

BUDGET ESTIMATES FISCAL YEAR 1995

February 1994

U.S. Nuclear Regulatory Commission



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**BUDGET
ESTIMATES
FISCAL YEAR
1995**

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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 NRC with the primary Federal responsibility for achieving that goal. The NRC's mission, therefore, is to ensure adequate protection for the public health and safety, the common defense and security, and the environment in the use of nuclear materials in the United States.

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 the 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 often require conservatism to account for technical uncertainty. Conservatism 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 1993, PROPOSED FOR FY 1994, AND
REQUESTED FOR FY 1995.

BUDGET SUMMARY

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

FUNDS: The Nuclear Regulatory Commission's (NRC's) Fiscal Year (FY) 1995 budget request is \$546,497,000. This is an increase of \$11,497,000 above our proposed level for FY 1994. The FY 1994 estimate reflects a proposed rescission of \$12,700,000 from our enacted FY 1994 budget authority of \$547,700,000. This reduction results from NRC's efforts to streamline operations and increase effectiveness and efficiency in program financing. This request is consistent with Executive Orders 12837 and 12838.

FTE: The NRC's FY 1995 budget request is 3,218 FTEs. This is a decrease of 75 FTEs below the FY 1994 proposed level. This request is consistent with Executive Order 12839 and also reflects the additional streamlining efforts.

TOTAL NRC BUDGET AUTHORITY BY APPROPRIATIONS

| | FY 1993 Enacted | FY 1994 | | | FY 1995 Estimate | |
|--|--------------------|---------------|------------|---------------|------------------|------------------------------------|
| | | Enacted | Rescission | Proposed | Request | Change from FY 1994 Proposed |
| NRC Salaries and Expenses (S&E) Appropriations (\$K) | | | | | | |
| Salaries and Expenses | 535,415 | 542,900 | -12,700 | 530,200 | 541,417 | 11,217 |
| Offsetting Fees Receipts | 514,315 | 520,900 | -12,700 | 508,200 | 519,417 | 11,217 |
| Net Appropriated - S&E ¹ | 21,100 | 22,000 | 0 | 22,000 | 22,000 | 0 |
| NRC Office of Inspector General (IG) Appropriations (\$K) | | | | | | |
| Inspector General | 4,585 | 4,800 | 0 | 4,800 | 5,080 | 280 |
| Offsetting Fees Receipts | 4,585 | 4,800 | 0 | 4,800 | 5,080 | 280 |
| Net Appropriated - IG | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Net Appropriated - NRC | 21,100 | 22,000 | 0 | 22,000 | 22,000 | 0 |

¹Appropriated from the Nuclear Waste Fund.

SUMMARY

APPROPRIATIONS AND FINANCIAL SUMMARY

The NRC's FY 1995 budget requests new budget authority of 546,497,000, to be funded by two appropriations -- one is NRC's Salaries and Expenses appropriation for \$541,417,000, and the other is NRC's Office of the Inspector General appropriation for \$5,080,000. Of the funds appropriated to the NRC's Salaries and Expenses, \$22,000,000, shall be derived from the Nuclear Waste Fund. The sums appropriated to the NRC's Salaries and Expenses and NRC's Office of the Inspector General shall be reduced by the amount of revenues received during FY 1995 from licensing fees, inspection services, and other services and collections, so as to result in a final FY 1995 appropriations for the NRC at an estimated \$22,000,000 -- the amount appropriated from the Nuclear Waste Fund. Revenues derived from enforcement actions will be deposited to miscellaneous receipts of the Treasury.

The NRC's FY 1994 proposed rescission appropriations legislation is provided on page 4 and the proposed FY 1995 appropriations legislation and its accompanying analysis are provided on pages 4 through 14 of this section. This section also provides summaries for budget authority by function and by program, a summary of staffing by program, changes in budget authority by program and an explanation of resource changes for current services and program requirements. The detailed justifications for direct program activities are presented on pages 24 through 185. It should be noted 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

PROPOSED FY 1994 RESCISSION APPROPRIATIONS LEGISLATION

The proposed rescission appropriations legislation is as follows:

Salaries and Expenses

Of the funds available under this head in Public Law 103-126, \$12,700,000 are rescinded.

PROPOSED FY 1995 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 section 3109 of title 5, United States Code; 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; \$541,417,000, to remain available until expended, of which \$22,000,000 shall be derived from the Nuclear Waste Fund: Provided, 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 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, as amended, may be retained and used for salaries and expenses associated with those activities, notwithstanding the provisions of section 3302 of title 31, United States Code, and shall remain available until expended: 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 the provisions of section 3302 of title 31, United States Code, 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 1995 from licensing fees, inspection services, and other services and collections, excluding those moneys received for the cooperative nuclear safety research program, services rendered to foreign governments and international organizations, and the material and information access

SUMMARY: Proposed FY 1995 Appropriations Legislation

authorization programs, so as to result in a final fiscal year 1995 appropriation estimated at not more than \$22,000,000.

Office of the Inspector General

For necessary expenses of the Office of the Inspector General in carrying out the provisions of the Inspector General Act of 1978, as amended, including services authorized by section 3109 of title 5, United States Code, \$5,080,000, 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 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 the provisions of section 3302 of title 31, United States Code, 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 1995 from licensing fees, inspection services, and other services and collections, so as to result in a final fiscal year 1995 appropriation estimated at not more than \$0.

SUMMARY

ANALYSIS OF PROPOSED FY 1995 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 Nuclear Regulatory Commission (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 by section 201 (42 U.S.C 5841), 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; 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 and other 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 1995 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 which is essential to scientific and industrial progress and public understanding and to enlarge the fund of technical information.

5. PURCHASE, REPAIR, AND CLEANING OF UNIFORMS:

5 U.S.C. 5901

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

6. OFFICIAL REPRESENTATION EXPENSES:

47 Comp. Gen. 657

43 Comp. Gen. 305

This language is required because of the established rule restricting an agency from charging appropriations with the cost of official representation unless the appropriations involved are specifically available therefor. Congress has appropriated funds for official representation expenses to the NRC and NRC's predecessor, 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 and, therefore, NRC appropriations not specifically made available therefor may not be used to reimburse the General Services Administration for security guard services.

SUMMARY: Analysis of Proposed FY 1995 Appropriations Legislation

8. HIRE OF PASSENGER MOTOR VEHICLES AND AIRCRAFT:

31 U.S.C. 1343

31 U.S.C. 1343 provides in effect that unless specifically authorized by the appropriation concerned or other law, no appropriation shall be expended to purchase or hire passenger motor vehicles for any branch of the Government.

9. TO REMAIN AVAILABLE UNTIL EXPENDED:

31 U.S.C. 1301

31 U.S.C. 1301 provides in part 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:

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

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

41 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 and owners of these materials into the fund is reviewed annually to determine if any fee adjustment is needed to insure full cost recovery.

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

SUMMARY: Analysis of Proposed FY 1995 Appropriations Legislation

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 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 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, AS AMENDED, MAY BE RETAINED AND USED FOR SALARIES AND EXPENSES ASSOCIATED WITH THOSE ACTIVITIES, NOTWITHSTANDING THE PROVISIONS OF SECTION 3302 OF TITLE 31, UNITED STATES CODE, AND SHALL REMAIN AVAILABLE UNTIL EXPENDED:

31 U.S.C. 3302

2 Comp. Gen. 775

SUMMARY: Analysis of Proposed FY 1995 Appropriations Legislation

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. The NRC is authorized to receive directly, compensation from foreign governments and international organizations for providing safety assistance and other services related to promoting the public health and safety. 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 performing the security investigations. Pursuant to P.L. 99-399, section 606, 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. NRC will also use the money currently collected under 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 THE PROVISIONS OF SECTION 3302 OF TITLE 31, UNITED STATES CODE, 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

SUMMARY: Analysis of Proposed FY 1995 Appropriations Legislation

Pursuant to 42 U.S.C. 2213, the NRC shall assess and collect annual charges from persons licensed by the Commission. 42 U.S.C. 2214 (P.L. 101-508, Title VI, Subtitle B, of the Omnibus Budget Reconciliation Act of 1990; and P. L. 102-486, Title XXIX, section 2903 of the Energy Policy Act of 1992) requires, except for the holder of any license for a federally owned research reactor used primarily for educational training and academic research purposes, 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 under the Independent Offices Appropriation Act of 1952 (31 U.S.C. 9701), for each year of FY 1991-1998.

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.

14. 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 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 1995 are to approximate 100 percent of the Commission's budget authority. Pursuant to 42 U.S.C 2214 (P.L. 101-508, Title VI, Subtitle B, section 6101 (a)(2)(3) and (c)(2)), the aggregate amount of the annual charge 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 charge is 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 1991-1998.

SUMMARY: Analysis of Proposed FY 1995 Appropriations Legislation

Office of the Inspector General

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

P.L. 95-452

P.L. 100-504

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

16. 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.

17. TO REMAIN AVAILABLE UNTIL EXPENDED:

31 U.S.C. 1301

31 U.S.C. 1301 provides in part 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.

18. 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.

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 transfer authority from NRC's Salaries and Expenses appropriation to its Office of the Inspector General

SUMMARY: Analysis of Proposed FY 1995 Appropriations Legislation

appropriation. This will permit the NRC to augment the Office of the Inspector General appropriation on a limited basis, if it becomes necessary, without seeking additional appropriations for that fiscal year.

19. FROM THIS APPROPRIATION, TRANSFERS OF SUMS MAY BE MADE TO OTHER AGENCIES OF THE GOVERNMENT FOR THE PERFORMANCE OF 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.

20. 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 THE PROVISIONS OF SECTION 3302 OF TITLE 31, UNITED STATES CODE, 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 shall assess and collect annual charges from persons licensed by the Commission. 42 U.S.C. 2214 (P.L. 101-508, Title VI, Subtitle B, of the Omnibus Budget Reconciliation Act of 1990; and P. L. 102-486, Title XXIX, section 2903 of the Energy Policy Act of 1992) requires, except for the holder of any license for a federally owned research reactor used primarily for educational training and academic research purposes, the Commission to assess and collect annual charges from persons licensed by the Commission that approximate

SUMMARY: Analysis of Proposed FY 1995 Appropriations Legislation

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 1991-1998.

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.

21. 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 1995 are to approximate 100 percent of the Commission's budget authority. Pursuant to 42 U.S.C 2214 (P.L. 101-508, Title VI, Subtitle B, section 6101 (a)(2)(3) and (c)(2)), the aggregate amount of the annual charge 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 charge is 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 1991-1998.

SUMMARY

SUMMARY OF BUDGET AUTHORITY BY FUNCTION

| | FY 1993 Enacted | FY 1994 | | | FY 1995 Estimate | |
|--|--------------------|---------|---------------------------|----------|------------------|---------------------------------------|
| | | Enacted | Rescission ^{1/2} | Proposed | Request | Change from FY 1994 Proposed |
| NRC Appropriation: Salaries and Expenses (S&E) (\$K) | | | | | | |
| Salaries and Benefits | 256,704 | 261,194 | | 261,194 | 271,738 | 10,544 |
| Program Support | 180,068 | 176,968 | -10,700 | 166,268 | 162,409 | -3,859 |
| Administrative Support | 83,695 | 88,818 | -2,000 | 86,818 | 90,664 | 3,846 |
| Travel | 14,948 | 15,920 | | 15,920 | 16,606 | 686 |
| Total (S&E) | 535,415 | 542,900 | -12,700 | 530,200 | 541,417 | 11,217 |
| NRC Appropriation: Office of the Inspector General (IG) (\$K) | | | | | | |
| Salaries and Benefits | 3,750 | 3,933 | | 3,933 | 4,192 | 259 |
| Program Support | 585 | 662 | | 662 | 677 | 15 |
| Travel | 250 | 205 | | 205 | 211 | 6 |
| Total (IG) | 4,585 | 4,800 | | 4,800 | 5,080 | 280 |
| Total NRC Budget Authority by Function (\$K) | | | | | | |
| Salaries and Benefits | 260,454 | 265,127 | | 265,127 | 275,930 | 10,803 |
| Program Support | 180,653 | 177,630 | -10,700 | 166,930 | 163,086 | -3,844 |
| Administrative Support | 83,695 | 88,818 | -2,000 | 86,818 | 90,664 | 3,846 |
| Travel | 15,198 | 16,125 | | 16,125 | 16,817 | 692 |
| Total NRC | 540,000 | 547,700 | -12,700 | 535,000 | 546,497 | 11,497 |

^{1/2}The proposed rescission results from NRC's efforts to streamline operations and increase effectiveness and efficiency in program financing.

SUMMARY

SUMMARY OF STAFFING BY PROGRAM

| | FY 1993 FTE | FY 1994 FTE | FY 1995 Estimate | |
|---|----------------|----------------|------------------|------------------------------------|
| | | | FTE Request | Change from FY 1994 Proposed |
| Reactor | | | | |
| Reactor Safety and Safeguards Regulation | 1,553 | 1,517 | 1,474 | -43 |
| Reactor Safety Research | 182 | 175 | 166 | -9 |
| Reactor Special and Independent Reviews, Investigations, and Enforcement | 218 | 211 | 202 | -9 |
| Subtotal | 1,953 | 1,903 | 1,842 | -61 |
| Nuclear Material | | | | |
| Nuclear Material and Low- Level Waste Safety and Safeguards Regulation | 470 | 470 | 479 | 9 |
| High-Level Nuclear Waste Regulation | 75 | 70 | 63 | -7 |
| Subtotal | 545 | 540 | 542 | 2 |
| Management and Support | | | | |
| Nuclear Safety Management and Support | 804 | 807 | 790 | -17 |
| Inspector General | 41 | 43 | 44 | 1 |
| Subtotal | 845 | 850 | 834 | -16 |
| TOTAL | 3,343 | 3,293 | 3,218 | -75 |

SUMMARY

SUMMARY OF BUDGET AUTHORITY BY PROGRAM

| | FY 1993 Enacted | FY 1994 | | | FY 1995 Estimate | |
|--|--------------------|----------------|----------------|----------------|------------------|------------------------------------|
| | | Enacted | Rescission | Proposed | Request | Change from FY 1994 Proposed |
| Reactor (\$K) | | | | | | |
| Reactor Safety and Safeguards Regulation | 163,442 | 164,002 | -3,000 | 161,002 | 166,215 | 5,213 |
| Reactor Safety Research | 100,706 | 99,769 | -6,974 | 92,795 | 89,318 | -3,477 |
| Reactor Special and Independent Reviews, Investigations, and Enforcement | 30,501 | 30,731 | | 30,731 | 31,674 | 943 |
| Subtotal | 294,649 | 294,502 | -9,974 | 284,528 | 287,207 | 2,679 |
| Nuclear Material (\$K) | | | | | | |
| Nuclear Material and Low-Level Waste Safety and Safeguards Regulation | 57,448 | 62,353 | -726 | 61,627 | 66,556 | 4,929 |
| High-Level Nuclear Waste Regulation | 21,100 | 22,000 | | 22,000 | 22,000 | 0 |
| Subtotal | 78,548 | 84,353 | -726 | 83,627 | 88,556 | 4,929 |
| Management and Support (\$K) | | | | | | |
| Nuclear Safety Management and Support | 162,218 | 164,045 | -2,000 | 162,045 | 165,654 | 3,609 |
| Inspector General | 4,585 | 4,800 | | 4,800 | 5,080 | 280 |
| Subtotal | 166,803 | 168,845 | -2,000 | 166,845 | 170,734 | 3,889 |
| TOTAL | 540,000 | 547,700 | -12,700 | 535,000 | 546,497 | 11,497 |

SUMMARY

CHANGES IN BUDGET AUTHORITY BY PROGRAM

| Program | FY 1995 Change from FY 1994 Proposed | | |
|---|--------------------------------------|-----------------------------------|---------------|
| | Current Services ¹ | Program Requirements ² | Total |
| Reactor (\$K) | | | |
| Reactor Safety and Safeguards Regulation | 8,799 | -3,586 | 5,213 |
| Reactor Safety Research | 2,981 | -6,458 | -3,477 |
| Reactor Special and Independent Reviews, Investigations and Enforcement | 1,457 | -514 | 943 |
| Subtotal | 13,237 | -10,558 | 2,679 |
| Nuclear Material (\$K) | | | |
| Nuclear Material and Low-Level Waste Safety and Safeguards Regulation | 3,211 | 1,718 | 4,929 |
| High-Level Nuclear Waste Regulation | 937 | -937 | 0 |
| Subtotal | 4,148 | 781 | 4,929 |
| Management and Support (\$K) | | | |
| Nuclear Safety Management and Support | 6,881 | -3,272 | 3,609 |
| Inspector General | 193 | 87 | 280 |
| Subtotal | 7,074 | -3,185 | 3,889 |
| TOTAL | 24,459 | -12,962 | 11,497 |

¹Current Services: These estimates show how projected price increases affect agency funding requirements in FY 1995.

²Program Requirements: These estimates show how the actual program funding requirements change from FY 1994 to FY 1995.

SUMMARY

EXPLANATION OF RESOURCE CHANGES FOR CURRENT SERVICES

FY 1995 Change
from FY 1994 Proposed

Personnel Compensation

\$16,823,000

The increase for salaries and benefits reflects the 1.6 percent Federal sector pay increase expected in CY 1995; the full year cost of the 4.23 percent locality pay increase which was effective January 1994; within-grade increases; several minor adjustments, such as the increased number of staff entering the Federal Employees Retirement System and benefits cost increases. (Note: Fluctuations due to staffing changes are included in the descriptions of the program requirements.)

Administrative Price Increases

\$7,636,000

The increase for administrative support, program support, and travel reflects inflation estimated at 2.9 percent in FY 1995. Additionally, there is approximately \$700,000 in rent increases primarily due to an estimated 4.5 percent increase in rent charges for office space each year from GSA for headquarters rent. These administrative price increases are summarized in the following table.

| Administrative Price Increases (\$K) | FY 1995 Change from FY 1994 Proposed |
|---|---|
| Rent | \$667 |
| Administrative Support | \$1,896 |
| Program Support | \$4,599 |
| Travel | \$474 |
| Total | \$7,636 |

SUMMARY

EXPLANATION OF RESOURCE CHANGES FOR PROGRAM REQUIREMENTS

FY 1995 Change
from FY 1994 Proposed

Reactor Safety and Safeguards Regulation Program - \$3,586,000

The program decrease in FY 1995 primarily reflects (1) the completion of major milestones in design certification efforts for evolutionary and passive light water reactor designs, (2) the completion of efforts to license Watts Bar 1, (3) winding down of reviews of generic technical issues for operating reactors, (4) continued granting of exceptions to the NRC's policy for resident inspector assignment at reactor sites on the basis of license performance, (5) the final phase-out of the regional component of the Reactor Engineer Intern Program, and (6) efficiencies realized from the consolidation of Region V as a field office of Region IV primarily through reduced overhead.

These decreases are partially offset by increased license renewal efforts to develop required regulatory guidance; to continue generic technical reviews of submissions from the industry, owners groups, and licensees; and to resolve generic technical, policy, and environmental issues.

Reactor Safety Research Program - \$6,458,000

The program decrease in FY 1995 primarily reflects decreases in (1) standard reactor design reviews as the level of effort to support the ROSA-V testing program and the evaluation of vendor SBWR experiments declines, (2) reactor aging and license renewal as major issues are resolved and the programs move toward closure, (3) reactor accident analysis as work to evaluate safety issues during low power and shutdown operational conditions is completed, and (4) safety issue resolution as a majority of the existing generic issues are resolved and fewer anticipated new generic issues are identified.

**Reactor Special and Independent Reviews,
Investigations and Enforcement Program** - \$514,000

The program remains essentially level. The reductions primarily result from: (1) determining that less staff are required to perform the functions carried out by the Advisory Committee on Reactor Safeguards and the Atomic Safety and Licensing Board Panel; and (2) efficiencies realized from the consolidation of Region V as a field office of Region IV. This is partially offset by an increase to the Office of Investigations travel which has historically been underfunded.

SUMMARY

FY 1995 Change
from FY 1994 Proposed

**Nuclear Material and Low-Level Waste Safety
and Safeguards Regulation Program**

\$1,718,000

The program increase in FY 1995 primarily reflects increases for the NRC to implement new responsibilities for regulating the gaseous diffusion uranium enrichment facilities as mandated by the National Energy Policy Act of 1992; to implement its Medical Management Plan; and to assess its current regulatory framework for medical use of byproduct material.

High-Level Nuclear Waste Regulation Program

-\$937,000

The program decrease in FY 1995 primarily reflects a decrease in headquarters efforts to (1) review DOE Technical Reports, (2) develop Technical Positions, (3) review DOE Mission Plan Amendments and Project Decision Schedule Revisions, (4) interact with DOE's Technical Review Board and the Nuclear Waste Negotiator, and (5) review DOE waste acceptance documentation. The Center for Nuclear Waste Regulatory Analyses will assume a greater role in these efforts. The NRC will also delay non-critical path repository models, codes and analysis efforts; and reduce effort on the MRS program as a result of modification and slippage in the DOE program. This decrease is partially offset by an increase for the Licensing Support System.

Nuclear Safety Management and Support Program

-\$3,272,000

The program decrease in FY 1995 primarily reflects the completion of Two White Flint North office space and consolidation of headquarters staff into White Flint North; as well as the consolidation of Region V as a field office of Region IV. Part of the decrease is offset by an increase to enhance the agency's wide area network and to relocate mainframe applications at NIH to new platforms.

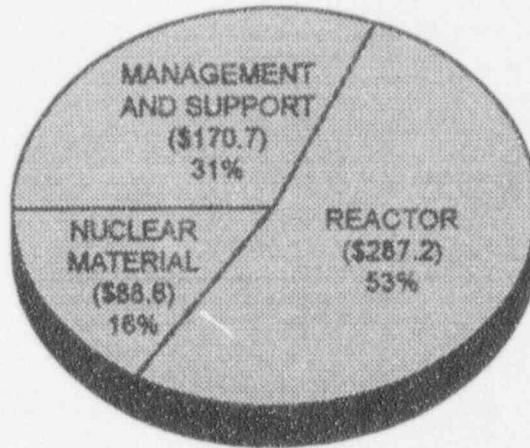
Inspector General

\$87,000

The program increase in FY 1995 reflects the increase of one FTE to staff the OIG hotline.

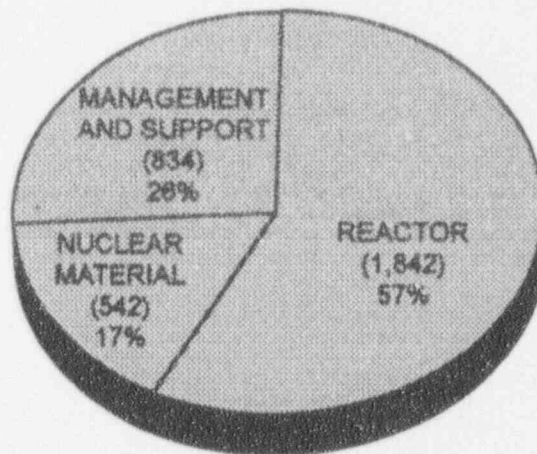
SUMMARY

DISTRIBUTION OF NRC BUDGET AUTHORITY BY CATEGORY



FY 1995 (\$546.5 MILLION)

DISTRIBUTION OF NRC STAFF BY CATEGORY



FY 1995 TOTAL STAFF 3,218 FTE

Note: Percentages are rounded to the nearest whole numbers

**REACTOR SAFETY AND
SAFEGUARDS REGULATION**

REACTOR SAFETY AND SAFEGUARDS REGULATION PROGRAM

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

Total FY 1995 Estimate \$166,215,000

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 120,574 | 121,897 | 121,897 | 126,109 | 4,212 |
| Program Support | 33,800 | 31,963 | 28,963 | 29,550 | 587 |
| Travel | 9,068 | 10,142 | 10,142 | 10,556 | 414 |
| Total | 163,442 | 164,002 | 161,002 | 166,215 | 5,213 |
| Budget Authority by Program Element (\$K) | | | | | |
| Reactor Licensing | 26,661 | 32,233 | 31,704 | 31,303 | -401 |
| Reactor Inspection | 70,821 | 70,992 | 69,678 | 72,635 | 2,957 |
| Reactor Oversight | 65,960 | 60,777 | 59,620 | 62,277 | 2,657 |
| Total | 163,442 | 164,002 | 161,002 | 166,215 | 5,213 |
| Full-Time Equivalent Employment by Program Element | | | | | |
| Reactor Licensing | 179 | 233 | 233 | 227 | -6 |
| Reactor Inspection | 769 | 748 | 748 | 709 | -39 |
| Reactor Oversight | 605 | 536 | 536 | 538 | 2 |
| Total | 1,553 | 1,517 | 1,517 | 1,474 | -43 |

| Changes in Budget Authority (\$K) | | | |
|--|--------------------------------------|-------------------------|-------|
| Program Element | FY 1995 Change from FY 1994 Proposed | | |
| | Current Services | Program Requirements | Total |
| Reactor Licensing | 1,516 | -1,917 | -401 |
| Reactor Inspection | 4,025 | -1,068 | 2,957 |
| Reactor Oversight | 3,258 | -601 | 2,657 |
| Total | 8,799 | -3,586 | 5,213 |

REACTOR SAFETY AND SAFEGUARDS REGULATION

EXPLANATION OF RESOURCE CHANGES FOR CURRENT SERVICES

The increase for personnel compensation reflects the costs of the 1.6 percent Federal sector pay increase expected in CY 1995; the full cost of the 4.23 percent locality pay increase which was effective January 1994; within grade increases; and several minor adjustments, such as the increased number of staff entering the Federal Employees Retirement System and benefits cost increases. The increase for program support and travel reflects inflation estimated at 2.9 percent in FY 1995.

