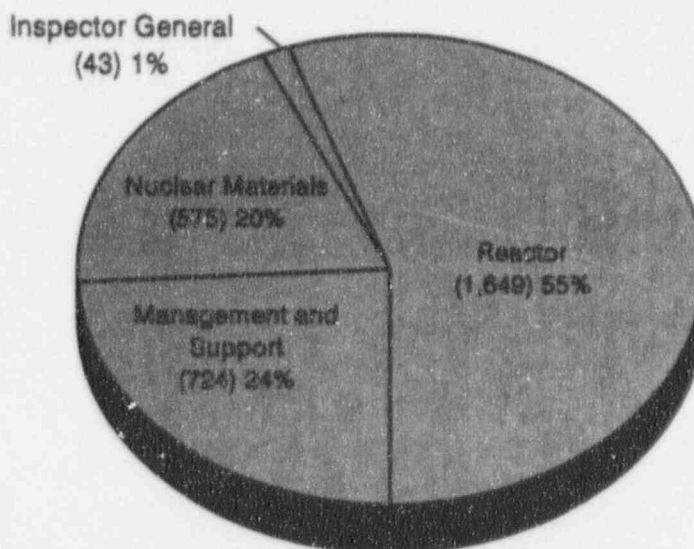
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### DISTRIBUTION OF NRC BUDGET AUTHORITY BY PROGRAM



**FY 1998 (\$481.3 MILLION)**

### DISTRIBUTION OF NRC STAFF BY PROGRAM



**FY 1998 (TOTAL STAFF 2,991 FTEs)**

Note: Percentages are rounded to the nearest whole number.

# **REACTOR PROGRAM**

## REACTOR PROGRAM

(Dollar amounts in tables represent thousands of dollars (\$K). In text, whole dollar amounts are used. Staff numbers represent full-time equivalents (FTEs).)

Total FY 1998 Estimate ..... \$237,217,000

	FY 1996 Enacted	FY 1997 Estimate	FY 1998 Estimate	
			Request	Change from FY 1997
Budget Authority by Function (\$K)				
Salaries and Benefits	147,093	155,501	158,771	3,270
Contract Support	77,671	74,207	68,656	-5,551
Travel	10,651	9,603	9,790	187
Total	235,415	239,311	237,217	-2,094
Budget Authority by Cost Center (\$K)				
Reactor Regulation	213,861	226,505	230,895	4,390
Standard Reactor Designs	19,398	10,554	3,592	-6,962
Test and Research Reactors	2,156	2,252	2,730	478
Total	235,415	239,311	237,217	-2,094
Full-Time Equivalent Employment by Cost Center				
Reactor Regulation	1,604	1,604	1,603	-1
Standard Reactor Designs	121	61	22	-39
Test and Research Reactors	20	20	24	4
Total	1,745	1,685	1,649	-36

### EXPLANATION OF RESOURCE CHANGES

#### **Reactor Regulation**

The net resource increase in FY 1998 results from increased personnel costs (pay raises, within-grade increases, and benefits costs increases). The Reactor Regulation resource requirements continue to increase because of personnel costs even though staff has remained constant and contract support has been reduced.

## **REACTOR PROGRAM**

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A number of significant resource changes have occurred within this cost center. These include increased efforts to consolidate thermal-hydraulic analysis codes; increased staff training and development programs to ensure that critical reactor licensing and inspection expertise continues to be maintained; increased efforts to develop regulatory guidance governing the use of digital instrumentation and control systems technology and to complete the examination of individual plant susceptibilities to severe accidents and external events; completion of site licensing and environmental work; completion of significant aging research associated with reactor pressure vessel embrittlement and fracture analysis methods; and reduced overhead resulting from NRC's continued streamlining efforts.

### **Standard Reactor Designs**

Resources continue to decline in FY 1998 as rulemaking and design-basis-accident tests are completed.

### **Test and Research Reactors**

Resources increase in FY 1998 to provide additional technical staff support for conducting license reviews (e.g., safety and safeguards, emergency response) and operator licensing activities at nonpower reactors.

## **DESCRIPTION OF PROGRAM**

The Reactor Program encompasses all NRC efforts to ensure that commercial and nonpower nuclear reactor facilities are operated in a manner that provides reasonable assurance of adequate protection of public health and safety as required by the Atomic Energy Act of 1954. These efforts include reactor licensing, inspection, and performance assessment managed by the Office of Nuclear Reactor Regulation; reactor regulatory research, as required by the Energy Reorganization Act of 1974, and regulation development managed by the Office of Nuclear Regulatory Research; independent assessment of reactor operational events and experience, incident response, and reactor technical training for NRC staff managed by the Office for Analysis and Evaluation of Operational Data; investigations of alleged wrongdoing by licensees, applicants, contractors, or vendors managed by the Office of Investigations; enforcement sanctions against licensees for violations of NRC regulations managed by the Office of Enforcement; legal advice provided by the Office of the General Counsel; and independent reviews performed by the Atomic Safety and Licensing Board Panel and the

## **REACTOR PROGRAM**

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Advisory Committee on Reactor Safeguards. The Reactor Program also encompasses all NRC regulatory efforts to improve the licensing process for the next generation of standardized nuclear power reactors by minimizing the uncertainty in the regulatory process.

The Reactor Program comprises the following three cost centers: Reactor Regulation, Standard Reactor Designs, and Test and Research Reactors. The funds and staffing for each of the cost centers are discussed on pages 27 through 66. The contract support funds are allocated for work done by Department of Energy (DOE) contractors, commercial contractors, small business entities, nonprofit organizations (e.g., universities and foundations), and grantees. The narrative that follows describes these cost centers and addresses the reasons why the resources are needed.

## REACTOR PROGRAM

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### Reactor Regulation Cost Center

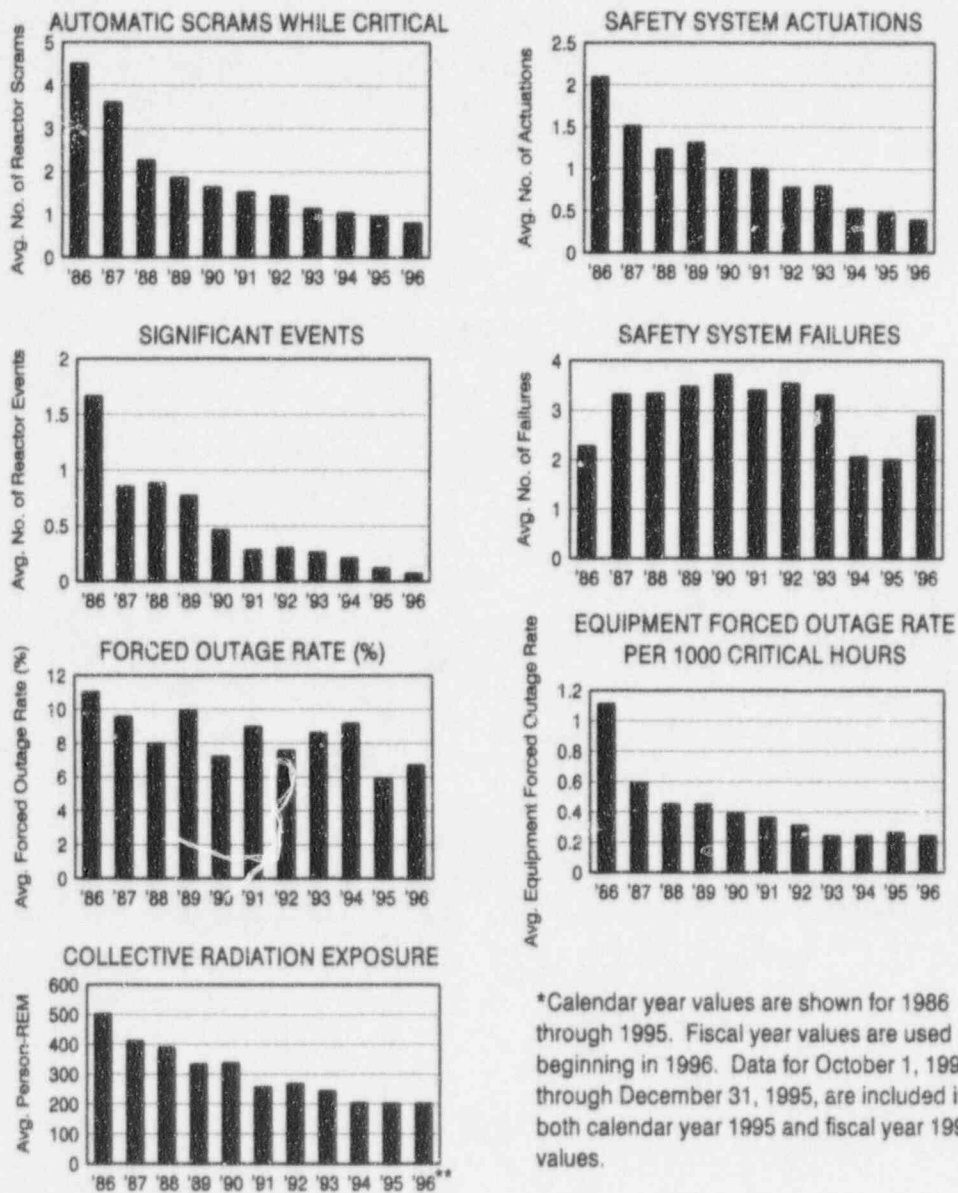
	FY 1996 Enacted	FY 1997 Estimate	FY 1998 Estimate	
			Request	Change from FY 1997
Budget Authority by Function (\$K)				
Salaries and Benefits	134,771	147,797	154,235	6,438
Contract Support	68,781	69,441	67,200	-2,241
Travel	10,309	9,267	9,460	193
Total	213,861	226,505	230,895	4,390
Budget Authority by Activity (\$K)				
Reactor Inspection	51,454	59,920	62,011	2,091
Reactor Oversight	55,018	55,824	59,365	3,541
Reactor and Site Licensing	1,232	696	0	-696
Reactor Aging and Renewal	22,706	22,769	22,333	-436
Reactor Safety Assessment and Regulation Development	36,585	38,569	39,523	954
Independent Analysis of Operational Experience	12,586	13,333	13,101	-232
Technical Training and Qualification	7,544	6,265	6,563	298
Investigations, Enforcement, and Legal Advice	5,707	6,154	6,289	135
Independent Review	4,454	5,568	5,770	202
General Support	16,575	17,407	15,940	-1,467
Total	213,861	226,505	230,895	4,390

## REACTOR PROGRAM: Reactor Regulation

	FY 1996 Enacted	FY 1997 Estimate	FY 1998 Estimate	
			Request	Change from FY 1997
Full-Time Equivalent Employment by Activity				
Reactor Inspection	570	569	565	-4
Reactor Oversight	520	521	543	22
Reactor and Site Licensing	7	2	0	-2
Reactor Aging and Renewal	69	71	71	0
Reactor Safety Assessment and Regulation Development	92	96	99	3
Independent Analysis of Operational Experience	66	61	61	0
Technical Training and Qualification	27	28	27	-1
Investigations, Enforcement, and Legal Advice	58	58	57	-1
Independent Review	41	48	48	0
General Support	154	150	132	-18
Total	1,604	1,604	1,603	-1

The safety of commercial nuclear power reactor operations is the responsibility of NRC licensees. The regulatory oversight of licensee safety is the responsibility of NRC. The safety performance of licensees is partially a reflection of the NRC's performance; however, it is not possible to isolate the causal relationship or a specific set of factors that directly link the NRC's performance to licensee performance. Safety performance indicators reflect the collective results of the efforts of the NRC and the nuclear industry. The overall trends in industry performance indicate that the NRC is succeeding in its mission of protecting public health and safety (Figure 1). Although operating experience in recent years shows that, overall, the performance at reactors has been improving, the NRC continues to identify individual plants with marginal performance and significant operational problems.

Figure 1  
LICENSEE PERFORMANCE INDICATORS  
FOR OPERATING NUCLEAR POWER REACTORS  
Annual Industry Averages, 1986-1996\*



\*Calendar year values are shown for 1986 through 1995. Fiscal year values are used beginning in 1996. Data for October 1, 1995, through December 31, 1995, are included in both calendar year 1995 and fiscal year 1996 values.

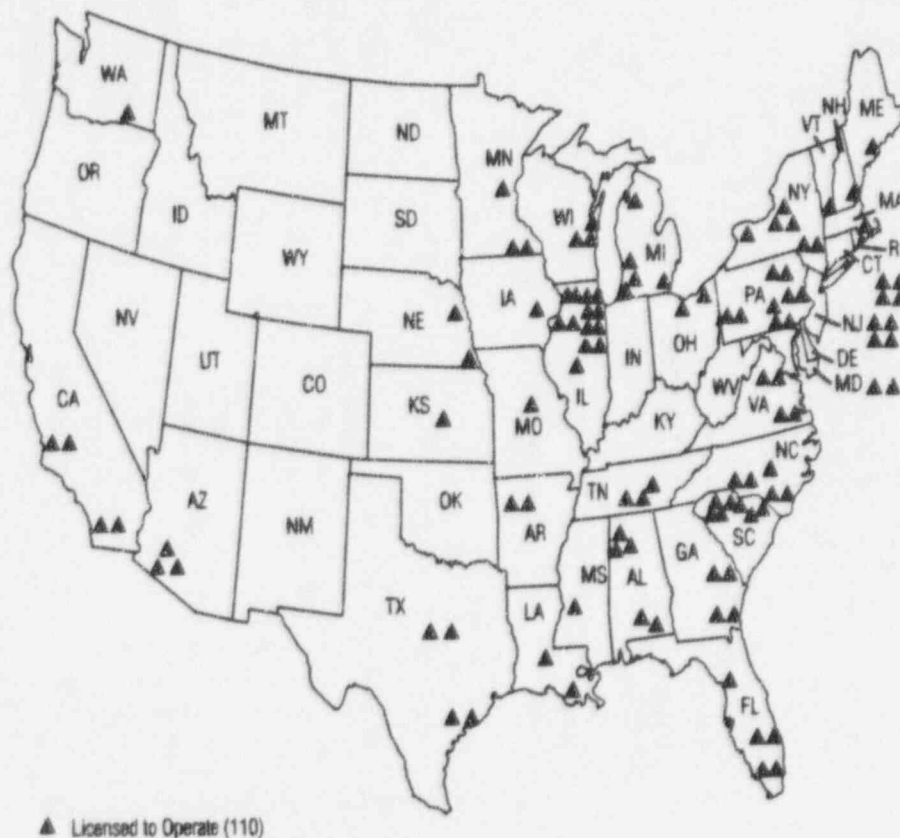
\*\*Based on annual projections from first three quarters of calendar year 1996.

## **REACTOR PROGRAM: Reactor Regulation**

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The number of power reactors with operating licenses for which the NRC has regulatory responsibility is not expected to change over the next few years. No new operating licenses are under review. Safety questions will continue to arise at the 110 reactors currently licensed to operate (Figure 2), and unexpected operational events will continue to occur as plants continue to age. In addition, as a result of increasing economic pressure on licensees, the number of licensee activities directed at saving costs is increasing. For example, there is greater use of probabilistic risk assessments in developing risk-informed, performance-based regulations for meeting regulatory requirements that will allow for cost savings. The use of these approaches, however, will likely require detailed review by the NRC to ensure that safety margins will be maintained.

Figure 2  
U.S. COMMERCIAL NUCLEAR POWER REACTORS



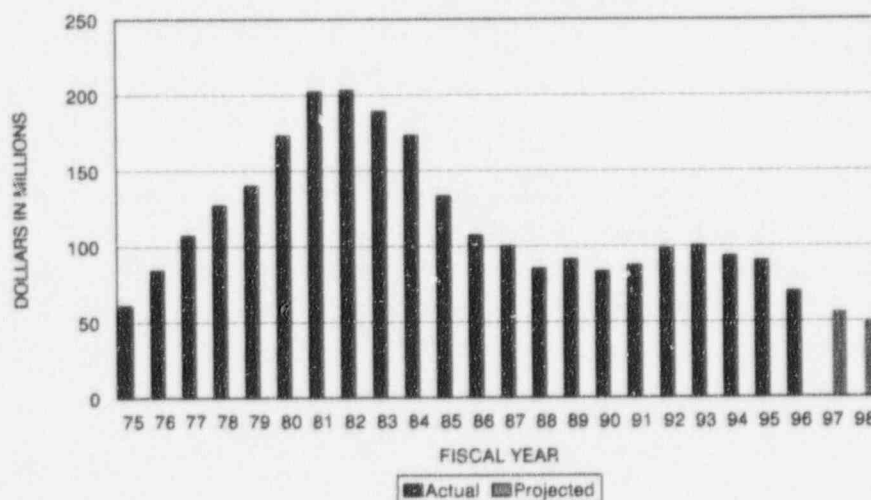
## REACTOR PROGRAM: Reactor Regulation

The challenges and influences that govern reactor regulation include changes in the safety performance of the industry, increased economic pressures on licensees, emergence of new safety issues as the industry continues to mature, availability of new technology, and the maintaining of appropriate public awareness of and involvement in the regulatory process. Maintaining a viable NRC research program is essential for the NRC to successfully face these challenges. The NRC research program provides the independent expertise and information necessary for making timely regulatory judgments, anticipating problems of potential safety significance for which new or expanded knowledge can assist the NRC in pursuing its mission, and developing regulations and regulatory guides pertaining to Commission policy or technical requirements. Over the years, the research program has been significantly reduced to reflect the changing environment and the maturing nuclear industry.

The current research program focuses on supporting the NRC's review of emerging technologies (e.g., digital instrumentation and control systems) and of nuclear plant aging issues arising as a result of operating experience and the need to prepare for license renewal and understanding new safety issues regarding design-basis accidents and severe accidents that were identified from the NRC's review of advanced reactor designs.

During FY 1995, a major reassessment of the role and scope of the research program was conducted to ensure that research was properly focused given the maturing nuclear industry, and that technical expertise in key technical disciplines was maintained. The FY 1998 research budget is 25 percent of its peak year and has been reduced by half within the past 5 years (Figure 3). The FY 1998 research budget is designed to satisfy stated regulatory needs

Figure 3  
RESEARCH BUDGET TRENDS  
Contract Support



## **REACTOR PROGRAM: Reactor Regulation**

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by performing experiments or developing analytical tools that the NRC uses to independently confirm an applicant's or licensee's analysis, or to explore issues or anticipated problems of potential safety significance for which new or expanded knowledge can help the NRC to accomplish its mission. Increasing the NRC's knowledge and understanding of the underlying technologies or phenomena related to the NRC's safety mission helps the NRC discover unforeseen situations and thereby prepares the NRC to deal with them.

The current research program consists primarily of (1) experiments of various sizes and scales in such areas as thermal-hydraulics and fuel behavior, material properties characterization of important components (e.g., reactor vessels, reactor internal components), severe accidents, and aging of electrical and mechanical components; (2) the development and validation of analytical models and computer codes that are used to evaluate and/or predict the behavior of a nuclear power plant's response to various accidents and transients in order to assess the performance of a plant's engineering safety features and the plant itself, including effects on the health and safety of the public; and (3) probabilistic risk assessments and development of human factors models and methodology to support risk-informed decisionmaking.

An important component of the NRC research program is conducted through a large number of cooperative international agreements with nuclear safety organizations in more than 20 countries. Interest in the NRC research program gives the NRC the opportunity to participate in research programs of other countries. Through cooperation, the NRC obtains valuable information often at a comparatively small cost, especially when it can avoid the expenses associated with developing and maintaining large experimental facilities, (e.g., the NRC is obtaining valuable research data from France, Japan, and Russia regarding the performance of high burnup fuel). NRC's own research program also allows it to play a leadership role in such international organizations as the Nuclear Energy Agency and the International Atomic Energy Agency, thus providing substantial benefit to the United States.

### **Reactor Inspection**

The inspection program is designed to ensure, through selective examinations, that the licensee identifies and resolves safety issues before they affect safe plant operations. The NRC inspection program is audit oriented to verify that relevant activities are being properly conducted and equipment properly maintained to ensure safe operations. The inspection program comprises three major program elements: core inspections, plant-specific regional initiative inspections, and generic issues inspections.

## **REACTOR PROGRAM: Reactor Regulation**

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The core inspections are performed at all operating reactors and focus on licensee performance in the areas of plant operations, maintenance, engineering, plant support (which includes security, radiation protection, and emergency preparedness), and licensee effectiveness in identifying, resolving, and preventing problems. Resident inspectors carry out the major part of the core inspection program and participate in regional initiative and generic safety issue inspections. Their primary job is to observe, evaluate, and report on the adequacy of licensee nuclear safety activities. The NRC assigns at least two resident inspectors to each operating reactor site.

Plant-specific regional initiative inspections are performed as needed to follow up on operational events and safety issues, and to further investigate the root causes and corrective actions related to inspection findings. In general, the level of regional initiative inspection performed at each site is a function of that site's performance. Region-based and headquarters inspectors supplement the activities carried out by resident inspectors. NRC inspectors also respond to allegations of safety and safeguards violations at nuclear facilities and provide technical support to investigative personnel. The number of allegations being raised at power plants increased in FY 1996 and is expected to continue at that level through FY 1998. Approximately 800 allegations are expected to be processed by the NRC each year.

Generic issue inspections are one-time inspections that address areas of emerging safety concern or areas requiring increased emphasis because of recurring problems. Like core inspections, generic issue inspections are required to be conducted at sites independent of performance. Previously conducted generic issue inspections include team inspections of maintenance, emergency operating procedures, and electrical distribution and service water systems.

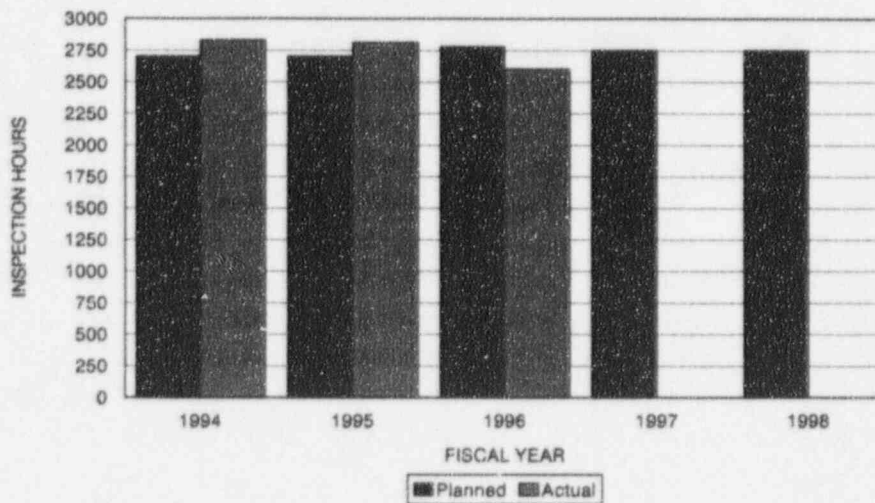
Recent inspections at nuclear power reactor facilities found that actual plant configurations or operations were not consistent with the plant's licensed design basis. The NRC is instituting design inspections in FY 1997 that will focus on plant design and consistency of the as-built configuration and plant operations with the facility licensing documents. The NRC plans to conduct 12 of these team inspections annually.

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Historically, NRC staff spends an annual average of approximately 2,700 to 2,800 hours in direct onsite inspection activities at each reactor (Figure 4). This overall average is used to plan resource allocations for each reactor and is adjusted on the basis of licensee performance. For example, plants that have demonstrated superior performance in specific areas of the NRC's systematic assessment of licensee performance program may receive only the core inspection and generic safety issue inspections. To ensure that resources are allocated effectively to enhance reactor safety, significant flexibility exists to conduct additional inspections of safety problems and of plants that require special attention.

Figure 4  
DIRECT REGION ONSITE INSPECTION HOURS PER UNIT

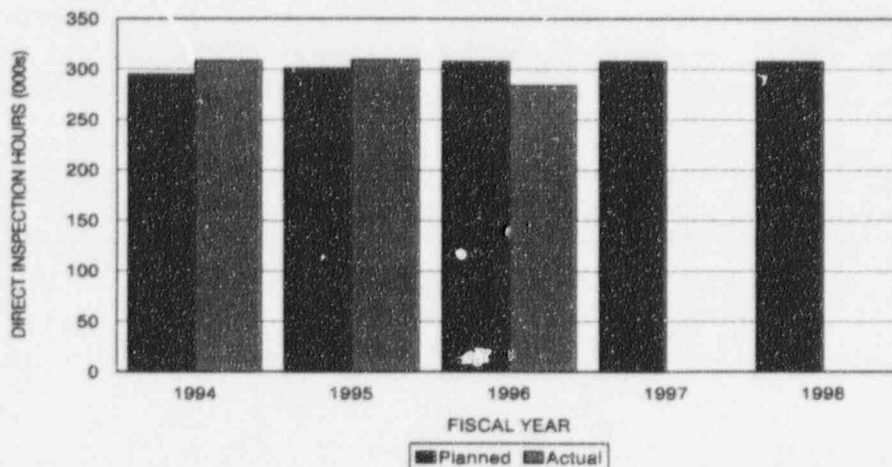


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The NRC expects that the total direct onsite inspection hours expended by resident and region-based inspectors will remain relatively constant through FY 1998. (Figure 5).