EXPLANATION OF RESOURCE CHANGES FOR PROGRAM REQUIREMENTS

Reactor Licensing

The resources decrease in FY 1995 to reflect (1) the completion of the safety evaluation review phase for the evolutionary light water reactor designs and advancement into the next phase of the process--the hearings required for design certification rulemakings, (2) the issuance of the Draft Safety Evaluation Reports (DSERs) for passive light water reactor designs, (3) the completion of the effort to incorporate required or recommended changes to the standard review plan for the evolutionary reactor designs, based on the review of generic regulatory documents and staff evaluation reports, and (4) the completion of efforts to license Watts Bar 1 and resolution of severe accident considerations for the Bellefonte 1 license review.

These decreases are partially offset by increased license renewal efforts to (1) develop required regulatory guidance, (2) continue generic technical reviews of submissions from NUMARC and industry owners groups (Babcock & Wilcox, Westinghouse, and Boiling Water Reactor) and licensees (Baltimore Gas & Electric Company), and (3) resolve generic technical, policy, and environmental issues.

Reactor Inspection

The resources decrease in FY 1995 to reflect (1) the continued granting of exceptions to the NRC's policy for resident inspector assignment at reactor sites on the basis of licensee performance, (2) the final phase-out of the regional component of the Reactor Engineer Intern Program, and (3) the efficiencies realized from the consolidation of Region V as a field office of Region IV primarily through reduced overhead.

REACTOR SAFETY AND SAFEGUARDS REGULATION

Reactor Oversight

The resources for Reactor Oversight decrease slightly to reflect completion or nearing closure on reviews of generic technical issues for operating reactors in areas such as fitness for duty, probabilistic seismic hazards, offsite/onsite power, fire protection, and the regulatory impact survey.

DESCRIPTION OF PROGRAM

The reactor safety and safeguards regulation program encompasses all NRC licensing and inspection of reactor facilities and designs, as required by the Atomic Energy Act of 1954, as amended. This includes responsibility for evaluating the public health effects and the safety, environmental, safeguards, and antitrust aspects of reactor facilities and ensuring that civilian reactor facilities are designed, constructed, and operated safely and are in compliance with agency regulations. This program comprises the following three program elements: reactor licensing, reactor inspection, and reactor oversight.

These program elements, conducted by the NRC's Office of Nuclear Reactor Regulation at NRC headquarters and in the regions, ensure that: licensees operate nuclear power plants safely and are adequately prepared to respond in the event of an accident; nuclear power plants are designed and constructed properly and are ready for safe operation; licensees possess the capability to protect against sabotage and theft of nuclear materials at reactors; and, in coordination with the Office of Nuclear Regulatory Research, the agency is prepared for the future licensing of reactors through the review of applications for standard reactor design certification and reactor license renewal, and through the revision and update of acceptance criteria for future applications in standard review plans and other regulatory documents.

The funds and staff for each of the three program elements are discussed on pages 27 through 44. The program support funds are allocated for work done by Department of Energy (DOE) contractors and commercial contractors for the NRC. The narrative that follows describes these program elements and addresses the reasons why the resources are needed.

REACTOR SAFETY AND SAFEGUARDS REGULATION

Reactor Licensing Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 13,898 | 18,722 | 18,722 | 19,421 | 699 |
| Program Support | 12,361 | 12,470 | 11,941 | 10,815 | -1,126 |
| Travel | 402 | 1,041 | 1,041 | 1,067 | 26 |
| Total | 26,661 | 32,233 | 31,704 | 31,303 | -401 |
| Budget Authority by Program Activity (\$K) | | | | | |
| Standard Reactor Designs | 20,207 | 21,506 | 21,077 | 19,754 | -1,323 |
| Reactor License Renewal | 2,289 | 4,485 | 4,485 | 6,014 | 1,529 |
| Reactor and Site Licensing | 4,165 | 6,242 | 6,142 | 5,535 | -607 |
| Total | 26,661 | 32,233 | 31,704 | 31,303 | -401 |
| Full-Time Equivalent Employment | 179 | 233 | 233 | 227 | -6 |

The objectives of this program element are twofold (1) to ensure that nuclear power plants are designed and constructed properly and are ready for safe operation, and (2) to prepare for and conduct future licensing activities associated with new reactor designs, the renewal of existing reactor licenses, and the reactivation of existing reactors that have been deferred. To achieve these objectives, the NRC relies on reviews and inspections, experience from similar plants, and probabilistic risk assessments. This program element comprises three activities: standard reactor designs, reactor license renewal, and reactor and site licensing.

Standard Reactor Designs Activity

The standardization of nuclear power plant designs can increase the safety, reliability, and availability of nuclear power plants. Standardization will allow for a more thorough understanding of the designs by the NRC and a more efficient review process. Therefore, the Commission strongly endorses regulatory actions that will encourage industry to pursue standardization.

REACTOR SAFETY AND SAFEGUARDS REGULATION: Reactor Licensing

In support of the Commission's goals for future standardization, the NRC plans to continue its efforts to review evolutionary and passive advanced reactor designs; to resolve safety issues; and to develop and implement associated rules, policies, and guidance that will enable standard designs to receive certification.

In FY 1995, the NRC will continue its efforts to certify two evolutionary light water reactor designs - the General Electric (GE) Advanced Boiling Water Reactor (ABWR) and the Asea Brown Boveri/Combustion Engineering (ABB/CE) CESSAR System 80+. Significant progress has been made in resolving difficult design issues and in developing the required inspection, test, analysis, and acceptance criteria (ITAAC) required to accompany an application for final design approval. NRC's issuance of final design approval for these two evolutionary designs is anticipated by late FY 1994. The NRC will continue to work with both applicants to resolve the few remaining open issues. Following the issuance of the final design approvals, the NRC will participate in the rulemaking hearings required for design certification.

During the same period, the NRC will continue the early stages of design review to clarify technical issues and policy implications associated with the review of applications for mid-sized passive light water reactor design certification. In FY 1995, increased emphasis will be placed on resolving safety issues associated with the review of passive light water reactor designs to ensure that the NRC meets established schedules, assuming that vendors provide timely and complete information to support design certification. The NRC plans to complete safety analysis reviews and issue final design approvals for the Westinghouse advanced passive pressurized water reactor (AP600) and the GE Simplified Boiling Water Reactor (SBWR) after completion of the vendor's test programs and resolution of all outstanding issues. Hearings associated with the rulemaking for design certification for the AP600 and SBWR will follow issuance of final design approvals.

Through FY 1995, the NRC will pursue efforts associated with non-light water reactor designs. The technical staff will continue its pre-application review of the Canadian Deuterium Uranium Reactor design 3 (CANDU 3) and will continue to prepare for design certification by maintaining cognizance of the design, and continue staff familiarization with the design. The NRC will also continue review efforts and maintain cognizance of congressional activities relating to the Modular High Temperature Gas-cooled Reactor (MHTGR) and the Power Reactor Innovative Small Module (PRISM) non-light water reactor designs.

Timely improvements in regulations are important for implementing the NRC policies related to future licensing activities. NRC's standard review plan, originally written to assist the staff in performing safety reviews of applications for construction permits or operating

REACTOR SAFETY AND SAFEGUARDS REGULATION: Reactor Licensing

licenses, has not undergone a substantial revision since 1981. The NRC will continue its initiative to update the standard review plan to reflect current regulatory requirements, licensing guidance, and national codes and standards and to expand its coverage to include licensing of future reactors that reference certified standardized designs. The revised standard review plan, which will incorporate advanced reactor review information, will be issued for public comment upon completion.

In FY 1995, the NRC will continue to develop policy and guidance for reliability assurance programs for advanced reactors. The policy will include consideration of reliability goals for systems and equipment, including passive components, design measures, and testing and monitoring requirements. In addition, the NRC will work with the industry to develop and publish guidance for use by vendors and utilities.

As an integral part of the licensing effort for future reactors, the NRC will continue its efforts to develop a new construction inspection program to be used to inspect the new generation of reactors now in the design review and approval process. This program is expected to continue in FY 1995.

Reactor License Renewal Activity

The NRC must be prepared to evaluate licensee applications to renew current reactor operating licenses beyond their expiration dates. This preparation involves determining technical and policy issues, resolving licensing issues, and defining the criteria and process to review such renewal applications. The NRC issued the final rule (10 CFR Part 54) in December 1991, establishing the procedural requirements that an applicant for renewal of a nuclear power plant operating license must meet - including the information that must be submitted to the NRC. As a result of industry concerns associated with the efficiency of implementation of the final rule and the need to integrate the maintenance rule (10 CFR 50.65) with the renewal rule (10 CFR Part 54), the NRC is considering revisions to 10 CFR Part 54.

In a separate rulemaking, the NRC is revising 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," to enhance the agency's environmental review process associated with reactor license renewal. The final revised rule is scheduled for publication in FY 1995. It is anticipated that a number of environmental issues previously identified for generic consideration in the proposed rule will be reclassified to require plant-specific analyses. This is expected to increase the effort required to complete environmental reviews associated with license renewal applications.

REACTOR SAFETY AND SAFEGUARDS REGULATION: Reactor Licensing

When the NRC first approached the license renewal process, the idea of having lead plants was thought to be the best way to resolve issues associated with license renewal. Since that time, however, both lead plants -- Yankee Rowe and Monticello -- have either withdrawn or indefinitely postponed their applications for plant-specific reasons. From the experience, both the NRC and the industry have concluded that a generic approach was needed in order to work through the license renewal process for the first time. As a result, industry efforts are focused on a more generic approach to license renewal. The Babcock & Wilcox (B&W) Owners Group has started discussions with the NRC on a license renewal program for B&W design facilities. A submission of a license renewal application from a B&W member plant in FY 1997 is one of the objectives of this program. The Westinghouse and Boiling Water Reactor owners groups are pursuing a similar approach, however, no schedule has been established for a plant submission from either owners group. The Baltimore Gas & Electric Company has also asked the NRC to review its proposed program to implement the license renewal rule along with the maintenance rule.

The industry's generic programs will identify systems, structures, and components important to license renewal and, for the subset of these structure and components that could or would experience age-related degradation that is unique to the renewal period, determine if the effects of such degradation can be managed under existing programs -- to ensure that structures and components will continue to perform their required functions -- or if additional analyses or actions are necessary. In parallel with the generic license renewal program, the NRC plans to develop and revise the technical and environmental standard review plans for license renewal to reflect experience gained during the program and to enhance future reviews of license renewal applications.

Reactor and Site Licensing Activity

The NRC reviews applications for reactor construction permits and reactor operating licenses to evaluate their safety, environmental, and safeguards aspects, as well as their antitrust implications. Two plants, Bellefonte 1 and Watts Bar 2, will be under active review in FY 1995. Although these plants are not scheduled to receive operating licenses before the end of FY 1995, their construction will be monitored carefully by the NRC technical staff. There are no construction permit or early site permit applications pending NRC review at present. The NRC will continue to monitor activities under the DOE Early Site Permit Demonstration Program for progress in identifying prospective early site permit applications.

The NRC inspects reactors under construction to assess applicant compliance with NRC rules and regulations and to ensure compliance with the construction permit that was issued.

REACTOR SAFETY AND SAFEGUARDS REGULATION: Reactor Licensing

These inspections are conducted by NRC resident inspectors stationed at the reactor site and by NRC region-based inspectors augmented by headquarters staff. NRC resident inspectors ensure that equipment and structures are installed in accordance with design requirements and quality assurance procedures through reviews of procedures, direct observation, and review of applicant quality control. Resident inspectors may also participate in agency hearings, licensing meetings, and public discussions.

The majority of NRC inspections at reactors under construction and at preoperational sites are conducted as part of the routine inspection program designed to assess applicant conformance with construction standards. Other inspections focus on evaluating corrective measures taken by licensees to resolve previously identified problems. To augment these inspections, the NRC assesses the operational readiness of the applicant through the use of team inspections. This is an additional step to ensure that a plant is ready for and capable of safe power operation before a license is issued. The NRC will continue to inspect applicant activities to resolve employee concerns and/or allegations and other technical issues to ensure that the applicant can safely operate the plant.

In FY 1995, specific construction-related and preoperational inspection efforts to ensure conformance with the acceptance criteria of the standard review plan will include the review of initial test programs submitted by applicants in their final safety analysis reports and of applicant reports (submitted in accordance with 10 CFR 50.59) describing substantial changes to their test program.

The NRC continues to take steps to enhance its capability to review new applications and to create a stable and predictable licensing environment. In FY 1995, the NRC will focus on several siting and environmental areas including (1) revision to parts of the environmental standard review plan to reflect existing requirements contained in NRC regulations, regulatory guides, technical specifications, etc. and to update site suitability and emergency preparedness issues in areas (e.g., geosciences) in which significant changes in technology and assessment methods warrant inclusion in the review guidance to the staff, (2) enhancement of geographical information and expert systems capabilities to manage and perform site characterization and license reviews, and (3) revision of the reactor siting criteria contained in 10 CFR Part 100 to decouple the source term and dose calculations from reactor siting. The update will include revisions to Appendix A, "Seismic and Geologic Siting Criteria for Nuclear Power Plants" to reflect improved understanding of geological and seismological phenomena gained since the adoption of Appendix A in 1973.

REACTOR SAFETY AND SAFEGUARDS REGULATION

Reactor Inspection Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 59,705 | 60,105 | 60,105 | 60,659 | 554 |
| Program Support | 4,741 | 5,064 | 3,750 | 5,754 | 2,004 |
| Travel | 6,375 | 5,823 | 5,823 | 6,222 | 399 |
| Total | 70,821 | 70,992 | 69,678 | 72,635 | 2,957 |
| Budget Authority by Program Activity (\$K) | | | | | |
| Resident Inspections | 25,546 | 26,527 | 26,527 | 26,417 | -110 |
| Region-Based Inspections | 36,952 | 37,105 | 36,481 | 37,344 | 863 |
| Special Inspections | 8,323 | 7,360 | 6,670 | 8,874 | 2,204 |
| Total | 70,821 | 70,992 | 69,678 | 72,635 | 2,957 |
| Full-Time Equivalent Employment | | | | | |
| | 769 | 748 | 748 | 709 | -39 |

Under this program element, the NRC assesses licensee operation of nuclear power plants to ensure the safe operation of the facilities in accordance with NRC regulations. The primary focus is on plant operations, maintenance, engineering and plant support; this includes efforts by NRC resident, region-based, and headquarters inspectors. This program element comprises three major activities: resident inspections, region-based inspections, and special inspections.

NRC's inspection program consists of three basic types of inspections (1) the core inspection program, (2) regional initiative and reactive inspections, and (3) area-of-emphasis inspections consisting of one-time inspections focusing on areas of regulatory concern and emerging safety issues. A plant considered to be a good performer requires the core inspection program and area-of-emphasis inspections, including generic area team inspections, at a minimum. Beyond the minimum, regional administrators are allowed significant flexibility to focus inspections on safety problems and on plants that require special attention rather than on the completion of a more rigidly defined inspection program

REACTOR SAFETY AND SAFEGUARDS REGULATION: Reactor Inspection

for each site. This flexibility helps to ensure that resources are allocated effectively to enhance reactor safety.

The NRC historically has expended approximately 2,800 hours of direct on-site inspection effort per reactor each year. During FY 1995, the NRC plans to expend approximately 2,700 hours of direct on-site inspection effort per reactor. The reduction is warranted as a result of demonstrated improvement in industry performance over the past years and is expected to have no adverse impact on plant safety.

Resident Inspections Activity

Resident inspectors serve as NRC representatives in a variety of inspection functions. Their primary job is to observe, evaluate, and report on the adequacy of licensee nuclear safety activities. These inspectors concentrate on day-to-day licensee operations, follow-up of events, licensee management, and staff performance. In addition, they coordinate onsite activities of the various agency offices and participate in emergency exercises. Resident inspectors conduct the major part of the core inspection program and, as appropriate, participate in regional initiative and reactive inspections and in area-of-emphasis inspections. In general, the NRC assigns resident inspectors to operating reactor sites in accordance with the "N+1" policy (the number of reactor units plus one). Exceptions to N+1 staffing can be granted only at multi-unit facilities that have shown sustained high-level performance or that qualify for an exception based on superior performance.

Region-Based Inspections Activity

Region-based and headquarters inspectors supplement the basic activities carried out by resident inspectors through a variety of inspections that afford an in-depth look at licensee operations. These inspections are carried out in the areas of instrumentation, quality assurance, plant operations, engineering, systems surveillance, maintenance, modifications, inservice inspection, fire protection, training, refueling, radiation protection, environmental protection, safeguards, emergency preparedness, and management systems.

Region-based inspectors conduct reactor inspections and evaluate the corrective measures taken by the utilities to resolve identified problems. To augment the efforts of the region-based inspectors, the NRC contracts for highly specialized technical assistance that includes expertise in areas such as electrical and mechanical engineering, metallurgy, instrumentation, aerial radiological surveys, environmental monitoring at reactor sites, and other independent, confirmatory measurements. Headquarters staff inspect nuclear facilities to supplement the

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regional inspections in selected technical areas and to provide a broader perspective for safety assessments of licensee performance. In addition, region-based inspectors and headquarters staff respond to allegations of safety and safeguards violations at nuclear facilities and provide technical support to investigative personnel.

The NRC will conduct operations inspections at all 110 operating reactors during FY 1995. These inspection efforts will include safeguards inspections and biennial evaluations of licensee emergency preparedness exercises. The NRC will also inspect approximately 40 nonpower reactors annually. The agency will continue to use fixed and mobile laboratories (e.g., the nondestructive examination van) in conducting some of these inspections.

Special Inspections Activity

Additional inspections conducted by the NRC to resolve plant-specific or generic safety concerns are special team inspections. The NRC anticipates conducting approximately 80 special inspections per year which include, but are not limited to, major team inspections, area-of-emphasis inspections, vendor inspections, and special inspections related to the restart of shutdown plants.

Several specific types of inspections are included within the category of "major team inspections." A Safety-System Functional Inspection is an in-depth engineering review of the design, configuration, maintenance, testing, and operation of reactor systems and their components and supporting systems. A service water system operational performance inspection is also an in-depth engineering examination of system functionality that focuses on the ability of the service water system to fulfill its thermal and hydraulic performance requirements and on operational consistency with its design basis. An Operational Safety Team Inspection is an in-depth review of plant operational programs, including maintenance, operations, surveillance testing, corrective action, management oversight, and safety review. These inspections are conducted by specialist teams with expertise in operations, design, and installation and provide NRC management with a national perspective on plant performance in cases where regional inspections have indicated the need to further examine overall operational safety.

Area-of-emphasis inspections are performed to examine significant safety issues at some or all reactor sites, as needed, and determine the root cause(s) of any problems found, and to prompt licensees or the industry to take corrective action. The electrical distribution system functional inspection is an example of a recent area-of-emphasis inspection.

REACTOR SAFETY AND SAFEGUARDS REGULATION: Reactor Inspection

Vendor inspections are conducted to determine whether suppliers of materials, components, and services used in nuclear power plants are complying with applicable NRC and industry requirements. These inspections are intended to improve reactor safety by (1) ensuring that root causes of reported vendor-related problems are identified and that suitable corrective actions are developed and implemented; (2) informing the nuclear industry of instances involving substandard, suspected counterfeit, or fraudulently marketed vendor products; and (3) ensuring that fraudulently marketed products are traced to their source. Suppliers of nuclear components, materials, and services are inspected in response to specific hardware failures, regulatory concerns, or allegations. These inspections focus on vendor quality program implementation and include NRC examinations of materials, equipment, and services provided to nuclear power plants. Some inspections also will be conducted at reactor sites in response to concerns about equipment qualification, procurement, dedications, and licensee/vendor interaction. In instances of suspected counterfeiting or misrepresentation by vendors of equipment or materials furnished to nuclear power plants, the staff aggressively supports NRC's Office of Investigations and the Department of Justice reviews of vendors suspected of wrongdoing and promptly informs licensees of the suspected misrepresentation to ensure that they take appropriate action.

To improve the inspection process, the NRC will continue its assessment of the effectiveness and implementation of the inspection program and apply lessons learned from events and inspection and enforcement findings to the inspection process.

REACTOR SAFETY AND SAFEGUARDS REGULATION

Reactor Oversight Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 46,971 | 43,070 | 43,070 | 46,029 | 2,959 |
| Program Support | 16,698 | 14,429 | 13,272 | 12,981 | -291 |
| Travel | 2,291 | 3,278 | 3,278 | 3,267 | -11 |
| Total | 65,960 | 60,777 | 59,620 | 62,277 | 2,657 |
| Budget Authority by Program Activity (\$K) | | | | | |
| License Maintenance and Safety Evaluations | 33,382 | 29,173 | 28,803 | 30,672 | 1,869 |
| Interns | 2,773 | 2,698 | 2,698 | 2,843 | 145 |
| Plant Performance | 6,036 | 7,600 | 7,570 | 7,514 | -56 |
| Human Performance | 13,846 | 12,210 | 11,960 | 12,676 | 716 |
| Other Safety Reviews and Assistance | 7,923 | 9,096 | 8,589 | 8,572 | -17 |
| Total | 65,960 | 60,777 | 59,620 | 62,277 | 2,657 |
| Full-Time Equivalent Employment | | | | | |
| | 605 | 536 | 536 | 538 | 2 |

This program element is designed to ensure that operating facilities maintain adequate levels of protection of public health and safety in their daily operation and throughout the life cycle of the plant. Safety oversight is maintained in all operating conditions, in the event of a radiological emergency, and in the event of theft of nuclear materials or sabotage, and includes assurances that facilities are adequately designed and maintained and that trained and qualified operating and technical support personnel have the ability to prevent or cope with accidents. This is accomplished through the identification of inadequacies in plant design and operation, through the use of probabilistic risk assessments; evaluation of operating experience and unanticipated events; resolution of safety issues, inspection findings, and licensee proposals; and NRC-sponsored safety research. In addition, this program element enables the NRC to evaluate both plant and human performance, including accident management capability, and places its principal focus on operational

REACTOR SAFETY AND SAFEGUARDS REGULATION: Reactor Oversight

safety. Within the scope of this program element, senior agency managers have the discretion to apply additional attention to plants whose performance indicates a need, based on systematic assessment of licensee performance (SALP) scores, significant events, or inspection findings. This program element comprises five major activities: license maintenance and safety evaluations, interns, plant performance, human performance, and other safety reviews and assistance.

License Maintenance and Safety Evaluations Activity

This activity includes project management, licensing reviews and safety evaluations, and evaluations of topical reports. Project managers perform the overall management activities pertaining to the regulation of nuclear power plants and serve as the headquarters focal point for maintaining contact with licensees, other NRC staff, and the public on safety matters concerning specific plants. They assign priorities to safety issues and manage the review and issuance of license amendments. Their duties include the review of the safety and environmental modifications to operating plants that are directed by the NRC as a result of safety, environmental, and safeguards assessments, as well as actions that are initiated by the licensees. Through these modifications, the NRC ensures that operating facilities achieve and maintain adequate protection of the public health and safety. Project managers also consult with State and local officials and reply to public and congressional inquiries. In addition, they conduct selected technical reviews, coordinate complex technical reviews, evaluate overall licensee performance, and assist the regions in developing inspection plans. The NRC will continue to conduct project management activities for 110 operating reactors through FY 1995.

After an operating license is issued, routine activities, technical advances, or unexpected events at power plants can result in a need for a change to the requirements of the operating license. Detailed technical review of these licensing actions is necessary to ensure that the operational safety of the plant is not compromised. Routine post-licensing activities affecting reactor operations include requests for license amendments, requests for exemption from regulations, new regulations requiring backfit modifications to operating reactors, and orders for modifications of a license. Licensing actions can affect more than one plant.

To manage these efforts effectively, the NRC has made a distinction between those items that require review and approval by the NRC before they are implemented by the licensee (licensing actions) and items that either require licensee certification or do not require prior NRC review and approval (other licensing tasks).

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The NRC expects to complete approximately 1,200 operating reactor licensing actions each year through FY 1995. These actions include conversions of plant-specific technical specifications to the improved standard technical specifications. As technical specifications (which are part of the operating license) increased in size over the years some of the requirements became less safety significant than others. Therefore, the NRC has worked with industry to improve technical specifications to make them more operator oriented and to focus on the more safety significant requirements. Through FY 1995, the NRC will continue efforts to convert existing technical specifications for five lead plants (seven units) to the improved standard technical specifications.

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 20 boiling water reactor (BWR) units have expressed interest in the BWR power uprate program; this effort could increase the available electrical generating capacity in the United States by 1,000 megawatts with minimal plant modification and minimal impact on the plant safety margin. The NRC expects to process four to six power uprate applications per year through FY 1995.

Other licensing tasks - those that do not require NRC review and approval before they are implemented by the licensee - encompass important work, often concerning actions that may result in a safety evaluation, a letter to the licensee, or NRC internal documentation concerning technical or administrative issues for a particular plant. The NRC expects to complete approximately 1,000 other licensing tasks each year through FY 1995.

NRC's severe accident policy statement requires a systematic examination of all operating reactors to identify plant-specific features that are dominant contributors to risk. Individual plant examination (IPE) reports submitted by licensees are potential sources of licensing tasks. Following the initial review of the Office of Nuclear Regulatory Research, the Office of Nuclear Reactor Regulation screens the findings to identify generic license implications and to initiate follow-up action.

Another source of licensing tasks is the review of the procedures that licensees maintain for coping with accident conditions (emergency operating procedures) and for implementing offsite protective measures (offsite emergency plans). Upgrades to the emergency operating procedures are intended to improve their technical content and enhance their usefulness by applying human factors principles in their development.

Technical review of topical reports submitted by licensees, vendor/owner groups, and other parties can streamline the licensing action process by obtaining NRC approval of a report

REACTOR SAFETY AND SAFEGUARDS REGULATION: Reactor Oversight

dealing with a safety issue common to a set of plants. NRC will review the 10-20 most safety-significant topical reports each year through FY 1995.

Interns Activity

The Reactor Engineer Intern Program provides a continuing group of qualified, broadly trained technical and engineering personnel to assume professional positions in the NRC. Through a series of rotational and technical training assignments, the interns are given broad exposure to the work performed by the NRC. Upon successful completion of the two-year program, interns are assigned permanently to technical professional positions.

In FY 1995, management of the program will have been consolidated at headquarters but will continue to support both the headquarters and regional missions of the reactor safety and safeguards regulation program.

Plant Performance Activity

Experience has shown that safety issues will continue to arise as a result of events at operating reactors. The plant performance activity includes the efforts of the NRC to respond effectively to unanticipated events as they occur and to identify actions that would help to prevent significant events. This work supports the NRC's accident prevention goal of having an effective regulatory program for achieving a design that reduces the potential for safety-system challenges, a high availability of equipment, effective operating personnel, and the timely sharing of operating experience. To accomplish this, the NRC analyzes different aspects of reactor performance and disseminates the findings to licensees via generic communications.

The NRC conducts prompt technical assessments of approximately 2,000 to 2,500 reactor event reports and augmented inspection team reports each year to determine the immediate safety implications for a facility, the applicability to other operating reactors, and the immediate regulatory actions that must be taken. Event reports include telephone notifications of significant events at licensed reactor facilities, as well as additional event and follow-up reports submitted through the NRC's regional offices. Each year, approximately 300 event reports require follow-up effort by the NRC to ensure that affected facilities take appropriate corrective action. In addition, approximately 200 event reports require guidance on immediate corrective actions in the form of oral and written guidance and, on occasion, orders and confirmatory action letters. For certain significant events having generic

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concerns, the NRC issues temporary instructions to enable each region to verify appropriate licensee implementation of corrective actions.

Each year, NRC's regional offices submit approximately 50 potential generic safety questions and associated reports to the NRC headquarters staff for technical assessment. These questions are reviewed, the reports analyzed, and the results considered for dissemination to the licensees. In addition to the reports submitted by NRC regional personnel, approximately 200 reports of defects and/or noncompliance (10 CFR Part 21) and 150 reports of construction deficiency (10 CFR 50.55(e)) are expected to be submitted annually by licensees and permit holders.

The NRC will also continue to support the incident investigation program by providing resources for approximately 15 augmented inspection teams and incident investigation teams each year through FY 1995 in response to significant operating events.

This activity's performance evaluation processes are intended to improve NRC's capability to evaluate the effectiveness of licensee performance to ensure safe plant operation. The effort involves integrating data from many sources including technical reviews, licensee organizational structure evaluation and staffing, performance inspections, research, responses to industry initiatives, design and procedures change processes, and effectiveness of operating plant maintenance and surveillance. The results are used by NRC senior management to appraise plant performance and focus attention on those plants of greatest concern.

The systematic assessment of licensee performance (SALP) program is a major effort that involves collecting and assessing inspection data on each site. The purposes of the SALP review process are (1) to conduct an integrated assessment of performance for safe plant operation, (2) to provide a means for useful dialogue with the licensee, (3) to assist NRC management in the allocation of resources used to inspect and assess licensee performance, and (4) provide a method for informing the public of NRC's assessment of licensee performance. NRC's SALP methodology places special emphasis on licensee performance in the areas of operations, maintenance, engineering and plant support through open dialogue between NRC senior management and licensees. In addition, when called upon, the Office of Nuclear Reactor Regulation supports diagnostic evaluations that supplement SALP reviews. Through FY 1995, the NRC will continue to conduct SALP reviews for all reactor sites on about an 18-month schedule, depending on licensee performance. The NRC will issue approximately 50 SALP reports covering approximately 80 operating units each year.

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Through the integration of data collected from programs and activities such as inspections, enforcement, event evaluations, SALP, operator examinations, and trend analyses, the NRC compares current operational trends with historical patterns. Through FY 1995, the NRC will continue to use these data to evaluate operational performance at nuclear power plants in order to identify plants that exhibit declining, marginal, or unacceptable safety performance, to determine appropriate corrective action, and to evaluate the effectiveness of licensee actions to address declining, marginal, or unacceptable safety performance. The NRC will continue to emphasize the identification and correction of root cause(s) of declining, marginal or unacceptable safety performance.

NRC's quality assurance program provides another vehicle to ensure acceptable operational safety at nuclear power plants by determining the underlying causes of major operations-related problems and ensuring their timely detection and correction. The NRC will continue to develop and implement methodology, procedures, guidance, and training for NRC inspectors. 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. The NRC will conduct approximately 35 technical reviews of new and revised licensee quality assurance programs each year through FY 1995.

In addition to reviewing reactor performance at plants that have been operational for longer periods, the NRC must evaluate licensee performance and review licensee test programs for initial plant startup and for restart of plants that have been shut down. In FY 1995, the NRC will focus its restart review efforts on Browns Ferry 3.

NRC's new performance-based maintenance rule will become effective on July 10, 1996. The Commission believes that safety can be enhanced by improving nuclear power plant maintenance across the nuclear industry and that effective maintenance must be achieved and maintained over the life of each facility. In FY 1995, the NRC will conduct pilot inspections at selected licensee facilities to evaluate NRC inspection procedures that will be used to inspect licensee implementation of the maintenance rule in FY 1996.

Human Performance Activity

The NRC must license all personnel authorized to operate reactors. To fulfill this responsibility, the NRC currently administers initial and requalification examinations to approximately 5,300 licensed power and nonpower reactor operators to evaluate their understanding of the facility design and familiarity with the controls and operating

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procedures. These examinations consist of both written examinations and hands-on operating tests conducted under simulated operating conditions.

Initial examinations are administered to new operators at existing power and nonpower facilities to ensure that operating plants are staffed by qualified operators. The NRC plans to conduct approximately 850 initial examinations for power reactor and nonpower reactor operators each year through FY 1995. The NRC also conducts approximately 650 generic fundamental examinations annually as part of the initial examination process.

In FY 1994, the Commission approved a change to the operator licensing rule that will enable the NRC to more efficiently utilize its resources by conducting inspections of licensees' requalification programs to verify continued operator proficiency rather than conducting requalification examinations. The NRC will continue to conduct requalification examinations at selected facilities "for cause" only based upon inspection results or licensee performance problems. Prior to implementation of the revised rule, scheduled for late FY 1994, the NRC will develop and implement appropriate inspection procedures for licensee requalification programs. Beginning in FY 1995, NRC plans to inspect 50 requalifications programs per year.

Also included in this activity are efforts related to resolving generic problems associated with operator licensing, maintaining an examination question bank, reviewing appeals pertaining to license denials, and improving the proficiency of examiners. Through FY 1995, various aspects of examination program implementation (including the newly developed examiner training syllabus, upgraded refresher training for examiners, and improved guidance for preparing and conducting examinations) will be evaluated.

The plant personnel training and human-systems interaction efforts included in this activity are conducted to evaluate the ability of non-licensed nuclear power plant personnel to meet job performance requirements; to ensure that an effective mechanism exists to assess and improve, where necessary, the quality and effectiveness of licensee training programs (not including requalification program training discussed above); and to ensure that nuclear power plant operational events involving human performance receive a detailed analysis that will enable the root cause(s) to be determined and corrections to be made.

In compliance with the April 1990 decision by the U.S. Court of Appeals for the District of Columbia, the NRC issued, in April 1993, regulatory requirements for the training and qualification of civilian nuclear power plant personnel. The new regulation, 10 CFR 50.120, "Training and Qualification of Nuclear Power Plant Personnel," supersedes the amended policy statement on "Training and Qualification of Nuclear Power Plant Personnel" issued in November 1988. The NRC continues to endorse the Training Accreditation Program

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managed by the Institute of Nuclear Power Operations (INPO). The staff will monitor and evaluate the effectiveness of this accreditation program by participating in INPO's accreditation team visits and performing post-accreditation reviews consisting of performance-based reviews by NRC teams and assessments by lead licensing examiners and/or training and assessment specialists. The NRC senior staff will also observe the discussions of the INPO team representatives and the utilities before the National Nuclear Accrediting Board. To conduct the evaluations and determine adherence to the new rule, the NRC will observe INPO training accreditation team visits at two or three sites each year through FY 1995. The NRC also plans to conduct approximately eight training program inspections for cause each year to ensure program effectiveness.

Other Safety Reviews and Assistance Activity

This activity rounds out the reactor oversight program element. It ensures that (1) test and research reactors are monitored, (2) program management and support is provided to reactors in the decommissioning process, (3) nuclear safety information is shared nationally and internationally, and (4) in-house computer code analysis is supported for making safety decisions.

The NRC reviews new and renewal license applications and license amendments for nonpower reactors to evaluate their safety, environmental, and safeguards aspects. The agency expects to receive approximately 2 renewal applications and have approximately 30 other license amendments for nonpower reactor licenses under review each year through FY 1995.

The NRC will continue to review applications for the required conversion from the use of high-enriched uranium fuel in domestic nonpower reactors to the use of low-enriched uranium fuel. Of the remaining 7 reactors affected, it is expected that conversions to low-enriched uranium fuel will occur at the rate of 2 to 3 each year over the next 3 to 4 years. In addition, the NRC will continue to review and comment on proposed Department of Defense and DOE reactor projects and facilities, as requested.

The NRC will continue to provide project management oversight of all reactors in the decommissioning process, including reviews of all proposed license amendments, exemption requests, and decommissioning plans. Based upon recent experience with prematurely shutdown plants, the NRC is also examining the decommissioning regulatory process. As part of this review, the staff will clarify the applicability of existing regulations to plants in the decommissioning process to reduce the need for licensees to submit exemption requests.

REACTOR SAFETY AND SAFEGUARDS REGULATION: Reactor Oversight

On the basis of the results of NRC's analysis of a reactor operating event, a licensee or vendor deficiency report, or a study or report issued by NRC's Office for Analysis and Evaluation of Operational Data, the NRC may determine that a potential safety problem exists and recommend or require that corrective action be taken. In a case that warrants prompt notification of licensees, vendors, and the agency staff of the existence of a potential safety-related problem, the NRC will issue a generic communication (i.e., a generic letter, information notice, or bulletin) that will recommend or require corrective action. The NRC recently revised the process it uses to develop and issue generic communications. The revised process ensures greater participation by interested groups and the public in the development of generic communications that state new staff positions or that seek additional licensee commitments. The NRC expects to prepare and issue approximately 120 generic communications each year through FY 1995.

In addition to regulating civilian nuclear power in the United States, the NRC participates in international efforts to increase the safety and security of existing nuclear power plants worldwide. The NRC will work with the New Independent States (NIS) of the former Soviet Union, Central and East Europe(CEE), and nations with developed and developing nuclear power capability to share information on regulatory bases, safety data, and other common concerns.

To assist the staff in analyzing data and making decisions on issues affecting safety, the NRC created an in-house organization to develop and apply advanced computer codes used to analyze plant data applicable to operating reactor performance, safety analyses of new reactor designs, and other special studies. In FY 1995, the NRC expects to expand the level of analytical capability available to support technical staff reviews.

REACTOR SAFETY RESEARCH

REACTOR SAFETY RESEARCH PROGRAM

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

Total FY 1995 Estimate \$89,318,000

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 14,131 | 14,062 | 14,062 | 14,202 | 140 |
| Program Support | 85,758 | 85,048 | 78,074 | 74,440 | -3,634 |
| Travel | 817 | 659 | 659 | 676 | 17 |
| Total | 100,706 | 99,769 | 92,795 | 89,318 | -3,477 |
| Budget Authority by Program Element (\$K) | | | | | |
| Reactor Licensing Support | 51,862 | 49,790 | 45,792 | 41,781 | -4,011 |
| Reactor Regulation Support | 48,844 | 49,979 | 47,003 | 47,537 | 534 |
| Total | 100,706 | 99,769 | 92,795 | 89,318 | -3,477 |
| Full-Time Equivalent Employment by Program Element | | | | | |
| Reactor Licensing Support | 68 | 69 | 69 | 67 | -2 |
| Reactor Regulation Support | 114 | 106 | 106 | 99 | -7 |
| Total | 182 | 175 | 175 | 166 | -9 |

| Changes in Budget Authority (\$K) | | | |
|--|-----------------------------|----------------------|--------|
| Program Element | FY 1995 Change from FY 1994 | | |
| | Current Services | Program Requirements | Total |
| Reactor Licensing Support | 1,364 | -5,375 | -4,011 |
| Reactor Regulation Support | 1,617 | -1,083 | 534 |
| Total | 2,981 | -6,458 | -3,477 |

REACTOR SAFETY RESEARCH

EXPLANATION OF RESOURCE CHANGES FOR CURRENT SERVICES

The increase for personnel compensation reflects the costs of the 1.6 percent Federal sector pay increase expected in CY 1995; the full cost of the 4.23 percent locality pay increase which was effective January 1994; within-grade increases; and several minor adjustments, such as the increased number of staff entering the Federal Employees Retirement System and benefits cost increases. The increase for program support and travel reflects inflation estimated at 2.9 percent in FY 1995.

EXPLANATION OF RESOURCE CHANGES FOR PROGRAM REQUIREMENTS

Reactor Licensing Support

The resource decrease in FY 1995 reflects the near completion of the AP600 test program review and the evaluation of vendor SBWR experiments, and the resolution of major reactor aging and pressure vessel safety issues as the programs move to closure.

Reactor Regulation Support

The resource decrease in FY 1995 primarily reflects the completion of work to evaluate safety issues during low power and shutdown operational conditions, and the expected resolution of a majority of the existing generic issues and fewer anticipated new generic issues being identified.

DESCRIPTION OF PROGRAM

The NRC's mission is to ensure the safe design, construction, and operation of the nuclear facilities and activities it regulates. The technologies used are relatively new and highly complex, and it is often necessary to make regulatory judgments on matters related to safety that are well beyond normal experience-based engineering practice. The NRC requires a high-confidence level in its judgments to avoid undue risk to the health and safety of the public, especially when these matters involve high-consequence accidents or the disposal of radioactive waste. Furthermore, unforeseen safety problems continue to arise from operating experience which require analysis and remedial actions by NRC. Thus, it is essential to develop a knowledge base that gives confidence in these judgments and provides the technical basis for issuing safety regulations and evaluating licensee performance.

REACTOR SAFETY RESEARCH

The reactor safety research program encompasses all power reactor regulatory research as required by the Energy Reorganization Act of 1974 (Section 205 of Public Law 95-209). This includes the responsibility for developing recommendations for research and engaging in or contracting for research deemed necessary for performance by the Commission of its licensing and related regulatory functions. Under this program, independent expertise and information for making timely regulatory judgments are provided, problems of potential safety significance for which new or expanded knowledge can assist the NRC in pursuing its mission are anticipated, and the regulations and guides necessary to implement Commission policy or technical requirements are developed.

In an effort to make use of all available sources of safety research information, the NRC is engaged in broad international programs to exchange nuclear safety-related information and to conduct joint research projects of mutual interest. The NRC policy of cooperating with foreign groups is designed to (1) obtain foreign experimental and analytical research results to expand NRC's technical base, (2) encourage foreign safety research programs to make the optimum use of NRC resources and enhance our research capabilities, (3) provide safety information and training to countries using or contemplating the use of U.S. nuclear technology, and (4) interact with foreign nuclear safety organizations to obtain expert review of our research results. In addition, cooperative research between the NRC and industry is pursued in areas where conflict of interest issues are not involved.

Reactor safety research contributes to the agency's mission and is vital for implementing a large number of the agency's programs. Research provides the bases for timely rulemaking and related licensing and inspection activities that are based on the NRC's longstanding philosophy of defense-in-depth. The reactor safety research program comprises two major program elements: reactor licensing support and reactor regulation support.

The funds and staff for both of the program elements are discussed on pages 49 through 71. The program support funds are allocated for work done by Department of Energy (DOE) contractors, commercial contractors, small business entities, nonprofit organizations (universities, foundations, etc.), and grantees. The narrative that follows describes these program elements and addresses the reasons why the resources are needed.

REACTOR SAFETY RESEARCH

Reactor Licensing Support Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 5,280 | 5,544 | 5,544 | 5,732 | 188 |
| Program Support | 46,261 | 43,947 | 39,949 | 35,744 | -4,205 |
| Travel | 321 | 299 | 299 | 305 | 6 |
| Total | 51,862 | 49,790 | 45,792 | 41,781 | -4,011 |
| Budget Authority by Program Activity (\$K) | | | | | |
| Standard Reactor Designs | 23,658 | 22,891 | 20,584 | 20,317 | -267 |
| Reactor Aging and License Renewal | 28,204 | 26,899 | 25,208 | 21,464 | -3,744 |
| Total | 51,862 | 49,790 | 45,792 | 41,781 | -4,011 |
| Full-Time Equivalent Employment | | | | | |
| | 68 | 69 | 69 | 67 | -2 |

This program element is conducted to (1) provide a sound technical basis and regulatory framework for certification of those advanced reactor designs that are expected to be submitted for regulatory review, (2) ensure that the safety-related reactor plant systems and components perform their required function and maintain their integrity and operability over the life of the plant, and (3) provide the technical requirements and regulatory framework for renewal of nuclear power plant operating licenses upon expiration of their 40-year license term.

This program element consists of two major activities: Standard Reactor Designs and Reactor Aging and License Renewal.

Standard Reactor Designs Activity

This activity includes (1) research to develop information on methods and models needed to support design certification safety reviews and related rulemakings for advanced reactors

REACTOR SAFETY RESEARCH: Reactor Licensing Support

and (2) efforts to establish regulations and regulatory guidance necessary to support the combined construction permit/operating license process in 10 CFR Part 52. The NRC intends to review the applicant's experimental and analytical programs, identify concerns of potential safety significance for selected safety systems, and provide independent information for making timely regulatory judgments. Working closely with the applicant, the NRC will provide feedback regarding the development and execution of the applicant's programs and will avoid unwarranted duplication of safety research efforts. At the same time, independent verification of the analytical and experimental information provided is necessary, especially in selected areas for which the applicant is the sole source of information.

The NRC has received design certification applications for four evolutionary and passive light-water reactors: the General Electric (GE) advanced boiling water reactor (ABWR), the Asea Brown Boveri/Combustion Engineering (ABB/CE) System 80+ pressurized water reactor, the Westinghouse AP600 pressurized water reactor, and the GE simplified boiling water reactor (SBWR).

The Office of Nuclear Regulatory Research (RES) will continue to support the Office of Nuclear Reactor Regulation's (NRR) preparation for the design certification application for CANDU 3 by maintaining technical progress on key issues and computer code development and benchmarking. RES will also develop program plans and cost estimates for work to support an actual design certification application for CANDU 3. With respect to the MHTGR and PRISM reactor designs, research to support issuance of the SER on the preapplication review (for each design) has been essentially completed. In order to keep technically abreast of ongoing applicant research results, RES will continue to monitor applicant research programs as long as they are being funded.

The results of Standard Reactor Design research will be used to assess the adequacy of new advanced reactor design concepts and investigate the margins of safety in structural, electrical, and mechanical components to support design certification and licensing decisions. New design concepts and engineering issues that will be evaluated include passive safety system performance; structural integrity of modular construction; the use of advanced instrumentation and control systems including their qualification in seismic, accident, and electromagnetic/radio frequency environments; new materials for reactor pressure vessels; new materials for all primary system components; containment structural performance under postulated severe accident conditions; and acceptance criteria for new valve designs or improved requirements for existing valve designs.

In FY 1995, the NRC will develop the bases to establish staffing levels for advanced control rooms. Work will continue on the development of a method for assessing the risk impact of advanced instrumentation and control (I&C) systems and human-system interfaces. In

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FY 1994, the NRC will develop acceptance criteria for electromagnetic interference (EMI) and radio frequency interference (RFI) in digital systems. In FY 1995, the developed criteria will be used to produce regulatory guides on EMI/RFI susceptibility of digital I&C hardware. Also in FY 1995, the NRC will formulate qualification methods for advanced I&C systems considering both environmental and seismic qualification.

In FY 1995, the NRC will assess the impact of the elimination of the operating basis earthquake except with respect to plant shutdown requirements, fatigue evaluations, and estimating seismic anchor motions in piping. During FY 1995, the NRC will develop technical bases for staff acceptance of design specifications for proposed depressurization motor-operated valves, check valves, and solenoid operated valves. Improved standards for postulating pipe ruptures and seismic design of piping will also be established. Rather than merely using stress and fatigue, actual failure mechanisms such as water hammer, corrosion and erosion will be integrated in the standard.

During FY 1995, RES will continue to assist NRR in the review of the AP600 and SBWR designs to identify and bring to closure key safety issues. Analyses will be performed to characterize safety system response to transient and postulated accidents. Vendor's test programs for the AP600 and SBWR will be reviewed to determine whether identified safety concerns can be satisfactorily resolved through these programs. The Westinghouse-sponsored AP600 test program and the General Electric SBWR test program will be followed as testing proceeds. These efforts will be completed in time to support design certification under 10 CFR Part 52. Confirmatory work in this area will continue in FY 1995 to complete validation of analytical techniques used in the certification review.

During FY 1995, the NRC will use the results of the scaling analysis performed in FY 1993 to validate computer codes that are used to predict the performance of a full-size advanced light-water reactor (LWR). Confirmatory testing should be performed for both the AP600 and SBWR designs due to lack of data from diverse sources. During FY 1994-1995, the NRC will use the ROSA-V test facility for AP600 testing. For the SBWR, a reduced-pressure, reduced-height facility, scaled with the generalized scaling laws developed by Ishii, will be constructed in early calendar year 1995. It is expected that appropriate integral facilities and initial test results will be available by mid FY 1994 for ROSA-V, and by the end of calendar year 1995 for the small SBWR loop.

With respect to the performance of unique reactor safety systems, in FY 1995, the NRC will continue to assess the RELAP5/MOD3 thermal hydraulic assessment code against AP600 testing data. In addition, staff and contractor calculations of the response of the AP600 plant design to plant transients will be performed for various transients and pipe breaks in order to better understand the AP600 system behavior and confirm the effectiveness of the

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unique passive safety systems to perform their function(s). Similarly, the system behavior of the SBWR will be analyzed using the RELAP5/MOD3 code, and the SBWR testing data will be used to assess the code. If these assessed codes are determined to be deficient as a result of such evaluations and analyses, necessary improvements will be made.