Figure 5  
DIRECT INSPECTION HOURS



The NRC also conducts vendor/contractor and reactor operator requalification program inspections. Approximately 35 reactor vendor/contractor inspections are conducted each year. These inspections are reactive in nature and determine whether suppliers of materials, components, and services used in nuclear power plants are complying with NRC requirements. These inspections improve reactor safety by ensuring that (1) root causes of reported vendor-related problems are identified and that suitable corrective actions are developed and implemented and (2) fraudulently marketed products are traced to their source. Approximately 40 reactor operator licensing requalification program inspections are conducted each year to evaluate licensee examination and training programs and to improve operational safety through early identification and correction of programmatic weaknesses.

### Reactor Oversight

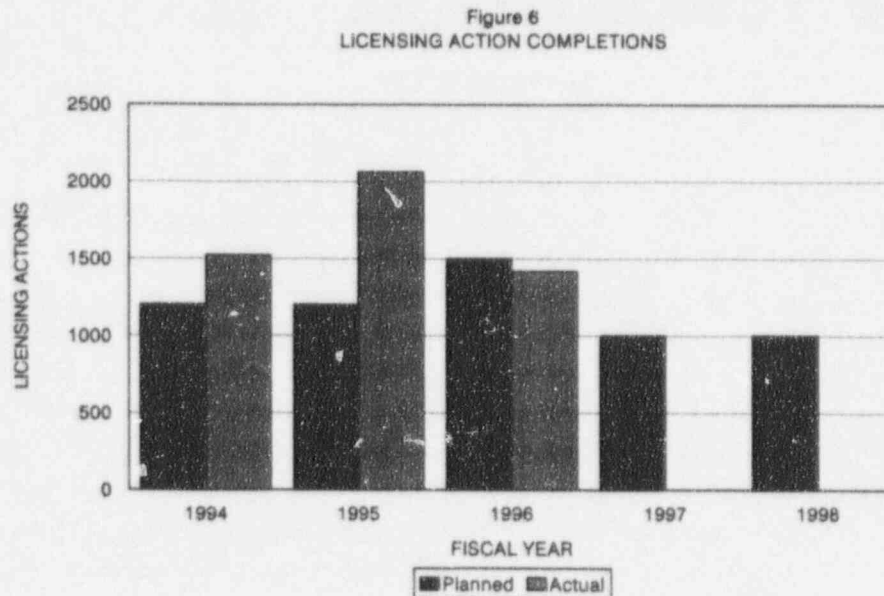
Each operating reactor is assigned a project manager to perform the overall management activities pertaining to the regulation of nuclear power plants and to serve as the primary headquarters point of contact with licensees, other NRC staff, and the public on safety matters concerning specific plants. This includes coordinating complex technical reviews, evaluating overall licensee performance, assisting the regions in developing inspection plans, consulting with State and local officials, and replying to public and congressional inquiries.

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Operating license requirements frequently need to be changed as a result of routine activities, technical advances, or unexpected events at power plants. A detailed technical review of applications from licensees for amendments to their operating licenses, such as technical specification changes and modification of license conditions, including exemption requests, is necessary to ensure that the operational safety of the plant is not compromised. These licensing actions require NRC approval before the licensee can take the requested action. Without such approval, the licensee cannot make the changes requested and, in some cases, may be required to shut down the plant if operation is not feasible under the current license conditions.

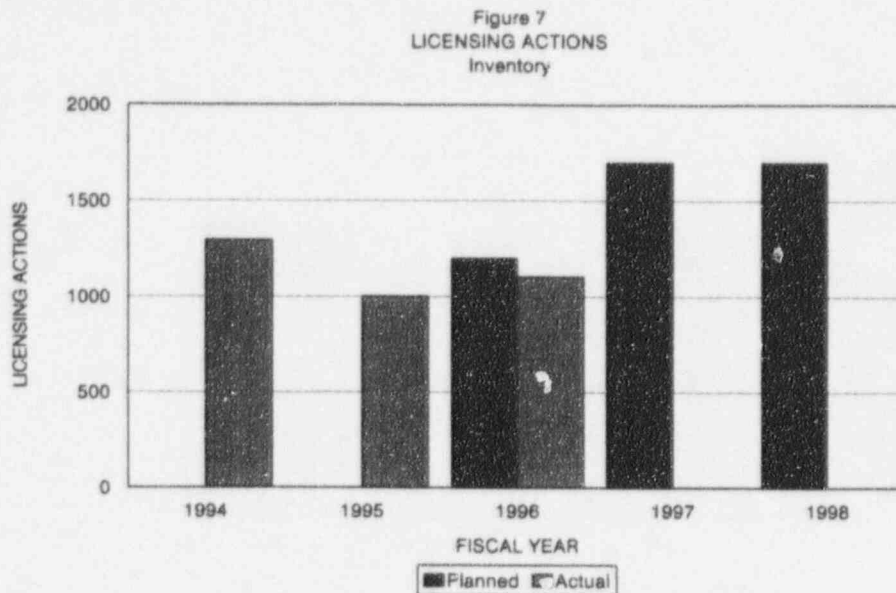
During FY 1997 and FY 1998, the NRC expects to complete approximately 1,000 licensing actions, about 400 fewer than in FY 1996 (Figure 6). This will increase the number of licensing actions in the inventory, as well as their median age.



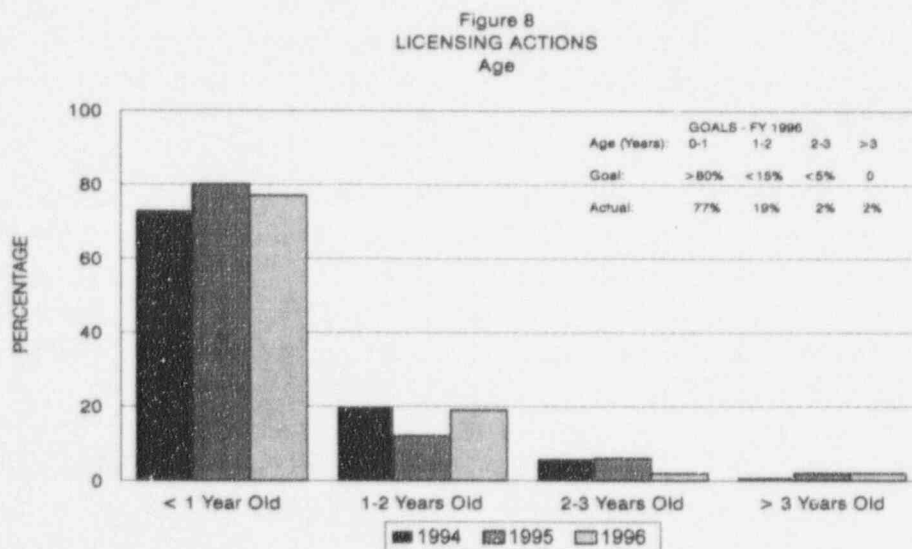
The NRC has made steady progress in reducing the licensing action inventory for the past 5 years. In FY 1996, the inventory increased because of two primary factors. First, recent findings identified some inconsistencies in the compliance of the design basis and operating procedures at Millstone and Maine Yankee. The NRC is actively addressing and taking corrective action, as necessary, at Millstone and Maine Yankee and is assessing whether there are generic implications that could result in changes to the regulatory process. As a result, some licensing actions are not being processed as quickly. Second, the NRC's program for

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amending licenses to convert to standard technical specifications is expected to result in an increase in the number and complexity of licensing actions being submitted. (Figure 7).



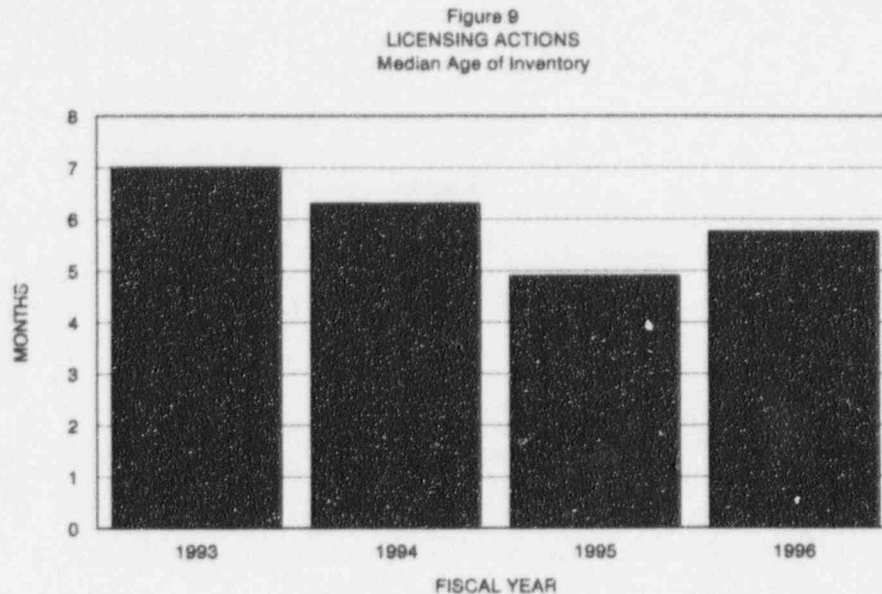
The NRC has established goals to control the size and age of the licensing action inventory. These goals call for 80 percent of these actions to be 1 year old or less, 95 percent to be 2 years old or less, and all actions to be no more than 3 years old. (Figure 8).



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It is anticipated that the median age of the inventory will increase because of the same factors previously mentioned. (Figure 9).



Over 99 percent of the actions in inventory are plant-specific actions requested by licensees, and the rest are the result of NRC-imposed requirements. These actions include conversions of plant-specific technical specifications to the improved standard technical specifications, which are more operator oriented. Through this joint NRC and industry initiative, approximately 66 operating reactors are scheduled to convert existing technical specifications to the improved standard technical specifications by the end of FY 1998. At the end of FY 1996, 14 units were converted. In FY 1997, 36 additional units are expected to be converted; 16 more units are expected to be converted in FY 1998.

Another major licensing action effort will result from applications from licensees to increase their power ratings by a small percentage (5 percent). Licensees of approximately 10 boiling water reactor (BWR) units have expressed interest in the BWR power uprate program; power uprates could increase the available electrical generating capacity in the United States by 1,000 megawatts with minimal plant modification and minimal impact on plant safety margins. The NRC expects to process four to six power uprate applications in FY 1998.

Issues that do not require NRC review and approval before they are implemented by the licensee are considered "other licensing tasks." These other licensing tasks include (1) issuing orders imposing requirements on licensees or license modifications that result from the NRC

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generic issue program, (2) responding to petitions from interested parties requesting action pursuant to 10 CFR 2.206, and (3) evaluating information received from individual licensees in response to requests for information (e.g., generic letters and bulletins) or as required by regulation or license conditions as part of the NRC's responsibility for reviewing the safety of the operating licensed facilities (e.g., final safety evaluation report updates, 10 CFR 50.59 reports, and changes to quality assurance, safeguards, and emergency preparedness plans). The NRC expects to complete approximately 750 other licensing tasks in FY 1998. (Figure 10) (Figure 11).

Figure 10  
OTHER LICENSING TASK COMPLETIONS

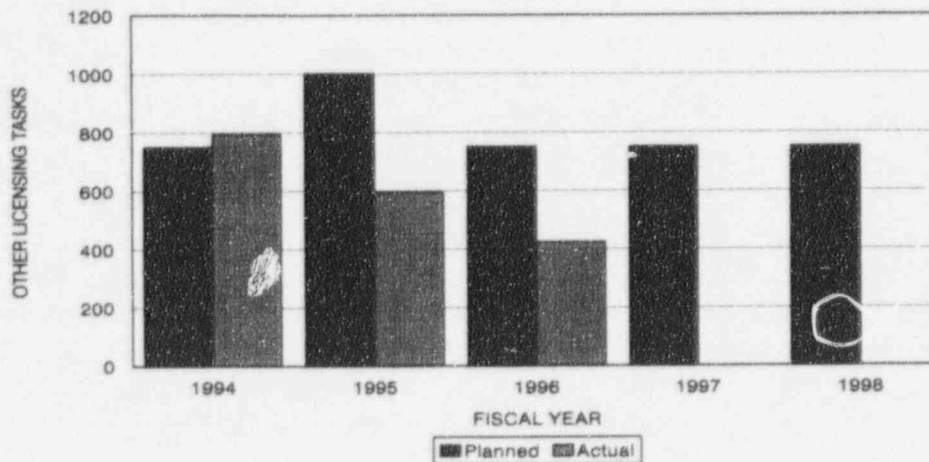
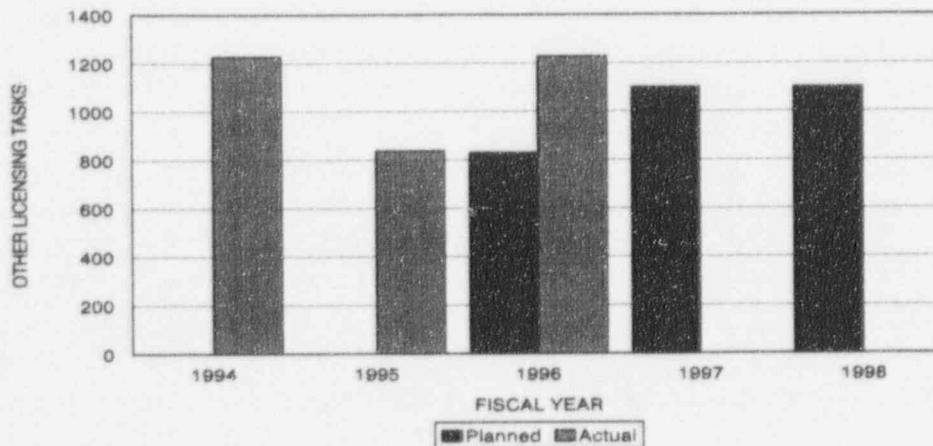


Figure 11  
OTHER LICENSING TASKS  
Inventory



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The NRC can streamline the licensing action process by reviewing and approving topical reports submitted by licensees, vendor/owner groups, and other parties. Topical reports deal with safety issues and cost-beneficial changes common to a set of plants. The NRC will review only the most safety-significant and cost-beneficial topical reports in FY 1998. Further, in dealing with issues that affect particular types of plants or that are of interest to multiple licensees, the NRC can better integrate and coordinate its efforts by working with vendor/owner groups and other entities. Project managers are assigned to such entities to serve as points of contact to coordinate complex technical reviews, and to interact with these entities and with licensees on safety and regulatory issues affecting power reactors.

Experience has shown that safety issues will continue to arise as a result of events at operating reactors. The NRC's performance assessment program and processes are designed for identifying early significant declining trends in performance and ensuring recognition and resolution of safety-significant events and conditions specific to individual plants or generic to the nuclear power industry. The NRC continually monitors and assesses the performance of nuclear power plant licensees to verify that plants are operated safely, and continually analyzes operational data to identify safety issues and degradations in performance. Prompt technical screening and assessments of approximately 1,500 to 2,000 nuclear reactor event reports and other incoming data result in approximately 400 items that require followup each year by the NRC. In some instances, the NRC licensees are requested to submit information or to take other actions in response to such potential safety concerns of a compliance nature. Followup can also result from technical assessments of potential generic safety questions, from licensee reports of defects and/or noncompliance, or from allegations. The NRC manages and tracks potential generic safety questions until they are resolved and documented in agency databases for future reference. If the NRC determines that a potential safety concern exists, it recommends corrective action and provides prompt operating experience feedback to licensees or vendors. Approximately 100 of these generic communications are issued each year.

In addition to integrating the results of inspections and other performance insights on an ongoing basis, the NRC conducts short-term integration activities at least twice each year to identify performance trends and make necessary adjustments to the inspection program through the plant performance review process. This process includes evaluating insights regarding the licensees' ability to identify, resolve, and prevent issues that degrade the quality of plant safety.

In addition, the NRC conducts periodic long-term integration of licensee performance and trends through the systematic assessment of licensee performance (SALP) program. The results of these long-term assessment activities are provided to licensees and are made

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available to the public. Each operating reactor site undergoes a SALP in the areas of operations, maintenance, engineering, and plant support on about an 18 to 24-month schedule. In FY 1998, the NRC plans to issue approximately 45 SALP reports covering approximately 70 operating units.

The senior management meeting process, the primary focus of which is operational safety, overlays all performance assessment processes and provides the highest level of NRC management attention to those plants that have exhibited significant performance weaknesses and recognition to plants that have demonstrated sustained superior performance. Senior management meetings are held semiannually and result in a coordinated course of action for those plants whose performance is of most concern to the NRC. As of June 1996, six plants have exhibited performance weaknesses. For FY 1995 and FY 1996, nine plants were recognized for superior performance.

In FY 1998, the NRC will conduct approximately 35 inspections to evaluate the effectiveness of licensee controls in identifying, resolving, and preventing problems. The NRC's oversight of industry quality assurance programs serves as another vehicle to ensure acceptable operational safety at nuclear power plants by determining the underlying causes of major operations-related problems and by ensuring their timely detection and correction. The NRC will also review revisions to licensee quality assurance programs. The NRC will continue to develop and implement methodology, procedures, guidance, and training for NRC inspectors and technical staff. In addition, it will continue to support industry initiatives to perform critical self-assessments, which are designed to heighten licensee awareness and to enhance licensee ability to predict plant performance trends and resolve associated problems as early as possible. Through FY 1998, the NRC will continue to conduct inspections at all licensee facilities to evaluate licensee implementation of the performance-based maintenance rule.

The NRC must license all personnel authorized to operate reactors. To fulfill this responsibility, the NRC will administer approximately 450 initial examinations to new reactor operators in FY 1998 to ensure that operating plants are staffed by qualified personnel. As part of the initial examination process, approximately 350 generic fundamentals examinations will also be conducted annually to measure the candidates' knowledge of reactor theory, plant components, and thermodynamics. Currently, examinations are usually fully written by NRC staff and contractors. The NRC has conducted pilot examinations and meetings with the industry as part of an initiative to revise the initial examination process that would require licensees to prepare examination material for NRC review and approval. The NRC has reviewed results obtained from the pilot examinations, meetings, industry comments, potential effects on reactor safety, a rulemaking plan, and other information to determine whether the initial examination process should be revised. A proposed rule to revise the process will be

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issued in FY 1997. Until a final rule is adopted, applicants for operator licenses will continue to be examined by using either NRC-prepared tests or those prepared by utilities participating in the pilot program. The cross-training of inspectors implemented in FY 1997 will continue into FY 1998. Additional qualified staff that perform other inspection functions are necessary to allow the NRC flexibility to accommodate examination schedules and account for staff turnover.

The NRC will continue to conduct reactor operator requalification examinations at selected facilities only "for cause" such as inspection results or licensee performance problems.

The NRC continues to endorse the Training Accreditation Program managed by the Institute of Nuclear Power Operations (INPO). The NRC will observe the INPO's accreditation team by visiting two sites in FY 1998 and by observing the discussions of representatives from the INPO team and from the utilities before the National Nuclear Accrediting Board. The NRC also plans to conduct approximately four training program inspections to ensure program effectiveness.

The NRC completed a rulemaking in FY 1996 that redefined the decommissioning process. As a result of this rulemaking, burdens on licensees were reduced, NRC resources were reduced, and information on decommissioning activities was made more accessible to the general public. The NRC will continue to provide project management oversight of the 12 reactors in the decommissioning process, including reviews of all proposed license amendments, exemption requests, and post shutdown decommissioning activity reports.

As part of its mission to ensure the protection of public health and safety, the NRC must maintain the ability to ensure nuclear power facilities are properly protected against radiological sabotage and theft of nuclear materials. In its continuing effort to evaluate the threat environment, the NRC assesses all reported information on potential or actual threats worldwide; adversary characteristics and intentions and capabilities of terrorist groups; and any relevant domestic or foreign events of a nuclear or nonnuclear nature. A team of specialists is available to work with other Federal agencies to assess reported threats and to work with NRC licensees to respond promptly.

### **Reactor Aging and Renewal**

The NRC must be prepared to evaluate licensee applications to renew current reactor operating licenses beyond their expiration dates and to evaluate issues related to plant aging as they emerge. Preparation to evaluate licensee renewal applications involves determining technical

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and policy issues, resolving licensing issues, and defining the criteria and process to review such renewal applications. The NRC has amended 10 CFR Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," to provide a more stable and predictable regulatory process for license renewal, and 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," to enhance the agency's environmental review process for reactor license renewal. The NRC has begun efforts to develop regulatory guidance and standard review plans for license renewal.

The current industry approach is focused on submitting, in lieu of a formal license renewal application, plant-specific or owners group generic reports for NRC review and approval. It appears that this approach will provide a potential applicant with better information on the cost of obtaining a renewed operating license, including the cost of any additional aging management programs. The staff received five technical reports from the Baltimore Gas and Electric (BG&E) Company in FY 1996 for review. BG&E intends to submit as many as 21 additional technical reports through FY 1997. The BG&E program could result in a license renewal application in FY 1997. In addition, the Duke Power Company informed the staff that it will submit technical information on its Oconee Nuclear Station, Units 1, 2, and 3, in a series of six topical reports beginning in FY 1996 and continuing through FY 1997. These reports are intended to support a potential license renewal application possibly in FY 1998. The Westinghouse owners group, Babcock & Wilcox owners groups, and Boiling Water Reactor owners group submitted generic license renewal topical reports for staff review in FY 1996. Additional owners group topical reports are scheduled for submittal through FY 1997.

Aging affects all reactor systems, structures, and components and has the potential to increase risk to public health and safety if its effects are not properly managed. Aging degradation stems from exposure to reactor operating temperatures, irradiation environments, water coolant, and general wear and fatigue. However, the specific aging-related degradation mechanisms of components can be difficult to identify, and their effects may be difficult to quantify. Thus, research is needed to provide the data and analysis tools necessary to identify, quantify, manage, and regulate the effects of aging in nuclear power plants. The assessment of the safety implications of aging will be used as the basis for ensuring continued safe operation and making decisions on extending reactor operation beyond the original license period of 40 years. The NRC reactor aging research program is focused on six areas: (1) reactor pressure vessel, (2) environmentally assisted cracking, (3) steam generators, (4) inspection procedures and techniques, (5) electrical and mechanical components, and (6) engineering standards support.

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**Reactor Pressure Vessel**--The reactor pressure vessel is susceptible to several forms of degradation, reactor irradiation embrittlement is the most important. Since reactor pressure vessel embrittlement issues can effectively limit the useful life of a nuclear power plant, evaluations of the variability in chemistry and mechanical properties of reactor pressure vessel materials are being performed and methods for mitigating the embrittlement have been sought. Since ensuring reactor pressure vessel integrity is fundamental to ensuring nuclear plant safety, the NRC is conducting both confirmatory and exploratory research to address reactor pressure vessel integrity issues. The research involves experimental and analytical efforts addressing embrittlement, thermal annealing, and reactor pressure vessel evaluation methods. The research includes strong emphasis on understanding the controlling factors so that empirical databases can be confidently extrapolated to plant-specific conditions, and on experimental validation of the analysis methods and predictive models. Research will provide improved and more reliable methods for assessing irradiation effects on reactor pressure vessel steels and fracture behavior of embrittled reactor pressure vessel materials. This information is required to ensure reactor pressure vessel integrity, establish appropriate margins for integrity assessments, and assess proposed revisions to plant operating limits.

**Environmentally Assisted Cracking**--As reactors age and reactor components approach their end of life, environmentally assisted cracking (e.g., effects of water coolant) continues to be a problem in components critical to safety, such as reactor internals and piping nozzles. The NRC is making regulatory decisions regarding continued operation and repair methods for these cracked components, and needs independent data and analyses to assess licensee submittals concerning residual life, inspection intervals, and repair and mitigation techniques. Research on methods for predicting environmentally assisted cracking of alloys used in critical structures and assessing the implications of these phenomena will be conducted.

**Steam Generators**--The tubing inside pressurized water reactor steam generators constitute more than 50 percent of the primary pressure boundary surface and is an important barrier to the release of fission products to the environment. Steam generator tubing has been susceptible to several types of degradation that have changed over time. Denting and wastage were prevalent in the 1970s, but stress corrosion cracking and intergranular attack are the dominant forms today. The continuing evolution in types of degradation, and its severity, has created a situation where the models used to predict tube integrity are not always appropriate for current applications. Further, the degradation is difficult to detect and characterize (e.g., to determine its depth and length) even using state-of-the-art inspection techniques. The NRC is developing a performance-based rule and regulatory guide for assessing the integrity of steam generator tubes. These regulatory documents are intended to permit licensees to develop and implement programs that can address plant-specific degradation as it evolves. However, research is needed to provide technical bases for certain aspects of the rule and regulatory

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guide. Research will provide independent data, methods, predictive models, and criteria to evaluate licensee programs designed to meet the performance criteria of the rule. The research will address any new forms of steam generator tube degradation that may develop, inspection capabilities, degradation processes, leak and rupture analysis methods, metallurgical assessments, pressure tests of service-degraded tubes, and potential impact of steam generator tube degradation on severe accident analysis.