During FY 1994-1995, a comprehensive effort to assimilate results and insights from the ongoing LWR severe accident research to assess the behavior of the AP600 and the SBWR plants will be made. In particular, the NRC will assess the applicability of the accident phenomena modeled in existing severe accident codes to these new designs. Research information needed to support design certification, in accordance with established schedules, will be provided in FY 1994. Limited confirmatory research will continue in this area in FY 1995.

In FY 1994, the analytical and experimental programs on direct containment heating (DCH) will be modified, as necessary, to reflect the results of DCH experiments, such as the work on the Zion reactor configuration, completed in FY 1993. In addition, testing of two different cavity designs to confirm molten core retention characteristics might be necessary. During FY 1994-1995, research programs to assess the effectiveness of reactor cavity flooding on preventing lower head failure by external cooling will continue. In FY 1995, the NRC will continue severe accident analytical work to identify and correct deficiencies in modeling used to support advanced reactor design certification and determine if additional confirmatory research is needed.

In FY 1995, the NRC will publish a final rulemaking to grant a standard design certification for an evolutionary light-water reactor.

During FY 1995, the NRC (NRR and RES) will continue to assess the need for risk analyses for the AP600 or SBWR set of systems, as well as the extension of the analyses to containment performance, consequences, and risk, and perform such analyses, as appropriate to complete work on a schedule consistent with design certification schedules. As requested by NRR, confirmatory risk analysis research of importance to passive plants will be identified and initiated in FY 1995.

In FY 1994, the NRC will issue a revised NUREG report providing a revised accident source term. Pending issuance of Final Safety Evaluation Reports for the General Electric Advanced Boiling Water Reactor and the Combustion Engineering System 80+, final revisions to 10 CFR Part 50, Acceptability of Plant Performance for Severe Accidents, and associated regulatory guides implementing revised source term and criteria for engineered safety system performance will be completed. This would represent Phase 2 of decoupling reactor siting from design. Phase 1 revises the site criteria in Part 100 and places the

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current Part 100 dose criteria in an interim revision of Part 50. During FY 1995, the NRC will continue to update regulations due to new LWR source term research results, as necessary.

During FY 1995, the NRC will continue to develop methods to assess severe accidents consistent with Commission guidance on the safety goals in order to determine if it is necessary to incorporate appropriate design and operational criteria into the regulations. The NRC will continue using insights from probabilistic risk analyses (PRAs) and other ongoing programs to evaluate the consistency of regulations with the safety goals. It is expected that PRA information from NUREG-1150, other available PRAs and risk studies, and the results from the Individual Plant Examination program will play a central role in this effort.

In FY 1995, the NRC will continue to work with national standards-setting organizations to ensure that the standards are suitable for application to the advanced reactor designs.

Reactor Aging and License Renewal Activity

This activity includes efforts associated with (1) understanding the effects of aging on key safety-related components; (2) ensuring that the effects of aging will not degrade materials, nor the integrity of the mechanical, electrical, and structural safety systems and their response to accidents; and (3) developing the technical base and establishing regulations and regulatory guidance to support safety decisions associated with license renewal.

Aging affects all reactor systems, structures, and components in various degrees and has the potential to increase risk to public health and safety if its effects are not controlled. To ensure continuous safe operation of currently licensed reactors, the NRC will characterize aging effects, evaluate methods to detect aging degradation, and evaluate the effectiveness of typical current maintenance and repair practices to mitigate the effects and diminish the rate of degradation caused by aging. This is accomplished by conducting experiments on a wide variety of materials under a wide range of expected environmental conditions. The assessment of aging-related safety implications will be used as the basis for making decisions on extending reactor operation beyond the original license period of 40 years.

The NRC will evaluate the cumulative effects of radiation on reactor pressure vessel materials that occur during the normal service of operating reactors to (1) determine the factors that can cause the vessel to become increasingly brittle and potentially fail during normal operation and accidents and (2) identify factors or processes that can ameliorate these consequences, such as annealing. Brittle fracture of the reactor pressure vessel, which

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could result in a core melt accident, must be prevented by ensuring that adequate safety margins exist in NRC regulations. The current safety margins are intended to cover uncertainties in analysis methods and material characteristics used in evaluating reactor pressure vessel safety. To ensure that reactors can continue to operate safely during the 40-year license term and during an additional 20-year license renewal period, the NRC must reflect actual behavior of reactor pressure vessel materials exposed to radiation in its safety analyses and validate the analysis methods and material data bases to ensure that an adequate, but not unnecessarily large, margin of safety exists. Experimental and analytical research on the effects of temperature, stress, irradiation, and flaws will be used to provide assurance that reactor pressure vessels will not fail by brittle fracture during service or in the event of an accident.

During FY 1995, the NRC will continue the technical review of pressurized thermal shock (PTS) issues started in FY 1992 with the Electric Power Research Institute (EPRI). This technical review will address the fracture mechanics and materials aspects of the PTS analyses described in Regulatory Guide 1.154, and is designed to identify those aspects of the Guide that may warrant revision. This effort is expected to contribute to an overall assessment of the Guide, providing input to the technical basis for its revision in FY 1996.

In FY 1995, the NRC will complete tests simulating an axial or circumferential surface crack in a pressure vessel and issue the final report. During FY 1995-1996, testing will be completed and a report will be issued on the fracture toughness of irradiated material with low Charpy upper-shelf energy, to validate American Society of Mechanical Engineers (ASME) code rules and a new regulatory guide. In FY 1995, the NRC will develop analytical models of irradiation damage and upper-shelf energy drop, and recovery of irradiation damage by thermal annealing. The models will be based on statistical analysis of national and international surveillance program and test reactor program data. This effort may lead to Revision 3 of Regulatory Guide 1.99.

During FY 1994-1996, the NRC will perform irradiations and testing to evaluate the effects of thermal annealing and reirradiation on irradiation-embrittled reactor pressure vessel steels to validate the draft rule and regulatory guide on thermal annealing which will be issued for public comment in FY 1994. In FY 1994, the irradiated material characterizations will be completed and the irradiated and annealed testing will be initiated. In FY 1995-1996, testing of the annealed specimens will be completed and reirradiation of annealed specimens will be initiated. In FY 1996, testing of the reirradiated specimens will be completed and the results reported.

During FY 1995, participation in international cooperative projects on pressure vessel fracture will continue. In FY 1995, analyses of large-scale experiments to validate pressure

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vessel fracture mechanics analysis methods as part of a continuing Committee on the Safety of Nuclear Installations (CSNI) sponsored Fracture Analysis Group effort will be completed. Also during FY 1995, the NRC will participate in the Commission of European Communities (CEC) Network for Evaluating Steel Components program by performing and reporting pre- and post-test analyses of the large scale fracture experiment.

In FY 1995, the NRC will publish the final revisions to: (1) the Pressurized Thermal Shock rule (10 CFR 50.61); (2) Fracture Toughness Requirements for Light-Water Reactors (Appendix G to 10 CFR 50); and (3) Reactor Vessel Material Surveillance Program Requirements (Appendix H to 10 CFR 50). The NRC will also publish a final rule and an associated regulatory guide for Thermal Annealing of Reactor Pressure Vessel Beltline Materials as well as final regulatory guides on: (1) Evaluation of Reactor Pressure Vessels with Charpy Upper Shelf Energy less than 50 ft-lb; and (2) Calculational and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence.

In FY 1995, the NRC will complete the International Piping Integrity Research Group (IPIRG-2) international group-funded consortium research program, started in FY 1992, and issue a final report. Coupled with the completion of the "short crack" piping program in FY 1994, this will complete the overall pipe fracture research effort, providing final validation for the analysis methods used in leak-before-break evaluations and in the ASME Code Section XI flaw evaluation procedures.

In FY 1995, the NRC will continue the testing and data analysis needed to support an update of the ASME Code Section XI fatigue crack growth rate curves and the Section III fatigue design curves for piping and pressure vessel steels. The effects of operating temperature, loading history, and light-water reactor environment will be included. In FY 1995, the NRC will conduct fatigue and crack growth studies for thermally aged cast stainless steels, to quantify the degree and significance of reductions in fatigue life or increases in environmentally assisted crack growth rates. Data will be incorporated in FY 1996 updates of ASME Section III fatigue life and Section XI crack growth rate curves.

In FY 1994, the NRC will complete irradiation of austenitic stainless steels and other materials (alloys 600, 182) in the Halden reactor to provide test materials to assess the effect of composition on irradiation assisted stress corrosion cracking (IASCC) susceptibility and radiation embrittlement. The NRC will also begin fracture toughness testing of low and medium fluence irradiated materials to develop fracture toughness correlations and determine effects of material composition and water chemistry on intergranular stress corrosion cracking susceptibility. In FY 1995, the NRC will begin testing of high fluence materials.

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In FY 1994, the NRC will provide technical leadership for the international Program for the Inspection of Steel Components (PISC III), Action 4 (Austenitic Steel Task) activity and coordinate Actions 4 and 5 (Steam Generator Test) round robins and data analysis being conducted by U.S. teams. During FY 1995, recommendations for upgrading ASME Code and regulatory positions based on PISC III results will be provided and code adoption will be pursued. In FY 1994, the NRC will complete recommendations for surface roughness requirements for effective ultrasonic inspection, and pursue adoption of rules by the ASME Code subcommittee in FY 1995. In FY 1995, the NRC will evaluate the human reliability studies conducted under the PISC-III program and work from Sweden.

In FY 1995, the NRC will complete and publish a report on risk-based inservice inspection pilot study of BWRs, and develop ASME Code rules and programs for risk-based inservice inspections. In FY 1996, the NRC will issue Volume II, Part 2 of the ASME Research Task Group document on risk-based inspection of LWR components to provide specific inservice inspection programs for different components in nuclear power plants based on their importance to safety and risk.

In FY 1995, the NRC will support travel, appropriate research activities, and "host country" payments for personnel involved with activities under the Joint Coordinating Committee on Civilian Nuclear Reactor Safety (JCCCNRS). In FY 1995, JCCCNRS Working Group 3 will complete the exchange of irradiation and test of pressure vessel steels of the U.S. and New Independent States of the Former Soviet Union in each others facilities to better correlate their databases. During FY 1995, JCCCNRS Working Group 12 will continue to evaluate capabilities and techniques for ultrasonic test non-destructive examination of reactor components.

In FY 1995, the NRC will continue a cooperative research program on cable aging with the French Commissariat à l'Énergie Atomique. This program will help determine the rate of degradation of cables over their 40-year life and during a proposed life extension of an additional 20 years. In FY 1995, the NRC will begin to acquire and analyze aged cable and electrical equipment from shutdown plants as available. In situ aged degradation will be compared with prior accelerated aging results.

In FY 1994, the NRC will complete aging research on the following components and safety-related systems: heat exchangers, electrical connectors in Class 1E distribution system, low pressure/RHR emergency core cooling system, auxiliary feedwater system, turbine drives, and governors. During FY 1994-1995, the NRC will publish final technical reports and develop guidelines for inspection and maintenance. In FY 1995, the preliminary aging evaluations of the BWR recirculation pump trip circuit with emphasis on instrumentation and control will be completed.

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During FY 1995, the NRC will continue to promulgate rulemakings that will amend 10 CFR 50.55a to include the 1992 edition of the ASME Boiler and Pressure Vessel (B&PV) Code, and to incorporate by reference for the first time the ASME Operations and Maintenance (O&M) Code. The 1990 Edition of the ASME O&M Code will replace existing references to the ASME B&PV Code for inservice testing. The amendments will be supported by promulgated regulatory analyses, and public comments will be resolved as part of the final rulemakings.

In FY 1994, the NRC will complete the evaluation of the Electric Power Research Institute (EPRI) technical reports that will provide the technical bases and validation for the industry motor-operated valve (MOV) performance prediction methodology. Also in FY 1994, a technical basis will be developed for understanding valve and motor-operator behavior under design basis conditions to support NRC regulatory needs for evaluating licensee implementation of Generic Letter 89-10, and prioritization of MOV's based on risk. In FY 1995, the NRC will issue the results of NRC tests performed on MOVs and will submit the results to ASME to consider as a basis for revising appropriate ASME Standards. The Office of Regulatory Research (RES) will continue to assist the Office of Nuclear Reactor Regulation (NRR) in their evaluation of industry programs for MOV tests and their results. Development of a technical basis to support NRC regulatory staff in evaluating licensee application of the EPRI performance prediction method and other methods for demonstrating MOV operability will be completed in FY 1995 and a basis for establishing periodic verification intervals that will demonstrate MOV operability over the life of the plant will be developed.

In FY 1995, the NRC will complete the revision of Regulatory Guide 1.118, "Periodic Testing of Electrical Power and Protection Systems." Also in FY 1995, the NRC will complete the aging assessment of surge arrestors and air-operated valves and complete the study of the fire susceptibility of aged electro-mechanical relays. Aging assessments of all structures, systems, and components, studied under the Nuclear Plant Aging Research (NPAR) program will begin to be documented.

In FY 1995, RES will continue to assist NRR in the evaluation of utility responses to the regulatory form of the resolution of GSI-87, "Failure of High Pressure Coolant Injection (HPCI) Steam Line Without Isolation." During FY 1995, RES will continue to assist NRR in the evaluations of utility programs for complying with Generic Letter 89-10, "Safety Related Motor-Operated Valve Testing and Surveillance."

The reliability of steel containments and steel containment liners has been challenged by field problems, principally corrosion, that have occurred over recent years. In FY 1994, the NRC will expand the program on aging of steel containments and steel containment liners

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to a larger and more active program following the previous years planning and initiation phase. Draft reports will be prepared on degradation of steel containments and liners, on non-destructive and destructive testing, and on a statistically-based sampling program to provide confidence in damage deductibility. In FY 1995, the program on corrosion effects on aging and reliability of steel containments and steel containment liners will provide guidance to the NRC structural reviewers on how to address recurring field problems or those that may potentially occur. A report will be prepared on damage mitigation and repair and will provide a reliability-based means to quantify current and future safety margins.

In FY 1995, the NRC will continue to address license renewal issues, both safety and environmental, as they may arise. During FY 1994-1995, the NRC will issue the final rule on License Renewal for Nuclear Power Plants, Scope of Environmental Effects, the final Generic Environmental Impact Statement, and the final Regulatory Guide on Format and Content of Environmental Submittal for License Renewal.

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Reactor Regulation Support Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|--|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 8,851 | 8,518 | 8,518 | 8,470 | -48 |
| Program Support | 39,497 | 41,101 | 38,125 | 38,696 | 571 |
| Travel | 496 | 360 | 360 | 371 | 11 |
| Total | 48,844 | 49,979 | 47,003 | 47,537 | 534 |
| Budget Authority by Program Activity (\$K) | | | | | |
| Plant Performance | 2,546 | 4,055 | 3,685 | 4,190 | 505 |
| Human Reliability | 5,294 | 5,725 | 5,292 | 6,205 | 913 |
| Reactor Accident Analysis | 27,224 | 25,378 | 23,759 | 23,180 | -579 |
| Safety Issue Resolution and Regulatory Improvements | 13,780 | 14,821 | 14,267 | 13,962 | -305 |
| Total | 48,844 | 49,979 | 47,003 | 47,537 | 534 |
| Full-Time Equivalent Employment | | | | | |
| | 114 | 106 | 106 | 99 | -7 |

This program element is conducted to (1) provide an in-depth examination and understanding of abnormal operations and plant transients experienced by the nuclear industry; (2) gain an understanding of the causes of human error during reactor operations and maintenance, human user and plant system interfaces, and the effects of human performance on safe operations of nuclear power reactors; (3) gain an understanding of ways to prevent and mitigate the consequences of severe core damage or core melt accidents in nuclear power reactors; (4) improve NRC's ability to evaluate the effects of potential earthquakes on nuclear power reactor operations; (5) assess the adequacy of safety margins in the current 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.

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This program element comprises four major activities: Plant Performance, Human Reliability, Reactor Accident Analysis, and Safety Issue Resolution and Regulatory Improvements.

Plant Performance Activity

This activity includes efforts associated with providing for in-depth examination and improved understanding of safety-significant abnormal operations and plant transients experienced by the nuclear industry. Understanding these occurrences is an important element in the Commission's continuing efforts to maintain an adequate margin of safety as more plants are brought on line and as operating plants continue to age. 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 potentially occur. Plant transients include design-basis accidents (required to be analyzed in license applications) as well as non-design-basis events, such as multiple system or component failures, common mode failures, and/or operator errors that have been revealed through probabilistic risk assessments and operating experience.

Plant performance research is being conducted to integrate limited experimental data and limited calculational capability into a firm technical basis to support regulatory actions. 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 validated using (1) basic experiments to derive empirical formulas for determining phenomena; (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 validated computer codes are and will be used to evaluate design-basis accidents, the safety implications of actual events, and all hypothetical transient scenarios determined to be major contributors to risk as shown by probabilistic risk assessment studies and actual operating events.

Long-term experimental research falls into three areas: (1) experimental facilities at universities and other laboratories, (2) fundamental testing, and (3) cooperative testing in international facilities. Additionally, cooperative testing with domestic industry has been successful in the past and will occur in the future.

In FY 1995, the NRC will continue the archiving and retrieval of experimental data from the established experimental data bank. The data bank contains test data from domestic and foreign thermal-hydraulic related experiments, as well as plant startup and transient

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data. The data bank provides a central repository of qualified results in a standard format, and currently includes over 800 digital magnetic tapes. In FY 1995, the NRC will also continue a small activity in fundamental testing through the existing grants program.

In FY 1995, the NRC will continue to maintain the TRAC-PWR and RELAP5 computer codes. RELAP5 is a light-water reactor transient analysis code used in rulemaking, auditing license submittals, and analyzing unresolved safety issues, and is the basis for the Nuclear Plant Analyzer (NPA). The NPA is operational at NRC Headquarters to provide an in-house analysis capability to analyze accident management strategies, advanced reactor design capabilities, and important events in operating reactors. The NRC will develop and maintain a representative set of plant input decks to support this use of NPA. Other codes, not used as actively (TRAC-BWR, RAMONA 3B, COBRA-NC), will also be maintained. The TRAC-PWR and RELAP5 codes are for PWR analyses, while RELAP, TRAC-BWR, and RAMONA-3B codes are for BWR analyses. The TRAC, RELAP5, and RAMONA codes will also be used to analyze new reactors of advanced design. This effort is discussed in the Standard Reactor Designs Activity.

The NRC will continue in FY 1995 to contribute to the Code Applications and Maintenance Program, a joint, international program among the code users to support code maintenance. Also in FY 1995, the NRC will perform analyses or experimental assessments to determine the scope and magnitude of potential safety issues which arise from operating events, staff and/or ACRS reviews. Recent examples include studies of BWR stability under anticipated transient without scram conditions, long-term cooling following a loss-of-coolant accident, and shutdown cooling after the loss of the residual heat removal system.

Human Reliability Activity

This activity includes efforts associated with (1) understanding the causes of human error during reactor operations and maintenance and its impact on safe operations; (2) developing methods which will be able to quantify the effects of the design of instrumentation and control system displays on human performance in nuclear power plants; (3) analyzing the effectiveness of the interface between the nuclear power plant system and the human user; and (4) integrating human and hardware reliability analysis data and methods into probabilistic risk assessments. These efforts are directed toward reducing human errors and thereby reducing the risk to the public from the accidental release of radioactive material. Experience has shown that most safety-related events reported at nuclear facilities continue to involve human performance. The research results will be used to identify, systematically prioritize, and suggest solutions to human reliability issues in the maintenance and operation of nuclear facilities during normal, abnormal and emergency situations.

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In FY 1995, the NRC will complete a study of staffing issues in the nuclear industry as related to safe startup and operations of nuclear power plants. Also in FY 1995, the Office of Nuclear Regulatory Research (RES) will provide direct human factors support to the Office of Nuclear Reactor Regulation (NRR) and the Office for Analysis and Evaluation of Operational Data (AEOD) in inspections of human error-related incidents in order to maintain staff's awareness of current operational problems, provide insights to investigation methods, and improve data base information.

The NRC will continue research to address the safety concerns associated with the nuclear power industry's current and planned use of artificial intelligence and computers, and develop the technical basis for appropriate review criteria in FY 1995. Also during FY 1995, the NRC will continue participation in the Organization for Economic Cooperation and Development (OECD) Halden Reactor Project to provide part of the technical base for guidelines and criteria used in the review of advanced human-system interfaces, computer-based operator support systems, integrated surveillance and control rooms, and the verification and validation of computer software. Reports will be issued summarizing experience at the Halden Reactor Project that has accrued on several topics related to advanced instrumentation and control systems and their effects on operations.

In FY 1995, the NRC will complete the upgrade of the simulation and data collection capabilities at the Technical Training Center (TTC) including the use of a graphics user interface tool developed at the Halden Reactor Project. A small effort to monitor industry and foreign research on organizational factors will be continued during FY 1995.

In FY 1995, the NRC will continue to develop and evaluate methods and criteria for acquiring probabilistic data on human and hardware failures and combinations thereof, to support reliability and risk assessments. Information will be derived from programs such as the individual plant examination (IPE) and operator requalification examinations. Also in FY 1995, the NRC will develop risk-based criteria for (1) performance-oriented regulations, and (2) enhancing technical specifications.

Reactor Accident Analysis Activity

This activity includes efforts associated with (1) improving NRC's understanding of severe accident phenomena; (2) identifying and evaluating methods to prevent and/or mitigate the consequences of severe accidents in nuclear power plants; (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

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accident research results warrant revisions to NRC regulations or policies. Severe accidents have the potential to adversely affect the public health and safety by the accidental release of radioactive fission products. NRC efforts are directed toward reducing the overall risk of nuclear power plant operations by requiring design and operating strategies to prevent or ameliorate the consequences of such accidents. 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 goal, and backfit policies.

Furthermore, the Commission's severe accident policy calls for the examination of individual plant susceptibilities to severe accidents, the identification and evaluation of potential improvements in containment performance, and the execution of a program of research to reduce the uncertainties in the analysis of severe accidents. The results of that research will be used to confirm that the margins of safety inherent in existing regulations are, and will continue to be, adequate to protect the public health and safety.

In FY 1995, the NRC will continue methods development and application of advanced human reliability analysis and aging models and operational events data to probabilistic risk assessments (PRA) in support of increased agency use of risk analysis to prioritize and resolve safety issues. Also in FY 1995, the NRC will continue maintenance, user support, and upgrading (as necessary) of the severe accident risk analysis computer models, e.g., MACCS, SARA, EVNTRE, and IRRAS, used by NRR, RES, and AEOD staff. The NRC will review risk analyses performed by staff and contractors in support of the assessment of safety issues. The NRC will continue to support the development of staff expertise in the application of PRA in FY 1995. Data will be loaded from approximately three PRAs per year, submitted in the individual plant examination (IPE) process and other sources, into the PC data base (support for SARA and IRRAS) for use in a variety of expected support activities.

In FY 1993, direct containment heating (DCH) experiments on the simulated Zion-type and Surry-type reactor configurations were completed. During FY 1994-1995, NRC will identify the need for any additional experimental work for other types of reactors to confirm the uncertainties, scaling laws and other pertinent parameters involved with the direct containment heating phenomenon as well as other severe accident phenomena affecting the loss of containment capabilities during severe accidents. In FY 1995, the NRC will continue to apply the severe accident scaling methodology (SASM) to any experimental or analytical program designed to assess direct containment heating and, when practical, to other NRC sponsored experiments. This will ensure that the results of experiments can be successfully extrapolated to full-scale reactor conditions.

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In FY 1993, a model for DCH was incorporated into the MELCOR advanced in-plant severe accident risk analysis code. In FY 1994, a model of natural circulation for degraded cores, coolability of degraded core, and lower head failure will be incorporated into MELCOR. During FY 1995, the NRC will continue to contribute to the MELCOR Cooperative Assessment Program initiated in FY 1993 to support MELCOR code validation and maintenance. In FY 1995, the NRC will continue to compare codes with the existing data base, and assess progress in reducing uncertainties in severe accident phenomena. As results from the Severe Accident Research Program are interpreted, additional research needs will become better defined, and will be described in updates of the Severe Accident Research Plan. In FY 1994, new data needs and modeling initiatives required for severe fuel damage assessments will continue to be identified. In FY 1995, the NRC will make a comprehensive effort to assimilate results and insights from all the available major experimental programs (ACRR, TMI, LOFT, PBF, NRU, CORA, PHEBUS) for support of the severe fuel damage assessments.

In FY 1995, the NRC will continue research to address the conditions under which hydrogen-air-steam mixtures at high temperatures could sustain low speed combustion. This research will address the applicability of existing models for hydrogen combustion during certain severe accidents. Participation in the bilateral agreement with Japan to construct and perform high temperature, high speed hydrogen combustion experiments will be continued in FY 1995. The high speed combustion program is the complement to the low speed combustion experimental program. This bilateral agreement will provide experimental data on the increased detonability of hydrogen mixtures at elevated temperatures that might exist during a severe accident. This data is necessary to confirm the projections of containment loads and performance during severe accidents.

In FY 1992, the NRC and the Russian Research Center (formerly the I.V. Kurchatov Institute), Russia signed a bilateral agreement to jointly fund an experimental facility called RASPLAV, where 200 kg of reactor core material can be melted and can be made to interact with a simulated reactor pressure vessel lower head. In FY 1993, feasibility studies of cooling the core materials from outside the lower head were performed. In FY 1994, the NRC will support the RASPLAV project as an international project under the auspices of OECD. Based on this work, during FY 1994-1996, test apparatus will be constructed and testing carried out.

In FY 1995, the FARO facility in Italy will continue to be used to perform large-scale tests in which prototypic material (corium, the term used for a molten mass of fuel from the core) is brought into interaction with water in a vessel of appropriate size and strength. Data on the rate of heat removal from the melt and its quench mechanisms as well as data on hydrogen generation rate will be obtained. Concurrently, data will be obtained on the heat

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loading and temperatures of a simulated reactor pressure vessel. The morphology of the material remaining in the bottom of the test facility will be examined and used in the validation of the lower head analytical model.

In FY 1995, the NRC will use the VICTORIA fission product release and transport code, and the MELCOR code to perform pre- and post-test analyses of the PHEBUS tests. This will serve as part of the NRC in-kind assistance and services to PHEBUS under the international cooperative agreement between NRC and the French Commissariat à l'Énergie Atomique. Technical assistance and cooperation with the Commission at the European Communities fission product behavior program in the French PHEBUS test reactor will continue to be provided. Such technical assistance includes providing on-line fission product measurement system, reviewing test plan and testing, and other assistance, as needed. In FY 1995, the NRC will continue to evaluate the experimental results on debris coolability and fission products released from core concrete interactions made available to the NRC under an EPRI-NRC cooperative agreement. NRC has signed agreements with 20 different countries or organizations where NRC provides the participants with advance experimental data and analytical reports and severe accident codes. A number of participants have extensive research programs of their own and their contributions are valuable to the NRC. This effort will continue in FY 1995.

In cooperation with the Agency for Natural Resources and Energy of the Ministry of Trade and Industry (MITI) of Japan, the NRC will perform a test to failure of a model of a steel BWR containment. The model will be designed and fabricated in Japan and tested in the United States. The model will be fabricated in FY 1994, shipped and instrumented during FY 1994-1995, and tested to failure in FY 1996. Also in cooperation with the Agency for Natural Resources and Energy of the MITI of Japan, the NRC will perform a test to failure of a model of a pre-stressed concrete PWR containment. The model will be designed in Japan and constructed and tested in the United States. The model which will be designed during FY 1994, will be constructed and instrumented during FY 1995-1996, and will be tested to failure in FY 1998.

In FY 1995, the NRC will continue to evaluate licensee evaluation of containment performance improvement recommendations, submitted as part of the individual plant examination (IPE) program. In FY 1993, reviews of 12 internal event IPE submittals were completed. During FY 1994-1995, the NRC will continue the joint RES and contractor team reviews of the approximately 66 remaining internal event IPE submittals covering all units. By FY 1995, all or most of the internal event IPE reviews, significant accident management research, and severe accident research will be completed. In FY 1995, the NRC will continue to analyze the information obtained from the review of the IPE submittals, begin to develop and implement a plan to collect and categorize insights, and

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provide the results in a concise report. During FY 1995, the NRC will continue receiving licensee external event evaluation (IPEEE) reports.

Safety Issue Resolution and Regulatory Improvements Activity

This activity includes efforts associated with (1) improving NRC's ability to evaluate the effects of potential earthquakes on nuclear power plant operations; (2) resolving generic safety issues related to reactor and plant system design and plant operations; (3) developing regulations, policy statements, and regulatory guides for nuclear power plant regulation; (4) developing the technical basis for radiation protection standards to minimize the adverse consequences of exposure to ionizing radiation from licensed reactor activities; and (5) conducting the Small Business Innovation Research programs and educational grants programs.

The schedules and priorities for efforts in this activity sometimes depend on the completion of research projects described in other areas of this program. Once the research projects are completed, the results are incorporated into the regulatory process as expeditiously as practicable. The efforts in this activity are coordinated with a variety of organizations. Resolutions of generic safety issues are transmitted to the industry through issuance of generic letters or rule changes. Implementation procedures for resolving generic safety issues are occasionally developed in conjunction with utility organizations such as the Electric Power Research Institute. Changes to regulatory requirements, policy statements, and guidance for reactor facilities are closely coordinated with other NRC offices, the nuclear industry, and the public.

In FY 1995, the NRC will continue to support the U.S. Geological Survey and other research activities 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 also continue to evaluate the data collected from the National Seismographic Network. This represents a long-term effort to continuously improve the understanding of physical processes associated with the seismic activities, transmission of seismic energy, and site responses. One specific use of the new data base obtained from the National Seismographic Network will be the development and validation of more accurate models to predict the transmission of seismic energy. The new models will reduce the uncertainty associated with current ground motion modeling and also improve upon our implementation of site licensing criteria and evaluation of seismic issues bearing on plant design.

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In FY 1995, the NRC will perform comparative studies on acceleration levels and spectral shapes that can be expected from different faulting types based on data from 14 intraplate earthquakes from around the world. The NRC will also continue to determine attenuation characteristics of ground motion through shallow soils over bedrock. The small to moderate earthquake data will be obtained from seismographs installed at various levels in boreholes at Anza, California. The better modeling of the local site amplification phenomenon will reduce major uncertainty in the soil structure interaction analysis currently carried out to estimate the structural and component responses. A study of high frequency ground motions in the Central and Eastern U.S. is also being conducted. In FY 1995, an analysis of intensity-seismic moment correlations for estimating seismic moments of large Eastern North American earthquakes will be continued.

In FY 1994, a cooperative effort among NRC, Electric Power Research Institute (EPRI), and DOE to develop a unified seismic hazard assessment method to characterize seismic hazard east of the Rocky Mountains based on the EPRI and Lawrence Livermore National Laboratory (LLNL) seismic hazard studies will be completed. The results of this cooperative effort will be used to assess the seismic hazard of future nuclear power plant sites and to recalculate the probabilistic seismic hazard of all operating Eastern U.S. nuclear power plant sites as bases for probabilistic siting criteria for future nuclear power plants. The National Academy of Sciences will complete a review of the unified hazard assessment methodology by the end of FY 1994. A final report incorporating all comments will be completed in FY 1995. In FY 1995, the NRC will recalculate the probabilistic seismic hazard at all Eastern U.S. nuclear power plant sites to develop technical bases for replacing the relative seismic hazard criteria with an absolute criterion in the seismic siting regulatory guide (draft Regulatory Guide DG-1015, Identification and Characterization of Seismic Sources, Deterministic Source Earthquakes, and Ground Motion).

In a joint venture with the EPRI and the Taiwan Power Company, a cylindrical concrete model structure is being built in a seismically active area near Hualien, Taiwan. The model and surrounding soil will be instrumented, and data taken during earthquakes over a 5-year period will be used to check calculational methods. Construction and instrumentation were completed in FY 1993. Data recording and analysis will be conducted during FY 1994-1995.

During FY 1995, tests will continue to be performed by the University of Texas at Austin to determine the behavior and strength of anchor bolts used in concrete for earthquake type loads. This work supports the implementation of NRC seismic program USI A-46, "Seismic Qualification of Equipment in Operating Plants."

In cooperation with the Ministry of Trade and Industry, the NRC will participate in a seismic test of a large scale model of a main steam and feedwater system to check

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calculational methods and validate seismic failure mode assumptions. The test will be performed at Tadotsu Engineering Laboratory, the largest seismic shaking table facility in the world. In FY 1994, the NRC will obtain test data from the tests already carried out in FY 1993 on computer systems and test data from tests to be done on shutdown cooling systems for validation of the seismic fragility of these components and systems. In FY 1994, fabrication of the large scale model will be continued, the test will be conducted, and in FY 1995, the test data will be evaluated.

During FY 1995, the NRC will continue to systematically assess piping design criteria using data collected on the performance of piping systems during the October 1989 Loma Prieta and other earthquakes. In FY 1995, a draft regulatory guide will be published. In FY 1995, the Office of Nuclear Regulatory Research (RES) will continue to provide assistance on an as-needed basis to the Office of Nuclear Reactor Regulation (NRR) and the Office of Nuclear Material Safety and Safeguards (NMSS) staff to resolve seismic regulatory issues.

During FY 1995, the NRC will provide a report and/or briefing to the Commission on the resolution of generic safety issues. In FY 1994, the NRC will prioritize all remaining generic safety issues left at the end of FY 1993 and, during FY 1995, will continue to prioritize and integrate new issues. During FY 1995, approximately two generic safety issues will be resolved.

Semiannually, the NRC will perform an integrated review of the priorities and schedules for all reactor and reactor radiation protection and health effects rulemaking actions to ensure that the highest priority efforts are conducted. As final rules are completed, uninitiated rulemaking actions having the highest priority will be selected for rulemaking actions.

During FY 1994-1995, the NRC will conduct seven rulemakings applicable to reactor licensees and issue proposed and/or final rules and the associated regulatory guides where applicable for the following: (1) Table S-3 and Table S-4 in 10 CFR Part 51, Addition of Radon-222 and Technetium-99 Radiation Values, (2) Amend 19.32 and 2.111 to conform to Section 401 of the Energy Reorganization Act, (3) Removal of Criticality Alarm Requirements for Fresh Fuel, 10 CFR 70.74, (4) Work Scheduling of Personnel Performing Safety-Related Duties, 10 CFR Part 50, (5) Requalification Examination Requirements, 10 CFR Part 55, (6) Safety Requirements for Reactor Coolant Pump Seals, and (7) Alternative Site Reviews, 10 CFR Part 100.

During FY 1995, the NRC will conduct one rulemaking applicable to reactor radiation protection and health effects standards, and issue associated regulatory guides where applicable for the Revision of 10 CFR Parts 19 and 20, Clarifying Amendments.

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During FY 1995, the NRC will develop approximately six regulatory impact analyses (RIA) in support of reactor-related rulemaking and other generic requirements as required by the backfit rule and pursuant to the Commission's policies and practices under its Safety Goal Policy. In addition, it will continue to support the development of all NRC RIA's through the formulation of generic guidance and methodology, and the development of generic cost estimates. During FY 1995, the NRC will issue the "Regulatory Analysis Guidelines of the U.S. NRC" (NUREG/BR-0058, Rev. 2), and a "Regulatory Analysis Technical Evaluation Handbook" (NUREG/BR-0184) which will replace "A Handbook for Value-Impact Assessment" (NUREG/CR-3568); develop a training course for the rulemaking staff to promote quality and consistency in performing regulatory analyses; establish a formal mechanism in the regulatory analysis guidelines to implement the Commission policies on Safety Goals to ensure that safety goal considerations are routinely addressed in developing and reviewing regulations and regulatory practices; and continue to develop early consensus on regulatory products through the issuance of options papers.

In FY 1995, the NRC will continue to implement changes in existing reactor regulations and regulatory requirements that have a large economic impact, but can be eliminated or modified without significantly reducing safety. These changes will be a revision of a regulation, Standard Review Plan section, or regulatory guide, and will allow licensees to redirect resources to more important safety issues.

During FY 1995, the NRC will continue identification of the biological effects and performance criteria for controlling "hot particles" contamination of the skin. In addition, it will review and evaluate National Council on Radiation Protection and Measurements (NCRP) and International Council on Radiological Protection (ICRP) reports on this subject to develop a Commission recommendation on an appropriate course of action. The NRC will also develop and implement testing and accreditation criteria for extremity dosimetry, and develop performance criteria, standards, and guidance on in vivo and in vitro bioassay assessment.

In FY 1995, the NRC will continue assessments of industry and DOE research and development on dose reduction at nuclear power plants focusing on high-dose worker groups. The primary activity expected is the continued support for the Brookhaven National Laboratory ALARA Center. In FY 1994, the assessment of the impact of a reduction in occupational worker dose limit recommended by the ICRP and the anticipated NCRP recommendations will be completed. In FY 1995, development of recommendations on the needed changes to regulations and regulatory guidance will be initiated.

In FY 1995, the NRC will continue studies on placental transfer and other parameters affecting dose to embryo/fetus for selected radionuclides. The results of these studies will

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be used to improve calculation of embryo/fetus dose from maternal intake in order to implement exposure criteria for pregnant workers. In FY 1994, a regulatory position for calculating fetal doses from intake of the most critical radionuclides will be developed and in FY 1995, this research for other radionuclides will be continued.

In FY 1995, 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 ICRP, the NCRP, the Committee on Interagency Radiation Research and Policy Coordination (CIRRPC), and the National Academy of Sciences. These organizations are involved in the development and coordination of recommendations on a wide variety of subjects in the area of radiation protection including hot particles, potential exposure situations, naturally-occurring and accelerator produced radioactive material, and dose-risk relationships all of which are used by the NRC in rulemaking and guidance development.

In FY 1995, the NRC will continue to provide annual statistical summaries of worker radiation exposure data, as part of the Radiation Exposure Information Reporting Systems, and continue to process termination reports and implement the new 10 CFR Part 20 reporting requirements. Also during FY 1995, the NRC will work with the National Cancer Institute and other organizations to develop and implement a national worker exposure data base to support health effects studies. It will also continue to monitor ongoing health effects research and operating experience and develop appropriate reactor related regulations or regulatory guidance to address identified needs based on this information.

During FY 1995, the NRC will continue to issue addenda to NUREG-1307, "Nuclear Power Reactor Decommissioning Costs," as required by 10 CFR Part 50, to ensure licensees have the latest waste burial costs which are corrected for inflation. During FY 1995, the NRC will perform a reexamination of the original BWR and PWR technology, safety, and cost decommissioning reports, NUREG/CR-0672, "Technology, Safety, and Costs of Decommissioning a Reference Boiling Water Reactor Power Station," and NUREG/CR-0130, "Technology, Safety, and Costs of Decommissioning a Reference Pressurized Water Reactor Power Station." These reports will provide the basis for determining if reactor decommissioning costs need updating.

In FY 1995, 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 Act of 1977, OMB guidance, and NRC policies and procedures. The purposes of this program are to foster public understanding of nuclear safety, enlarge the body of knowledge and technical

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information, and enhance the protection of public health and safety. Such support to educational institutions is limited to no more than one percent of the total annual budget for the Office of Nuclear Regulatory Research. The current NRC program activity supports a variety of professional meetings and university-based research projects. Also in FY 1995, the NRC will continue to support the Small Business Innovation Research Program (SBIR), as required by Public Law 97-219, to stimulate technological innovation by small businesses. The law requires that Federal agencies establish SBIR programs if their extramural research budget exceeds \$100 million. The NRC has participated in the program since it was established in FY 1982, notwithstanding the fact that the research budget at times has been less than \$100 million dollars. The NRC's SBIR program supports high-quality and cutting-edge research of interest to the NRC. The program also seeks to couple this research with follow-on private funding to pursue commercial applications and to increase technological innovation. About 110 to 130 SBIR proposals are reviewed each year and about 10 to 12 contracts are awarded.

**REACTOR SPECIAL AND INDEPENDENT
REVIEWS, INVESTIGATIONS,
AND ENFORCEMENT**

**REACTOR SPECIAL AND INDEPENDENT REVIEWS, INVESTIGATIONS,
AND ENFORCEMENT PROGRAM**

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

Total FY 1995 Estimate \$31,674,000

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 16,925 | 16,955 | 16,955 | 17,282 | 327 |
| Program Support | 11,066 | 11,758 | 11,758 | 12,173 | 415 |
| Administrative Support | 1,235 | 1,001 | 1,001 | 1,030 | 29 |
| Travel | 1,275 | 1,017 | 1,017 | 1,189 | 172 |
| Total | 30,501 | 30,731 | 30,731 | 31,674 | 943 |
| Budget Authority by Program Element (\$K) | | | | | |
| Analysis and Evaluation of Operational Data | 21,197 | 21,295 | 21,295 | 22,068 | 773 |
| Advisory Committee on Reactor Safeguards | 2,912 | 3,010 | 3,010 | 3,015 | 5 |
| Atomic Safety and Licensing Board Panel | 2,781 | 2,869 | 2,869 | 2,772 | -97 |
| External Investigations | 2,794 | 2,718 | 2,718 | 2,927 | 209 |
| Enforcement | 817 | 839 | 839 | 892 | 53 |
| Total | 30,501 | 30,731 | 30,731 | 31,674 | 943 |
| Full-Time Equivalent Employment by Program Element | | | | | |
| Analysis and Evaluation of Operational Data | 119 | 113 | 113 | 110 | -3 |
| Advisory Committee on Reactor Safeguards | 31 | 31 | 31 | 29 | -2 |
| Atomic Safety and Licensing Board Panel | 26 | 26 | 26 | 23 | -3 |
| External Investigations | 32 | 31 | 31 | 30 | -1 |
| Enforcement | 10 | 10 | 10 | 10 | 0 |
| Total | 218 | 211 | 211 | 202 | -9 |

REACTOR SPECIAL AND INDEPENDENT REVIEWS, INVESTIGATIONS, AND ENFORCEMENT

| Changes in Budget Authority (\$K) | | | |
|---|--------------------------------------|----------------------|-------|
| Program Element | FY 1995 Change from FY 1994 Proposed | | |
| | Current Services | Program Requirements | Total |
| Analysis and Evaluation of Operational Data | 928 | -155 | 773 |
| Advisory Committee on Reactor Safeguards | 166 | -161 | 5 |
| Atomic Safety and Licensing Board Panel | 144 | -241 | -97 |
| External Investigations | 166 | 43 | 209 |
| Enforcement | 53 | 0 | 53 |
| Total | 1,457 | -514 | 943 |

EXPLANATION OF RESOURCE CHANGES FOR CURRENT SERVICES

The increase for personnel compensation reflects the costs of the 1.6 percent Federal sector pay increase expected in CY 1995; the full cost of the 4.23 percent locality pay increase which was effective January 1994; within-grade increases; and several minor adjustments, such as the increased number of staff entering the Federal Employees Retirement System and benefits cost increases. The increase for program support and travel reflects inflation estimated at 2.9 percent in FY 1995.

EXPLANATION OF RESOURCE CHANGES FOR PROGRAM REQUIREMENTS

The program remains essentially level. The reductions primarily result from: (1) determining that less staff are required to perform the functions carried out by the Advisory Committee on Reactor Safeguards and the Atomic Safety and Licensing Board Panel; and (2) efficiencies realized from the consolidation of Region V as a field office of Region IV. This is partially offset by an increase to the Office of Investigations travel which has historically been underfunded.

REACTOR SPECIAL AND INDEPENDENT REVIEWS, INVESTIGATIONS, AND ENFORCEMENT

DESCRIPTION OF PROGRAM

The reactor special and independent reviews, investigations, and enforcement program covers evaluations of safety concerns involving reactor facilities, assessments of reactor operational events and experience, reactor technical training for NRC staff, review and advice to the Commission on reactor safety issues, reactor adjudicatory reviews, investigations of wrongdoing by NRC reactor licensees, and reactor enforcement policy and actions in furtherance of the protection of the public health and safety. This program comprises the following five program elements: Analysis and Evaluation of Operational Data, Advisory Committee on Reactor Safeguards, Atomic Safety and Licensing Board Panel, External Investigations, and Enforcement.

The funds and staff for each of the five program elements are discussed on pages 77 through 92. The program support funds are allocated for work done by Department of Energy (DOE) contractors and commercial contractors for the NRC. The administrative support funds are allocated for NRC's Technical Training Center in Chattanooga, Tennessee. The narrative that follows describes these program elements and addresses the reasons why the resources are needed.

REACTOR SPECIAL AND INDEPENDENT REVIEWS, INVESTIGATIONS, AND ENFORCEMENT

Analysis and Evaluation of Operational Data Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 9,238 | 9,081 | 9,081 | 9,411 | 330 |
| Program Support | 10,229 | 10,874 | 10,874 | 11,263 | 389 |
| Administrative Support | 1,235 | 1,001 | 1,001 | 1,030 | 29 |
| Travel | 495 | 339 | 339 | 364 | 25 |
| Total | 21,197 | 21,295 | 21,295 | 22,068 | 773 |
| | | | | | |
| Full-Time Equivalent Employment | 119 | 113 | 113 | 110 | -3 |

This program element is conducted by the Office for Analysis and Evaluation of Operational Data (AEOD) to identify, evaluate, and respond to potentially significant events and safety concerns involving U.S. commercial nuclear power reactors, based on events reported to the NRC by its licensees. This program element also provides support for the agency's Committee To Review Generic Requirements. The committee's activities include review of generic reactor requirements and backfit considerations.

Diagnostic evaluations supplement the systematic assessment of licensee performance program, performance indicators, and other assessment data in evaluating specific utility programs to enable NRC senior management to make more informed assessments concerning overall nuclear power plant performance. These assessments assist the NRC in taking appropriate regulatory actions.

Approximately two diagnostic evaluations of individual nuclear power plants are expected to be conducted during FY 1995, as determined by the Executive Director for Operations (EDO). Each evaluation will consist of a formal, independent, in-depth assessment conducted by an NRC team for the purpose of providing expert insight into significant aspects of plant operations, plant performance, and safety, with emphasis on root-cause determinations of performance problems. In addition, the status and closeout of generic

REACTOR SPECIAL AND INDEPENDENT REVIEWS, INVESTIGATIONS, AND ENFORCEMENT: Analysis and Evaluation of Operational Data

staff actions, initiated by the diagnostic evaluation team and assigned by the EDO, will be tracked and documented.

AEOD also oversees the agency's incident and accident investigation programs to ensure that significant and extraordinary safety significant operational events involving nuclear power reactors licensed by the NRC are investigated in a 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 staff will continue to participate on accident review groups, incident investigation teams and augmented inspection teams, as necessary during FY 1995. In addition, the status and close-out of IIT-initiated staff actions assigned by the EDO will be tracked, documented and the resolution independently assessed.

Incident response activities are conducted to ensure that the NRC is prepared to carry out its role in a radiological emergency at NRC-licensed nuclear reactors, that licensee responses are consistent with their responsibilities, and that NRC responses are coordinated with other Federal response activities and State and local government activities. The NRC's responsibilities in this area are to (1) manage the NRC Operations Center; (2) develop, maintain, and integrate agencywide response plans and procedures; (3) train agency personnel and organizations in the conduct of their incident response responsibilities; (4) conduct exercises to achieve and test readiness objectives; (5) provide operational support and contract management for agency response activities; (6) evaluate and assess headquarters and regional response capabilities; and (7) provide continuous-shift staffing of the NRC's Operations Center with qualified systems engineers. These engineers receive NRC licensee event reports, as well as other information, and perform preliminary evaluations to determine those events which warrant prompt agency response and notification (to the Office of Nuclear Reactor Regulation, the regions, senior management, and other Federal agencies) and then make that notification.

The NRC will maintain continuous coverage (24 hours a day, every day) of the NRC Operations Center for communicating with licensed nuclear power plants to receive reports of, and to deal with, significant events at these facilities. The NRC will continue to maintain the necessary emergency plans and procedures, computers, and other equipment to provide the capability for agency analysis of events and response to incidents at power reactors. Analytical and consequence-assessment tools and procedures necessary for reactor

REACTOR SPECIAL AND INDEPENDENT REVIEWS, INVESTIGATIONS, AND ENFORCEMENT: Analysis and Evaluation of Operational Data

evaluations, consequence projections, protective measures evaluations, airborne monitoring following a release, and information management will continue to be developed and refined as needed during FY 1995. The NRC coordinates its activities with those of State and Federal agencies to ensure an integrated response to events.

The NRC will continue to participate in the U.S. Government's Continuity of Government Program during FY 1995. Guidance and training will be provided to the staff in implementing the NRC role and functions in a national emergency.

A standardized training program on the technical and organizational aspects of emergency response has been developed and continues to evolve. This training will continue to be conducted during FY 1995 for headquarters and regional response personnel. Training is also offered periodically to the Federal agencies that support the NRC as well as the State agencies that the NRC supports during an accident. A limited number of exercises involving various accident scenarios will be conducted to confirm and maintain the capabilities of NRC response personnel. A number of limited-scale exercises will also be conducted with emphasis on the interfaces with State organizations. Federal emergency response programs, including monitoring, assessment, and support services, continue to be updated. More efficient notification and information exchange methods will continue to be developed among the Federal response agencies involved in this area.