**Inspection Procedures and Techniques**--NRC regulations require licensees to perform inservice inspections (ISIs) of specific components during the plant lifetime. The NRC needs to ensure that significant flaws in important components are characterized so as to be able to independently evaluate the effectiveness of existing licensee ISI programs. Research will be conducted to evaluate the reliability and accuracy of existing ISI programs for detecting and sizing flaws in components, assess techniques for inspecting difficult inspection areas, assess the implementation of risk-ranking concepts in the development of ISI programs, evaluate improvements in ISI programs, assess methods for incorporating the results of ISI of working vessels into a general methodology to predict flaw size and density distribution for use in pressurized thermal shock analysis; and provide technical support and consultation on general ISI issues. As a part of the NRC's policy on risk-informed regulation, activities are under way to review risk-informed inservice inspection of piping and components at selected pilot plants.

**Electrical and Mechanical Components**--As plants age, the integrity and reliability of electrical and mechanical components can be challenged by age-related degradation. The NRC needs techniques and data to provide an independent basis for evaluating emerging issues and licensee programs for addressing those issues. The NRC promulgated 10 CFR 50.49, "Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants," to provide a basis for ensuring the operability of key equipment after an accident. However, the guidelines for demonstrating the environmental qualification of electric cables changed over time. Additionally, as the understanding of the effects of temperature and irradiation on cable insulation has improved, new questions have emerged concerning its long-term performance. Research is needed to develop technical bases and guidelines for determining the adequacy of the environmental qualification requirements for safety-related cables inside the containment. Research will evaluate condition monitoring methods and the survivability of aged cable insulating materials under loss-of-coolant-accident (LOCA) conditions.

Because of the potential safety significance of common mode failures and operational degradation of safety-critical mechanical components and the need for independent assessments and data in support of regulatory decisions, the NRC is conducting both exploratory and confirmatory research addressing the integrity and reliability of mechanical

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components and the inspection, surveillance, test, and maintenance programs designed to ensure their integrity and reliability. The research program includes experimental efforts to provide data to address specific performance issues and analytical efforts to assess operability and reliability data based on service experience.

**Engineering Standards Support**--In FY 1998, the NRC will propose amendments to 10 CFR 50.55a, "Codes and standards," to (1) approve the 1989 through 1996 Addenda for Sections III and XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME BPV Code) as the latest edition incorporated into the regulations; (2) approve the 1990 through 1996 Addenda of the ASME Code for Operation and Maintenance of Nuclear Power Plants which contains rules for inservice testing of pumps and valves; (3) expedite implementation of the rules for demonstrating the performance of ultrasonic examination systems discussed in Appendix VIII, Section XI, of the ASME BPV Code, to require more effective ultrasonic examinations; and (4) on the basis of new industry input, remove the modification in 10 CFR 50.55a that applies to ASME rules for inservice testing of containment isolation valves.

### **Reactor Safety Assessment and Regulation Development**

The NRC safety research program is conducted to (1) provide an indepth examination and understanding of abnormal operating events and plant transients experienced by the nuclear industry, including evaluations of overall plant risk; (2) understand and provide a technical basis for acceptance of operator/control-system designs considering effects on human and total systems performance; (3) understand ways to prevent and mitigate the consequences of severe core damage or core-melt accidents; (4) improve the NRC's ability to evaluate the potential effects of earthquakes on reactor operations; (5) assess the adequacy of safety margins in the current analysis methods used to ensure reactors can continue to operate safely; and (6) manage the development of revised reactor-related regulations, policy statements, and regulatory guides that incorporate research results and lessons learned from operating experience. Research is focused in the following areas.

**Plant Performance**--Understanding safety-significant abnormal operations and plant transients experienced by the nuclear industry is an important element in the NRC's continuing efforts to maintain an adequate margin of safety. Analysis of these operating events requires information on the processes of heat transfer and fluid flow (the thermal-hydraulic response) of the reactor coolant system over the range of plant transients and accidents that could occur. These events include design-basis accidents (required to be analyzed in license applications), non-design-basis events such as multiple-system or -component failures, common mode

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failures, and operator errors that have been revealed through probabilistic risk assessments and operating experience.

Research is being conducted to provide validated methods to evaluate design-basis accidents, the safety implications of actual operating events and hypothetical transient scenarios determined to be major contributors to risk as shown by probabilistic risk assessments and past operating events. This work is focused on integrating experimental data and associated calculations into a firm technical basis to support regulatory actions such as modifications to plant technical specifications, reviews of accident management plans, or remedial actions in response to operating events. The principal products of this research are analytical tools (computer codes) used to understand and predict the plant response to deviations from normal operating conditions. The capability of the computer codes to predict plant response with an acceptable uncertainty is augmented by validating the codes using (1) basic experiments to derive empirical formulas for determining coolant system behavior under postulated transients; (2) separate-effect experiments to evaluate the code predictions for a single, complex component; and (3) integral system experiments to evaluate the code predictions for a complete reactor system.

The use of complex computer codes is a major part of the NRC's independent capability for analyzing technical information pertaining to reactor safety. This ability is provided by a group of computer codes that model thermal-hydraulic and reactor physics phenomena that occur in reactor systems. The NRC will continue to maintain and improve the TRAC-PWR and RELAP5 computer codes. RELAP5 is a light water reactor transient analysis code used to support rulemaking and to evaluate generic safety issues, audit licensee submittals, and analyze unresolved safety issues. RELAP5 is also a basic component of the nuclear plant analyzer (NPA). The NPA is operational at NRC headquarters to provide an in-house analysis capability to evaluate accident management strategies and significant abnormal events in operating reactors. The NRC will continue to develop and maintain a representative set of plant input decks to support the use of the NPA. Other thermal-hydraulic codes (TRAC-BWR, RAMONA-3B) will also be maintained to ensure these codes reflect the latest results of foreign and domestic safety experiments and recent operating events. The TRAC-PWR code is used for PWR non-small-break loss-of-coolant accidents (LOCA) analyses, whereas the TRAC-BWR and RAMONA-3B codes are used for BWR analyses. RELAP5 can analyze PWR or BWR plant small-break LOCAs under a variety of accident or transient conditions. In FY 1998, the TRAC-PWR and the TRAC-BWR codes will be consolidated.

NRC nuclear power plant transient codes are essential to maintaining a strong and effective regulatory program by directly supporting the analysis of issues, among which are increased power ratings, risk-informed regulation, and analyses of operating events. Inefficiencies

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inherent in maintaining a number of separate codes by a number of contractors, as well as the growing obsolescence in the face of state-of-the-art computer technology, have become significant. A simplified, single, comprehensive, updated code is necessary for the NRC to realize cost savings associated with code maintenance and modification, as well as to develop and maintain more knowledgeable in-house expertise.

A thermal-hydraulic test capability must be maintained to produce separate-effects and integral test data for code assessment as well as to understand plant behavior. Such data are essential for code assessment as well as for maintaining expertise in the thermal hydraulic area. The NRC will continue to maintain the 1/4-scale BWR facility at Purdue University, the 1/4-scale PWR facility at Oregon State University (OSU), and the 1/4-scale B&W type facility at the University of Maryland at College Park. Currently, the Purdue and OSU facilities are being used in support of RELAP assessment for BWRs, and the Maryland facility is being used in support of boron-mixing studies.

Several safety limits used by the NRC to ensure reactor safety are related to fuel damage. NRC fuel performance codes do not include models that account for the very high burnups being pursued by the industry. Likewise, NRC criteria for evaluating cladding integrity at high burnup may not be correct. The NRC will continue efforts to update the codes, obtain experimental data to modify the criteria (mainly through international cooperative agreements, including the Halden Reactor project), and propose modified criteria.

**Control, Instrumentation, and Human Factors**--Experience has shown that most safety-related events reported at nuclear facilities involve human performance. To reduce human errors, and thereby reduce the risk to the public from the accidental release of radioactive material, the NRC needs to (1) understand the root causes of human error during reactor operations and maintenance, (2) develop methods to assess the effects of the design and qualification of instrumentation and control system displays on human performance, and (3) analyze the effectiveness of the interface between the nuclear power plant system and the human user in improving operator performance. Research results will be used to identify, systematically prioritize, and suggest solutions to human performance issues in the maintenance and operation of nuclear facilities during normal, abnormal, and emergency situations.

Specifically, research in this area includes (1) revision of the human performance investigation process to ensure that the root causes of events involving human performance have indeed been determined, (2) development of review guidance resulting from research on the effects on operator performance of combining both analog-hardwired and digital instrumentation and control systems technologies in the same control station, (3) evaluation of the need to collect

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and analyze empirical data regarding operational error, (4) environmental qualification of digital instrumentation and control systems, and (5) development of review guidance on emerging features of computer-based instrumentation and control systems.

**Severe Accident Research**--In addition to routine operations, the NRC is concerned about severe reactor accidents. Severe accidents have the potential to adversely affect public health and safety by resulting in the accidental release of radioactive fission products to the environment. NRC efforts are directed toward reducing the risk of nuclear power plant accidents by requiring design and operating strategies to prevent or ameliorate their consequences. The NRC accomplishes this by (1) improving understanding of severe accident phenomena; (2) identifying and evaluating methods to prevent and/or mitigate the consequences of severe accidents; (3) developing methods and tools to analyze the frequencies, consequences, and risks associated with severe accidents; (4) ensuring the adequacy of safety margins in the current methods of evaluating containment integrity under severe accident conditions; and (5) determining whether severe accident research results warrant revisions to NRC regulations or policies. Results of these efforts will be applied in staff reevaluations of siting and emergency planning requirements and implementation of the individual elements of the Commission's severe accident, safety goals, and backfit policies.

Fuel-coolant interactions (FCIs) are inherent in almost all severe accident scenarios. Further, accident management strategies involve deliberate addition of water to the reactor vessel and/or reactor cavity. Potentially energetic FCIs can occur from molten fuel pouring into water and can challenge reactor integrity. Experimental work is being performed to gain a fundamental understanding of FCI mechanisms and phenomena. This basic experimental work will be used to develop analytical models that can be used to predict FCI energetics and structural loads under severe accident conditions.

In addition to mitigating the consequences of a core-melt accident by adding water to the reactor vessel and/or cavity, it may be possible to prevent vessel failure by retaining and cooling a molten core in-vessel. Experimental work is being performed to determine if, in the presence of water, molten corium can be cooled in-vessel. This work is important for accident management of existing plants. If it can be established that it is highly unlikely the reactor vessel will fail under these conditions, concerns about challenges to the containment from ex-vessel phenomena (e.g., steam explosions, core-concrete interactions) will be greatly reduced. Research is also being conducted to improve the understanding of the mode, timing, and characteristics of vessel failure for accidents during which in-vessel retention is not possible.

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Severe accident codes provide the analytical tools required to evaluate issues related to severe accidents. The NRC has developed several codes for the analysis of severe accidents. These codes are used in probabilistic risk assessments (PRAs), in the resolution of severe accident issues, and in providing the basis for changes in regulatory practices. The main codes developed and planned to be maintained are (1) MELCOR--for scoping and PRA analysis, (2) SCDAP/RELAP--for analyzing core-melt progression in-vessel and primary system behavior, (3) CONTAIN--for analyzing containment performance under severe accident conditions, and (4) VICTORIA--for analyzing source terms in the primary coolant system under severe accident conditions. In addition, a code for assessing FCIs is being developed, and a 3-D containment code for hydrogen analysis will be maintained. In FY 1998, peer review recommendations will be incorporated into the VICTORIA and FCI codes. The NRC will also continue to share these codes internationally through the NRC's Cooperative Severe Accident Research Program.

**Reactor Risk Analysis**--The NRC will continue to undertake a number of activities intended to increase the consideration of risk significance in its decision processes through the effective use of risk-informed, performance-based technologies such as probabilistic risk assessment (PRA). Research is needed to support the development of guidance and methods to be used by the staff to ensure uniform, comprehensive application of PRA methods in resolving reactor licensing issues and related rulemakings. Guidance also needs to be developed and issued to the industry regarding methods, data, and information that the NRC will consider acceptable to support actions that utilize PRA analysis. The NRC is developing this guidance in the form of regulatory guides and standard review plan sections in specific areas and in conjunction with industry-sponsored pilot programs. Ultimately, rule changes may also be required to codify the guidance.

The NRC is engaged in pilot projects with several utilities aimed at developing methodologies for ranking the relative risk importance of structures, systems, and components in a plant. Risk ranking is a central issue for many risk-informed, performance-based regulatory initiatives such as graded quality assurance, inservice inspection, and inservice testing. As experience is gained through these pilot activities, the NRC will document the lessons learned and draft regulatory guidance.

PRA methods must be improved to eliminate or reduce uncertainties in key areas to support risk-informed regulation. Certain areas have been identified where large uncertainties remain in the ability to model phenomena and quantify risk, thus leaving critical gaps in the quantification of overall plant risk and the ability to comprehensively apply risk-informed regulation. Research will result in new or improved methods for PRA analysis in the areas of organizational performance, fire risk, plant aging, digital instrumentation and control, and

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simplified uncertainty methods. In addition, to facilitate risk analysis, NRC has developed computer codes (SAPHIRE) to model plant-specific systems and allow analysis of plant changes and sensitivities.

**Reactor Containment Structural Integrity**--The Commission's severe accident policy is based on the assumption of reactor containment structural integrity. For beyond-design-basis accidents, the failure modes and associated failure loads for containment structures cannot be adequately predicted by the methods that were used for their design. Recent experience and research results suggest that corrosion effects may significantly degrade the margin that containments have to accommodate design-basis accidents and beyond. Research on failure modes for current containment types will provide the bases for evaluating both the performance of containments in accidents beyond the design basis and evaluating the significance of containment degradation.

In a continuing program, the NRC is assessing state-of-the-art, nondestructive testing techniques for examining steel containments and the liners of concrete containments. As part of this program, statistically based sampling plans will be developed to provide confidence limits on detection of corrosion occurrence. In a parallel effort, the NRC is also investigating the capability of analytical methods to account for the effects of corrosion on the capacity of steel containments to withstand static internal overpressurization loads.

**Structures and Components**--The NRC is developing a program to address seismic response of degraded structures and components. Although it is generally recognized that degraded structures and components in operating nuclear power plants in the United States have adequate safety margin left in them to resist normal operating loads, these structures and components need to be assessed to ensure that they can still withstand external stressors such as seismic loading. To date, most licensees assigned a low priority to the monitoring of structures, and some incorrectly assumed that many of their structures are inherently reliable.

Currently, an ongoing NRC program on containment degradation addresses degradation mechanism, inspections, repairs, and evaluation techniques including reliability considerations. In addition, the NRC has recently completed a program for reinforced concrete structures that resulted in the establishment of an extensive material property database and also addressed aspects similar to those in the containment degradation program. The NRC believes that the seismic response of degraded structures and components program can build on these two existing NRC programs, and that the techniques developed under the existing programs can be applied to specific situations where seismic loading is a concern.

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The evaluation of seismic loading is important because degraded structures and components are more vulnerable to seismic loads than when they were new, and the seismic loads affect the entire structure or components. The degradation may affect dynamic properties, structural response, resistance or capacity, failure modes, and locations of failure modes. An international cooperative program is proposed to tackle the issue of the seismic response of degraded structures and components and to augment the database by using the experience of nuclear power plants worldwide. Finally, on the basis of the insights and lessons learned from this program, a technical basis will be established for each participating country to develop guidelines to address the seismic capability of degraded structures and components for continued and extended service.

**Severe Accident Implementation**--The Commission's severe accident policy calls for the examination of individual plant susceptibilities to (1) severe accidents (i.e., the individual plant examination (IPE) program) and (2) severe external events such as floods and earthquakes (i.e., the IPE External Event Evaluations (IPEEE) program), as well as the identification and evaluation of potential improvements. The NRC will analyze the information from the review of licensee IPE submittals, categorize insights, and give the results in a concise report. The results of that review will also be used to review existing regulations and ensure that they are adequate to protect public health and safety. The NRC will continue reviewing licensee IPEEE reports and collecting and interpreting the supporting data for more general perspectives and use in the agency's risk-informed, performance-based regulation activities.

**Earth Sciences**--A limited number of activities to improve the NRC's ability to evaluate the effects of potential earthquakes on nuclear power plant operations are being supported. The results of this program are integrated into activities to develop a unified seismic hazard assessment method. As a result of the limited available recorded seismic data in the United States, each earthquake provides new insights and new potentially significant information. Such information may prompt the NRC to reevaluate earlier licensing decisions or confirm assumptions made in earlier decisions.

In FY 1998, the NRC will continue to support research activities of the U.S. Geological Survey (USGS) that address geological and seismological issues of regulatory significance, such as strong ground motion studies, fault segmentation studies and faulting, and paleoseismic studies in the New Madrid seismic zone. The NRC will support the USGS activities to develop a correlation between the seismic characteristics of near-field geologic materials and the observed response, in order to investigate the influence of near-surface geology on seismic site response. Results of this program will enhance the NRC's review activities by leading to an improved modeling of the wave-scattering and propagation effects

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in the near-surface material and reducing uncertainties in the ground motion estimates at the site. These results will also be used in the unified seismic hazard assessment program, as applicable.

The NRC will also continue to evaluate and analyze the data collected from the National Seismographic Network, a long-term project to continually improve the understanding of physical processes associated with seismic activities, transmission of seismic energy, and site responses. The new data will enable the staff to develop and validate more accurate models to predict the propagation of damaging seismic ground motion.

**Plant Response to Seismic and Other External Events--**The NRC will continue to obtain data to evaluate the performance of structures, systems, and components when subjected to natural hazards such as earthquakes, high winds, and floods. As new seismological information and research results became available, the seismic design basis of operating plants was questioned. NRC made a considerable effort to improve the predicted response of nuclear power plants to earthquakes greater than those considered in design; at issue is whether potential changes to the design bases can be accommodated within the inherent capacity of the original design or whether plant modifications are necessary. The data from this research will be used to help ensure the safety of nuclear power plants by enabling the NRC to (1) evaluate calculational methods used in the analysis; (2) assess actual performance of structures, systems, and components in past earthquakes; and (3) validate design codes and probabilistic risk assessment (severe accident) techniques. These data have enabled the NRC to implement the resolution of generic issues such as Unresolved Safety Issue A-46, "Seismic Qualification of Equipment in Operating Plants," and develop positions and guidance for external event evaluations at operating nuclear power plants to identify severe accident vulnerabilities.

**Generic Safety Issue Resolution and Reactor Regulatory Standards--** Once research projects are completed, the results are incorporated into the regulatory process as expeditiously as practicable. This involves (1) resolving generic safety issues pertaining to reactor and plant system design and plant operations; (2) developing regulations, policy statements, and regulatory guides for nuclear power plant regulation; and (3) developing the technical basis for radiation protection standards to minimize the adverse consequences of exposure to ionizing radiation from licensed reactor activities. Changes to regulatory requirements, policy statements, and guidance for reactor facilities are closely coordinated with other NRC offices, the nuclear industry, and the public.

Generic safety issues involve safety concerns that may affect the design, construction, or operation of all, several, or a class of reactors or facilities and may have potential for safety improvements and issuance of new or revised requirements or guidance. Resolutions of

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generic safety issues are transmitted to the industry through issuance of generic letters, information notices, or rule changes. Implementation procedures for resolving generic safety issues are occasionally developed in conjunction with organizations such as the Nuclear Energy Institute and nuclear plant owners groups. In FY 1998, two generic safety issues are scheduled to be resolved.

**Generic Safety Issues Scheduled for Resolution by Fiscal Year**

<b><u>Issue Priority</u></b>	<b><u>Fiscal Year 1998</u></b>	<b><u>Fiscal Year TBD*</u></b>	<b><u>Cumulative Total</u></b>
High	1	0	1
Medium	0	0	0
Nearly Resolved	1	4	5
Total	2	4	6

\* To be determined

Reactor regulations are developed to ensure that the regulations, petitions for rulemaking, supporting regulatory analysis, and regulatory guidance that are developed implement Commission policy and procedures and are independent, open, clear, efficient, reliable, and completed in a timely manner. All reactor-related rulemakings are included in the NRC rulemaking activity plan, which is reviewed and updated semiannually. This process serves as a mechanism to determine whether previously initiated rules should be continued, redirected, or terminated. This determination is based on a safety benefit and cost analysis developed in conjunction with user offices. Finally, the rulemaking activity plan includes priorities for all ongoing and planned rules to allow effective allocation of resources in a manner consistent with Commission policy. In addition, for each reactor regulatory activity developed, either a supporting regulatory analysis, cost-benefit analysis, or backfit analysis will ensure that each meets a high standard of quality. Backfit analyses are performed for regulations and guides to ensure that they conform to agency backfit regulations and to the regulatory analysis guidelines.

In FY 1998, the NRC will monitor ongoing health effects research and operating experience and develop appropriate reactor-related regulations or regulatory guidance to address needs identified on the basis of this information. The NRC expects to complete two to three petitions for rulemaking, conduct seven to nine individual rulemakings, develop seven to eight rulemaking plans applicable to reactor licensees, issue proposed or final rules, perform the associated regulatory impact analyses, and develop two to three regulatory guides if applicable.

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The NRC will continue to work, prioritize, and evaluate the need for approximately 90 rules identified as candidates for revision or elimination through the agency's participation in the National Performance Review. The NRC will also continue to implement changes in these and other existing reactor regulations and regulatory requirements that have a large economic impact but that can be eliminated or modified without significantly reducing safety. These changes will allow licensees to redirect resources to more important safety issues.

The NRC will continue to support the review and analysis of health effects information and provide research and operational support funds for the working groups of the International Commission on Radiological Protection, the National Council on Radiation Protection and Measurements, and the National Academy of Sciences. These organizations are developing and coordinating recommendations on a wide variety of subjects in radiation protection, including a reevaluation of the linear dose hypothesis, environmental and effluent monitoring, and dose-risk relationships, all of which are used by the NRC in ensuring continued safety of workers and the public.

The NRC will continue to provide statistical summaries of worker radiation exposure data as part of the Radiation Exposure Information Reporting Systems and will continue to process termination reports and implement the new 10 CFR Part 20 reporting requirements. The NRC will work with the National Cancer Institute, the Department of Energy, and other organizations to develop and implement a national worker exposure database to support health effects studies. The NRC will continue to monitor health effects research and operating experience.

The NRC will monitor and document cost data needed to issue addenda to NUREG-1307, "Nuclear Power Reactor Decommissioning Costs." These addenda will ensure licensees have the latest waste burial costs corrected for inflation and will provide the basis for reactor licensees to commit sufficient, but not excessive, funds for safe decommissioning.

### **Independent Analysis of Operational Experience**

The Office for Analysis and Evaluation of Operational Data (AEOD) oversees the agency's incident and accident investigation programs to ensure that safety-significant operational events involving nuclear power reactors are investigated in a timely, systematic, and technically sound manner and that information is obtained on the causes of the events, including those involving NRC activities, so that the NRC can take corrective actions that are timely and effective. For events that could be of major significance, an accident review group or incident investigation team is established that is independent of the region and the program

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office. For investigating less significant operational events, an augmented inspection team is established under regional direction and complemented by headquarters personnel, as necessary. Additionally, broad-based team evaluations that are independent of the routine regional and headquarters performance assessments are conducted of licensee performance, as necessary.

The NRC conducts incident response activities to ensure that (1) it is prepared to carry out its role in a radiological emergency at NRC-licensed nuclear reactors, (2) licensee responses are consistent with licensee responsibilities, and (3) NRC responses are coordinated with other Federal response activities and State and local government activities. To ensure that a reliable and high-quality incident response program is maintained, the NRC will (1) maintain and implement the NRC incident program in response to actual operational events within the industry; (2) operate the NRC Operations Center 24 hours a day with engineers capable of receiving event reports and recognizing and communicating problems and emergencies to management; (3) coordinate efforts to maintain the functionality of the Federal Radiological Emergency Response Plan, the Federal Response Plan, and agreements between the NRC and other State, Federal, and international organizations and countries on responses to nuclear events; (4) conduct a State outreach program to improve the States' understanding of how the NRC, as the lead federal agency, will manage the Federal response to a severe accident at a nuclear facility; and (5) maintain the NRC Operations Center and regional functional procedures, response tools, and training.

In FY 1998, the AEOD will continue to evaluate and oversee the agency's review of power reactor operational experience. The NRC will review nuclear power reactor licensee event reports (LERs), NRC inspection reports, and U.S. industry reports. It will also screen foreign reactor reports for applicability to the U.S. nuclear program. On the basis of this comprehensive and systematic review of both U.S. and foreign event data sources, significant operating events associated with either plant-specific or generic safety issues are identified and selected for further indepth evaluation to assess the root causes of the identified deficiencies, the safety significance and generic implications of the deficiencies, and the adequacy of corrective actions implemented and/or planned. The NRC will perform indepth technical evaluations of selected components, systems, system interactions, and human performance; and will continue to issue case studies, special studies, engineering evaluations, and technical reviews. Results, findings, and recommendations to prevent recurrence will be widely disseminated to the staff, the nuclear industry, and the public in a timely manner. In addition, reactor events that are considered to be significant from the standpoint of public health and safety will be reported to the Commission with recommendations that they be considered as "abnormal occurrences." On an annual basis, abnormal occurrences will be reported to the Congress and the public.

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The NRC will continue to emphasize investigating root causes, the contribution of human factors, and the determination of the risk significance of operational events. By emphasizing the underlying causes of significant operating events and the practices that can limit their likelihood, the lessons of experience can be more effectively communicated to the nuclear power plant industry to improve plant safety. Quantification of the risk significance of events during power operation and reactor shutdown will be enhanced by the implementation of methods developed by the Office of Nuclear Regulatory Research. The effectiveness of NRC and industry actions to resolve safety concerns will be examined through the evaluation and trending of operational experience data. This will also help ensure that lessons learned from operating experience are not lost. Accident sequence precursor analyses will be used to evaluate potentially risk-significant events when practicable. As appropriate, actions will be initiated to resolve pertinent safety issues.

The NRC will continue collecting, screening, and coding approximately 1,500 commercial power reactor LERs each year into databases for agency access. Information from LERs, which are required by NRC regulation (10 CFR 50.73, "Licensee Event Report System"), will continue to be used for the analysis of safety-significant trends. The data from LERs are coded and entered into databases to capture the sequence of events, the failures that occurred, the causes of the events, and corrective actions to avoid similar events in the future. The NRC will maintain and streamline, when practicable, the current system for processing LER data. The NRC will also streamline, when practicable, its capability to code and retrieve human-performance, common-cause, and precursor data. The NRC will complete its rulemaking initiative to obtain safety system reliability and availability data, or alternatively obtain industry's agreement to provide this information voluntarily, to support risk-informed, performance-based regulatory applications and to enhance maintenance rule implementation in early calendar year 1998. This initiative will also improve the reporting of human performance, common-cause failure, and precursor data. Although information about important events will continue to be required to be reported, changes to reporting requirements are intended to eliminate the reporting of events of little safety significance.

The NRC will continue to coordinate safety analysis activities with other organizations, such as the Electric Power Research Institute, Institute of Nuclear Power Operations (INPO), and owners groups, and to provide results to those organizations as appropriate. Component failure data from the nuclear plant reliability data system (NPRDS) and the equipment performance and information exchange system (EPIX), databases voluntarily supported by the U.S. nuclear power industry and maintained by INPO, will continue to be used to support analyses of component and system failures to determine their risk significance. These databases provide component failure data that are complementary to LER data. However, they

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have limitations in their capability to support reliability and probabilistic safety analysis types of activities. In December 1997, EPIX will replace NPRDS.

During the past several years, the NRC has been developing a reliability- and risk-informed approach to analyzing LER and NPRDS data. Insights from probabilistic risk assessments are used to identify components, systems, accident initiators, and safety issues that can be analyzed to quantitatively assess reliability risk trends. Actual operating experience is used to assess equipment performance. The NRC is planning to combine the results of this activity with the accident sequence precursor program to better identify risk-significant trends in the U.S. nuclear industry. The NRC will continue to analyze and quantitatively evaluate component and system reliability.

The NRC will also prepare trend information on component and system performance, initiating event frequencies, and human performance to monitor risk implications of changes in industry performance. This includes assessing the most risk-significant precursors to severe accident sequences. Periodically, the NRC will provide trend data associated with selected safety issues to identify changing safety trends and the effectiveness of regulatory initiatives.

The NRC conducts activities to identify, as early as practicable, individual nuclear power plants, or groups of plants, whose performance may warrant special (either increased or decreased) regulatory attention. Performance indicators are intended to provide information concerning trends in nuclear power plant performance and to assist NRC management in identifying plants for more detailed review. The NRC's performance indicators will continue to be simplified as they are converted to more risk-informed indicators. System reliability analysis results, common cause failure data, and initiating events will be used to supplement the indicators. Reports showing trends in performance and comparisons with appropriate industry averages for each licensed nuclear power plant and each individual indicator will be provided to NRC senior management to support senior management meetings. Annual reports are disseminated to NRC management, the Commission, and licensees and are available to the public. The NRC will continue to pursue improvements in performance indicators for timely assessment of safety performance.

The NRC will also continue to provide information about foreign events to U.S. organizations and to report U.S. experience to foreign organizations through the Nuclear Energy Agency and the International Atomic Energy Agency's incident reporting system and through bilateral agreements. Attention will continue to be focused on the feedback of operating experience so that the lessons of experience can be used to prevent serious nuclear incidents in the future. Additionally, nuclear power plant operating events classified at the Alert Level (or higher) will

## **REACTOR PROGRAM: Reactor Regulation**

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be reported to the International Nuclear Event Scale. Limited U.S. participation in this information-sharing system is anticipated to continue in FY 1998.

The Committee To Review Generic Requirements reviews generic requirements for power reactors and considers the feasibility of backfitting new requirements, as applicable. This committee will continue to provide agencywide review and recommendations to the Executive Director for Operations regarding approval or disapproval of proposed changes to generic requirements and staff positions applicable to power reactors with the objectives of reducing or eliminating any unnecessary burdens placed on licensees, reducing the exposure of workers to radiation in implementing some requirements, and conserving NRC resources while ensuring adequate protection of public health and safety and furthering the review of new, cost-effective requirements and positions.

### **Technical Training and Qualification**

Under this activity, technical training is provided for formal NRC staff qualification in support of the reactor program. The NRC will continue to maintain the Technical Training Center (TTC) and manage the technical training program for NRC staff. Curriculum areas in support of the reactor program will be maintained in reactor technology, probabilistic risk assessment, engineering support, radiation protection, security and safeguards, and regulatory skills. New courses will be developed and existing courses will be modified to meet new or changing needs.

A spectrum of reactor technology training will be provided for the General Electric, Westinghouse, Combustion Engineering, and Babcock and Wilcox reactor designs to meet the highest priority agency needs, including an integrated series of classroom and simulator courses for NRC staff. Specialized technical training will be provided to meet continuing and reactive training needs.

The reactor technology training curriculum will continue to include approximately 45 courses ranging in duration from 4 days to 3 weeks. Initial reactor technology training and refresher training will be provided each year to NRC inspectors, reactor operator license examiners, and other staff in formal qualification or development programs. In addition, technical training will be available for NRC technical managers. Training of headquarters and regional reactor inspectors, operator license examiners, and response staff on vendor-specific emergency operating procedures will continue in FY 1998. Major curriculum adjustments to best satisfy the highest priority regional and program office training needs will continue.

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The TTC will respond to reactive training needs in reactor technology as identified by job and task analyses and agency management through forums such as the training focus groups, division director counterpart meetings, and senior management meetings. The NRC will provide technical training to support special staff development programs. During this period, a limited amount of technical training will be provided in specialized areas to supplement the initial training provided to inspectors of a particular category. This training provides selected inspectors with specific expertise in areas for which all inspectors do not require the expertise.

The NRC will develop and implement new and expanded technical training in areas identified by program offices and regions. This includes new training courses to support the agencywide probabilistic risk assessment implementation plan, training in digital instrumentation and control, and new training determined to be necessary by technical training needs surveys. In addition, reactor concepts training will be provided for employee orientation.

In FY 1998, training materials for courses in reactor technology will be maintained and improved and course examination question banks and new course modules will be developed to support operational feedback on the agency's current technical issues. The NRC will continue to maintain full-scope training simulators at the TTC to support NRC initial qualification and refresher programs. This includes maintaining the operability, reliability, and performance of the simulator hardware and software and maintaining and updating the infrastructure for simulation equipment. Performance of NRC full-scope simulators will continue to be updated to the extent practicable to meet NRC reactor technology training needs. This will include replacing older simulation models to improve performance and make the models transportable to other simulation platforms.

The NRC will continue the development of workstation-based simulation to show parameters, system responses, and scenarios in a classroom setting. This activity, which enhances the NRC's understanding of complex events, involves the use of advanced simulation codes to meet the NRC's reactor technology training needs. In FY 1998, the NRC will continue to develop TTC reactor technology instructors in two reactor technology areas through completion of initial qualification and maintenance of formal qualification status through formal classroom training and current knowledge of events, technical issues, and operational feedback.

### **Investigations, Enforcement, and Legal Advice**

The NRC investigates allegations of wrongdoing by NRC reactor licensees and others within its regulatory jurisdiction. All findings and conclusions that result from investigations are sent

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to the appropriate program office and the Office of Enforcement for review of the issues involved and a determination as to whether enforcement action is warranted. Investigations that substantiate criminal violations concerning NRC licensees and others within the NRC's regulatory jurisdiction are referred to the U.S. Department of Justice. Currently, approximately 100 reactor cases are being investigated. In FY 1998, the NRC expects that approximately 160 to 180 new reactor cases will be opened. In addition to managing its own caseload, the NRC works closely with other investigative agencies and organizations to ensure the timely exchange of information of mutual interest.

The NRC's enforcement program is used as a deterrent to emphasize the importance of compliance with requirements and to encourage prompt identification and comprehensive correction of violations. The basic enforcement sanctions are notices of violations, civil monetary penalties, and various enforcement orders. The nature and extent of the enforcement action taken by the NRC reflect the seriousness of the violation involved.

The NRC expects to consider between 250 and 300 potentially escalated reactor enforcement actions in FY 1998. As the number and types of enforcement actions taken in any period of time are a function of the number of licensees and the licensees' performance, it is difficult to predict future activity levels.

Reactor Enforcement				
<u>Fiscal Year</u>	<u>Actions Considered</u>	<u>Resulting Civil Penalties</u>	<u>Notices of Violation Without Civil Penalty</u>	<u>Orders Issued</u>
1994	129	42	33	6
1995	158	22	38	6
1996	280	39	53	4

The NRC also monitors discrimination actions filed with the U.S. Department of Labor under Section 211 of the Energy Reorganization Act and develops enforcement actions where there are properly supported findings of discrimination, either from the Office of Investigations or from the Department of Labor adjudications.

The Office of the General Counsel (OGC) will continue to provide legal assistance to the NRC staff with respect to all matters related to nuclear reactor safety, including issuance of licensing and enforcement actions, conduct of investigations, and promulgation of NRC regulations and regulatory guides. The OGC will represent the NRC staff in adjudications

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arising from proposed licensing and enforcement actions; represent the Commission in lawsuits arising from adjudicatory and rulemaking decisions relating to reactors; and provide legal analyses of regulations, statutes, and cases relevant to NRC activities.

### **Independent Review**

The Atomic Safety and Licensing Board Panel (ASLBP) is a statutory office of the NRC and comprises administrative judges who, sitting alone and in three-member boards, conduct adjudicatory hearings, usually at or near the site where the dispute arose, pursuant to a number of statutes including the Administrative Procedure Act; the Atomic Energy Act of 1954, as amended; the National Environmental Policy Act of 1969, as amended; and the Program Fraud Civil Remedies Act.

The ASLBP's boards and judges hear and decide petitions for hearing by intervenors and licensees concerning the granting, suspension, revocation, or amendment of licenses to operate and decommission nuclear power plants and, as directed, preside over rulemaking hearings that address issues involving health, safety, the environment, enforcement, civil penalties, anti-trust, and emergency planning. The ASLBP also provides advice on adjudicatory matters, other proceedings, and other regulatory and administrative matters as requested and will review and make suggestions for amending regulations to expedite the hearing process and make it more understandable and easier to use.

The Advisory Committee on Reactor Safeguards (ACRS) is independent of the NRC staff and is statutorily mandated by the Atomic Energy Act of 1954, as amended. It performs independent reviews and provides advice to the Commission on proposed or existing reactor facilities and the adequacy of proposed rules and standards. The ACRS relies on highly qualified members, specialized consultants, and a cadre of technical and administrative support personnel.

In FY 1998, the ACRS will provide the Commission with independent advice on matters that are referred to it by the Commission. It will review and report on safety studies, hazards of existing reactor facilities, and reactor safety standards and will review, on its own initiative, generic matters or reactor safety-related items. These reviews will include safety issues associated with operating reactors; design-basis verification; NRC technical training programs; improved technical specifications; boiling water reactor power uprate program; resolution of generic safety issues; risk-informed and performance-based approaches to the regulatory process; steam generator integrity; fire protection; digital instrumentation and control; spent fuel pool cooling issues; development of new or modified NRC thermal-hydraulic codes;

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technical issues associated with plant license renewal; age-related degradation of plant systems, structures, and components; behavior of high-burnup fuel under accident conditions; onsite dry cask storage of fuel at production and utilization facilities; and electric utility deregulation and restructuring.

The ACRS also independently reviews the NRC reactor research program and provides its views in an annual report to Congress. In FY 1998, the ACRS review will include the International Cooperative Research Program.

### **General Support**

This activity comprises NRC supervision and coordination of the policy development and operational activities, including the use of information technology, of the Reactor Regulation Cost Center.

## REACTOR PROGRAM

### Standard Reactor Designs Cost Center

	FY 1996 Enacted	FY 1997 Estimate	FY 1998 Estimate	
			Request	Change from FY 1997
Budget Authority by Function (\$K)				
Salaries and Benefits	10,617	5,838	2,190	-3,648
Contract Support	8,536	4,486	1,176	-3,310
Travel	245	230	225	-5
Total	19,398	10,554	3,592	-6,962
Full-Time Equivalent Employment	121	61	22	-39

The standardization of nuclear power plant designs can increase the safety, reliability, and availability of nuclear power plants. The NRC expects to complete rulemaking certifying two evolutionary designs in FY 1997 (the General Electric Advanced Boiling Water Reactor and the ASEA Brown Boveri/Combustion Engineering System 80+).

The NRC will continue its detailed technical review of the Westinghouse advanced passive pressurized water reactor design (AP600). Activities associated with resolving the remaining technical and policy items, issuing the final design approval, and completing rulemaking for the design are expected to be continued in FY 1998. Assessments of the adequacy of the advanced reactor design concepts will continue as will investigation of the margins of safety in structural, electrical, and mechanical components that are needed to support design certification and licensing decisions. Analyses and experiments will be performed to characterize safety system response to transients and postulated accidents, particularly those accidents that involve multiple-system failures. They will be completed in time to support the AP600 design certification under rulemaking. Work will also continue in FY 1998 to complete rulemaking, thermal-hydraulic code assessment, and selected beyond-design-basis-accident tests and analyses. Other activities associated with the review of advanced reactor designs include legal advice, adjudicatory review and dispute resolution, and independent review of the technical and policy issues by the ACRS.

In FY 1998, the NRC will continue to work with national standards-setting organizations to ensure that the existing engineering and material standards are applicable for the advanced

## **REACTOR PROGRAM: Standard Reactor Designs**

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reactor designs. The NRC will also continue to develop and implement applicable rules, policies, and guidance for the certification of standard designs, as needed, as well as implement lessons learned from its experience in completing the review of past design certification applications.

## REACTOR PROGRAM

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### Test and Research Reactors Cost Center

	FY 1996 Enacted	FY 1997 Estimate	FY 1998 Estimate	
			Request	Change from FY 1997
Budget Authority by Function (\$K)				
Salaries and Benefits	1,705	1,866	2,345	478
Contract Support	354	280	280	0
Travel	97	106	105	-1
Total	2,156	2,252	2,730	478
Full-Time Equivalent Employment	20	20	24	4

The NRC is responsible for licensing, inspecting, and decommissioning smaller reactors that are designed and used for research and testing in such areas as physics, chemistry, biology, medicine, and materials sciences and for the training of individuals for nuclear-related careers in the power industry, national defense, research, and education.

The NRC reviews new and renewal license applications and license amendments for nonpower reactors to evaluate the safety, environmental, and safeguards aspects of their operation. From past experience, the NRC expects to receive as many as 2 applications for license renewal and approximately 30 other license amendments in FY 1998. The NRC also conducts inspections at approximately 40 nonpower reactors each year to ensure their safe operation.

In addition to licensing and inspecting the nonpower facilities, the NRC must license all personnel authorized to operate the nonpower reactors. The NRC administers initial examinations for new reactor operators and either inspects licensee requalification programs or conducts individual requalification examinations "for cause" to ensure that the approximately 300 nonpower reactor operators are qualified to perform their duties.

Through FY 1998, the NRC will continue to implement its regulation (10 CFR 50.64, "Limitations on the Use of Highly Enriched Uranium (HEU) in Domestic Non-Power Reactors") requiring domestic nonpower reactors to convert from highly enriched uranium to low-enriched uranium. Of the remaining 12 reactors affected, it is expected that approximately 8 will convert over the next 10 years.

**NUCLEAR MATERIALS AND  
NUCLEAR WASTE PROGRAM**

## NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM

(Dollar amounts in tables represent thousands of dollars (\$K). In text, whole dollar amounts are used. Staff numbers represent full-time equivalents (FTEs).)

Total FY 1998 Estimate ..... \$84,804,000

	FY 1996 Enacted	FY 1997 Estimate	FY 1998 Estimate	
			Request	Change from FY 1997
Budget Authority by Function (\$K)				
Salaries and Benefits	48,934	53,530	53,995	465
Contract Support	22,587	23,827	27,998	4,171
Travel	2,575	2,744	2,811	67
Total	74,096	80,101	84,804	4,703
Budget Authority by Cost Center (\$K)				
Fuel Facilities	10,858	14,764	12,988	-1,776
Materials Users	28,225	28,833	30,174	1,341
Low-Level Waste and Decommissioning	17,227	17,765	17,427	-338
Other Nuclear Materials and Waste Activities	6,786	7,739	7,215	-524
High-Level Waste	11,000	11,000	17,000	6,000
Total	74,096	80,101	84,804	4,703
Full-Time Equivalent Employment by Cost Center				
Fuel Facilities	108	120	117	-3
Materials Users	258	242	238	-4
Low-Level Waste and Decommissioning	115	115	110	-5
Other Nuclear Materials and Waste Activities	67	70	66	-4
High-Level Waste	43	43	44	1
Total	591	590	575	-15

## **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM**

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### **EXPLANATION OF RESOURCE CHANGES**

#### **Fuel Facilities**

The resource decrease in FY 1998 results from decreased NRC efforts regarding the proposed high-level radioactive waste solidification system at Hanford, Washington.

#### **Materials Users**

The resource increase in FY 1998 primarily results from increased personnel costs (pay raises, within-grade increases, and benefits costs increases) and additional efforts associated with Department of Energy (DOE) privatization activities, including the certification of dual-purpose cask designs. This increase is partially offset by the reduction in the NRC's materials inspection workload as a result of Massachusetts becoming an Agreement State.

#### **Low-Level Waste and Decommissioning**

The resource decrease in FY 1998 primarily results from completion of the review of licensing and remedial actions for uranium recovery by the end of FY 1997.

#### **Other Nuclear Materials and Waste Activities**

The resource decrease in FY 1998 primarily reflects savings from consolidating all of the NRC's nuclear materials events evaluation activities.

#### **High-Level Waste**

The resource increase in FY 1998 is required for the NRC to maintain its refocused high-level waste program, which is designed to resolve the 10 most important technical issues for licensing a repository on a schedule that takes into account DOE's viability assessment expected in 1998.

## **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM**

### **DESCRIPTION OF PROGRAM**

The Nuclear Materials and Nuclear Waste Program encompasses all NRC efforts to ensure that all NRC-regulated aspects of nuclear fuel cycle facilities, nuclear materials licensing, nuclear waste transport, storage, and disposal, and decommissioning activities are handled in a manner that provides reasonable assurance of adequate protection of public health and safety as required by the Atomic Energy Act of 1954 and other relevant laws. These efforts include licensing, inspection, and related regulatory activities and environmental reviews for fuel cycle facilities and nuclear materials users; transportation of nuclear materials; safe interim storage of spent fuel; activities pertaining to nuclear materials users; safe management and disposal of low-level and high-level radioactive wastes; and uranium recovery and related remedial actions managed by the Office of Nuclear Material Safety and Safeguards; research and regulation development managed by the Office of Nuclear Regulatory Research; independent assessment of operational events involving nuclear materials and fuel facilities, incident response, and technical training provided by the Office for Analysis and Evaluation of Operational Data; investigation of alleged wrongdoing by NRC materials licensees managed by the Office of Investigations; enforcement actions against licensees and other persons for violations of NRC regulations managed by the Office of Enforcement; legal advice, representation, and other legal functions provided by the Office of the General Counsel; and independent reviews performed by the Advisory Committee on Nuclear Waste. This program also encompasses regulatory and technical activities conducted for DOE on its proposed high-level radioactive waste solidification system at Hanford, Washington; safeguards reviews for all licensing activities involving the export of special nuclear material; and the integrated agency effort to oversee the decontamination and decommissioning of facilities and sites associated with NRC-licensed activities.

The Nuclear Materials and Nuclear Waste Program comprises the following five cost centers: Fuel Facilities, Materials Users, Low-Level Waste and Decommissioning, Other Nuclear Materials and Waste Activities, and High-Level Waste. The funds and staff for each of the five cost centers are described on pages 71 through 95. The contract support funds are allocated for work done by DOE contractors and commercial contractors for the NRC. The material that follows describes these cost centers and addresses the reasons why the resources are needed.

## NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM

### Fuel Facilities Cost Center

	FY 1996 Enacted	FY 1997 Estimate	FY 1998 Estimate	
			Request	Change from FY 1997
Budget Authority by Function (\$K)				
Salaries and Benefits	8,874	10,845	11,004	159
Contract Support	1,531	3,515	1,580	-1,935
Travel	453	404	404	0
Total	10,858	14,764	12,988	-1,776
Budget Authority by Activity (\$K)				
Fuel Fabricators Oversight and Inspections	6,984	10,856	8,929	-1,927
Uranium Enrichment Oversight and Inspections	2,321	1,935	2,047	112
General Support	1,553	1,973	2,012	39
Total	10,858	14,764	12,988	-1,776
Full-Time Equivalent Employment by Activity				
Fuel Fabricators Oversight and Inspections	72	85	81	-4
Uranium Enrichment Oversight and Inspections	18	15	16	1
General Support	18	20	20	0
Total	108	120	117	-3

#### Fuel Fabricators Oversight and Inspections

The NRC licenses and inspects all commercial nuclear fuel facilities involved in the processing and fabrication of uranium ore into reactor fuel as part of the agency's nuclear fuel cycle safety and safeguards mission. Detailed health, safety, safeguards, and environmental licensing reviews and inspections of licensee programs, procedures, operations, and facilities are conducted to ensure safe operations. Each fuel facility must have a license that specifies the materials the licensee may possess, sets restrictions on how

## **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM: Fuel Facilities**

the materials may be used, and establishes additional licensee responsibilities (such as worker protection, environmental controls, and financial assurance), as appropriate. The NRC will complete the review and evaluation of approximately 80 license applications (new, amendment, and renewal) and 35 evaluations of new and amended safeguards plans each year for nuclear fuel cycle facilities during FY 1997 and FY 1998.

Routinely scheduled safety inspections of approximately 25 fuel cycle facilities or sites are conducted each year to provide reasonable assurance that adverse conditions involving radiation exposure to employees or the public do not develop; that regulatory violations, if they arise, are identified with appropriate followup; and that nuclear materials are properly controlled to prevent a nuclear criticality accident. Safeguards inspections, in addition, ensure that licensees comply with NRC requirements pertaining to the control and accounting of nuclear material, the protection of nuclear material to prevent theft or diversion, contingency plans for responding to threatening situations, and trained armed response personnel.

The NRC sets basic standards for conduct of licensed activities at fuel cycle facilities through rulemaking, augmented by regulatory guidance documents that specify acceptable approaches for meeting the standards set forth in the rules. During FY 1997 and FY 1998, the NRC will continue to work toward upgrading the fuel cycle facility program by evaluating changes to the regulatory base for 10 CFR Part 70 in order to continue to increase the confidence in safety at these facilities. It will also refine the inspection procedures for evaluating nuclear criticality and chemical safety and continue to train staff to perform assigned tasks in support of the program.

During FY 1997 and FY 1998, the NRC will also interact with DOE on the Hanford tank waste solidification system at Richland, Washington. This effort was initiated in 1996 by the DOE to demonstrate technologies for solidifying highly radioactive tank waste from the Hanford site through the design of a pilot-scale facility. The NRC is participating in this effort so that it will acquire sufficient knowledge and understanding of the physical and operational situation at the Hanford waste tanks and the processes, technology, and hazards involved in Phase I activities to enable it (1) to assist DOE in performing reviews in a manner consistent with NRC's regulatory approach and 2b) to be prepared to develop an effective and efficient regulatory program for the licensing of DOE contractor-owned and contractor-operated facilities that will process waste at Hanford during Phase II if certain operations, statutory, and regulatory issues are resolved. During FY 1997 and FY 1998, the NRC will develop an overall review strategy for Phase I activities including review of design, construction, and operation of pilot-scale facilities in preparation for the proposed NRC licensing of the Phase II operations.

## **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM: Fuel Facilities**

### **Uranium Enrichment Oversight and Inspections**

Unlike fossil fuels, which can be burned virtually in the same form that they exist underground, uranium must undergo a series of changes to become an efficient fuel in civilian nuclear power reactors. Uranium enrichment--the process used to increase the percentage of uranium-235 in the fuel--is one of the steps in the series and can be accomplished using different methodologies, including gaseous diffusion and atomic vapor laser isotope separation.