Technical training is provided for NRC technical staff, including resident inspectors, headquarters- and region-based inspectors, reactor operator license examiners, Operations Center duty officers, licensing project managers, and technical reviewers. Training is provided on a space-available basis for other Federal, State, and foreign government employees. Courses are offered in reactor technology system design and operation, and in other specialized areas, such as probabilistic risk assessment, engineering support, radiation protection, security, safeguards, and inspection and examination techniques.

The NRC Technical Training Center maintains an integrated schedule of courses that supports long-range planning by agency managers and is flexible enough to respond to changing needs and priorities within the agency. A spectrum of reactor technology training is provided in each of the four U.S. conventional reactor designs to meet the highest priority agency needs, including an integrated series of classroom and simulator courses for the highest priority NRC staff. The Technical Training Center resources also provide for specialized technical training to meet high-priority continuing and reactive training needs in such areas as probabilistic risk assessment, engineering support, radiation protection, security, safeguards, and inspection and examination techniques.

REACTOR SPECIAL AND INDEPENDENT REVIEWS, INVESTIGATIONS, AND ENFORCEMENT: Analysis and Evaluation of Operational Data

The reactor technology training curriculum will continue to be implemented to provide coverage of the General Electric, Westinghouse, Babcock & Wilcox, and Combustion Engineering reactor vendor designs. The curriculum will continue to include a spectrum of approximately 45 courses ranging in duration from 4 days to 3 weeks. Initial reactor technology training will be provided each year to NRC inspectors, reactor operator license examiners, and other high-priority NRC personnel and refresher training will be provided to NRC inspectors and reactor operator license examiners. Training of headquarters and regional reactor inspectors, operator license examiners, and response staff on vendor-specific emergency operating procedures will continue during FY 1995. Major curriculum adjustments to best satisfy the highest priority regional and program office training needs will continue during FY 1995.

Full-scope training simulators will continue to be maintained at the Technical Training Center in support of NRC initial qualification and refresher programs. This includes maintaining the operability, reliability, and performance of the simulator hardware and software. Performance of NRC full-scope simulators, particularly in the thermal-hydraulic, reactor core, and containment response areas, will continue to be upgraded, as necessary, in order to meet NRC reactor technology training needs. This also includes replacing other simulation models to improve performance and make the models transportable to other simulation platforms. During FY 1995, the use of workstation-based simulations will continue to be developed and implemented to show parameters, system responses and scenarios that are not suitable for full-scope simulator demonstrations but will enhance student understanding of complex events. This effort involves the use of advanced simulation codes and establishment of a simulation platform capable of providing high-fidelity simulation of both conventional and advanced light water reactor designs in order to meet NRC current and future reactor technology training needs.

The specialized technical training curriculum will continue to be provided to ensure appropriate coverage in specialized areas. During FY 1995, this curriculum will continue to include approximately 60 courses ranging in duration from 1 day to 5 weeks. Curriculum modifications will continue to be made through FY 1995. Training in areas such as radiation protection, motorized valve actuators, nondestructive examination technology, and security and safeguards technology, as well as training to support the incident investigation program, will continue through FY 1995.

The NRC will continue to implement entry-level training programs for nuclear engineering interns to obtain the necessary technical training and experience to proceed through existing qualification programs. During FY 1995, the NRC will continue to develop and present

REACTOR SPECIAL AND INDEPENDENT REVIEWS, INVESTIGATIONS, AND ENFORCEMENT: Analysis and Evaluation of Operational Data

training to implement formal qualification programs for headquarters technical personnel to address initial, supplemental, and periodic refresher training requirements.

The reactor technology and specialized technical training curricula will continue to meet the highest-priority needs identified by the headquarters program offices and the regions. Curriculum development work will be coordinated with the program offices and regions.

Operational experience evaluation is conducted to collect, analyze, and disseminate information about operational safety data associated with NRC commercial nuclear power reactor licensees. Operational experience from NRC licensees and foreign sources is reviewed to identify either plant-specific or generic safety issues resulting from significant events or situations that warrant detailed evaluation. These issues are further analyzed to assess the root causes of the identified deficiency and the adequacy of corrective actions implemented and planned and to identify those safety concerns that may warrant regulatory attention. In addition, the trends and patterns of events are analyzed to identify any needs for regulatory attention.

The NRC staff analyzes operational data, including licensee event reports, extensive documentation of events, NRC inspection reports, U.S. nuclear power plant industry reports, and foreign reactor reports, to identify potentially safety-significant problems that may be plant specific, that may be common to specific types of plants, or that may have generic implications for other facilities. The NRC will complete the review and analysis of approximately 2,000 reactor licensee event reports during FY 1995. Screening of foreign operating experience will be performed to ensure that only relevant events are given in-depth review.

Those reactor events that are considered to be significant from the standpoint of the public health and safety will be reported to the Commission with recommendations that they be considered as "abnormal occurrences." On a quarterly basis, abnormal occurrences will be reported to the Congress and the public.

The NRC will continue to coordinate safety analysis activities with other organizations, such as the Electric Power Research Institute, the Institute of Nuclear Power Operations, and owners groups and provide results to those organizations, as appropriate. Component failure data from the Nuclear Plant Reliability Data System, a data base voluntarily supported by the U.S. nuclear power plant industry and maintained by the Institute of Nuclear Power Operations, will continue to be analyzed on a risk significant basis to identify component attributes that may signify an unrecognized safety concern.

REACTOR SPECIAL AND INDEPENDENT REVIEWS, INVESTIGATIONS, AND ENFORCEMENT: Analysis and Evaluation of Operational Data

On the basis of the comprehensive and systematic review of all the reactor licensee event reports, significant operating events are identified and selected for further in-depth evaluation. The evaluation assesses the root causes of the identified deficiency, the safety significance and generic implications of the deficiency, and the adequacy of corrective actions. In-depth technical evaluations of selected components, systems, system interactions, and human performance will be performed on the basis of operating events. Recommendations are made to prevent recurrence of those events that have the potential to progress to more safety-significant reactor transients. The results, findings, and recommendations for actions based on these evaluations of operating experience are documented in technical study reports, which are widely disseminated to the nuclear industry and the public on a timely basis. The recommendations from these studies are formally tracked, and the follow-up status is periodically reported to the Commission.

The NRC will continue to place emphasis on the investigation of 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 prevent recurrence, the lessons of experience can be more effectively communicated to the nuclear power plant industry to improve plant safety. Failure data for risk-significant components will be analyzed for evidence of safety-significant trends. Enhanced analysis methods will be applied to the data review process to improve the timeliness of feedback to the industry. Quantification of the risk-significance of events during power operation and reactor shutdown will be enhanced. 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 have not been lost with time. Accident sequence precursor analyses will be used when practicable. As appropriate, actions will be initiated to resolve pertinent safety issues.

The NRC conducts activities aimed at developing and implementing a method of identifying, as early as practicable, those 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 ready information concerning trends in nuclear power plant performance and to assist NRC management in identifying poor and/or declining safety performance, as well as good and/or improving safety performance.

For the NRC's performance indicator program, the following indicators are used: automatic scrams while the reactor is critical, selected safety-system actuations, significant events, safety-system failures, plant forced-outage rates, equipment forced-outage rates per 1,000 critical hours, collective radiation exposure, and cause codes extracted from licensee event

REACTOR SPECIAL AND INDEPENDENT REVIEWS, INVESTIGATIONS, AND ENFORCEMENT: Analysis and Evaluation of Operational Data

reports. Semiannual 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 during FY 1995. These reports are disseminated to NRC management, the Commission, and licensees and are available to the public. The NRC will continue its review, evaluation, and refinement, as needed, to maintain the performance indicator program as a credible tool for assessing trends in plant performance.

Operational experience at all NRC-licensed activities is collected, screened, and analyzed. Operational experience at foreign power reactors is screened and independently analyzed for safety significance and applicability to the U.S. nuclear program. The NRC will continue to provide information on 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. Additionally, those nuclear power plant events classified at the alert level or higher will be reported via the International Nuclear Event Scale (INES). The limited U.S. participation in this information sharing system will continue through CY 1994. Attention will continue to be focused on the feedback of operating experience by the NRC, the industry, and each licensee in order to use the lessons of experience to prevent serious nuclear incidents from occurring in the future. The NRC will continue to develop improved methods for providing feedback on operating experience during FY 1995 through such means as increased interaction with reactor owners groups, the highlighting of risk significance, the conduct of workshops, and coordination with industry regarding feedback originated by the industry. Special emphasis will be placed on developing and maintaining direct interfaces with major component vendors for the purpose of sharing data on equipment performance.

The NRC will continue to use and upgrade operational and reliability data storage and retrieval systems. Information primarily from two commercial power reactor reporting systems is used for the analysis of trends and patterns. The first system is the Licensee Event Reporting System, which is required by NRC regulation (10 CFR 50.73). Licensee Event Reports (LERs) are based on certain events of an established significance level at reactor sites. The data from these reports are coded and entered into data bases 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 continue streamlining the current system for the processing of LER data. During FY 1995, an enhanced capability to code and retrieve human performance, common cause, and precursor data will continue to be developed. Licensee event reporting will be revised through rulemaking to focus on these areas and to eliminate events of little significance. Also, the automated data

REACTOR SPECIAL AND INDEPENDENT REVIEWS, INVESTIGATIONS, AND ENFORCEMENT: Analysis and Evaluation of Operational Data

processing capabilities for storage and retrieval of LERs and other operating experience information will continue to be upgraded for effectiveness.

The second reporting system is the Nuclear Plant Reliability Data System (NPRDS), which captures events of lesser significance, specifically individual component failures that meet a safety-significance threshold. The staff reviews the system annually to assess the effectiveness and usefulness of the data base. In addition, the staff is discussing with the Institute of Nuclear Power Operations and industry representatives the feasibility of expanding the NPRDS to provide better data or implementing a complementary data base to support reliability and probabilistic safety analysis type activities.

Both data bases will continue to be analyzed to detect trends in the safety performance of domestic plants and to identify specific issues and corrective actions to improve or maintain safe operations. With more than 100 reactor-years of operation added annually, these data bases will grow and continue to be the primary systems to reveal trends in equipment and personnel performance.

During the past year, a reliability and risk based approach to analyzing these data was developed. Probabilistic risk assessment insights are being used to identify components, systems, accident initiators, and safety issues which can be analyzed to assess reliability risk trends. Where available, actual operating experience is being used to assess equipment performance. This work will be refined and fully implemented to maintain up-to-date safety data trends. Plans are being developed 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 Committee To Review Generic Requirements provides the NRC with reviews of generic requirements for power reactors and the feasibility of backfitting new requirements, as applicable. During FY 1995, this committee will continue to provide agencywide review 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 for public health and safety and furthering the review of new, cost-effective requirements and positions. The committee will continue to provide recommendations to the Executive Director for Operations regarding approval or disapproval of proposed changes and will continue to review selected existing generic requirements that may place unnecessary burdens on licensee or agency resources.

REACTOR SPECIAL AND INDEPENDENT REVIEWS, INVESTIGATIONS, AND ENFORCEMENT

Advisory Committee On Reactor Safeguards Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$k) | | | | | |
| Salaries and Benefits | 2,407 | 2,491 | 2,491 | 2,481 | -10 |
| Program Support | 150 | 181 | 181 | 186 | 5 |
| Travel | 355 | 338 | 338 | 348 | 10 |
| Total | 2,912 | 3,010 | 3,010 | 3,015 | 5 |
| | | | | | |
| Full-Time Equivalent Employment | 31 | 31 | 31 | 29 | -2 |

This program element provides the Commission with independent reviews of, and advice on, the licensing and operation of production and utilization facilities and related safety issues. Such independent reviews and advice are provided by the Advisory Committee on Reactor Safeguards (ACRS). In order to perform objective reviews of and provide advice on these issues, the ACRS relies on highly qualified members, specialized consultants, and a cadre of highly technical and administrative support personnel.

The ACRS is responsible for providing advice on: the safe operation of licensed nuclear facilities; the adequacy of proposed nuclear power plant designs and related technical issues; proposed safety-related regulations and regulatory policies; the NRC safety research program; and related matters. Upon request of the Department of Energy (DOE), the ACRS reviews and advises with regard to hazards of DOE nuclear activities and facilities. In addition, upon request, the ACRS provides advice to the Defense Nuclear Facilities Safety Board. The ACRS has statutory responsibilities as described in the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, as amended.

In executing its responsibilities, the ACRS reviews and provides advice on matters, such as the following: technical and policy issues associated with the issuance of new plant licenses and design certifications; adequacy of the proposed evolutionary and passive plant designs; issues associated with the development and implementation of performance indicators; severe accident policy implementation, including severe accident management; safety goal

REACTOR SPECIAL AND INDEPENDENT REVIEWS, INVESTIGATIONS, AND ENFORCEMENT: Advisory Committee on Reactor Safeguards

policy implementation; evaluations of reactor operating experience, including lessons learned from investigation of significant nuclear plant incidents; issues associated with the renewal of licenses for existing plants and the effects of plant aging; the use of probabilistic risk assessment in the evaluation of nuclear plant design and performance; results of individual plant examinations of both internal and external events; implementation of the maintenance and license renewal rules; and identification, prioritization, resolution, and implementation of generic safety issues.

The ACRS reviews and comments on proposed regulatory guides and safety-related regulations and regulatory policies, including revisions being considered or being promulgated as the basis for NRC regulatory activities. It also reviews and comments on specific regulatory issues referred to it by the Commission. In addition, the ACRS, on its own initiative, reviews and provides advice on specific generic matters and nuclear facility safety-related items.

During FY 1995, the ACRS will review and provide technical advice on: technical and policy issues associated with the certification of evolutionary and passive standard reactor designs; use of probabilistic risk analysis in the regulatory process; reports on individual plant examinations of both internal and external events submitted by licensees and the associated NRC staff's safety evaluations; identification, prioritization, and resolution of generic safety issues; portions of the NRC safety research programs; implementation of the safety goal and severe accident policies; applications for license renewal and related industry topical reports; issues pertaining to reactor vessel integrity; proposed safety-related regulations, policies, and regulatory guidance; issues associated with the use of computers in nuclear power plants for control and safety functions, including identification of failure modes, software quality assurance, and environmental qualification; implementation of the requirements resulting from the resolution of generic safety issues for operating and future plants; revised siting requirements related to the decoupling of siting from design and the use of the improved source terms; issues associated with the development and implementation of performance indicators and accident sequence precursor programs; fire protection issues for operating and future plants; evaluations of nuclear plant operating experience and implementation of the lessons learned; selected reports of augmented inspection teams and incident investigation teams related to significant operating events; activities of the NRC regional offices related to the safe operation of licensed nuclear power plants; issues identified during visits to selected licensed power plants by members and subgroups consistent with the ACRS responsibility regarding the safe operation of licensed nuclear power plants; proposed power level increases for operating plants; and as appropriate, restart of plants that have been shut down for a year or more.

REACTOR SPECIAL AND INDEPENDENT REVIEWS, INVESTIGATIONS, AND ENFORCEMENT

Atomic Safety and Licensing Board Panel Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 2,019 | 2,089 | 2,089 | 1,968 | -121 |
| Program Support | 677 | 693 | 693 | 713 | 20 |
| Travel | 85 | 87 | 87 | 91 | 4 |
| Total | 2,781 | 2,869 | 2,869 | 2,772 | -97 |
| | | | | | |
| Full-Time Equivalent Employment | 26 | 26 | 26 | 23 | -3 |

The Atomic Safety and Licensing Board Panel (ASLBP) conducts hearings 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. Administrative judges hear cases, review records, and issue initial and final decisions in statutory-licensing matters and other Commission-assigned proceedings.

The ASLBP is the statutory office of the NRC and consists of administrative judges who, sitting alone and in three-member boards, conduct adjudicatory hearings. The boards hear and decide issues granting, suspending, revoking, or amending licenses to construct and operate nuclear power plants and preside over rulemaking hearings. Hearings address issues involving health, safety, the environment, and emergency planning. Single administrative law judges are authorized to decide cases on enforcement, civil penalties, fraud, waste, abuse, and antitrust proceedings. Single presiding officers hear other cases, as directed by the Commission. Current subject matters include antitrust issues, operating license amendments, enforcement, and certification of new plant designs.

During FY 1995, the ASLBP staff will continue to provide administrative support, legal support, computerized legal support systems, and secretarial support for ASLBP hearings held nationwide. The ASLBP will also administer NRC's stenographic reporting services for all offices except the Commissioners. Computerization of the proceedings has been

REACTOR SPECIAL AND INDEPENDENT REVIEWS, INVESTIGATIONS, AND ENFORCEMENT: Atomic Safety and Licensing Board Panel

implemented to improve the efficiency of the hearing process. Efforts to expand the capability to use sophisticated computer systems for document and hearing management will continue.

REACTOR SPECIAL AND INDEPENDENT REVIEWS, INVESTIGATIONS, AND ENFORCEMENT

External Investigations Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and benefits | 2,484 | 2,491 | 2,491 | 2,567 | 76 |
| Program Support | 0 | 0 | 0 | 0 | 0 |
| Travel | 310 | 227 | 227 | 360 | 133 |
| Total | 2,794 | 2,718 | 2,718 | 2,927 | 209 |
| Full-Time Equivalent Employment | | | | | |
| Full-Time Equivalent Employment | 32 | 31 | 31 | 30 | -1 |

The NRC investigates allegations of wrongdoing by NRC reactor licensees through its Office of Investigations. All findings and conclusions that result from investigations are sent to the appropriate program office for review of the issues involved, and a determination as to whether enforcement action is warranted. The Director, Office of Investigations, refers suspected or alleged criminal violations concerning NRC licensees and others within NRC's regulatory jurisdiction to the Department of Justice.

In the past year, the Office of Investigations opened approximately 184 cases for investigative evaluation of reactor-related suspected wrongdoing, approximately 41 of which became full-scale investigations. Reactor cases opened for investigative evaluation of suspected wrongdoing issues are anticipated to increase to approximately 210 per year, and those meeting the threshold for conducting a full-scale investigation are expected to increase to approximately 50 during FY 1995. Much of this increase in workload will be in the area of harassment and intimidation and results from the recent enactment of amendments to Section 211 of the Energy Reorganization Act contained in Section 2911 of the Energy Policy Act and the extension of Section 211 to the employees of the United States Enrichment Corporation. These cases require (1) extensive interviewing of not only the complainant and the alleged discriminating official but also a substantial number of employees who share the complainant's workplace and (2) extensive interviews and records reviews in the employer's personnel department to establish personnel policies and procedures as well as their practical application throughout the workforce.

REACTOR SPECIAL AND INDEPENDENT REVIEWS, INVESTIGATIONS, AND ENFORCEMENT: External Investigations

During FY 1993, the Office of Investigations maintained an average open inventory of approximately 43 active full-scale reactor investigations. The average open inventory of active full-scale reactor investigations is expected to range from 44 to 54 during FY 1995.

During FY 1995, the Office of Investigations will continue to refine, administer, and maintain quality control standards pertaining to the conduct of investigations.

The Office of Investigations will continue to apprise the Commission and appropriate agency offices of matters under investigation that may affect the public health and safety or other aspects of the agency's mission. Liaison with other agencies and organizations to ensure the timely exchange of information of mutual interest will be maintained, and matters judged to be criminal will be referred to the Department of Justice.

REACTOR SPECIAL AND INDEPENDENT REVIEWS, INVESTIGATIONS, AND ENFORCEMENT

Enforcement Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 777 | 803 | 803 | 855 | 52 |
| Program Support | 10 | 10 | 10 | 11 | 1 |
| Travel | 30 | 26 | 26 | 26 | 0 |
| Total | 817 | 839 | 839 | 892 | 53 |
| | | | | | |
| Full-Time Equivalent Employment | 10 | 10 | 10 | 10 | 0 |

This program element is conducted to ensure compliance with regulations and license conditions, obtain prompt correction in areas of noncompliance, deter further noncompliance, and encourage improvement of reactor licensee performance. The enforcement program uses a series of sanctions that escalate according to the seriousness of the noncompliance and the past history of licensee performance. Notices of violation, civil penalties, and orders are issued, as necessary, to ensure safety and compliance.

Organizationally, the Office of Enforcement is responsible for implementing NRC's enforcement program with support from the regional offices. Activities include overseeing and evaluating regional enforcement efforts; coordinating and developing regional enforcement actions and recommendations; evaluating potential enforcement cases; reviewing inspection and investigation reports and confirmatory action letters; initiating and processing notices of violations, civil monetary penalties, and various enforcement orders; reviewing draft regulations, inspection guidance, and other initiatives for their effect on the enforcement process and providing advice and guidance on related enforcement issues; and providing assistance to the Office of Nuclear Reactor Regulation on orders modifying licenses.

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; however, previous enforcement activity has been as follows:

REACTOR SPECIAL AND INDEPENDENT REVIEWS, INVESTIGATIONS, AND ENFORCEMENT: Enforcement

| <u>Fiscal Year</u> | <u>Reactor Enforcement Actions Considered</u> | <u>Resulting Civil Penalties</u> |
|--------------------|---|--------------------------------------|
| 1991 | 108 | 40 |
| 1992 | 129 | 45 |
| 1993 | 111 | 45 |

On the basis of this enforcement activity, the NRC expects to consider approximately 100 to 130 reactor enforcement actions during FY 1995.

The Office of Enforcement will continue to develop and promulgate enforcement policy, including the maintenance of an enforcement manual. Commission directives will continue to be reviewed for their effect on the enforcement policy or program, and changes will be made as necessary.

Data generated in the enforcement process will be used to evaluate reactor licensees in order to identify weak performers who require greater NRC oversight.

**NUCLEAR MATERIAL AND LOW-LEVEL
WASTE SAFETY AND SAFEGUARDS
REGULATION**

**NUCLEAR MATERIAL AND LOW-LEVEL WASTE SAFETY AND
SAFEGUARDS REGULATION PROGRAM**

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

Total FY 1995 Estimate \$66,556,000

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|--|--------------------|---------|---------------------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 36,491 | 37,766 | 37,766 | 40,982 | 3,216 |
| Program Support | 18,831 | 22,166 | 21,440 | 23,070 | 1,630 |
| Travel | 2,126 | 2,421 | 2,421 | 2,504 | 83 |
| Total | 57,448 | 62,353 | 61,627 | 66,556 | 4,929 |
| Budget Authority by Program Element (\$K) | | | | | |
| Nuclear Materials | 34,686 | 40,424 | 39,698 ¹ | 43,893 | 4,195 |
| Low-Level Waste | 19,493 | 18,392 | 18,392 | 18,810 | 418 |
| Materials Special and Independent Reviews, Investigations, and Enforcement | 3,269 | 3,537 | 3,537 | 3,853 | 316 |
| Total | 57,448 | 62,353 | 61,627 | 66,556 | 4,929 |
| Full-Time Equivalent Employment by Program Element | | | | | |
| Nuclear Materials | 322 | 333 | 333 | 341 | 8 |
| Low-Level Waste | 113 | 104 | 104 | 105 | 1 |
| Materials Special and Independent Reviews, Investigations, and Enforcement | 35 | 33 | 33 | 33 | 0 |
| Total | 470 | 470 | 470 | 479 | 9 |

¹The proposed FY 1994 rescission includes a \$726,000 reduction in Nuclear Materials Research.

**NUCLEAR MATERIAL AND LOW-LEVEL WASTE SAFETY AND SAFEGUARDS
REGULATION**

| Changes in Budget Authority (\$K) | | | |
|---|--------------------------------------|----------------------|-------|
| Program Element | FY 1995 Change from FY 1994 Proposed | | |
| | Current Services | Program Requirements | Total |
| Nuclear Materials | 2,190 | 2,005 | 4,195 |
| Low-Level Waste | 822 | -404 | 418 |
| Materials Special and Independent Reviews, Investigations and Enforcement | 199 | 117 | 316 |
| Total | 3,211 | 1,718 | 4,929 |

EXPLANATION OF RESOURCE CHANGES FOR CURRENT SERVICES

The increase for personnel compensation reflects the costs of the 1.6 percent Federal sector pay increase expected in CY 1995; the full cost of the 4.23 percent locality pay increase which was effective January 1994; within-grade increases; and several minor adjustments, such as the increased number of staff entering the Federal Employees Retirement System and benefits cost increases. The increase for program support and travel reflects inflation estimated at 2.9 percent in FY 1995.

EXPLANATION OF RESOURCE CHANGES FOR PROGRAM REQUIREMENTS

Nuclear Materials

The resource increase in FY 1995 primarily reflects increases for the NRC to implement new responsibilities resulting from the National Energy Policy Act of 1992 in preparation for regulating gaseous diffusion uranium enrichment facilities under the control of the U.S. Enrichment Corporation; to implement its Medical Management Plan to provide programmatic improvements in the regulation of nuclear medicine; and to conduct an independent in-depth review of the adequacy and appropriateness of NRC's basic medical use regulatory rules, policies, practices, and procedures.

Low-Level Waste

The resource decrease in FY 1995 is primarily due to the completion of initial performance assessments for evaluating the long-term performance of low-level waste disposal facilities.

NUCLEAR MATERIAL AND LOW-LEVEL WASTE SAFETY AND SAFEGUARDS REGULATION

DESCRIPTION OF PROGRAM

The nuclear material and low-level waste safety and safeguards regulation program encompasses all NRC public health and safety, safeguards, enforcement, investigations, advice, data analysis, environmental, and research activities related to the licensing, and inspection of nuclear fuel cycle facilities, users of nuclear materials, the transportation of nuclear materials, the safe management and disposal of low-level radioactive wastes, the safe interim storage of spent fuel, and uranium recovery activities and related remedial actions. The program also includes an integrated agency effort to oversee decontamination and decommissioning of facilities and sites associated with NRC-licensed activities. Within this program, the NRC will assess the domestic safeguards environment and conduct safeguards reviews for all licensing activities involving the export of special nuclear material.

This program comprises three major program elements: nuclear materials; low-level waste; and materials special and independent reviews, investigations, and enforcement.

The funds and staff for each of the three program elements are described on pages 97 through 122. The program support funds are allocated for work done by DOE contractors and commercial contractors for the NRC. The narrative that follows describes these program elements and addresses the reasons why the resources are needed.

**NUCLEAR MATERIAL AND LOW-LEVEL WASTE SAFETY AND SAFEGUARDS
REGULATION**

Nuclear Materials Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 25,000 | 26,757 | 26,757 | 29,175 | 2,418 |
| Program Support | 8,146 | 11,941 | 11,215 | 12,686 | 1,671 |
| Travel | 1,540 | 1,726 | 1,726 | 1,832 | 106 |
| Total | 34,686 | 40,424 | 39,698 | 43,893 | 4,195 |
| Budget Authority by Program Activity (\$K) | | | | | |
| Nuclear Materials Safety | 19,020 | 19,047 | 19,047 | 21,442 | 2,395 |
| Nuclear Materials Research | 4,160 | 7,124 | 6,398 | 7,416 | 1,018 |
| Fuel Cycle Safety and Safeguards | 11,506 | 14,253 | 14,253 | 15,035 | 782 |
| Total | 34,686 | 40,424 | 39,698 | 43,893 | 4,195 |
| Full-Time Equivalent Employment | | | | | |
| | 322 | 333 | 333 | 341 | 8 |

This program element is conducted to ensure that licensees protect the public health and safety, worker safety, and the environment when radioactive material is handled and used during normal operations and abnormal events and includes research and regulation development conducted in support of those goals. This program element is also conducted to ensure that adequate regulations are in place so that licensees transport nuclear materials in packages that provide a high degree of safety, and the licensees deter, detect, and protect against radiological sabotage, theft, diversion, or unauthorized production of special nuclear material at nuclear fuel cycle facilities and in transport. In addition, NRC's international safeguards responsibilities are carried out within this program element. This program element comprises three major activities: nuclear materials safety, nuclear materials research, and fuel cycle safety and safeguards.

NUCLEAR MATERIAL AND LOW-LEVEL WASTE SAFETY AND SAFEGUARDS REGULATION: Nuclear Materials

Nuclear Materials Safety Activity

This activity comprises NRC (1) certification of transport container package designs, (2) efforts to deter, detect, and protect against radiological sabotage, theft, and diversion in transport and (3) licensing, inspection, and regulatory oversight of the interim storage of spent fuel outside reactor sites, and the safe interim storage of spent fuel. This activity is conducted 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. This activity includes (1) the evaluation of transport package applications and issuance of package certifications, (2) the inspection of licensee's quality assurance and control programs for fabricating, packaging, and shipping radioactive materials, and (3) the NRC licensing and inspection of spent fuel storage activities outside power reactor owner controlled area. The NRC transportation activities are closely coordinated with those of the Department of Transportation, and as appropriate, with DOE and FEMA. The spent fuel storage activities require detailed health, safety, and environmental reviews and inspections of licensee procedures and facilities to ensure safe operations. As part of inspections focused on other regulatory program areas, the NRC will conduct approximately 1,200 transport-related safety inspections of nuclear material, fuel, and reactor facility licensees during FY 1995. In addition, during FY 1995, the NRC will conduct approximately 10 inspections of the implementation of quality assurance programs by users, suppliers, and fabricators of NRC-certified transport packages and will also conduct inspections of dry storage and material vendors.

The NRC will complete the evaluation of approximately 85 container design applications (new, amendment, and renewal) during FY 1995. These applications are submitted by commercial vendors for transport of large quantities of radioactive material.

The DOE system for inventory and forecast of spent fuel and high-level radioactive waste generation will continue to be monitored closely to enable timely and adequate waste management and early warning of capacity problems. The NRC will continue to maintain awareness of any potential delays in the DOE waste disposal program. In FY 1995, the NRC will conduct inspections of spent fuel storage facilities and onsite inspections of concrete vaults and casks at reactors.

The NRC will complete the evaluation of approximately 20 transport safeguards plans for shipments of special nuclear material during FY 1995. The NRC will also continue to perform surveys of routes proposed for shipments of nuclear material and relay to the Department of Transportation notifications received from licensees and carriers of planned import, export, or domestic shipments of nuclear material.

NUCLEAR MATERIAL AND LOW-LEVEL WASTE SAFETY AND SAFEGUARDS REGULATION: Nuclear Materials

This activity also comprises NRC licensing and inspection of approximately 7,000 medical, academic, industrial, and commercial users 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 testing, production of radiopharmaceuticals, fabrication of such commercial products as smoke detectors, and evaluation of sealed sources and devices. Detailed health and safety reviews and inspections of licensee procedures and facilities are performed to provide reasonable assurance of safe operations and the development of safe products.

The NRC will complete the review of approximately 4,400 to 4,600 applications for new licenses, license amendments, license renewals, and sealed source and device designs for the use of radioactive material during FY 1995. The NRC will also conduct preapproval tests of new sealed sources and devices and technologies and perform tests of any products where generic problems may occur.

During FY 1995, the NRC will continue to implement the Medical Management Plan to provide programmatic improvements in the medical area for licensing and inspection guidance, rulemaking and to conduct other analyses and evaluations as needed. During FY 1995, the National Academy of Sciences will conduct an independent in-depth review of regulatory rules, policies, practices and procedures to assess whether NRC's current framework for medical use of byproduct material is appropriate to fulfill statutory responsibilities to protect the public health and safety.

The agency will conduct approximately 2,400 routine health and safety inspections and closeout inspections of materials licensees during FY 1995. 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.

During FY 1995, the NRC will continue to track and evaluate the need for additional controls as appropriate for general licensees. In FY 1995, the NRC will continue working with the American Society of Nondestructive Testing, the State of Texas, and others to improve radiography safety. The NRC will also continue to conduct inspections at temporary and field radiography job sites where actual operations are being performed.

The nuclear materials safety activity also includes the review of licensee operational data and incident response coordination and training for safety events involving nuclear materials. The NRC will continue to review and analyze operational safety data received from nuclear materials licensees. In FY 1995, the NRC will continue to evaluate the operational

NUCLEAR MATERIAL AND LOW-LEVEL WASTE SAFETY AND SAFEGUARDS REGULATION: Nuclear Materials

performance of materials licensees and also assess the accuracy, consistency, and appropriateness of the performance measures.

The NRC will maintain the capability to respond to and evaluate safety events involving the use and transport of nuclear materials. On the basis of licensee performance and the associated levels of perceived risk, it will increase regulatory oversight of licensees that have experienced problems. Previous events include a number of lost and damaged radioactive gauges, radioactive materials appearing in recycled metal scrap, and medical misadministrations of nuclear materials.

The NRC will continue to maintain its capabilities to respond to unusual nuclear emergencies by training emergency response staff and will prepare for and participate in exercises involving various accident scenarios at the NRC Operations Center. Radiological contingency planning and coordination with the Federal Emergency Management Agency (FEMA) and the Agreement States will continue during FY 1995.

Nuclear Materials Research Activity

This activity includes efforts associated with developing (1) human performance criteria; (2) regulations, policy statements, and regulatory guides needed for the licensing of fuel cycle facilities, the safeguarding of facilities and special nuclear materials, the transportation of radioactive materials, and the medical, academic, and industrial use of radioactive materials; and (3) the technical basis for radiation protection standards for minimizing the adverse consequences of exposure to ionizing radiation from licensed nuclear materials activities. Fuel cycle regulatory products ensure that workers and the public are protected against hazards associated with licensed activities at uranium hexafluoride production, uranium enrichment, and reactor fuel fabrication facilities. Safeguards regulatory products ensure the physical security and accountability of strategic special nuclear material and the physical protection of licensed facilities. Transportation regulatory products ensure that certified package designs protect workers and the public during shipment of materials. Medical, academic, and industrial regulatory products help to ensure the safety of medical diagnosis and therapy, medical and biological research, academic training and research, industrial gauging and nondestructive testing, radiopharmaceutical production, and fabrication of consumer products such as smoke detectors.

In FY 1995, the Office of Nuclear Regulatory Research will continue to refine research needs of the Office of Nuclear Material Safety and Safeguards based on completion of research projects addressing human performance deficiencies in teletherapy and remote

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afterloader brachytherapy devices. The NRC will also continue research projects as needed to develop a technical basis for regulatory guidance on the specific factors that contribute to human error among materials licensees.

The development of materials rules and regulatory guidance is managed centrally in the Office of Nuclear Regulatory Research to ensure (1) rules are developed in a timely manner, (2) regulatory impact analyses are developed in support of materials-related rulemaking and other generic requirements, and (3) the results of NRC and other research are incorporated in materials regulations, policy statements, and guides for use in the licensing process. Semiannually, the NRC will perform an integrated review of the priorities and schedules for all rulemaking actions, which include those related to material licensees and radiation protection and health effects, to ensure that the highest priority rulemaking efforts are conducted. As final rules are completed, uninitiated rulemaking actions having the highest priority will be selected for rulemaking actions. In addition, the NRC will use its new improved process for early and continuing involvement of Agreement States in the development of rulemakings and other regulatory efforts that affect facilities licensed under 10 CFR Parts 30, 40, 61, and 70 or their State equivalents by obtaining Agreement State input on rulemaking issues involving compatibility as soon as practically achievable and throughout the process.

During FY 1994-1995, the NRC will conduct ten rulemakings applicable to materials licensees and issue proposed and/or final rules and the associated regulatory guides where applicable for the following:

- (1) use of radiopharmaceuticals for medical research, use of biologics containing byproduct materials, and compounding radiopharmaceuticals, 10 CFR Part 35
- (2) physical security for special nuclear materials in transit, 10 CFR Parts 70, 73
- (3) clarification of reporting of defects and noncompliance for material facilities, 10 CFR Part 21
- (4) pregnancy/nursing status of patients, 10 CFR Part 35
- (5) financial assurance for low-level waste disposal site post-closure monitoring and maintenance, 10 CFR Part 61
- (6) notification of incidents, 10 CFR Part 72
- (7) exemptions from financial assurance requirements for teletherapy licensees and for KR-85, 10 CFR Parts 30, 35
- (8) physical protection for certain storage of spent fuel, 10 CFR Parts 50, 72
- (9) quality assurance for fuel cycle facilities, 10 CFR Part 70
- (10) physical fitness programs for security personnel at Category I fuel cycle facilities, 10 CFR Part 73.

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Also during FY 1994-1995, the NRC will develop approximately ten regulatory impact analyses (RIA) per year in support of materials-related rulemaking and other generic requirements.

This activity also includes research on materials radiation protection and health effects that is being conducted to ensure that workers and the general public are adequately protected from the adverse consequences of exposure to ionizing radiation from licensed materials activities. Efforts include developing nuclear materials radiation protection standards and guidelines for implementing the standards in the licensing process.

During FY 1994-1995, the NRC will conduct four materials radiation protection and health effects rulemakings and issue proposed and/or final rules and the associated regulatory guides where applicable for the following: (1) authorization to use sealed sources in well logging, 10 CFR Part 39, (2) restrict accessible air gap between the radioactive source and the detector for generally licensed devices, 10 CFR Parts 31,32, (3) radiography and radiation safety requirements for radiography operations, 10 CFR Part 34, and (4) dose limits for patients and members of the public, 10 CFR Parts 20, 35.

In FY 1995, the NRC will continue efforts relating to criticality, radiological, and industrial safety for fuel cycle activities (e.g., revision of a DOE criticality manual for users, and validation and verification of heat transfer codes for evaluation of dry spent fuel storage casks) and for NRC safety oversight of fuel cycle licensees. On completion of the Louisiana Energy Services licensing process, those issues that appear to warrant a rulemaking effort will be identified and the rulemaking will be initiated. To improve the fuel facility licensing process, during FY 1994-1995, NRC will issue: (1) a proposed and final rule to revise 10 CFR Part 70; (2) proposed and final regulatory guides on standard format and content for the health and safety sections of license renewal applications for uranium processing and fuel fabrication and for uranium hexafluoride production; and (3) a proposed and final regulatory guide on standard format and content for the fire protection section of license applications for fuel cycle facilities and for nuclear criticality safety training.

During FY 1994-1995, the NRC will develop and implement testing and accreditation criteria for extremity dosimetry and develop performance criteria, standards, and guidance on in vivo and in vitro bioassay assessment. The NRC will also continue to monitor ongoing health effects research and operating experience and develop appropriate materials-related regulations or regulatory guidance to address identified needs based on this information. Also, NRC radiation protection and health effects research described in the reactor safety research program (such as reduction in occupational worker dose limits, and placental

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transfer and other parameters affecting dose to the embryo or fetus) will be equally applicable to materials licensees.

During FY 1994-1995, due to the enactment of the National Energy Policy Act of 1992, the NRC will develop and publish regulations consisting of proposed and final rules and regulatory guidance, which will be needed to regulate the public health, safety, and safeguards aspects of the gaseous diffusion facilities.

Fuel Cycle Safety and Safeguards Activity

This activity comprises NRC licensing, inspection, and regulatory oversight of the nuclear fuel cycle after milling. It includes (1) the conversion of uranium ore concentrates (yellowcake) into uranium hexafluoride before enrichment, (2) enrichment, (3) the development and fabrication of reactor fuel, and (4) the safe storage of fresh fuel at reactor sites until the reactor core is initially loaded with fuel. This requires detailed health, safety, and environmental reviews and inspections of licensee procedures and facilities to ensure safe operations.

The NRC will complete the review and evaluation of approximately 80 license applications (new, amendment, and renewal) and topical reports for nuclear fuel cycle facilities during FY 1995. The NRC will also complete the evaluation of approximately 70 evaluations of new and amended safeguards plans for these facilities. During FY 1995, the NRC will complete the review and evaluation of international safeguards and physical security aspects of approximately 130 export license applications. The NRC will also review approximately 50 detailed plans and procedures submitted by applicants for maintaining accountability of material and for detecting theft, diversion, or unauthorized production of special nuclear material. Routine scheduled health, safety, and safeguards inspections of approximately 25 fuel cycle facilities or sites will be conducted during FY 1995 to provide reasonable assurance that unsafe conditions, involving unnecessary and harmful radiation exposure to employees or the public do not develop and that radioactive materials are properly controlled to prevent a nuclear criticality accident. NRC's safeguards inspections are directed at ensuring that licensees comply with NRC requirements pertaining to, for example, area access control; detection, annunciation, and communications systems; barriers; material control and accounting systems; process monitoring systems; contingency plans for responding to threatening situations; and trained armed response personnel.

In FY 1995, the NRC will continue efforts to upgrade the fuel cycle facility program with a major revision of 10 CFR Part 70 and its supporting regulatory guidance. The final rule is expected to be published late in FY 1995. The NRC will also refine the inspection

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procedures for inspection of nuclear criticality and chemical safety and continue a training program for staff and licensees to strengthen the program.

This activity also comprises (1) certification and regulatory oversight of the two United States Enrichment Corporation (USEC) facilities at Portsmouth, Ohio and Paducah, Kentucky, and (2) health and safety licensing reviews and inspections for the construction and operation of a centrifuge uranium enrichment facility in Homer, Louisiana.

In FY 1994, due to the enactment of the National Energy Policy Act of 1992, the NRC will develop final regulatory standards consisting of rules and guidance, which will be needed to regulate the public health, safety, and safeguards aspects of the gaseous diffusion facilities. The final regulatory standards will be published in FY 1995. The United States Enrichment Corporation is required to apply to the NRC for a certificate of compliance with these standards at least once a year. In FY 1995, the NRC will begin the review of the first certification to determine whether the facilities are in compliance with the standards.

During FY 1995, resident inspectors at each gaseous diffusion uranium enrichment facility will continue to conduct ongoing health, safety and safeguards inspections of plant operations. The NRC will also develop safety inspection procedures, establish training requirements for NRC staff who will be involved in the regulation of these facilities, and conduct site visits. NRC will coordinate incident response for events, respond to allegations, and support event investigations. NRC will also review operational data for each facility.

This activity also consists of work required to regulate safeguards programs for import and export of special nuclear materials. It will also perform safety and safeguards licensing reviews and inspections for the construction and operation of a centrifuge uranium enrichment facility in Homer, Louisiana.

The Fuel Cycle Safety and Safeguards activity includes the following efforts: safeguards incident response training; joint NRC and DOE operation of the national data base and information support system for tracking nuclear material - the nuclear materials management and safeguards system; strengthening of International Atomic Energy Agency (IAEA) safeguards; and implementation of the safeguards agreement between the United States and IAEA. In addition, this activity assesses all reported information on potential or actual threats worldwide; adversary characteristics, intentions, and capabilities of terrorist group activities; and any relevant domestic or foreign events of a nuclear or non-nuclear nature.

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Evaluation of the threat environment is a continuing process. An assessment of the validity of the NRC design-basis threat definitions will be formally documented semiannually. The NRC information assessment team will also assess reported threats to NRC licensees to help provide a timely basis for an appropriate response.

During FY 1995, the NRC will continue the review and evaluation of threat information and the analysis of trends. The NRC will also publish annual revisions to the Safeguards Summary Event List (NUREG-0525).

During FY 1995, the NRC will continue to participate with other Federal agencies in the development of bilateral agreements governing the export and import of nuclear equipment and materials. The NRC will also continue to participate as a member of the interagency U.S. Physical Protection Review Team 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 concerned with nuclear nonproliferation. The NRC will also continue to issue license amendments and review and approve compilations of data on nuclear materials transactions and inventory data for these facilities. The NRC will assist IAEA in inspection activities at selected U.S. nuclear facilities, as required. The NRC will also continue to participate in the management and direction of the Technical Support Coordinating Committee, the U.S. Interagency Action Plan Working Group, and other efforts associated with IAEA safeguards. During FY 1995, the NRC will also assist the former Soviet Union States of Russia, Ukraine, Kazakhstan, and Belarus in developing and implementing a national system of accounting and control of nuclear material. 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.

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Low-Level Waste Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 8,773 | 8,357 | 8,357 | 8,984 | 627 |
| Program Support | 10,299 | 9,590 | 9,590 | 9,449 | -141 |
| Travel | 421 | 445 | 445 | 377 | -68 |
| Total | 19,493 | 18,392 | 18,392 | 18,810 | 418 |
| Budget Authority by Program Activity (\$K) | | | | | |
| Low-Level Waste Disposal | 3,117 | 2,694 | 2,694 | 2,777 | 83 |
| Low-Level Waste Research | 8,613 | 8,336 | 8,336 | 8,476 | 140 |
| Uranium Recovery | 2,554 | 1,866 | 1,866 | 1,847 | -19 |
| Decommissioning | 5,209 | 5,496 | 5,496 | 5,710 | 214 |
| Total | 19,493 | 18,392 | 18,392 | 18,810 | 418 |
| Full-Time Equivalent Employment | 113 | 104 | 104 | 105 | 1 |

This program element is conducted to ensure the effective and efficient discharge of NRC responsibilities to regulate low-level waste (LLW) in order to protect the public health and safety and an integrated agency program to oversee decontamination and decommissioning of facilities and sites associated with NRC-licensed activities. The LLW program element functions are mandated by the Low-Level Radioactive Waste Policy Act (LLRWPA) of 1980, the Low-Level Radioactive Waste Policy Amendments Act (LLRWPA) of 1985, the Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978, and portions of the West Valley Demonstration Project Act of 1980.

The LLRWPA makes each State responsible for providing for the disposal of low-level waste (LLW) generated within its borders. This is expected to result in approximately 12 new LLW disposal facilities as States form compacts to dispose of waste. The LLRWPA gives the NRC responsibility for defining LLW, licensing the Federal disposal of commercial LLW that is greater than Class C (Class C waste is defined in 10 CFR

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Part 61), granting individual generators of waste emergency access to non-Federal disposal facilities, providing regulatory guidance on alternatives to conventional shallow land burial, and ensuring that its reviews of LLW disposal facility applications are completed to the extent practicable within 15 months after formal receipt, excluding the hearing process.

The UMTRCA directs the NRC to develop regulations and to license the disposal of mill tailings from licensed uranium mills. Congressional action also directed that the NRC regulations be amended to conform to the Environmental Protection Agency (EPA) standards for these wastes. The UMTRCA directs the NRC to approve licensee plans for disposing of mill tailings, to review and concur in the site-by-site implementation of the Department of Energy (DOE) program for remedial actions concerning mill tailings, and to license DOE possession and long-term care of these sites.

This program element comprises four major activities: low-level waste disposal, low-level waste research, uranium recovery, and decommissioning.

Low-Level Waste Disposal Activity

This activity constitutes the NRC's licensing and inspection effort for those 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.

The NRC also will provide technical assistance to the Agreement States; the LLW compacts; State regulatory bodies; and the States of South Carolina and Washington, where the existing LLW disposal sites are located. On request, the NRC will provide technical assistance for Agreement States that are in various stages of developing and implementing plans to regulate new LLW disposal facilities. In FY 1995, the NRC will continue to provide precertification guidance to potential NRC applicants for LLW disposal facility licenses.

In FY 1994, the NRC will issue a proposed rule on Financial Assurance for LLW Disposal Site Post-Closure Monitoring and Maintenance, 10 CFR Part 61 to provide a financial surety arrangement for long-term care. The final rule will be issued in FY 1995. In FY 1995, the NRC will review two topical reports on waste solidification and waste packaging.

During FY 1995, the NRC will augment the existing LLW performance assessment modeling capability for timely completion of reviews as mandated by the LLRWPA by (1) improving NRC's in-house capability to develop, conduct, and evaluate performance assessments; (2) continuing modeling to improve or replace codes as experience dictates; and

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(3) developing regulatory guidance for potential licensees and Agreement States on LLW disposal. Performance assessment products will be made available to States and potential licensees. The NRC will continue to interact with EPA to resolve issues of mutual concern that relate to the regulation of radionuclides to avoid unnecessary duplication of regulatory requirements, such as harmonization of risk goals and coordination of groundwater protection strategies. It will also continue to work with EPA on matters such as LLW, mixed wastes, and the Clean Air Act amendments.

During FY 1995, the NRC will continue to conduct and improve the inspection program at waste generator facilities and at operating and developing LLW disposal facilities. This program will address construction and operation of disposal facilities and radiation protection and environmental surveillance. Under this program, inspection procedures applied in assessing generator compliance with 10 CFR Part 61 waste form requirements will be updated. Also during FY 1995, LLW inspections for waste form and classification will continue at reactor sites and for special nuclear material at Hanford, Washington, and at Barnwell, South Carolina.

Low-Level Waste Research Activity

This activity includes efforts associated with confirming NRC's understanding of the processes and phenomena that may affect the safety of LLW disposal and ensuring that the regulatory framework is adequate for the long-term protection of the public health and safety and the environment. LLW disposal issues include waste form stability, waste package integrity, radionuclide transport through the disposal facility environment, and long-term doses resulting from radionuclide releases beyond the disposal facility environment.

LLW disposal research is being conducted to (1) support the development of regulatory criteria for use in the licensing process; (2) provide the technical base for review of license applications for LLW disposal facilities; (3) provide the technical base for review of topical reports on waste form stability; and (4) assess licensee compliance with regulatory requirements, particularly those on radiation dose limits. The following factors make performing the needed research in a timely manner more urgent and complex: (1) The LLRWPA set a firm schedule for establishing new LLW disposal facilities within individual States or State compacts; (2) the LLRWPA requires the NRC to provide technical support to the States in their LLW licensing and regulatory programs; and (3) certain of the disposal methods, other than shallow-land burial, chosen by the States must be critically examined by well-focused research to determine their acceptability.

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Materials and engineering research is being conducted to independently confirm the technical basis used to estimate releases from LLW disposal facilities. The States are developing disposal facilities whose performance relies more heavily on engineered materials, such as concrete and bitumen, than does the present generation of these facilities. The research results will be used to predict the long-term performance of these materials in LLW disposal facilities.