The NRC will assume regulatory oversight of the United States Enrichment Corporation's two gaseous diffusion enrichment plants (Paducah and Portsmouth) in 1997. In preparing to begin its oversight, the NRC completed the first certification review for these plants in November 1996 and will issue the first annual report to Congress in 1997 to report on the status of the plants and to indicate whether these plants are operating in compliance with NRC's standards. The NRC will recertify these plants at least once every 5 years, in accordance with the recently enacted United States Enrichment Corporation Privatization Act, to ensure that the plants are in compliance with NRC regulations and that United States Enrichment Corporation in operating the gaseous diffusion enrichment plants ensures adequate protection of public health and safety, the workers, the environment, and the common defense and security. To verify operational safety and assess licensee performance, the NRC will conduct a program of scheduled safety and safeguards inspections that relies on resident inspectors to provide onsite presence and focus on daily operation, and on headquarters and regional inspectors to provide specialized technical expertise in areas such as radiological/chemical safety, chemical processing, material control and accounting, training, quality assurance, surveillance/maintenance, emergency planning, configuration control, and management control. During FY 1997 and FY 1998, the NRC will also review upgraded safety analysis reports for both enrichment plants. The NRC also provides security policy and classification guidance support for the protection of national security information and restricted data for licensing, certifying, or regulating uranium enrichment facilities.

### **General Support**

This activity comprises NRC supervision and coordination of policy direction efforts and operational activities of the Fuel Facilities Cost Center.

# **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM**

## **Materials Users Cost Center**

	FY 1996 Enacted	FY 1997 Estimate	FY 1998 Estimate	
			Request	Change from FY 1997
Budget Authority by Function (\$K)				
Salaries and Benefits	20,991	21,625	22,203	578
Contract Support	5,927	5,739	6,432	693
Travel	1,307	1,469	1,539	70
Total	28,225	28,833	30,174	1,341
Budget Authority by Activity (\$K)				
Transportation and Spent Fuel Storage Licensing and Inspection	6,475	7,238	7,462	224
Licensing and Inspecting Nuclear Materials Users	14,466	14,476	14,767	291
Nuclear Materials Research and Regulation Development	3,269	3,752	4,433	681
General Support	4,015	3,367	3,512	145
Total	28,225	28,833	30,174	1,341
Full-Time Equivalent Employment by Activity				
Transportation and Spent Fuel Storage Licensing and Inspection	53	52	50	-2
Licensing and Inspecting Nuclear Materials Users	141	138	135	-3
Nuclear Materials Research and Regulation Development	20	20	21	1
General Support	44	32	32	0
Total	258	242	238	-4

## **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM: Materials Users**

### **Transportation and Spent Fuel Storage Licensing and Inspection**

Approximately 3 million shipments of radioactive materials are made each year in the United States. Regulating the safety and security of these shipments is a responsibility shared by a number of different Federal agencies including the NRC. To carry out its regulatory responsibilities for spent fuel and non-spent fuel storage and transportation, the NRC certifies transport container package designs, and licenses and inspects interim storage of spent fuel both at and away from reactor sites to ensure that licensees transport nuclear materials in packages that will provide a high degree of safety and that licensees provide safe interim storage of spent reactor fuel. NRC's transportation activities are closely coordinated with those of the Department of Transportation and, as appropriate, with the DOE and the Federal Emergency Management Agency and, in appropriate cases, extend to reviewing transportation plans, performing route approvals and surveys for shipments of nuclear material, and relaying Department of Transportation notifications from licensees and carriers of planned import, export, or domestic shipment of nuclear material.

In the course of its regulatory, licensing, and inspection activities during FY 1997 and FY 1998, the NRC will complete the review of 30 to 35 storage and transport cask design applications associated with spent fuel (new licenses, topical reports, and license amendments) and the review of approximately 75 applications submitted by commercial vendors for non-spent fuel transport container designs. Approximately five of the spent fuel-related applications are expected to be for dual-purpose casks (transportation and interim storage), and five for site-specific interim storage of spent fuel at reactors. In addition to these activities, the NRC will conduct safety inspections to ensure that quality assurance programs are correctly implemented by users, suppliers and fabricators of NRC-certified transport packages. The NRC will inspect 10 to 12 dry storage and transport package vendors annually and will also inspect spent fuel storage facilities and perform onsite inspections of concrete vaults and casks at reactors.

The industry's spent fuel storage activities require detailed health, safety, and environmental reviews and inspections of licensee and vendor procedures and facilities to ensure safe operations. Licensed utilities are responsible for the interim storage of their spent fuel until a Federal repository or centralized interim storage facility is available. All utilities have either installed or are planning to install high-density racks in their existing spent fuel pools. However, even with these modifications, pools are reaching capacity. To provide for "full-core" reserve, many utilities are constructing independent spent fuel storage installations, which generally consist of a passive storage system using dry cask technology.

## **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM: Materials Users**

Early in FY 1997, the Department of Energy submitted an application for licensing an interim storage facility to store fuel from Three Mile Island Unit 2 at the Idaho National Engineering Laboratory, and a topical report on a system for transferring dry spent fuel. NRC's technical reviews for both efforts will continue through FY 1999.

During FY 1997 and FY 1998, the NRC will also provide support to spent fuel transportation and storage programs sponsored by DOE. The NRC will review DOE's application for a dual-purpose cask for certification as a transportation cask and approval as a storage system. Rulemaking for the dual-purpose cask system will begin at the end of the technical review and is expected to be completed at the end of 1999.

To ensure that staff reviewers are thoroughly prepared to perform their technical reviews, the NRC will issue final standard review plans (SRPs) on (1) spent fuel transportation packages, (2) non-spent fuel transportation packages, and (3) independent spent fuel storage installations in FY 1998. A draft SRP on dual-purpose (transportation and storage) casks will be issued in FY 1998, and the final SRP will be issued in FY 1999. During FY 1997 and FY 1998, the NRC will continue to address the "Environmental Statement on the Transportation of Radioactive Material By Air and Other Modes" (NUREG-0170). This activity is needed to support the general license for transportation discussed in 10 CFR Part 71, given the changes in U.S. spent fuel management strategies since NUREG-0170 was published in December 1977. Changes will need to be made to incorporate the planned use of dual-purpose casks and centralized interim storage and the deferral of commercial fuel reprocessing. The update of NUREG-0170 will be completed in FY 1999. In FY 1998, the NRC will initiate an update of the survey of unclassified radioactive material shipments in the United States. The last survey was published in 1985 using shipment information from 1981 and 1982. The survey estimated that 2.79 million packages, containing approximately 8.97 million curies of radioactive material, were shipped annually (the results do not include spent fuel shipments).

The NRC will continue to maintain awareness of any potential delays in DOE's waste disposal program and will closely monitor the DOE system for inventory and forecast of spent fuel and high-level radioactive waste generation to provide early warning of capacity problems and facilitate timely and adequate waste management regulatory action.

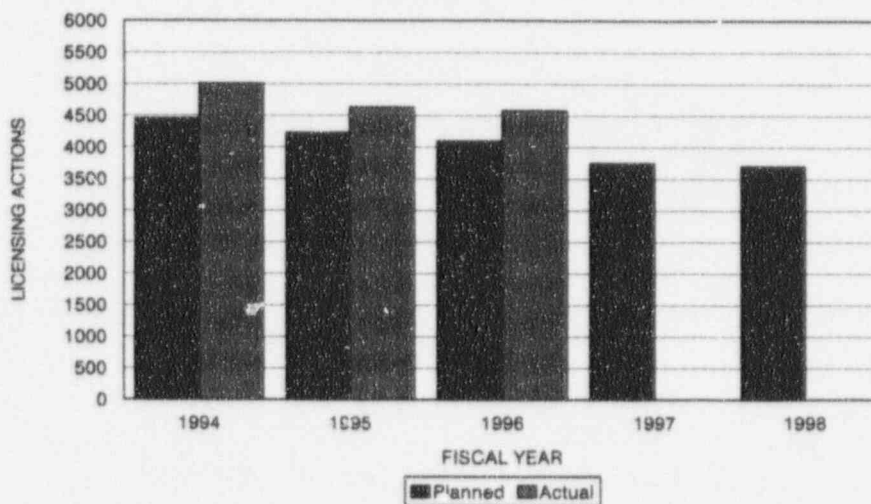
### **Licensing and Inspecting Nuclear Materials Users**

The NRC licenses and inspects approximately 6,400 specific licenses for use of nuclear and other radioactive material. These uses include medical diagnosis and therapy, medical and biological research, academic training and research, industrial gauging and nondestructive

## NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM: Materials Users

testing, production of radiopharmaceuticals, and fabrication of such commercial products as smoke detectors and other sealed sources and devices. Detailed health and safety reviews and inspections of licensee procedures and facilities provide reasonable assurance of safe operations and the development of safe products. The NRC plans to complete the review of approximately 3,700 applications for new licenses, license amendments, license renewals, and sealed source and device designs for the use of radioactive material in FY 1998. (Figure 12).

Figure 12  
MATERIALS LICENSING ACTION COMPLETIONS

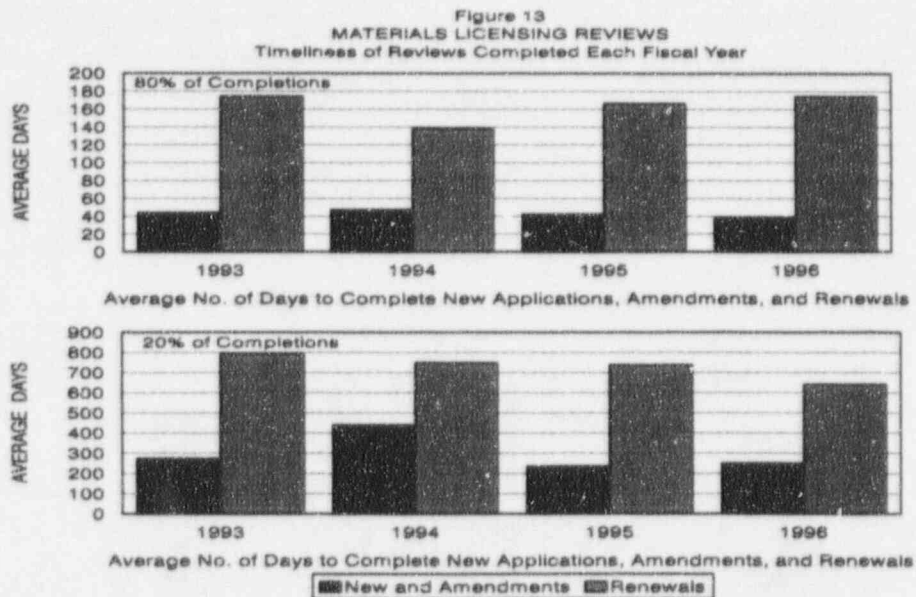


The number of pending licensing actions continues to decline, reflecting improvement in NRC's processing of licensing actions and in a one-time, 5-year extension of license renewals. In FY 1995, the number of pending licensing actions was reduced from 1,560 to 1,445 and as of the end of FY 1996, has been reduced further to 852.

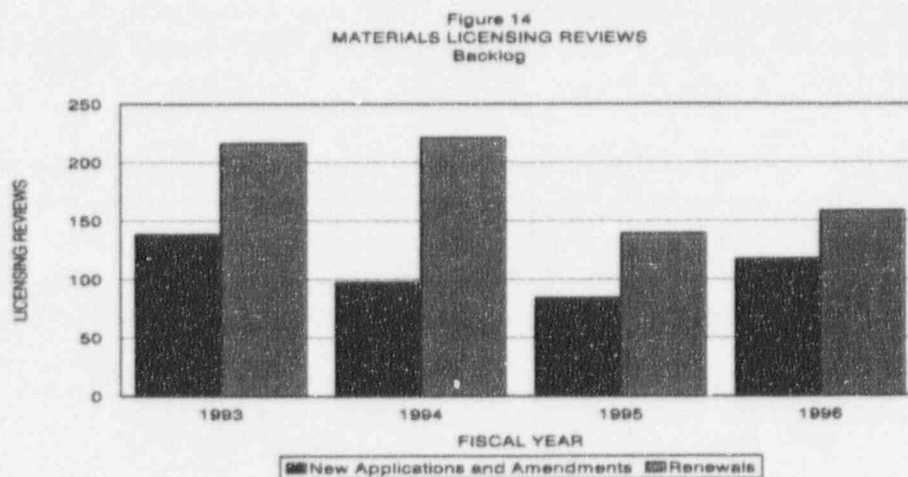
The NRC's goal is to complete 80 percent of new applications and license amendments for byproduct materials licenses within 90 calendar days of their receipt, and the remainder within 180 calendar days. The goal for renewal applications is to complete 80 percent within 180 calendar days and the remainder within 1 year. Backlogged reviews are those reviews that exceed the timeliness goal. For reviews completed during each of the last 5 years, the

## NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM: Materials Users

following materials licensing reviews chart shows the average time required to complete new, amendment, and renewal licenses for byproduct materials. (Figure 13).



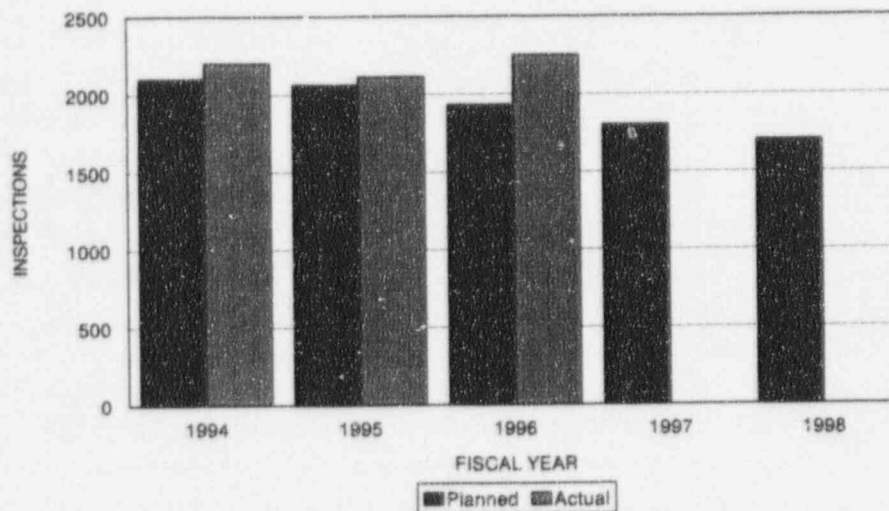
The materials licensing reviews backlog chart presents a different perspective on NRC's timeliness in processing licensing actions. (Figure 14). It measures the number of actions to be completed at the end of each fiscal year that exceed the timeliness goals. This chart shows that significant reductions were made in the number of backlogged renewals, since FY 1993.



## NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM: Materials Users

The NRC will conduct approximately 1,700 routine health and safety inspections and closeout inspections of materials licensees in FY 1998. These inspections are designed to ensure that licensees are conducting operations in a safe manner and in accordance with procedures and regulations. If conditions are noted that could cause unnecessary exposures or releases, prompt and appropriate enforcement actions are taken. The trend of fewer materials inspections results from a decline in the number of materials licensees and a change in the inspection frequencies, providing more regulatory flexibility to pay more attention to those licensees that have experienced past problems or significant program changes. (Figure 15).

Figure 15  
MATERIALS INSPECTION COMPLETIONS



The NRC will continue the integrated materials performance evaluation program to assess the performance of NRC's regional materials program and that of the Agreement States.

The NRC will continue to develop and implement approaches to regulate the materials licensing and inspection program in a cost-efficient fashion. Through this application of business process reengineering, the NRC expects to maintain or improve the level of safety achieved through the materials licensing and inspection process. The new process will enable the NRC to assess input from the public, licensees, and Agreement States and integrate into a cohesive national approach to materials licensing and inspection.

## NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM: Materials Users

The NRC will continue medical program followup to examine the programmatic regulatory approach to regulation of byproduct materials in medicine in view of the National Academy of Sciences' recommendations and take appropriate action.

In FY 1998, NRC activities associated with the licensing of exports and imports of nuclear equipment and materials will include completion of the review and evaluation of international safeguards and physical security aspects of approximately 100 license applications for the export of nuclear material from the United States, and consultation with the Executive Branch agencies on approximately 20 export control proposals that they initiate or decide.

### Nuclear Materials Research and Regulation Development

Since there are serious adverse, and potentially lethal, consequences from unintentional exposure to radiation during the course of conducting licensed nuclear materials activities, the NRC will continue to oversee regulations and guidance to protect access to facilities and special nuclear materials and to provide for the continued safe transport and use of radioactive materials. The NRC conducts independent research in the nuclear materials and health physics areas to provide well-founded technical bases in support of this regulatory effort. In FY 1998, the NRC will keep current with ongoing health effects research and operating experience, and incorporate lessons-learned into the regulatory base, as necessary.

The NRC will continue to develop its materials regulations and guidance to provide for a more open, reliable, efficient, clear, and timely process. In support of this effort, rulemaking activities are reviewed and updated semiannually in the NRC's rulemaking activity plan. In FY 1998, the NRC expects to complete 2 to 3 petitions for rulemaking, conduct 10 to 13 active rulemakings, develop 5 to 7 individual rulemaking plans, and develop 2 to 3 rulemaking guides applicable to materials licensees. During this period, the NRC will also continue to update its rule base, in accordance with the National Performance Review, to streamline, revise, or eliminate regulatory requirements that have a large economic impact, without significantly reducing safety. The NRC will evaluate the recommendations by the National Academy of Sciences for modifying the NRC's regulatory framework for radiation medicine. Changes in regulations will be needed to implement fully revisions to streamline and simplify the materials license application process.

### General Support

This activity comprises NRC supervision and coordination of policy direction efforts, and operational activities of the Materials Users Cost Center.

# **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM**

## **Low-Level Waste and Decommissioning Cost Center**

	FY 1996 Enacted	FY 1997 Estimate	FY 1998 Estimate	
			Request	Change from FY 1997
Budget Authority by Function (\$K)				
Salaries and Benefits	9,573	10,486	10,466	-20
Contract Support	7,228	6,891	6,573	-318
Travel	426	388	388	0
Total	17,227	17,765	17,427	-338
Budget Authority by Activity (\$K)				
Low-Level Waste Oversight and Inspections	1,479	847	783	-64
Decommissioning	11,429	10,911	11,786	875
Uranium Recovery	1,788	3,489	2,418	-1,071
General Support	2,531	2,518	2,440	-78
Total	17,227	17,765	17,427	-338
Full-Time Equivalent Employment by Activity				
Low-Level Waste Oversight and Inspections	9	8	7	-1
Decommissioning	65	62	64	2
Uranium Recovery	17	22	16	-6
General Support	24	23	23	0
Total	115	115	110	-5

## **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM:**

### **Low-Level Waste and Decommissioning**

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#### **Low-Level Waste Oversight and Inspections**

The classification of nuclear waste depends on its origin, level of radioactivity, and potential hazard. Low-level waste, which results from many commercial, medical, and industrial processes, typically contains a small amount of radioactivity dispersed in a large amount of material and poses little potential hazard. However, because it is radioactive, disposing of it requires special handling to avoid the health and environmental hazards associated with radiation. To adequately protect against these hazards, the NRC regulates the management, storage, and disposal of low-level radioactive waste.

The Low-Level Radioactive Waste Policy Act of 1980, amended in 1985, made States responsible for providing for the disposal of commercial low-level waste generated within their borders. The act encouraged States to enter into compacts that would allow several States to dispose of waste at a regional disposal facility. Most of the States have entered into compacts, and several States are proceeding with plans to construct and operate as many as 12 new disposal facilities. However, to date, no new disposal facilities have been opened. The NRC plans to maintain its capability to do low-level waste performance assessment modeling to be prepared to respond to an application for a low-level waste disposal facility from a non-Agreement State.

Two low-level disposal facilities accept a broad range of low-level wastes. They are the Hanford facility in Richland, Washington, and the Barnwell facility in Barnwell, South Carolina. In addition, there is an NRC-licensed facility near Clive, Utah, for disposal of uranium and thorium mill tailings. The NRC licenses and inspects the Hanford and Barnwell facilities insofar as they are licensed to possess special nuclear material. In FY 1997, the NRC will review the Hanford facility's renewal application and, during FY 1997-1998, will conduct inspections at both Hanford and Barnwell. In addition to inspection responsibilities at disposal sites, the NRC inspects low-level waste packaging, storage, and treatment at low-level waste generators' facilities (i.e., power reactors) before the waste is shipped for disposal.

The NRC and its 29 Agreement States who, through agreement with the NRC, have accepted responsibility for the licensing of radioactive materials within their State, oversee licensees' management and disposal of radioactive waste products. The NRC performs licensing, inspection, and regulatory development activities for those low-level waste disposal facilities under its jurisdiction that are engaged in near-surface land disposal. Regulatory responsibilities are implemented through detailed health, safety, and environmental reviews and inspections of licensee procedures and facilities to ensure safe operations. Low-level waste disposal issues on waste form stability, waste package integrity, radionuclide transport

## **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM:**

### **Low-Level Waste and Decommissioning**

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through the disposal facility environment, and long-term doses resulting from radionuclide releases beyond the disposal facility environment need to be resolved to ensure long-term protection.

The NRC implements an inspection program at operating low-level waste disposal facilities that addresses operation of disposal facilities, and radiation protection and environmental surveillance in conjunction with State inspections.

Independent technical review of and advice on the disposal of low-level nuclear waste and related matters is provided to the Commission by the Advisory Committee on Nuclear Waste. This Committee is made up of highly qualified members and consultants with technical expertise in certain areas who conduct studies and report on specific areas of concern associated with all facets of low-level waste disposal as referred to it by the Commission.

#### **Decommissioning**

Decommissioning involves safely removing a facility from service and reducing residual radioactivity to a level that permits the property to be released for unrestricted use. This action is to be taken by a licensee before termination of the license. For example, Aluminum Company of America, located in Cleveland, Ohio, was decommissioned in April 1996 and released for unrestricted use. In some cases, non-licensed facilities may also be required to reduce or stabilize contamination before sites are released. This activity comprises NRC's integrated requirements for the decontamination and decommissioning of facilities and sites associated with NRC-licensed activities, including the technical interface with the Environmental Protection Agency to resolve issues of mutual interest in accordance with the March 1992 General Memorandum of Understanding and research and rulemaking efforts.

In FY 1998, the NRC will continue to manage a program for materials facility decommissioning to review submittals resulting from implementation of the decommissioning rule, which specifies time periods for decommissioning unused portions of operating facilities and for decommissioning sites upon termination of operation. Each year, the NRC reviews approximately 50 to 60 financial assurance certifications and funding plans as part of new, amendment, and renewal license requests.

The NRC also plans to review one request to terminate a reactor license each year. This review involves preparing the safety evaluation report, environmental assessment, and license termination order for a shutdown, defueled nuclear power reactor.

## **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM:**

### **Low-Level Waste and Decommissioning**

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The NRC performs project management and technical review activities, including emergency preparedness and radiation protection inspections, for the decommissioning for power reactors in a safe storage condition (i.e., those that have permanently removed spent fuel from the spent fuel pool). These decommissioning efforts will be conducted for five power reactors in FY 1997 and six in FY 1998.

The NRC encourages timely cleanup of approximately 50 known materials and fuel facility sites through the implementation of its site decommissioning management program. At these sites, buildings, former disposal areas, piles of tailings, groundwater, and soil are contaminated with low levels of uranium, thorium (source material), or other radionuclides. Consequently, they present varying degrees of radiological hazard, cleanup complexity, and associated costs. This program covers the full range of activities including the review of decontamination and decommissioning plans, license termination, environmental reviews, and development and implementation of an inspection program.

The NRC will implement a graded approach (i.e., one that matches the safety hazards) for reviewing decommissioning activities at licensed materials facilities. This approach relies on a series of assessments to determine whether additional characterization, remediation, and confirmatory surveys are necessary. In addition, the NRC will develop and maintain a licensing and inspection program and inspection procedures for the decommissioning of sites included in the Site Decommissioning Management Plan, and for routine and non-routine materials facilities including implementation of the "timeliness in decommissioning" rule promulgated in 1994. The rule establishes specific time periods for decommissioning unused portions of operating nuclear materials facilities and for decommissioning the entire site upon termination of operations. The rule is intended to reduce the potential risk to the environment or public health and safety from radioactive material remaining for long periods of time at such facilities after licensed operations have ceased.

In FY 1998, the NRC will complete its review of files of licenses that have been terminated and conduct followup activities to ensure that facilities were properly decontaminated and that radioactive materials were properly disposed of, and to identify any significant contamination requiring remediation. This effort is expected to identify additional contaminated sites that will be considered for inclusion in the Site Decommissioning Management Plan.

The NRC will continue to interact with the Environmental Protection Agency during FY 1997 and FY 1998 to resolve issues of mutual concern that relate to the regulation of radionuclides in the environment to avoid unnecessary duplication of regulatory requirements. These issues include harmonization of risk goals and assessment methods, decommissioning criteria,

## **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM:**

### **Low-Level Waste and Decommissioning**

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effluent limits, waste management activities, standards for disposal of low-level waste, and standards for recycling.

The NRC conducts research in the area of radionuclide transport and behavior in the environment to provide technical bases for independent regulatory actions. Because of the diversity of contaminated and disposal sites, there is an increased potential for large collective radiological exposure of the public if cleanup or stabilization of released facilities is not adequately managed, particularly at sites with complex source terms or hydrological conditions. The NRC must make reliable and timely decisions on license termination for sites where cleanup, waste disposal, or reclamation has taken place and where, in many cases, complex radionuclide transport issues remain. Research in this area addresses issues related to radionuclide inventories and source terms for site decommissioning, management of radioactive waste, and mill tailing stabilization; flow and transport models and monitoring strategies for groundwater and airborne contamination; strategies for stabilizing and isolating contaminants including monitoring and remedial techniques; long-term materials integrity of spent fuel storage containers; and general performance assessment methodology to support licensing decisions for decommissioning, mill tailing stabilization, spent fuel storage, and management of radioactive waste. Much of the work is conducted using a combination of (1) studies of existing models and data; (2) contracts with universities and national laboratories for appropriate laboratory and field investigations; (3) partnerships with other Federal agencies, research institutes, and universities; and (4) international cooperative agreements.

The NRC is evaluating analytical methods that provide the technical bases for reviewing site decommissioning plans. In FY 1998, the NRC will use data previously collected at decommissioned sites to test and evaluate decommissioning review codes, and will complete a field study to collect additional needed data over a range of field scales and conditions. In FY 1998, the NRC will also continue to model radionuclide source term releases from Site Decommissioning Management Plan slags and from low-level waste sites to assess the safety performance of these facilities. Data and information from this ongoing research will be used in the Sandia Environmental Decision Support System, currently being developed, which will automate and validate the low-level waste performance assessments.

The NRC will continue to develop its decommissioning regulations and guidance to provide for a more open, reliable, efficient, clear, and timely process. In support of this effort, decommissioning-related rulemaking activities are reviewed and updated semiannually in the NRC's rulemaking activity plan. In FY 1998, the NRC expects to conduct four to five individual rulemakings, and develop one to three rulemaking plans applicable to materials licensees, and develop one to three regulatory guides where applicable. During this period,

## **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM:**

### **Low-Level Waste and Decommissioning**

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these efforts will encompass (1) a systematic assessment of the existing exemptions allowing release of radioactive material from regulatory control, (2) research on potential doses from the recycling or reuse of contaminated materials and equipment, and (3) investigations of the appropriateness of criteria for releasing areas containing buried radioactive materials.

#### **Uranium Recovery**

The Uranium Mill Tailings Radiation Control Act of 1978 directs the NRC to develop regulations on and to license the disposal of mill tailings from licensed uranium mills. Congress also directed the NRC to amend its regulations to conform to the Environmental Protection Agency standards for these wastes. The Uranium Mill Tailings Radiation Control Act of 1978 also directs the NRC to approve licensee plans for disposing of mill tailings and to review and concur in the site-by-site implementation of the Department of Energy's commercial disposal of radioactive tailings or waste as defined in Section 11e (2) of the Atomic Energy Act of 1954, as amended. This activity requires detailed health, safety, and environmental reviews and inspections of licensee procedures and facilities to provide reasonable assurance of safe operations; the development of NRC regulatory guidance to implement the Environmental Protection Agency standards for regulating mill tailings; and the site-by-site approval of licensee plans for disposing of mill tailings and other radioactive material.

The NRC will complete the review of seven licensee reclamation plans in FY 1997 and two more in FY 1998. This effort will include the preparation of environmental impact statements for selected uranium recovery sites.

The NRC will complete the review of approximately 60 new, amendment, and renewal license applications for uranium recovery facilities in FY 1998 and begin the review of 1 construction completion report and 1 long-term surveillance plan, both of which must be approved before termination of a site-specific license. The NRC will also conduct approximately 35 radiological safety inspections and inspections of uranium reclamation activities each year. During these inspections, the NRC will thoroughly review each licensee's program and implementation of licensee conditions to protect public health and safety and the environment.

This activity also includes NRC's evaluation of the remedial actions to be taken by the Department of Energy at 25 mill tailings piles at 23 sites, as well as at several thousand contaminated properties located near the sites. The NRC reviews and concurs in remedial action plans and proposed designs for the site and properties in the vicinity of the site and

## **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM:**

### **Low-Level Waste and Decommissioning**

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concurs in the Department of Energy's plans for long-term control of radiation or radioactive and nonradioactive releases from the site and for the protection and cleanup of groundwater. Once the remedial action has been completed, the NRC is responsible for licensing the Department of Energy for long-term care and site maintenance.

The NRC has already concurred in remedial action plans for 21 of the 23 sites. The Department of Energy's Uranium Mill Tailings Remedial Action Project was scheduled to terminate by the end of FY 1996. The Department of Energy has received an extension from Congress to 1998 to complete surface remedial actions at the remaining sites. The NRC assumes that the project will be extended and plans to continue its reviews and concur in the Department of Energy's proposed surface remedial action plans and related documents by September 1998. The NRC will also continue to concur in completed remedial actions and long-term surveillance plans for all the sites.

#### *General Support*

This activity comprises NRC supervision and coordination of policy direction efforts, and operational activities of the Low-Level Waste and Decommissioning Cost Center.

The NRC will continue to operate the Advanced Computer System to assist the NRC staff in the review of applicant site characterization activities and engineered facilities and in performance assessments for licensing decisions.

## NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM

### Other Nuclear Materials and Waste Activities Cost Center

	FY 1996 Enacted	FY 1997 Estimate	FY 1998 Estimate	
			Request	Change from FY 1997
Budget Authority by Function (\$K)				
Salaries and Benefits	5,857	6,656	6,504	-152
Contract Support	674	841	472	-369
Travel	255	242	239	-3
Total	6,716	7,739	7,215	-524
Full-Time Equivalent Employment	57	70	66	-4

#### Independent Analysis of Operational Experience

The Office for Analysis and Evaluation of Operational Data oversees the agency's incident and accident investigation programs to ensure that safety-significant operational events involving nuclear materials and fuel facilities licensed by the NRC are investigated in a timely, systematic, and technically sound manner and that information is obtained on the causes of the events, including those involving NRC activities, so that the NRC can take corrective actions that are timely and effective. For events that could be of major significance, an accident review group or incident investigation team is established that is independent of the region and the program office. For investigating less significant operational events, an augmented inspection team is established, under regional direction complemented by headquarters personnel, as necessary.

The NRC conducts incident response activities to ensure that (1) the agency is prepared to carry out its role in a radiological emergency at NRC-licensed nonreactor facilities, (2) licensees are prepared to carry out their emergency response functions, and (3) NRC responses are coordinated with other Federal response activities, and State and local government activities. At least one emergency response exercise is conducted annually to confirm and maintain the capabilities of NRC response personnel to meet the unique needs associated with materials licensees and fuel cycle facilities. More efficient notification and information exchange methods will continue to be developed among the Federal response

## **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM**

### **Other Nuclear Materials and Waste Activities**

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agencies involved in this area. In FY 1998, the NRC will assess regional incident response programs and emergency preparedness exercises with each region.

To ensure that the agency maintains a reliable, high-quality incident response program, the NRC will continue to (1) maintain and implement the NRC incident response program geared to actual operational events within the industry especially as they relate to gaseous diffusion plants, (2) operate the NRC Operations Center 24 hours a day staffed by engineers capable of receiving event reports and recognizing and communicating problems and emergencies to management, (3) coordinate State and Federal response efforts to develop and improve the Federal Radiological Emergency Response Plan and the Federal Response Plan; and (4) maintain the NRC Operations Center and regional functional procedures, response tools, and training.

#### **Technical Training and Qualification**

Development and technical training for the NRC staff emphasizes nuclear materials safety and the fuel cycle program. Training is also made available to Agreement State inspectors. Curriculum areas will be maintained in probabilistic risk assessment, radiation protection, fuel cycle technology, security and safeguards, and regulatory skills. In FY 1998, the NRC will conduct approximately 60 courses ranging in duration from 1 to 5 weeks to ensure appropriate coverage in specialized areas. New courses will be developed and existing courses will be modified to meet new or changing needs.

#### **Adjudicatory Reviews**

The Atomic Safety and Licensing Board Panel (ASLBP) is a statutory office of the NRC consisting of administrative judges who, sitting alone and in three-member boards, conduct adjudicatory hearings, usually at or near the site where the dispute arose, pursuant to a number of statutes including the Administrative Procedure Act; the Atomic Energy Act of 1954, as amended; the National Environmental Policy Act of 1969, as amended; the Nuclear Waste Policy Act of 1982, as amended; and the Program Fraud Civil Remedies Act.

The ASLBP's boards and judges hear and decide requests to grant, suspend, revoke, or amend nuclear materials licenses and preside over rulemaking hearings that address issues involving health, safety, and the environment, enforcement matters, antitrust activities, and emergency planning. The Licensing Panel also provides advice on adjudicatory matters, other

## NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM

### Other Nuclear Materials and Waste Activities

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proceedings, and other regulatory and administrative matters pertaining to the adjudicatory process, as directed by the Commission.

#### Investigations, Enforcement, and Legal Advice

The NRC investigates allegations of wrongdoing by NRC materials licensees and others within its regulatory jurisdiction. All findings and conclusions that result from investigations are sent to the appropriate program office and to the Office of Enforcement for review of the issues involved and a determination as to whether enforcement action is warranted. Investigations that substantiate criminal violations concerning NRC licensees and others within the NRC's regulatory jurisdiction are referred to the U.S. Department of Justice. At the present time, there are approximately 30 materials cases under investigation. The NRC expects that approximately 40 to 60 new materials cases will be opened each year. In addition to managing its own caseload, the NRC also works closely with other agencies and organizations to ensure the timely exchange of information of mutual interest and refer matters judged to be criminal to the Department of Justice.

The NRC's enforcement program is used as a deterrent to emphasize the importance of compliance with requirements and to encourage prompt identification and comprehensive correction of violations. The basic enforcement sanctions are notices of violations, civil monetary penalties, and various enforcement orders. The nature and extent of the enforcement action taken by the NRC reflect the seriousness of the violation involved.

In FY 1998, the NRC expects to consider between 150 and 200 potentially escalated materials enforcement actions. As the number and types of enforcement actions taken in any period are a function of the number of licensees and the licensees' performance, it is difficult to predict future activity levels; however, previous enforcement activity has been as follows:

Materials Enforcement				
<u>Fiscal Year</u>	<u>Actions Considered</u>	<u>Resulting Civil Penalties</u>	<u>Notices of Violation Without Civil Penalty</u>	<u>Orders Issued</u>
1994	151	51	24	30
1995	124	34	37	21
1996	160	27	37	13

## **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM**

### **Other Nuclear Materials and Waste Activities**

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The NRC also monitors discrimination actions filed with the Department of Labor under Section 211 of the Energy Reorganization Act, and develops enforcement actions where there are properly supported findings of discrimination either from investigations conducted by NRC's Office of Investigations or from adjudications from the Department of Labor.

The Office of the General Counsel provides legal assistance to the NRC and addresses legal questions related to the regulation of spent fuel storage, low-level waste management, transportation of nuclear materials, and regulation and certification of the United States Enrichment Corporation gaseous diffusion enrichment facilities.

Activities include the licensing, operation, enforcement, decommissioning, and conduct of investigation of materials licensees and facilities; the promulgation and amendment of NRC regulations and guides pertinent to the aforementioned matters; representing the NRC staff in adjudications arising from proposed licensing and enforcement actions; representing the Commission in lawsuits arising from adjudicatory and rulemaking decisions related to materials licensees; and providing legal analyses of regulations, statutes, and cases relevant to NRC activities.

#### **Event Evaluation**

The NRC responds to incidents and allegations through reactive inspections, allegation followup, investigations, enforcement actions, operational data analysis, and identification of generic issues. In FY 1998, the NRC will continue to analyze and evaluate operational experience from NRC licensees and Agreements States to identify generic issues resulting from incidents and events, to determine the root causes of the identified deficiency, and to identify those safety concerns that may warrant regulatory attention. This includes operational events, such as overexposure to radioactive materials and medical misadministration of nuclear material.

## NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM

### High-Level Waste Cost Center

	FY 1996 Enacted	FY 1997 Estimate	FY 1998 Estimate	
			Request	Change from FY 1997
Budget Authority by Function (\$K)				
Salaries and Benefits	3,639	3,918	3,818	-100
Contract Support	7,227	6,841	12,941	6,100
Travel	134	241	241	0
Total	11,000	11,000	17,000	6,000
Full-Time Equivalent Employment	43	43	44	1

The NRC's high-level waste regulatory activities are mandated by the Nuclear Waste Policy Act of 1982, the Nuclear Waste Policy Amendments Act of 1987, and the Energy Policy Act of 1992. The Nuclear Waste Policy Act specifies a detailed approach for the long-range undertaking of high-level waste disposal, with the Department of Energy having operational responsibility and the NRC having regulatory responsibility. The Nuclear Waste Policy Amendments Act directs the Department of Energy to characterize only one candidate site, the Yucca Mountain site in the State of Nevada. Likewise, NRC's activities are also focused on Yucca Mountain.

In FY 1996, the NRC completed a comprehensive evaluation of its prelicensing program as a result of severe budget reductions, revisions to the Department of Energy's program approach, and recommendations of the National Academy of Sciences regarding Yucca Mountain high-level waste disposal standards. Consequently, the NRC significantly redirected its high-level waste management program to focus on resolving the 10 issues most significant to repository licensing. This refocused program is considered to be NRC's minimum prelicensing program. Other activities necessary for licensing have been deferred as a result of budget reductions.

In FY 1997, funding for the NRC's high-level waste program was reduced by \$3 million, making it possible for the NRC to pursue only 7 of the 10 key technical issues most significant to repository licensing. As a result, three issues--repository design, waste package containment, and radionuclide transport--were eliminated from NRC's refocused program in

## **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM: High-Level Waste**

FY 1997. Without adequate resources in FY 1998 for its high-level waste program, the NRC will not be able to evaluate important elements of the Department of Energy's viability assessment, and its ability to review any eventual license application for the repository within the 3-year statutory limit will be jeopardized.

FY 1998 funding will allow the NRC to keep pace with the Department of Energy's revised high-level waste program in the 10 key areas most important to licensing. Moreover, early feedback on what is needed to resolve issues for licensing will be given to the Department of Energy to consider while conducting near-term site, design, and performance assessment activities and preparing its viability assessment in FY 1998. The NRC will independently evaluate each of the 10 most significant issues to determine the potential for licensing vulnerabilities of the Yucca Mountain site as well as the licensing assumptions underlying the Department of Energy's cost estimates for additional site investigations and designs for the repository and waste package. As a result, the NRC will be in a position to provide licensing insights on these important elements of the Department of Energy's viability assessment. Such insights will be vital inputs to the decisions that the President and the Congress will make concerning the future of the repository program at the Yucca Mountain site. Furthermore, independent views with a strong technical basis will be an important component to build public confidence in the credibility of the decisionmaking process.

Resolution of the 10 most significant issues also will be the basis for NRC's comments on the sufficiency of the Department of Energy's site characterization and waste form to be included in the Department of Energy's site recommendation to the President as currently required by the Nuclear Waste Policy Act. Furthermore, the development of the technical and regulatory tools needed to resolve issues will build and maintain irreplaceable experience essential to NRC's eventual role in reviewing the license application and conducting the licensing hearing. Finally, early feedback to the Department of Energy on what is needed to resolve issues for licensing will minimize the potential for raising major issues during licensing that could require additional site characterization data, analyses, or design work resulting in increased costs and delays to the program.

Nine of the issues are judged by the NRC to be the technical areas most important to repository performance and therefore are considered potential vulnerabilities to licensing. Two of these issues pertain to the fundamental flow and radionuclide transport processes in both the unsaturated and saturated zones at Yucca Mountain. Two additional issues deal with the potential for natural events at Yucca Mountain such as volcanism, faulting, and seismicity which could disrupt the repository in the future. Another issue deals with how the increased temperature from the waste emplaced in the repository could change the flow of moisture surrounding the repository. How this thermal load will affect the stability of repository

## **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM: High-Level Waste**

openings and the repository design itself is the subject of another issue. Two additional issues focus on the interactions of numerous site conditions near the waste packages and the effects of these conditions on the design of the waste packages necessary to provide containment and minimize radionuclide release. The ninth technical issue is intended to estimate the performance of the repository system in isolating the waste considering relevant site characteristics.

The tenth issue pertains to revision of the regulatory framework as required under the Energy Policy Act. Issue resolution is being achieved by working cooperatively with the Environmental Protection Agency to ensure the development of reasonable and implementable high-level waste standards. The Energy Policy Act requires the NRC to develop these implementing regulations within 1 year after promulgation of the final Environmental Protection Agency standards. Given recommendations of the National Academy of Sciences required by the Energy Policy Act, it is likely that significant changes to the NRC's high-level waste disposal regulations will be necessary.

As part of refocusing its program, the high priority activities needed to resolve the 10 key technical issues were identified and would be conducted. These activities fall into four general areas: (1) develop and exercise technical assessment models and codes; (2) prepare review criteria and procedures; (3) review Department of Energy data, test plans, designs, models, and performance assessments; and (4) interact with the Department of Energy and other parties to provide feedback on what is needed to resolve issues for licensing. The NRC's technical assessment activities involve testing the implementability of the Yucca Mountain standards being developed, evaluating the significance of the key technical issues and the potential for new issues, and testing the hypotheses and assumptions of the Department of Energy's waste containment and isolation strategy (i.e., safety case). The NRC needs to conduct such independent assessments because they are in areas where no accepted methods currently exist and where assessments by other parties similar to those conducted by the Department of Energy are not available for comparison by the NRC. The NRC will also use its own assessments to indicate where focused analyses and data from the Department of Energy may be necessary to narrow uncertainties contributing to issue resolution. Most importantly, these assessments will provide a basis for evaluating the acceptability of the integrated performance of natural and engineered repository systems. The experience gained from independently developing and conducting assessments specific to the issues pertaining to Yucca Mountain will be instrumental in developing review criteria and reviewing the Department of Energy's performance assessments and supporting models, designs, and data. Sensitivity analyses within the assessments will facilitate an understanding of the relative significance to repository performance of various types and amounts of data and will provide a basis for concluding that certain issues have been appropriately bounded or that additional data or analyses are needed.

## **NUCLEAR MATERIALS AND NUCLEAR WASTE PROGRAM: High-Level Waste**

By focusing on what data and analyses are needed for resolving the issues, the NRC can more effectively focus interactions and feedback to the Department of Energy on important licensing needs that are supported by independent technical work.

During FY 1997 and FY 1998, the NRC will also continue its efforts pertaining to the storage and transport requirements of the Nuclear Waste Policy Act by keeping pace with the Department of Energy's generic work on central interim storage. The NRC will begin its technical review of a Department of Energy topical safety analysis report for an interim storage facility, in advance of site designation, which is expected to be submitted in FY 1998. The topical report would (1) describe facility design, operations, and supporting systems based on conservatively determined environmental and design parameters that can accommodate virtually any site; (2) demonstrate conformance with NRC's siting evaluation factors and general design criteria; and (3) present the results of radiological and safety analyses. Also in FY 1998, the NRC expects to complete its review of an amended Department of Energy topical report that supports credit for the burnup of reactor fuel in the criticality safety analyses of spent fuel containers for transportation and storage. Current criticality safety analyses for spent fuel containers must assume that the fuel has the same fissile and isotopic content that existed before irradiation in the reactor core. With burnup credit, casks can be designed to carry more fuel assemblies and/or less neutron poisons, resulting in a cost reduction for the licensees.

Associated with the review of the high-level waste efforts are the independent review of the technical and policy issues by the Advisory Committee on Nuclear Waste, Office of the General Counsel's legal advice on all aspects of the high-level waste program, and the Licensing Support System Administrator responsibilities associated with the automation of licensing-related documents. In FY 1998, the Advisory Committee on Nuclear Waste will focus on the Department of Energy's revised approach and efforts to reach a viability assessment determination for the Yucca Mountain project and its waste isolation strategy; the NRC's revised program and efforts to resolve the 10 issues most significant to high-level waste licensing, including the new high-level waste disposal standards to be established by the Environmental Protection Agency; and international programs and strategies for lessons applicable to domestic high-level waste disposal. As requested by the Commission, the Advisory Committee on Nuclear Waste will review plans for an interim and retrievable spent fuel storage facility.

**MANAGEMENT AND SUPPORT  
PROGRAM**

## MANAGEMENT AND SUPPORT PROGRAM

(Dollar amounts in tables represent thousands of dollars (\$K). In text, whole dollar amounts are used. Staff numbers represent full-time equivalents (FTEs).)

Total FY 1998 Estimate ..... \$154,479,000

	FY 1996 Enacted	FY 1997 Estimate	FY 1998 Estimate	
			Request	Change from FY 1997
Budget Authority by Function (\$K)				
Salaries and Benefits	58,254	60,955	61,931	976
Contract Support	98,455	90,192	91,289	1,097
Travel	1,374	1,241	1,259	18
Total	158,083	152,388	154,479	2,091
Budget Authority by Cost Center (\$K)				
Policy and Direction	17,421	17,920	18,457	537
Resource and Administration	129,563	124,383	126,152	1,769
Special Technical Programs	11,099	10,085	9,870	-215
Total	158,083	152,388	154,479	2,091
Full-Time Equivalent Employment by Cost Center				
Policy and Direction	177	172	170	-2
Resource and Administration	513	490	476	-14
Special Technical Programs	90	81	78	-3
Total	780	743	724	-19

### EXPLANATION OF RESOURCE CHANGES

#### **Policy and Direction**

The resource increase in FY 1998 primarily results from increased personnel costs (pay raises, within-grade increases, and benefits costs increases).

## **MANAGEMENT AND SUPPORT PROGRAM**

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### **Resource and Administration**

The net resource increase in FY 1998 primarily results from increased costs for rent, improvements to NRC's payroll/personnel system, and increased personnel costs (pay raises, within-grade increases, and benefits costs increases). This increase is offset by reductions associated with agency streamlining of its administrative staff, especially in information technology.

### **Special Technical Programs**

The resource decrease in FY 1998 primarily results from a 30-percent reduction in the Educational Grants Program, elimination of travel for Agreement State personnel attending NRC-sponsored training, and decreased efforts for international activities.

## **DESCRIPTION OF PROGRAM**

The Management and Support Program encompasses NRC central policy direction, legal advice for the Commission, analysis of long-term policy issues, administrative proceedings review and advice, liaison with outside constituents and other government agencies, financial management, all administrative and logistical support, information resources management, executive management services for the Commission, personnel and training, and matters involving small and disadvantaged businesses and civil rights. This program also includes international programs and support for Agreement States.

This program comprises the following three cost centers: Policy and Direction, Resource and Administration, and Special Technical Programs. The funds and staff for each of the three cost centers are discussed on pages 100 through 115. The contract support funds are allocated for services and products obtained from commercial contractors and other Federal agencies such as the General Services Administration and the Office of Personnel Management. The narrative that follows describes these cost centers and addresses the reasons why the resources are needed.

**MANAGEMENT AND SUPPORT PROGRAM****Policy and Direction Cost Center**

	FY 1996 Enacted	FY 1997 Estimate	FY 1998 Estimate	
			Request	Change from FY 1997
Budget Authority by Function (\$K)				
Salaries and Benefits	15,833	17,013	17,519	506
Contract Support	1,110	434	449	15
Travel	478	473	489	16
Total	17,421	17,920	18,457	537
Budget Authority by Activity (\$K)				
Commission	3,947	4,609	4,788	179
General Counsel	5,986	5,997	6,202	205
Commission Appellate Adjudication	566	605	630	25
Congressional Affairs	846	917	954	37
Public Affairs	1,307	1,441	1,499	58
Secretariat	2,581	1,959	1,897	-62
Executive Director for Operations	2,188	2,392	2,487	95
Total	17,421	17,920	18,457	537
Full-Time Equivalent Employment by Activity				
Commission	37	43	43	0
General Counsel	60	60	59	-1
Commission Appellate Adjudication	6	6	6	0
Congressional Affairs	9	9	9	0
Public Affairs	14	14	14	0
Secretariat	28	17	16	-1
Executive Director for Operations	23	23	23	0
Total	177	172	170	-2

## **MANAGEMENT AND SUPPORT PROGRAM: Policy and Direction**

The **Commission** is included in the Policy and Direction Cost Center and is the governing body of the Nuclear Regulatory Commission. It is responsible for determining the fundamental policy and for guiding staff offices to ensure that the civilian use of nuclear energy is regulated in a manner consistent with public health and safety, environmental quality, national security, and antitrust laws. The following Commission-level offices provide support to the Commission.

The **General Counsel** is the Commission's chief legal advisor and advises the Commission on adjudicatory matters requiring the Commission's decision; represents the Commission in Federal court of appeals proceedings to review Commission orders and rules; and, in cooperation with the Department of Justice, represents the Commission in court proceedings affecting NRC's programs in the Federal district courts and the Supreme Court.

The General Counsel also provides advice and assistance to the Commission and NRC offices on matters involving interagency and international agreements, procurement, intellectual property, budget, security, and administrative functions, and represents the NRC in public rulemaking and administrative hearings involving procurement, personnel, personnel security, labor relations, and equal employment opportunity matters.

**Commission Appellate Adjudication** assists the Commission in its disposition of appeals of licensing board decisions and other adjudicatory matters coming before the Commission and monitors pending board cases.

**Congressional Affairs** serves as the principal point of contact between the Commission and Congress. The primary objectives of this activity are to ensure that Congress is kept fully and currently informed about agency activities, to coordinate appearances by the Commission and other NRC officials before Congress, to keep the Commission apprised of legislative activities likely to affect the agency, and to help ensure that Congressional requests are responded to in a timely manner.

**Public Affairs** assists the Chairman in carrying out responsibilities as principal spokesman for the NRC. It assists the Commission and senior NRC staff by managing and directing the agency's public affairs program. This includes keeping top management informed of public interest in and media coverage of NRC's regulatory activities, advising the Commission on a public affairs strategy that can be implemented effectively, and advising management on conducting public meetings. Public Affairs keeps the public and media informed of NRC policies, programs, and activities; works with civic groups; and administers a small cooperative program with public schools.

## **MANAGEMENT AND SUPPORT PROGRAM: Policy and Direction**

The **Secretariat** provides executive management services to support the Commission and to implement Commission decisions including the planning and scheduling of Commission business and preparing the Commission's meeting agenda, managing the Commission's decisionmaking process and codifying Commission decisions in memoranda directing staff action, maintaining the Commission's adjudicatory and rulemaking dockets, and administering the NRC historical program.

The **Executive Director for Operations** (EDO) manages the agency's strategic planning process, examines policy issues, supervises and coordinates operational activities of program and EDO staff offices, and implements the Commission's policy directives pertaining to these offices. The EDO is authorized and directed to discharge such licensing, regulatory, and administrative functions of the NRC and to take actions that are necessary for day-to-day operation of the agency.

**MANAGEMENT AND SUPPORT PROGRAM****Resource and Administration Cost Center**

	FY 1996 Enacted	FY 1997 Estimate	FY 1998 Estimate	
			Request	Change from FY 1997
Budget Authority by Function (\$K)				
Salaries and Benefits	34,906	36,573	37,022	449
Contract Support	94,329	87,532	88,870	1,338
Travel	328	278	260	-18
Total	129,563	124,383	126,152	1,769
Budget Authority by Activity (\$K)				
Chief Financial Officer	11,747	13,043	13,933	890
Administration	51,154	43,341	43,953	612
Chief Information Officer	48,525	51,599	51,369	-230
Personnel	6,469	6,021	6,382	361
Training	3,788	3,464	3,575	111
Small Business and Civil Rights	1,046	1,106	1,131	25
Permanent Change of Station	6,834	5,809	5,809	0
Total	129,563	124,383	126,152	1,769
Full-Time Equivalent Employment by Activity				
Chief Financial Officer	107	104	102	-2
Administration	186	125	124	-1
Chief Information Officer	140	191	181	-10
Personnel	64	55	54	-1
Training	9	8	8	0
Small Business and Civil Rights	7	7	7	0
Total	513	490	476	-14

## **MANAGEMENT AND SUPPORT PROGRAM: Resource and Administration**

### **Chief Financial Officer**

The Office of the Chief Financial Officer provides for the overall financial management of the agency through activities that are traditionally associated with the budget and accounting functions, and it sets and interprets financial management standards as established by regulation and general practices.

Accounting activities include the maintenance of a general ledger accounting system, the reporting required by other agencies, payments to commercial vendors for goods and services received, and an annual, audited financial statement.

The office performs the required functions for budget planning, development, and oversight of budget execution. It administers the NRC's authorization and appropriation legislation, manages the administrative control of appropriated and non-appropriated funds, and approves and issues allowances and financial plans to users of agency funds.

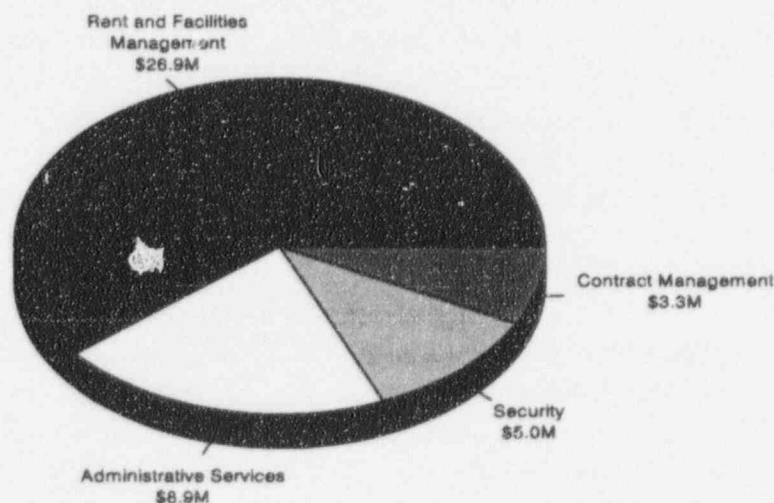
The NRC is required to recover 100 percent of the agency's budget authority through license and annual fees. Activities necessary to meet this requirement include developing and issuing rules that reflect fees to offset the budget authority each year; providing policy, processing applications, and analyzing fee-related data for approximately 3,000 reactor and fuel cycle license amendments and issuing the resultant 1,300 bills; analyzing data and processing approximately 2,000 bills for reactor and fuel cycle inspections; processing more than 5,000 incoming applications subject to flat fees; issuing approximately 8,000 annual fee bills per year; and responding to congressional constituent and licensee correspondence regarding fee billings. The office also provides services directly to employees, such as temporary duty travel services and change of station travel, as well as the traditional functions of payroll services that ensure that disbursements are accurate and timely.

## MANAGEMENT AND SUPPORT PROGRAM: Resource and Administration

### Administration

The Administration activity includes responsibility for rent and facilities management, administrative services, contract management, and security. These functions directly support the staff in carrying out the mission of the agency.

Figure 16  
ADMINISTRATION



**Rent and Facilities Management--** In FY 1998, headquarters and regional rent payments to the General Services Administration (GSA) and facilities management costs will total \$26.9 million, which represents 61 percent of the costs for this activity. The day-to-day oversight for building and grounds maintenance at the White Flint complex in headquarters is conducted within the administration activity; this includes establishing policies, standards, and procedures for NRC-wide space and building acquisition and utilization; providing support services for NRC headquarters space, buildings, and facilities management of the agency's conservation and recycling programs; and administering the terms of the GSA delegation program applicable to all NRC headquarters buildings.

**Administrative Services--**An efficient and effective administrative support infrastructure is essential in supporting the programmatic efforts of the agency. Management oversight is provided for the transportation of persons and things, including the rental or lease of motor vehicles from commercial vendors and government motor pools; managing of the subsidies for public transit; and freight and express services. The agency's management and control of supplies, materials, postage, office equipment, furniture, mail and messenger services,

## **MANAGEMENT AND SUPPORT PROGRAM: Resource and Administration**

translations, photography, and audiovisual services fall within this activity. In support of the staff, receipt, control, and distribution of all supplies and furniture are required to meet the needs of the NRC. This is accomplished by providing direction to the agency's cadre of property custodians; planning and conducting annual physical inventories of the NRC's controlled property; and disposing of excess property through various methods including transfers to other Federal agencies, school donations, abandonment, or destruction in accordance with the Federal Property Management Regulations. In addition, a variety of warehouse services are provided for headquarters, including support for all office moves.

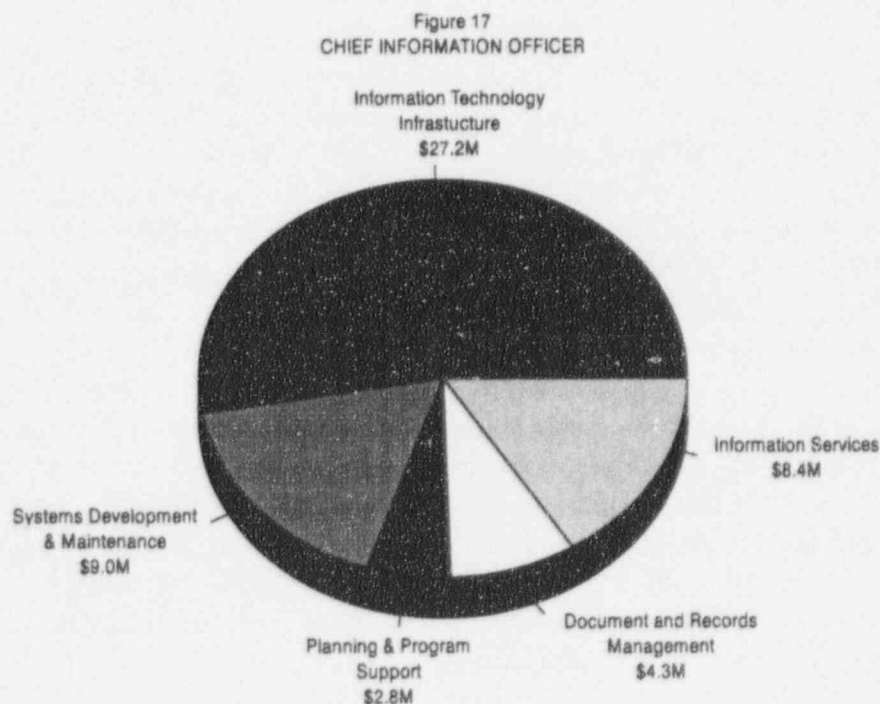
**Contract Management**--In support of the agency's contracting program, this activity ensures that procurement processes and agencywide contracting policies and procedures are implemented in compliance with the Federal Acquisition Regulation. NRC/Department of Energy work orders are monitored to ensure that sound contracting principles are applied to Department of Energy laboratory agreements, as well as providing assistance in cost negotiation and administration of laboratory agreements. In a continuous effort to improve the efficiency of the procurement process, the agency has established a procurement reinvention laboratory and has implemented several streamlining initiatives in accordance with the Federal Acquisition Streamlining Act of 1994, the Federal Acquisition Reform Act of 1996, and the Information Technology Management Reform Act of 1996.

**Security**--Safeguarding NRC personnel, property, and information requires an adequate security program. The administrative and physical safeguarding of restricted data and national security information documents and material at contractors', licensees', certificate holders, and other facilities is implemented within this activity, as are the granting of security clearance and operation of the NRC secure communications system. Also administered under this activity are the NRC drug testing program, which requires over 900 random drug tests annually of employees and applicants; and the NRC criminal history check program, under which approximately 50,000 fingerprint cards are processed annually.

## MANAGEMENT AND SUPPORT PROGRAM: Resource and Administration

### Chief Information Officer

The Office of the Chief Information Officer provides centralized guidance on and oversight, and coordination of all policy, planning, and execution of information resources management functions, and manages program activities related to the agency's acquisition, management, and use of Federal information processing resources. This activity is responsible for implementation of the Information Technology Management Reform Act (ITMRA) of 1996, in designing and implementing an information technology (IT) capital planning and investment control process for maximizing the value and assessing and managing the risks of IT investments. This activity provides the essential services and technical means used by the agency staff to receive, store, retrieve, manipulate, process, and transmit information in support of the agency's health and safety mission.



**Information Technology Infrastructure**--A robust infrastructure is a critical component that is needed to accomplish the agency's mission. The infrastructure supports NRC's ability to communicate internally and externally with 110 nuclear reactor sites and with the public and other government agencies. Comprehensive, integrated radio, voice, and data communications, networking, and connectivity services are provided for the NRC through this activity.

## **MANAGEMENT AND SUPPORT PROGRAM: Resource and Administration**

Minicomputer, timesharing, and client-server platforms are maintained to provide the appropriate infrastructure for agency computing requirements. Centralized customer support services provide technical assistance for agency office automation workstations and software and assist customers with establishing access and communicating with timesharing facilities and other outside locations.

**Systems Development and Maintenance**--To meet agency information processing and access requirements, the NRC develops, acquires, and maintains application systems for programmatic and administrative functions. The NRC is assessing systems development methodologies and procedures to ensure that the public's access to NRC information is considered, with the goal that new systems and modifications to systems either preserve or improve the public's access to NRC information. The NRC is also selectively applying work process redesign to agencywide systems to examine and streamline work processes before automation technology is applied.

**Information Services**--A variety of services are necessary to facilitate NRC staff and public access to information. These services include providing a centralized system for announcing public meetings of the staff and public access to NRC electronic information, operating and managing the Public Document Room, coordinating local public document room activities, managing the Freedom of Information Act program, and providing essential agency library services. This activity also provides centralized agencywide publication control and processing, word processing and scanning services, technical writing and editing services, and translation services for the entire agency.

**Document and Records Management**--This activity provides for the management of shared data and documents as agency resources to ensure that they are accessible, secure, reliable, and maintained in accordance with government regulations. The NRC plans to improve data quality, reduce paperwork, and increase its capability to access and share data across all agency information systems, through the use of information technology. The NRC is also applying technology to reduce paperwork and improve its ability to communicate and access information both internally and externally.

**Planning and Program Support**--The NRC conducts an information technology planning and budgeting process that supports the NRC's mission, focuses on information technology throughout the agency, enhances the ability of senior executives to make decisions, and is integrated with the agency's planning process. Efforts to implement ITMRA include establishing performance goals and performance measures and revising agency mission-related and administrative processes as appropriate before making significant investments in information technology. Policies, standards, and architectures are developed and maintained

## MANAGEMENT AND SUPPORT PROGRAM: Resource and Administration

to support NRC's information technology strategy and comply with Federal regulations and standards. The assessment of advanced and emerging information technologies and the transfer of appropriate technologies to the NRC environment, with a special focus on high performance computing, are important aspects of NRC's information technology program.

### Personnel

In managing the agency's human resources, a variety of activities are conducted in the area of recruitment, organization, placement, utilization, and development of agency employees. Also included under this activity is the administration of the NRC-wide occupational health and safety, employee assistance, and alcohol and drug training programs. The agency's health unit provides health services for the welfare of NRC employees and is managed under this activity.

### Training

To maintain the skills proficiency of the staff, training opportunities are available to meet the educational needs of the employee and the skill needs of the agency (other than reactor technology and associated technical training under the purview of the Technical Training Center). Included under this activity are in-house and external training in the areas of information technology, management and supervision, and communication skills.

### Small Business and Civil Rights

The Office of Small Business and Civil Rights provides overall policy, direction, and program evaluation in three areas: (1) Under the Small Business Program, the Office of Small Business and Civil Rights identifies small and minority businesses and conducts outreach efforts to stimulate interest in NRC programs, and manages the agency's Historically Black Colleges and Universities program to assist these institutions in securing research grants from the NRC. (2) Under the Civil Rights Program, the Office of Small Business and Civil Rights develops the agency's affirmative employment plan; highlights agencywide underrepresentation of minorities, women, and individuals with disabilities in the agency's workforce; manages the Equal Employment Opportunity (EEO) complaint process; and maintains the EEO counseling program. (3) The Affirmative Action and Federal Women's Program is designed to bring attention to and ensure equal opportunity for women, minorities, and persons with disabilities. Under this program, the Office of Small Business and Civil Rights develops, coordinates, and

## **MANAGEMENT AND SUPPORT PROGRAM: Resource and Administration**

reports on agency programs, policies, and practices pertaining to personnel management, equal opportunity, the Affirmative Action Program Plan, the NRC Mentoring Program, management of diversity and employee career development, and special observances and awareness programs.

### **Permanent Change of Station**

This activity is carried out to ensure that NRC personnel who are required to change duty stations are afforded the required relocation services and expenses related to permanent change of station services and moves, such as expenses incurred in connection with the sale of a residence, relocation of household goods, and subsistence while occupying temporary quarters and other miscellaneous moving expenses.

## MANAGEMENT AND SUPPORT PROGRAM

### Special Technical Programs Cost Center

	FY 1996 Enacted	FY 1997 Estimate	FY 1998 Estimate	
			Request	Change from FY 1997
Budget Authority by Function (\$K)				
Salaries and Benefits	7,515	7,369	7,390	21
Contract Support	3,016	2,226	1,970	-256
Travel	568	490	510	20
Total	11,099	10,085	9,870	-215
Budget Authority by Activity (\$K)				
International Programs	5,142	4,962	4,946	-16
State Programs	3,789	3,380	3,364	-16
DOE Projects	350	191	199	8
Educational Grants	912	750	500	-250
Nuclear Materials Management and Safeguards System (NMMSS)	906	802	861	59
Total	11,099	10,085	9,870	-215
Full-Time Equivalent Employment by Activity				
International Programs	52	47	44	-3
State Programs	33	31	31	0
DOE Projects	4	2	2	0
Nuclear Materials Management and Safeguards System (NMMSS)	1	1	1	0
Total	90	81	78	-3

#### International Programs

This activity includes developing and implementing policies and programs on international issues; administering the Commission's responsibilities in international areas comprising

## **MANAGEMENT AND SUPPORT PROGRAM: Special Technical Programs**

nuclear nonproliferation, reactor safety and regulatory development, radiation protection, materials safety, international safeguards, and waste management; facilitating NRC access to foreign nuclear health and safety-related information and NRC technical cooperation with foreign countries and international organizations; and maintaining liaison on international matters with the Executive Branch, particularly the National Security Council, U.S. Intelligence Community, Arms Control and Disarmament Agency, Office of the Vice President, Departments of Defense, State, and Energy, and Agency for International Development. This activity ensures that the NRC has effective relationships with international organizations and foreign governments, contributes to the assurance of U.S. nuclear safety, and helps to support U.S. national security and other U.S. foreign policy objectives.

U.S. initiatives at Presidential Summits, the Gore-Mbeki Binational Commission, and the Gore-Chernomyrdin Commission will require NRC participation and could result in additional requests for safety assistance to the New Independent States (NISs) of the former Soviet Union, Central and Eastern Europe (CEE), South Africa, and other countries. The NRC provides assistance in the areas of strengthening independent regulatory organizations in these countries through training, information, and technology transfer. International nuclear safety assistance and cooperation are expected to expand in the Pacific Rim countries with rapid growth in their economies and electric energy sectors. These activities will require a continued and focused commitment of staff resources.

The international Convention on Nuclear Safety (CNS) entered into force October 24, 1996. As soon as the U.S. Senate ratifies the CNS, the Commission will be required to implement several of its major elements, including preparation of a national report and participation in review meetings--all of which will require sustained commitment of staff resources. In addition, an international convention on waste management is being drafted.

The agency will also continue its active cooperation in the area of nuclear safety and safeguards during FY 1998 with about 32 countries, and with Taiwan, the International Atomic Energy Agency (IAEA) and the Nuclear Energy Agency (NEA). Special attention will be paid to ensuring that the IAEA and NEA programs are coordinated. NRC assistance to Russia, Ukraine, Armenia and Kazakstan of the NISs and to CEE will also continue, but at possibly lower levels depending on available U.S. Government funding for foreign assistance. The NRC's initiative for a new international nuclear regulator coordination effort has received positive reaction from other regulatory organizations; its implementation is likely to require a small effort by the NRC. The NRC may also initiate nuclear safety cooperation agreements with several countries in the early stages of establishing a nuclear power program that might use U.S. nuclear technology to ensure that it is being used in a safe manner.

## **MANAGEMENT AND SUPPORT PROGRAM: Special Technical Programs**

The Nuclear Safety Attache at the U.S. Mission to UN Systems Organization in Vienna, a position provided by the NRC, represents U.S. Government views on nuclear safety and radiation protection issues at the IAEA and with other diplomatic missions in Vienna and helps provide both programmatic and policy oversight of IAEA's nuclear safety program.

The NRC will also continue to participate as a member of interagency U.S. physical protection review teams to exchange technical information with representatives of foreign governments on physical protection procedures and practices and to host reciprocal visits to the United States. The NRC will continue to support IAEA-sponsored international safeguards activities deterring nuclear proliferation. It will assist IAEA in inspection activities at selected U.S. nuclear facilities, as required. It will continue to participate in the management and direction of interagency groups supporting the strengthening and implementation of IAEA safeguards. The NRC will also continue to assist the regulators in Russia, Ukraine, and Kazakhstan, in developing and implementing national systems for accounting and control of nuclear material and physical protection. The objective of this program is to develop systems of material control and accounting and physical protection that will include a body of regulations, guides, technical review criteria, implementation standards and procedures, and an inspection program.

### **State Programs**

This activity provides for cooperation, oversight, technical assistance, and liaison with States, local governments, Indian tribes, interstate organizations, and other Federal agencies. This ensures adequate protection of public health and safety from the hazards associated with the use of radioactive materials in 29 Agreement States and ensures nuclear safety policy and program information are shared among State and Federal governmental organizations.

Under the Agreement State Program, the NRC provides assistance to States seeking Agreement State status; conducts training courses, workshops, and meetings for Agreement State staff; evaluates technical licensing and inspection issues from Agreement States; and provides early and substantive involvement of the States in NRC rulemaking and other regulatory efforts (sometimes using NRC/Agreement State working groups). The NRC also conducts periodic reviews of Agreement State programs for adequacy to ensure public health and safety and compatibility with NRC programs using a common process involving Agreement State participants that is applicable to both Agreement State and NRC regional materials programs.

Under the State Liaison Program, the NRC coordinates activities of interest to State, local, and Indian tribal governments with other NRC offices; keeps the Commission and staff informed of significant State actions; and participates in activities conducted by the Conference of

## **MANAGEMENT AND SUPPORT PROGRAM: Special Technical Programs**

Radiation Control Program Directors, Inc. The NRC regularly consults with the Governor-appointed State liaison National Governors' Association and the National Association of Regulatory Utility Commissioners to identify NRC regulatory initiatives affecting States and to keep the NRC apprised of those organizations' activities. The NRC also negotiates memoranda of understanding with States on various NRC and State activities involving mutual cooperation.

The NRC will also provide limited technical assistance to the low-level waste compacts, State regulatory bodies, and the States of South Carolina and Washington, where the existing low-level waste disposal sites are located. On request, the NRC will provide technical assistance to Agreement States in various stages of developing and implementing plans to regulate new low-level waste disposal facilities and on matters pertaining to storage.

This activity also provides for Federal liaison support to increase cooperation and agencies and notifies NRC senior management about significant actions by other Federal agencies that may affect NRC actions, plans, and policies.

### **Department of Energy Projects**

In FY 1998, the NRC will continue assisting the Department of Energy (DOE) in its selection of the primary and backup approach to tritium production. One designated alternative is to produce tritium in commercial light water reactors. The NRC will assist DOE in assessing and resolving technical and licensing issues (including physical security, security clearance, and environmental issues) to support a DOE secretarial decision on the primary and backup tritium production approach. The production of tritium under an existing commercial license will require DOE and the NRC to develop mechanisms to ensure that national defense production requirements will not adversely affect public health and safety. This would likely involve the use of multiple reactors for tritium production. The NRC will evaluate any necessary licensing requests to implement DOE's option of producing tritium in commercial reactors.

### **Educational Grants**

In FY 1998, the NRC will continue to support research educational grants. Pursuant to Sections 31(a) and 141(b) of the Atomic Energy Act of 1954, as amended, the NRC is authorized to award grants and cooperative agreements to educational institutions, nonprofit institutions, State and local governments, and professional societies. The NRC grant program is administered in accordance with the Federal Grant and Cooperative Agreement Act of 1982,

## **MANAGEMENT AND SUPPORT PROGRAM: Special Technical Programs**

Office of Management and Budget guidance, and NRC policies and procedures. This program fosters public understanding of nuclear safety, enlarges the body of knowledge and technical information, and enhances the protection of public health and safety. Such support to educational institutions is limited to no more than 1 percent of the total annual budget for the Office of Nuclear Regulatory Research. At present, NRC grants support a variety of professional meetings and university-based research projects.

### **Nuclear Materials Management and Safeguards System**

The NRC, in conjunction with DOE, will continue to operate and maintain the Nuclear Materials Management and Safeguards System to track the movement of domestic and foreign nuclear materials.

# **INSPECTOR GENERAL PROGRAM**

## INSPECTOR GENERAL PROGRAM

(Dollar amounts in tables represent thousands of dollars (\$K). In text, whole dollar amounts are used. Staff numbers represent full-time equivalents (FTEs).)

Total FY 1998 Estimate ..... \$4,800,000

	FY 1996 Enacted	FY 1997 Estimate	FY 1998 Estimate	
			Request	Change from FY 1997
Budget Authority by Function (\$K)				
Salaries and Benefits	4,391	4,400	4,200	-200
Contract Support	360	360	360	0
Travel	241	240	240	0
Total	4,992	5,000	4,800	-200
Full-Time Equivalent Employment				
Audits	19	19	19	0
Investigations	19	18	18	0
Inspector General and Resource Management and Operational Support	6	6	6	0
Total	44	43	43	0

### EXPLANATION OF RESOURCE CHANGES

The reduction for Salaries and Benefits in FY 1998 from that in FY 1997 is the result of a revised estimate based on current historical data.

### DESCRIPTION OF PROGRAM

The NRC's Office of Inspector General (OIG) was established in April 1989 to provide the Commission and the Congress with an independent review and appraisal of the NRC's programs and operations to ensure their effectiveness and efficiency and to prevent and detect fraud, waste, and abuse. The OIG accomplishes its mission by conducting audits and investigations and by reviewing existing and proposed legislative and regulatory initiatives.

## **INSPECTOR GENERAL PROGRAM**

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The NRC and the OIG each have complementary unique responsibilities in support of the agency's mission. The NRC's primary mission is to provide adequate assurance that public health and safety is protected in the commercial use of nuclear materials and in the operation of nuclear facilities. The OIG, therefore, plays a critical role by assessing and reporting on the efforts of the NRC to ensure that its safety-related programs are operating effectively.

Similarly, the NRC is responsible for ensuring that individuals who identify nuclear safety concerns regarding the use of nuclear materials do not suffer adverse job actions resulting from such activities. The OIG continually assesses the NRC's efforts to combat this type of unlawful discrimination.

A more detailed description of the major OIG activities follows.

### **Audits**

The audit program is designed to provide assurance to the Commission and to Congress that NRC programs and operations are working efficiently and effectively. To do this, the OIG audit staff conducts performance and financial audits. Performance audits focus on the NRC's administrative and program operations. Financial audits focus on the NRC's internal control systems, transaction processing, and financial systems.

In FY 1998, the OIG will conduct 12 to 15 audits. The audits planned for this period are based on a comprehensive annual audit plan that includes input from the various elements of the NRC, Congress, the General Accounting Office (GAO), the Office of Management and Budget (OMB), the Department of Energy (DOE), and the nuclear industry, as well as from the OIG staff. The plan identifies key, high-risk, high-cost programs for audit, including the NRC's inspection, research, waste management, international activities, and information resources management programs. Audit surveys of these areas identify issues that require further examination.

In the financial management area, the audit plan includes several audits needed to meet legislative and OMB requirements. These audits will address various financial management issues, including the annual audit of the NRC's financial statement as mandated by the Chief Financial Officers Act.

The NRC is required by the Omnibus Budget Reconciliation Act of 1990 to recover approximately 100 percent of its budget authority. In FY 1998, the NRC will collect approximately \$462.3 million in fees from the industries that it regulates. Therefore, the

## INSPECTOR GENERAL PROGRAM

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agency must utilize sound financial practices to comply fully with its legislative mandates. The OIG assists the agency in meeting these objectives by conducting financial audits.

Additionally, in FY 1998, the OIG will assess and report on the NRC's response to recommendations made by the OIG and other audit entities, such as the GAO, concerning NRC programs.

### Investigations

The Inspector General Act of 1978 requires the OIG to receive and investigate allegations concerning violations of Federal laws and regulations, as well as allegations of mismanagement, waste, and danger to public health and safety. The mission of the investigative program is to perform investigative activities related to the integrity of the NRC's programs and operations.

Typically, investigative activities are reactive. However, the OIG periodically performs root cause analyses and implements other preventive initiatives such as integrity awareness training. The investigative caseload is primarily determined by the number of allegations received and the complexity of the issues raised. On the basis of historical trends, the investigative workload has continually increased in complexity since the inception of the OIG in April 1989. The OIG received 497 allegations in FY 1996; 103 investigations and event inquiries were opened and 105 were closed. It is anticipated that a like number of cases will be opened and closed during this planning period. In addition, investigators may participate in agency task forces that examine ways to strengthen agency operations.

### Inspector General and Resource Management and Operational Support

The Inspector General's support staff consists of administrative support and legal counsel. The OIG Counsel provides independent advice on issues concerning criminal law, criminal procedure, evidence, and constitutional law as these relate to the OIG's investigative program. In addition, the OIG Counsel develops legal interpretations of appropriations law, financial management statutes and regulations, and procurement and funding rules in support of the OIG's auditing program. The OIG Counsel furnishes litigation support to the Department of Justice and others as necessary, and advises on matters concerning personnel, labor law, and Privacy Act and Freedom of Information Act issues. The OIG Counsel also reviews in depth and comments on existing and proposed legislation, regulations, directives, and policy issues that affect agency programs and operations.

## **INSPECTOR GENERAL PROGRAM**

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The Resource Management and Operational Support staff provides operational support to the OIG. It formulates and executes the OIG budget, prepares the OIG's semiannual report to Congress, operates an independent personnel program, administers the OIG contract audit program, and serves as the liaison and point of contact for activities of the President's Council for Integrity and Efficiency. This staff also provides automated data processing support, security management, space planning, and procurement support to the OIG.

## **APPENDIX**



## APPENDIX

This appendix contains the following:

- Legislative Program Projections, which summarizes the NRC's budget authority and outlays by appropriation for FY 1996 through FY 2002.
- A report on drug testing, required by 31 U.S.C. 1105(a), which describes the NRC's drug testing activities conducted in accordance with Executive Order 12564.
- A summary of the NRC's reimbursable work agreements including the source and amount of funding, a project description, a justification for the NRC's involvement in each project, and a description of the billing procedures and the extent of full-cost recovery.

**APPENDIX**

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**U. S. NUCLEAR REGULATORY COMMISSION  
LEGISLATIVE PROGRAM PROJECTIONS**

(Dollars are in millions.)

	SALARIES AND EXPENSES APPROPRIATION		INSPECTOR GENERAL APPROPRIATION	
	Budget Authority	Budget Outlays	Budget Authority	Budget Outlays
FY 1996 Enacted	467.6	507.1	5.0	4.1
FY 1997 Estimate	471.8	470.7	5.0	5.0
FY 1998 Estimate	476.5	475.3	4.8	4.8
FY 1999-2002 Estimate	476.5	476.5	4.8	4.8

## **APPENDIX**

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### **U.S. NUCLEAR REGULATORY COMMISSION REPORT TO CONGRESS ON DRUG TESTING**

The Nuclear Regulatory Commission's (NRC's) Drug Testing Plan was approved in August 1988, and all components of the NRC's drug testing program for employees and applicants remain in place. Drug testing requirements imposed by the NRC on the nuclear industry through regulations are separate from this program and are not covered by this report. The NRC's Drug Testing Program under Executive Order (E.O.) 12564 includes random, applicant, voluntary, followup, reasonable suspicion, and accident-related drug testing. Testing was initiated for non-bargaining unit employees in November 1988 and for bargaining unit employees in December 1990 after an agreement was negotiated with the National Treasury Employees Union.

The NRC positions meeting the following criteria are considered testing-designated positions, and the employees filling these positions are subject to random testing: (1) regional and headquarters employees who have unescorted access to vital or protected areas of nuclear plants and Category I fuel facilities; (2) employees who have assigned responsibilities or are on call for regional or headquarters incident response centers; (3) employees who require access to sensitive compartmented information, foreign intelligence information, or who require access to other classified information (e.g., national security information or restricted data); and (4) employees who are motor vehicle operators carrying passengers.

Approximately 1,720 NRC employees occupy testing-designated positions and are subject to random testing. Potential selectees interviewed for positions in these categories are subject to applicant testing.

Approximately 1,053 tests of all types were conducted between October 1, 1995, and September 30, 1996. Since each employee subject to random testing has an equal chance of being selected each time, some NRC employees were randomly tested more than once. All testing results have been negative except for three employees who tested positive this year. Three employees are in followup testing and/or continue to be subject to random testing.

Internal quality control reviews were completed during the past year to ensure NRC's program continues to be administered in a fair, confidential, and effective manner.

The NRC's Drug Testing Program remains firmly based on the principles and guidance provided through E.O. 12564, Public Law 100-71, Department of Health and Human Services guidelines, and Commission decisions.

**APPENDIX**

<b>U. S. NUCLEAR REGULATORY COMMISSION SUMMARY OF REIMBURSABLE WORK AGREEMENTS (New Budget Authority)</b>		
	<b>FY 1996</b>	<b>FY 1997 (Estimate)</b>
<b>INTERNATIONAL ASSISTANCE TO FOREIGN GOVERNMENTS AND ORGANIZATIONS</b>		
Core Conversion Project	\$0	\$800,000
International Invitational Travel	\$70,535	\$75,000
Nuclear Safety Initiatives for the New Independent States	\$500,000	\$3,750,000
Regional Energy Efficiency Project	\$400,000	\$568,000
<b>ADMINISTRATIVE AGREEMENTS</b>		
Consumer Product Safety Commission	\$13,000	\$0
Criminal History Program	\$792,264	\$924,000
Department of Energy Training	\$752	\$0
General Services Administration	\$40,500	\$0
Information Access Authorization Program	\$268	\$1,000
Library of Congress	\$48,750	\$0
Material Access Authorization Program	\$0	\$75,000
<b>OTHER AGREEMENTS</b>		
Cassini and Mars Pathfinder Mission	\$0	\$300,000
Foreign Cooperative Research Agreements	\$3,599,886	\$1,555,000
Navy Porting Reviews	\$0	\$15,000
Department of Energy Tritium Production	\$100,000	\$0
Radiation Exposure Monitoring System	\$200,000	\$0
<b>TOTAL</b>	<b>\$5,765,955</b>	<b>\$8,063,000</b>

**SUMMARY OF REIMBURSABLE WORK AGREEMENTS**

**1. Core Conversion Project**

Source: Department of Defense (DoD)

Description of Work: The NRC will ensure that Gosatomnadzor (GAN) has at its disposal the knowledge and skills to perform rigorous and objective safety analyses for the converted designs of plutonium production reactors. Assistance will focus on areas such as the verification of design and accident analysis codes, quality assurance, design requirements for criticality control systems and probabilistic risk analysis (PRA), and include training and tutoring on methodologies used by the NRC to perform confirmatory analyses; use of the tools needed to perform these analyses; standards, criteria and procedures used by the NRC staff to achieve appropriate levels of safety; and procedures used by the NRC staff to review safety documents that will be submitted to GAN by the Russian designers. The NRC will also perform independent safety reviews of the Russian designers as further assurance of the conclusions arrived at by GAN and provide the results of this work to GAN, the Russian designers, and DoD.

Justification for NRC Involvement: During recent meetings of the Gore-Chernomyrdin Commission (January 29-30, 1996, and July 15-16, 1996), the U.S. Government made a commitment that the NRC would provide assistance and support to the Russian Government nuclear regulatory authority, GAN, to ensure an improvement in the level of safety of three plutonium production reactors to have their cores converted.

Reimbursement Procedures: It is anticipated that DoD will provide budget authority in advance for the full cost of NRC's assistance. The NRC will bill DoD quarterly for all direct staff hours and contractual support expended for work specified in the reimbursable agreement. The hourly rate charged to DoD for NRC direct staff time is established in 10 CFR Part 170. This agreement will be entered into pursuant to the authority of the Economy Act, 31 U.S.C. 1535 and 1536.

**2. International Invitational Travel**

Source: International Atomic Energy Agency (IAEA), various foreign governments, and other international organizations.

Description of Work: IAEA and various foreign governments reimburse NRC travel costs pertaining to the organization's or government's work.

Justification for NRC Involvement: The NRC is assisting IAEA, other international organizations, and foreign governments by providing support in the area of nuclear safety because of the NRC's specialized expertise in the regulation of the uses of nuclear energy and materials. The NRC is authorized by its annual appropriation legislation to retain and use funds for services rendered to foreign governments and international organizations.

## **APPENDIX: Summary of Reimbursable Work Agreements**

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**Reimbursement Procedures:** The NRC initially funds the travel cost and is then reimbursed, generally by check, by the organization or country that sponsored the travel.

### **3. Nuclear Safety Initiatives for the New Independent States (NISs): Energy Efficiency and Market Reform Project**

**Source:** U.S. Agency for International Development (AID)

**Description of Work:** The purpose of this AID initiative is to continue to implement nuclear safety initiatives in Russia, Ukraine, Armenia, and Kazakhstan. Activities under this agreement include (1) analytical support activities, (2) development of a training center for regulatory personnel, (3) creation of an incident response center, (4) work in the technical area of probabilistic risk assessment, and (5) assistance in legal enforcement and development of draft regulatory legislation.

**Justification for NRC Involvement:** The NRC is assisting AID in providing support to the NISs in the area of nuclear safety because of the NRC's specialized expertise in the regulation of civilian uses of nuclear energy and materials.

**Reimbursement Procedures:** AID provides budget authority in advance to the NRC for travel, contractor support, and administrative expenses (e.g., interpreters). Salary costs for NRC employees working under this agreement are not reimbursed by AID. As costs are incurred by the NRC, AID is billed via the Department of Treasury's on-line payment and collection system.

### **4. Regional Energy Efficiency Project**

**Source:** U.S. Agency for International Development (AID)

**Description of Work:** The purpose of this AID initiative is to assist Central and Eastern European regulators to bring their capabilities up to Western standards, and to promote the efficient and environmentally sound use of energy. Technical (nuclear safety) subject areas include the following: assistance to the Czech regulatory organization in performing a safety review and preparing a safety evaluation report for the Temelin nuclear power plant; international code assessment and severe accident and risk and accident management; and nuclear safety orientation and training, which includes conducting legal, regulatory, and inspector training; conducting Probabilistic Risk Assessment Basics Course, Root Cause Incident Investigation Course; hosting nuclear specialists; and training at the NRC's Technical Training Center in Chattanooga, Tennessee. Efforts in Lithuania will include assisting in preparing and updating Lithuanian norms and standards, preparing Ignalina-specific inspection guidance, and developing a Lithuanian "Regulatory Regime" and philosophy.

**Justification for NRC Involvement:** The NRC is assisting AID in providing support to the countries of Eastern and Central Europe in the area of nuclear safety because the NRC's specialized expertise in the regulation of civilian uses of nuclear energy and materials.

## **APPENDIX: Summary of Reimbursable Work Agreements**

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**Reimbursement Procedures:** AID provides budget authority in advance to the NRC for travel, contractor support, and administrative expenses (e.g., interpreters). Salary costs for NRC employees working under this agreement are not reimbursed by AID. As costs are incurred by the NRC, AID is billed via the Department of Treasury's on-line payment and collection system.

### **5. Consumer Product Safety Commission**

**Source:** Consumer Product Safety Commission (CPSC)

**Description of Work:** One employee is provided to give personnel assistant support for the Office of Human Resources Management at CPSC.

**Justification for NRC Involvement:** This agreement was entered into pursuant to the authority of the Economy Act, 31 U.S.C. 1535 and 1536.

**Reimbursement Procedures:** CPSC provided budget authority in advance to the NRC for the direct salary and benefits of the employee. As costs were incurred by the NRC, CPSC was billed via the Department of Treasury's on-line payment and collection system.

### **6. Criminal History Program (CHP)**

**Source:** NRC licensees

**Description of Work:** The NRC has entered into a written agreement with the Federal Bureau of Investigation's (FBI's) Identification/Information Management Division to conduct user fee non-criminal justice fingerprint card checks for which the FBI provides criminal history records for applicants if such exist in FBI files and/or databases.

**Justification for NRC Involvement:** The Atomic Energy Act (AEA) of 1954, as amended, grants the NRC the authority to require that each licensee or applicant for a license to operate utilization facilities to fingerprint each individual who is granted unescorted access to nuclear power facilities (NRC licensees) or access to safeguards information to undergo an FBI criminal history fingerprint check.

**Reimbursement Procedures:** Funds are received from the licensees for fingerprint checks. Payments are made to the FBI via the Department of Treasury's on-line payment and collection system. Salary costs for NRC employees administering this program are not reimbursed by the requestor.

### **7. Department of Energy Training**

**Source:** Department of Energy (DOE)

**Description of Work:** Travel costs were reimbursed for an NRC employee who participated in a training course, "Health Physics in Radiation Accidents," held in Oak Ridge, Tennessee.

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Justification for NRC Involvement: DOE requested that the NRC employee deliver a lecture as part of the training course. Travel expenses were reimbursed under the authority of the Economy Act, 31 U.S.C. 1535 and 1536.

Reimbursement Procedures: On the basis of actual travel costs incurred, the NRC billed DOE via the Department of Treasury's on-line payment and collection system.

### **8. General Services Administration**

Source: General Services Administration (GSA)

Description of Work: The NRC provided one clerical employee in support of the training objectives of the Inspection General Criminal Investigator Academy, Federal Law Enforcement Training Center.

Justification for NRC Involvement: This agreement was entered into pursuant to the Economy Act, 31 U.S.C. 1535 and 1536, and the Government Employee Training Act [5 U.S.C. Section 4103(a)].

Reimbursement Procedure: The GSA provided budget authority to the NRC for the direct salary and benefits of the employee. On the basis of actual salary and benefits costs, GSA was billed via the Department of Treasury's on-line payment and collection system.

### **9. Information Access Authorization Program (IAAP)**

Source: NRC licensees

Description of Work: Licensee personnel with access to classified national security information and restricted data are subject to personnel security background investigations conducted by the Office of Personnel Management (OPM) at the NRC's request to ensure their eligibility for such access. This background investigation is necessary under the Atomic Energy Act (AEA) and Executive Order 12968 to determine their eligibility for access to classified information.

Justification for NRC Involvement: Title 10 of the *Code of Federal Regulations*, Part 25, issued under the authority of the AEA to protect public health and safety and provide for common defense and security.

Reimbursement Procedures: Funds are received from the licensees for background investigations. Payments are made to OPM via the Department of Treasury's on-line payment and collection system. Salary costs for NRC employees administering this program are not reimbursed by the requestor.

### **10. Library of Congress**

Source: Library of Congress

Description of Work: The NRC provided one senior investigative employee in support of a high-level, sensitive investigation.

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**Justification for NRC Involvement:** This agreement was entered into pursuant to the authority of Section 601 of the Economy Act, 31 U.S.C. 1535 and 1536.

**Reimbursement Procedures:** The Library of Congress provided budget authority to the NRC for a portion of the direct salary and benefits of the employee. On the basis of actual salary and benefits costs, the Library was billed via the Department of Treasury's on-line payment and collection system.

### **11. Material Access Authorization Program (MAAP)**

**Source:** NRC licensees

**Description of Work:** Licensee personnel with access to, or control of, formula quantities of special nuclear material are subject to personnel security background investigations conducted by the Office of Personnel Management (OPM) at the NRC's request to ensure their eligibility for such access. Such screening is necessary to protect against the theft or diversion of special nuclear material or acts of sabotage.

**Justification for NRC Involvement:** Title 10 of the *Code of Federal Regulations*, Part 11, issued under the authority of the Atomic Energy Act to protect public health and safety and provide for common defense and security.

**Reimbursement Procedures:** Funds are received from the licensees for background investigations. Payments are made to OPM via the Department of Treasury's on-line payment and collection system. Salary costs for NRC employees administering this program are not reimbursed by the requestor.

### **12. Cassini and Mars Pathfinder Missions**

**Source:** National Aeronautics and Space Administration (NASA)

**Description of Work:** The interagency Nuclear Safety Review Panel (INSRP) was formed by a presidential security directive. The purpose of the panel is to perform an independent review of the safety of launches of space vehicles carrying nuclear material (small quantities are exempt). The NRC staff will assist the INSRP as technical advisor. In this role the NRC staff will (1) attend significant meetings of the panel; (2) participate in drafting and sign significant correspondence of the panel; (3) support selected subpanel meetings and other technical meetings (e.g., Biological and Environmental Effects, Meteorology, Uncertainty Working Group); (4) participate in the drafting of the safety evaluation report for the Cassini Mission and other missions, as required; (5) participate in producing independent calculations estimating the risks from the launch of nuclear materials, if necessary; (6) review major safety-related mission documents and provide comments as appropriate; and (7) participate in periodic briefings of the Office of Science and Technology Policy.

**Justification for NRC Involvement:** NRC involvement was requested by the President's Science Advisor, Director of the Office of Science and Technology Policy, in a letter to the Chairman, NRC. The NRC accepted participation in INSRP as technical advisor in a letter

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to Dr. Gibbons from the Director, Office of Nuclear Material Safety and Safeguards (NMSS), dated November 28, 1994.

**Reimbursement Procedures:** NASA provides budget authority in advance to the NRC for the full cost of NRC assistance. NASA is billed quarterly for all direct staff hours expended for work specified in the reimbursable agreement via the Department of Treasury's on-line payment and collection system. The hourly rate charged to NASA for NRC direct staff time is established in 10 CFR Part 170. This agreement is entered into pursuant to the authority of the Economy Act, 31 U.S.C. 1535 and 1536.

### **13. Foreign Cooperative Research Agreements (FCRAs)**

**Source:** Various foreign entities

**Description of Work:** The NRC enters into nuclear safety cooperative research agreements with foreign entities under the NRC's Foreign Cooperative Nuclear Safety Research Program for the purpose of exchanging nuclear safety-related information, conducting joint projects of mutual interest, and interacting with other organizations concerned with nuclear safety. The research programs subject to these cooperative research agreements are carried out as a part of the agency's nuclear regulatory responsibilities. The foreign entities participating in the Cooperative Nuclear Safety Research Program enter into cooperative research agreements that provide in-kind technical or financial contributions to the NRC.

**Justification for NRC Involvement:** These foreign contributions are provided to the NRC in return for access to information that has been developed and continues to arise from the NRC research programs before final publication and release to the public domain. These contributions support broad safety research programs and also allow the foreign entity direct participation in the execution of the research program. Both parties benefit from the cooperative efforts. The NRC is authorized by its annual appropriation legislation to receive, retain, and use funds under the Cooperative Nuclear Safety Research Program for those activities associated with the program.

**Reimbursement Procedures:** The foreign entity provides an advance of funds to the NRC using the Fedwire Deposit System (i.e., electronic funds transfer) or by check or money order.

### **14. Department of Energy Tritium Production**

**Source:** Department of Energy (DOE)

**Description of Work:** The NRC provides advisory and review assistance on technical activities and documentation for tritium-producing burnable absorber assemblies for use in commercial light water reactors.

**Justification for NRC Involvement:** DOE is responsible for establishing the capability to produce tritium by the end of 2005, in accordance with a presidential decision directive. DOE has selected a dual-path strategy to meet the schedule. One path is the accelerator

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production of tritium. If DOE adopts an accelerator design utilizing a tungsten target (as is currently contemplated), the Commission does not have statutory authority to regulate this option. The NRC is responsible for regulatory production and utilization facilities (as defined by the Atomic Energy Act, as amended) and possession and use of byproduct and special nuclear material. The other path is one that would require NRC oversight. DOE proposes to produce tritium in commercial light water reactors, either through acquisition of reactor(s) under Government ownership or by contracting for target irradiation services under private ownership.

Early interactions are necessary to ensure that the requirements, technical activities, data collection, and documentation under development by DOE in support of tritium production are adequate to support applicable regulatory requirements, and that the licensing strategies developed by DOE are realistic and can be implemented as scheduled.

Reimbursement Procedures: DOE provided budget authority in advance to the NRC for the full cost of NRC assistance. In FY 1996, the NRC billed DOE for all direct staff hours expended for work specified in the reimbursable agreement via the Department of Treasury's on-line payment and collection system. The hourly rate charged to DOE for NRC direct staff time is established in 10 CFR Part 170. This agreement was entered into pursuant to the authority of the Economy Act, 31 U.S.C. 1535 and 1536.

### **15. Navy Porting Reviews**

Source: United States Navy (USN)

Description of Work: The NRC will conduct porting reviews for the United States Navy.

Justification for NRC Involvement: The NRC provides technical advice to the United States Navy on health and safety matters concerning the Navy's nuclear propulsion reactors. These reactors and the special nuclear material used therein are held by the Department of Defense pursuant to directives of the President under Section 91b. of the Atomic Energy Act of 1954. As such, neither these reactors nor the special nuclear material is licensed under that act. From the beginning of the nuclear Navy program in 1946 until the present, such technical advice has been furnished by the NRC or its predecessors when requested.

Reimbursement Procedures: The United States Navy provides budget authority in advance for the full costs of NRC services at the beginning of each fiscal year. For FY 1997, the NRC will charge a flat rate for each service performed. The flat rate is based on the hourly rate for NRC direct staff time, which is established in 10 CFR Part 170. The NRC will evaluate this rate annually and inform the United States Navy of any changes required to the service charges. The adjusted service charges will be an appendix to the memorandum of understanding. The NRC will bill the United States Navy at the end of each quarter for services performed. This agreement is entered into pursuant to the authority of the Economy Act, 31 USC 1535 and 1536.

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### **16. Radiation Exposure Monitoring System**

**Source:** Department of Energy (DOE)

**Description of Work:** The NRC will assist the DOE Office of Health Physics and Industrial Hygiene in (1) the development and implementation of health surveillance support systems that will collect, maintain, and report radiation exposures; (2) the innovative application of lessons learned from related experiences; and (3) the sharing and transfer of technology currently used by the NRC to support DOE's program.

**Justification for NRC Involvement:** DOE has initiated work to enhance the support systems for health surveillance of DOE employees, DOE contractors, and visitors to DOE facilities. The first step in this effort was to evaluate DOE's radiation exposure monitoring system (REMS) that is used to collect, maintain, and report personnel radiation exposures. A contractor was selected to conduct this evaluation to take advantage of DOE research and lessons learned while developing, operating, and maintaining the NRC radiation exposure information system, which has a similar function.

**Reimbursement Procedures:** DOE provided budget authority in advance to the NRC for contractor support. As costs are incurred by the NRC, DOE is billed via the Department of Treasury's on-line payment and collection system.

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**4 MANAGEMENT AND SUPPORT PROGRAM**

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**6 APPENDIX**