During FY 1995, the NRC will conduct research studies on the radionuclide retardation capabilities of concrete and backfill materials. In FY 1995, the NRC will issue the results of research on the performance of engineered covers using resistive and conductive layer barriers, providing a regulatory basis for findings on compliance of cover performance with the requirements of 10 CFR 61.51. Also in FY 1995, the NRC will initiate a probabilistic study of the reliability of engineered covers and concrete for long-term LLW disposal performance. During FY 1995, the NRC will conduct laboratory studies to develop test procedures for evaluating microbial effects on stabilized LLW with respect to requirements of 10 CFR 61.56(b).

During FY 1995, the NRC will continue to confirm the technical bases on LLW form characteristics (including chemical and radiological composition of waste streams) and stability. Also during FY 1995, the NRC will continue studies of stabilized and solidified LLW, and will shift the emphasis to borated wastes, ion-exchange resins, and filter sludges from nuclear power stations. Studies to confirm NRC technical positions will continue during FY 1995 by comparing actual solidified LLW from nuclear power plants with the requirements of 10 CFR Part 61 through the use of testing methods specified in NRC technical positions.

During FY 1995, the NRC will continue research to identify and quantify the long-lived and hard-to-measure radionuclides found in LLW, to characterize activated metals, and to assess the chemical content of LLW. During FY 1995, the NRC will also continue research on the behavior and composition of radionuclides and complexants in nuclear power plant decontamination concentrates and the role played by chelating agents in enhancing the mobility of radionuclides released from such waste.

During FY 1995, the NRC will continue field lysimeter studies to evaluate radionuclide releases from solidified LLW buried in soils at two sites in the Eastern United States. During 1995, the NRC will conduct laboratory tests on the effects of radiation on solidified LLW consisting of decontamination waste and filter backwash from nuclear power plants to determine the stability and leaching characteristics of such waste.

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In FY 1994, the NRC will initiate laboratory tests to evaluate the effects of irradiation biodegradation, and microbial activity on the structural capability of high-integrity containers made of composite materials. These tests will be continued in FY 1995 and will ensure that these containers under actual burial conditions meet NRC requirements. In FY 1995, the NRC will issue laboratory results on the durability of superplasticizers in concrete.

Hydrology and geochemistry research is being conducted to refine the understanding of the geochemical, biologic, and hydrologic processes that control the environmental transport of radionuclides, particularly in groundwater. The research results will be used to support licensing decisions for new LLW disposal facilities.

In FY 1995, the NRC will continue to investigate Carbon-14 transfer and uptake coefficients in plants for the soil-to-root and air-to-leaves pathways for evaluating radionuclide exposures at LLW disposal sites. This is needed to revise the Carbon-14 transfer coefficients in Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," which are only highly conservative estimates. During FY 1995, the NRC will verify this information at actual LLW sites and will factor the results into performance assessment models on population doses.

In FY 1995, the NRC will continue studies involving activated materials and waste streams to include leaching of radionuclides, determining scaling factors for hard-to-measure radionuclides, addressing long-lived radionuclides, and assessing measurement capabilities to determine radionuclides. During FY 1995, the NRC will conduct a mechanistic assessment of soil geochemistry in controlling radionuclide transport. Particular attention will be given to surface effects on silicate minerals. To complement the work on soil geochemistry, during FY 1995, the NRC will continue and complete an assessment of the role played by organic complexants and microparticulates in enhancing radionuclide movement. The results of this research will permit more realistic performance assessments of LLW disposal.

During FY 1995, the NRC will continue and complete the validation of a coupled hydrochemical transport code that is part of the Breach, Leach, and Transport code dealing with radionuclide migration in the disposal trench, by comparison with laboratory and field experiments. During FY 1995, the NRC will conduct large-scale field experiments to assess flow and transport in heterogeneous media on a scale relevant to LLW sites to evaluate flow and transport models to be used in LLW performance assessment studies. This builds on earlier work at Las Cruces, New Mexico, to assess the present capability of modeling

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groundwater flow and radionuclide transport in the unsaturated zone at LLW disposal sites. This work will be used for validating performance assessment models.

In FY 1994, the NRC will modify the Breach, Leach, and Transport model for generating inventory-based LLW source terms to (1) complete degradation models of alternative waste forms such as high-integrity containers and high-density polyethylene containers, with emphasis on the release of radionuclides from partially failed containers, and (2) incorporate a coupled hydrochemical transport model. Beginning in FY 1995, the NRC will factor the results into performance assessment methodology. In FY 1995, the NRC will also issue a report that documents performance assessment models developed for analyzing system performance of current LLW disposal facility designs.

During FY 1995, the NRC will complete the testing of a radionuclide retardation/transport model against experimental laboratory, lysimeter, and field data and factor the results into performance assessment models of radionuclide transport. During FY 1995, the NRC will assess and test the next generation of groundwater models for LLW disposal sites and decommissioned facilities. Emphasis will be given to unsaturated zone flow and transport models. Particular attention will be given to processes and conditions indicative of LLW sites and decommissioned facilities.

Compliance assessment and modeling research is being conducted to independently confirm the technical basis used to estimate the release and transport of radionuclides from LLW disposal facilities. The research results are inherently coupled with the materials and engineering, and the hydrology and geochemistry activities and will be used to support licensing decisions for new LLW disposal facilities.

In FY 1994, the NRC will continue research on incorporating concrete degradation in LLW performance assessment modeling and publish the results as a NUREG/CR. During FY 1995, the NRC will emphasize the development of performance assessment methods that will serve as a vehicle for integrating research on hydrology, waste form and waste package behavior, engineered facility performance, source term quantification, and radionuclide transport, as well as provide staff capability to conduct performance assessments.

During FY 1994-1995, the NRC will conduct proposed and final rulemakings on the LLW shipment manifest information and reporting, 10 CFR Parts 20, 61, and on requirements for government land ownership, 10 CFR Part 61.

This activity also includes environmental policy and decommissioning research being conducted to develop and coordinate radiation protection standards and guidelines for the

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decommissioning of facilities and sites associated with NRC-licensed activities. The research results will be used to establish criteria for releasing areas containing radioactive material and to evaluate potential pathways and doses and risks from public exposure to radioactive material.

During FY 1994-1995, the NRC will conduct seven rulemakings applicable to environmental policy and decommissioning and issue a proposed and/or final rule and the associated regulatory guidance where applicable for the following:

- (1) radiological criteria for decommissioning of nuclear facilities, 10 CFR Part 20
- (2) timeliness in conduct of decommissioning of material facilities, 10 CFR Parts 30, 40, 70, 72
- (3) sewer disposal of byproduct material, 10 CFR Part 20
- (4) licensing of source material, 10 CFR Part 40
- (5) change to Part 40, Appendix A, uranium tailings regulation conforming NRC requirements to EPA standards
- (6) requirements for decommissioning cost estimate updates, 10 CFR Part 50
- (7) funding assurance for sites in decommissioning, 10 CFR Parts 30, 40, 50, 70, 72.

Semiannually, the NRC will perform an integrated review of the priorities and schedules for all rulemaking actions, which include those related to LLW disposal and environmental policy and decommissioning, to ensure that the highest priority rulemaking efforts are conducted. As final rules are completed, uninitiated rulemaking actions having the highest priority will be selected for rulemaking actions.

During FY 1994-1995, the NRC will conduct (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 on the appropriateness of criteria for releasing areas containing buried radioactive materials (regulatory guidance will be developed as necessary). During FY 1994-1995, the NRC will also publish three proposed and/or final regulatory guides on (1) decommissioning recordkeeping for power reactor licensees, (2) standard format and content for submittal of reactor decommissioning plans, and (3) decommissioning recordkeeping for materials licensees.

During FY 1995, the NRC will continue implementation efforts directed at decommissioning activities. The NRC will also issue guidance that will define the doses that would result from surface and volumetric levels of radioactive contamination should facilities and lands

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be released for unrestricted public use. Computational models to be incorporated into the dose modeling strategy will encompass a range of site and source inventory complexities for groundwater flow and transport and air deposition and resuspension processes (including coupling and appropriate calculational codes for dose assessment). In FY 1995, the NRC will enhance and test the calculational models against specific site conditions and residual contamination inventories on a variety of site and inventory data sets through the facility scale, and assess associated uncertainties. During FY 1995, the NRC will reexamine the validity of the criteria and certification amounts based on actual decommissioning costs for nonpower reactor facilities.

During 1995, the NRC will closely coordinate regulatory research with other Federal organizations. For example, the NRC will participate in EPA's interagency task group to prepare Federal guidance on exposure of the public to radiation. One action assigned to this task group is the development of Federal guidance on radiological criteria for decommissioning.

Uranium Recovery Activity

This activity comprises the NRC's licensing and inspection of uranium mills, heap-leaching facilities, ore-buying stations, commercial solution mining, uranium extraction research and development projects, and 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's regulatory guidance to implement the EPA standards for regulating mill tailings; and the site-by-site approval of licensee plans for disposal of mill tailings and other radioactive material.

During FY 1995, the NRC will continue to develop regulatory guidance to implement (1) EPA Title I standards dealing with groundwater and (2) the requirements of Section 274C(4) of the Atomic Energy Act, as amended, to review Agreement State license activities to ensure that all applicable standards and requirements have been met before license termination.

The NRC will complete the evaluation of approximately 60 license applications (new, amendment, and renewal) for uranium recovery facilities during FY 1995. The NRC will review approximately 70 licensee monitoring reports to assess licensee performance. The NRC will also conduct approximately 35 radiological safety inspections and inspections of

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uranium reclamation activities during FY 1995. During these inspections, the NRC will thoroughly review each licensee's program and implementation of license conditions to protect the public health and safety and the environment.

This activity also includes NRC's efforts related to the evaluation of the remedial actions to be taken by DOE at 24 mill tailings piles at 22 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 concurs in DOE'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 DOE for long-term care and site maintenance.

The NRC has already concurred in remedial action plans for 13 of the 22 sites. During FY 1995, the NRC will continue to review and concur in DOE's proposed remedial action plans and related documents. The NRC expects to complete the review of approximately 60 documents during FY 1995. During FY 1995, the NRC will continue to concur in completed remedial actions and long-term surveillance plans for all the sites.

During FY 1995, the NRC will implement a program for dam safety for all NRC licenses and coordinate activities with the Federal Emergency Management Agency. This program was developed to improve the effectiveness of NRC's implementation of the Federal Guidelines on Dam Safety.

Decommissioning Activity

This activity comprises NRC's integrated requirements for the decontamination and decommissioning of facilities and sites associated with NRC-licensed activities. 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.

During FY 1995, the Office of Nuclear Material Safety and Safeguards will continue to manage a program for materials facility decommissioning to review submittals resulting from the decommissioning rule. In FY 1995, approximately 50 financial assurance certifications and funding plans will be reviewed as a part of new, amendment, and renewal license requests.

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During FY 1995, the NRC will review the reactor decommissioning plans for San Onofre 1, Trojan and Big Rock Point.

The NRC will continue to conduct licensing reviews and inspections for shutdown power reactors having a license to possess nuclear material. During FY 1995, the NRC will conduct inspections at three reactor sites that are being decommissioned and are being dismantled or put into a safe storage (SAFSTOR) condition, and will review emergency plan modifications and changes to the technical specifications to reflect the decommissioning mode for all power reactors that have approved decommissioning plans and possession-only licenses. The NRC will also conduct routine inspections at seven power reactors in SAFSTOR.

In FY 1995, the NRC will coordinate with EPA and DOE the evaluation of models and codes to be used to conduct pathway analyses.

During FY 1995, the NRC will continue actions necessary to compel timely cleanup of approximately 50 known material and fuel facility sites listed in the site decommissioning management program (SDMP). This program includes (1) review of site characterization plans; (2) review and approval of the decontamination and decommissioning plans; (3) provision of technical assistance and review of the licensees' performance of decommissioning activities; (4) confirmatory surveys and termination of licenses; (5) review of prior burials of radioactive material under 10 CFR 20.302 and 20.304; (6) development of policy and regulations to ensure efficient and consistent licensing actions so as to minimize future problems with contaminated sites; and (7) implementation of an action plan to encourage and enforce timely cleanup of sites listed in the SDMP.

**NUCLEAR MATERIAL AND LOW-LEVEL WASTE SAFETY AND SAFEGUARDS
REGULATION**

**Materials Special and Independent Reviews, Investigations,
and Enforcement Program Element**

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 2,718 | 2,652 | 2,652 | 2,823 | 171 |
| Program Support | 386 | 635 | 635 | 735 | 100 |
| Travel | 165 | 250 | 250 | 295 | 45 |
| Total | 3,269 | 3,537 | 3,537 | 3,853 | 316 |
| Budget Authority by Program Activity (\$K) | | | | | |
| Analysis and Evaluation of Operational Data | 982 | 1,210 | 1,210 | 1,333 | 123 |
| Atomic Safety and Licensing Board Panel | 83 | 85 | 85 | 91 | 6 |
| Advisory Committee on Nuclear Waste | 383 | 341 | 341 | 356 | 15 |
| External Investigations | 1,009 | 1,142 | 1,142 | 1,266 | 124 |
| Enforcement | 812 | 759 | 759 | 807 | 48 |
| Total | 3,269 | 3,537 | 3,537 | 3,853 | 316 |
| Full-Time Equivalent Employment | | | | | |
| Full-Time Equivalent Employment | 35 | 33 | 33 | 33 | 0 |

This program element covers evaluations of safety concerns involving nonreactor facilities, technical training for NRC staff, review and advice to the Commission on low-level waste management issues, adjudicatory reviews, investigations of wrongdoing by NRC fuel cycle and materials licensees, and enforcement policy and actions in furtherance of the protection of the public health and safety. This program element comprises the following five activities: analysis and evaluation of operational data, Atomic Safety and Licensing Board Panel, Advisory Committee on Nuclear Waste, external investigations, and enforcement.

NUCLEAR MATERIAL AND LOW-LEVEL WASTE SAFETY AND SAFEGUARDS REGULATION

Materials Special and Independent Reviews, Investigations, and Enforcement

Analysis and Evaluation of Operational Data Activity

This activity is conducted to identify, evaluate, and respond to potentially significant events and safety concerns involving nonreactor facilities, based on events reported to the NRC by its licensees, and the Agreement States.

The Office for Analysis and Evaluation of Operational Data oversees the agency's incident and accident investigation programs to ensure that significant and extraordinary safety significant operational events involving materials and fuel facilities licensed by the NRC are investigated in a 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 staff will continue to participate on accident review groups, incident investigation teams and augmented inspection teams, as necessary during FY 1995. In addition, the status and close-out of IIT-initiated staff actions assigned by the Executive Director for Operations (EDO) will be tracked, documented, and the resolution independently assessed.

Incident response activities are conducted to ensure that the NRC is prepared to carry out its role in a radiological emergency at NRC-licensed nonreactor facilities, that the licensees responses are consistent with their responsibilities, and that NRC responses are coordinated with other Federal response activities. The NRC's responsibilities in this area are to (1) manage the NRC Operations Center; (2) develop, maintain, and integrate agencywide response plans and procedures; (3) train agency personnel and organizations in the conduct of their incident response responsibilities; (4) conduct exercises to achieve and test readiness objectives; (5) provide operational support and contract management for agency response activities; (6) evaluate and assess headquarters and regional response capabilities; and (7) provide continuous-shift staffing of the NRC's Operations Center with qualified systems engineers. These engineers receive event information and perform preliminary evaluations to determine those events which warrant prompt agency response and notification (to the Office of Nuclear Material Safety and Safeguards, the regions, senior management, and other Federal agencies) and then make that notification. During this period, the NRC will integrate into its incident response network the two gaseous diffusion facilities subject to NRC regulatory oversight.

NUCLEAR MATERIAL AND LOW-LEVEL WASTE SAFETY AND SAFEGUARDS REGULATION

Materials Special and Independent Reviews, Investigations, and Enforcement

The NRC will maintain continuous coverage (24 hours a day, every day) of the NRC Operations Center for communicating with certain licensed fuel cycle facilities to receive reports of, and to deal with, significant events at these facilities. The NRC will continue to maintain the necessary emergency plans and procedures, computers, and other equipment to provide the capability for agency analysis of events and response to incidents at fuel cycle facilities. Analytical and consequence-assessment tools and procedures necessary for fuel cycle and materials facilities evaluations, consequence projections, protective measures evaluations, airborne monitoring following a release, and information management will continue to be developed and refined as needed during FY 1995. The NRC coordinates its activities with those of State and Federal agencies to ensure an integrated response to events.

A standardized training program on the technical and organizational aspects of emergency response has been developed and continues to evolve. This training will continue to be conducted during FY 1995 for headquarters and regional response personnel. Training is also offered periodically to the Federal agencies that support the NRC as well as the State agencies that the NRC supports during an accident. At least one exercise will be 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 agencies involved in this area.

This activity also provides for the technical training of NRC technical staff, including Operations Center duty officers, licensing project managers, technical reviewers, and Agreement State personnel. Training is provided on a space-available basis for other Federal, State, and foreign government employees. Courses are offered in specialized technical areas, such as safeguards, nuclear materials and fuel cycle technology, radiation protection, and inspection and examination techniques.

The specialized technical training curriculum will continue to be provided to ensure appropriate coverage in specialized areas. During FY 1995, this curriculum will continue to include approximately 60 courses ranging in duration from 1 day to 5 weeks. Emphasis will continue to be placed on nuclear materials safety and fuel cycle program development and training. The curriculum will continue to be modified in the nuclear materials, radiation protection, fuel cycle technology, and safeguards areas through FY 1995.

This activity also includes the evaluation of operational experience. Operational experience from NRC licensees and Agreement States is reviewed to identify generic issues resulting

NUCLEAR MATERIAL AND LOW-LEVEL WASTE SAFETY AND SAFEGUARDS REGULATION

Materials Special and Independent Reviews, Investigations, and Enforcement

from significant events or situations that warrant detailed evaluation. These issues are further analyzed to assess the root causes of the identified deficiency and the adequacy of corrective actions implemented and planned and to identify those safety concerns that may warrant regulatory attention. Operational events, such as overexposure to radioactive materials and medical misadministrations of nuclear material, are included in this review.

The NRC will complete the review and analysis of approximately 2,000 nuclear material event and inspection reports during FY 1995. These reports are associated with the use, transportation, safeguarding, and disposal of nuclear materials.

Those material licensee events that are considered to be significant from the standpoint of the public health and safety will be reported to the Commission with recommendations that they be considered as "abnormal occurrences" (AOs). On a quarterly basis, AOs will be reported to the Congress and the public. During FY 1995, the NRC will complete the revision of AO criteria for reporting medical misadministrations and revise AO criteria for overexposure events to make the dose criteria consistent with the new 10 CFR Part 20.

The NRC will continue to place emphasis on the investigation of root causes, the contribution of human factors, and the determination of the risk-significance of operational events. Additional emphasis will be placed on overexposure events resulting from therapy misadministrations. By emphasizing the underlying causes of significant operating events and the practices that can prevent recurrence, the lessons of experience can be more effectively communicated to the nuclear industry to improve safety. Videotapes in various areas such as nuclear medicine, teletherapy, and radiography involving good practices in handling radioactive as well as byproduct materials will also be used as a method to feed back information to industry. During FY 1995, the NRC will continue to evaluate operating experience from fuel cycle licensees as a part of a long-term project defined in the incident investigation team report on an event that occurred at General Electric's Wilmington facility.

Atomic Safety and Licensing Board Panel Activity

The Atomic Safety and Licensing Board Panel (ASLBP) conducts hearings 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.

NUCLEAR MATERIAL AND LOW-LEVEL WASTE SAFETY AND SAFEGUARDS REGULATION

Materials Special and Independent Reviews, Investigation, and Enforcement

Administrative judges hear cases, review records, and issue initial and final decisions in statutory-licensing matters and other Commission-assigned proceedings.

The Atomic Safety and Licensing Board Panel is the statutory office of the NRC and consists of administrative judges who, sitting alone and in three-member boards, conduct adjudicatory hearings. The boards hear and decide issues granting, suspending, revoking, or amending licenses to conduct licensed activities. Hearings address issues involving health, safety, and the environment. Single administrative law judges are authorized to decide cases on enforcement, civil penalties, waste, fraud, abuse, and anti-trust proceedings. Single presiding officers hear other cases, as directed by the Commission. Workload is expected to remain relatively stable through FY 1995.

Advisory Committee on Nuclear Waste Activity

Under this activity, the Advisory Committee on Nuclear Waste (ACNW) provides the Commission with independent technical review of and advice on the disposal of low-level nuclear waste and related matters. In order to perform objective reviews and provide advice on the issues, the ACNW relies on highly qualified members and specialized consultants. The ACNW is responsible for reviewing and providing advice on nuclear waste disposal facilities within the purview of NRC responsibilities, as directed by the Commission.

The activities of the ACNW discussed in this program pertain only to low-level nuclear waste disposal facilities. The ACNW's activities in the area of high-level nuclear waste are discussed separately in the High-Level Nuclear Waste Regulation program. The ACNW's activities in the area of low-level nuclear waste primarily focus on activities related to the Low-Level Radioactive Waste Policy Act of 1980, as amended, and include the licensing, operation, and closure of low-level waste disposal facilities.

Specific examples of the work of the ACNW in the area of low-level nuclear waste disposal facilities include reviewing and providing advice on the following: proposed rulemakings, regulatory guides and technical positions developed to clarify the intent of 10 CFR Part 61; performance assessment for LLW disposal facilities; and NRC's programs and technical issues supporting low-level waste disposal facilities. The ACNW will visit solidification process vendors and disposal sites.

NUCLEAR MATERIAL AND LOW-LEVEL WASTE SAFETY AND SAFEGUARDS REGULATION

Materials Special and Independent Reviews, Investigations, and Enforcement

External Investigations Activity

Under this activity, the NRC investigates allegations of wrongdoing by NRC materials licensees through its Office of Investigations. All findings and conclusions that result from investigations are sent to the appropriate program office for review of the issues involved, and a determination as to whether enforcement action is warranted. The Director, Office of Investigations, refers suspected or alleged criminal violations concerning NRC licensees and others within NRC's regulatory jurisdiction to the Department of Justice.

In the past year, the Office of Investigations opened approximately 79 cases for investigative evaluation of materials-related suspected wrongdoing, approximately 18 of which became full-scale investigations. Materials cases opened for investigative evaluation of suspected wrongdoing issues are anticipated to increase to approximately 90 per year, and those meeting the threshold for conducting a full-scale investigation are expected to increase to approximately 20 during FY 1995. During FY 1993, the Office of Investigations maintained an average open inventory of approximately 18 active full-scale materials investigations. The average open inventory of active full-scale materials investigations is expected to range from 15 to 25 during FY 1995.

During FY 1995, the Office of Investigations will continue to refine, administer, and maintain quality control standards pertaining to the conduct of investigations.

The Office of Investigations will continue to apprise the Commission and appropriate agency offices of matters under investigation that may affect the public health and safety or other aspects of the agency's mission. Liaison with other agencies and organizations to ensure the timely exchange of information of mutual interest will be maintained, and matters judged to be criminal will be referred to the Department of Justice.

Enforcement Activity

This activity is conducted to ensure compliance with regulations and license conditions, obtain prompt correction in areas of noncompliance, deter further noncompliance, and encourage improvement of materials licensee performance. The enforcement program uses a series of sanctions that escalate according to the seriousness of the noncompliance and the past history of licensee performance. Notices of violation, civil penalties, and orders are issued, as necessary, to ensure safety and compliance.

NUCLEAR MATERIAL AND LOW-LEVEL WASTE SAFETY AND SAFEGUARDS REGULATION

Materials Special and Independent Reviews, Investigations, and Enforcement

Organizationally, the Office of Enforcement is responsible for implementing NRC's enforcement program with support from the regional offices. Activities include overseeing and evaluating regional enforcement efforts; coordinating and developing regional enforcement actions and recommendations; evaluating potential enforcement cases; reviewing inspection and investigation reports and confirmatory action letters; initiating and processing notices of violations, civil monetary penalties, and various enforcement orders; reviewing draft regulations, inspection guidance, and other initiatives for their effect on the enforcement process and providing advice and guidance on related enforcement issues; and providing assistance to the Office of Nuclear Material Safety and Safeguards on orders modifying licenses, including cleanup orders.

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:

| <u>Fiscal Year</u> | <u>Materials Enforcement Actions Considered</u> | <u>Resulting Civil Penalties</u> |
|--------------------|---|--------------------------------------|
| 1991 | 78 | 36 |
| 1992 | 122 | 57 |
| 1993 | 205 | 74 |

On the basis of this enforcement activity, the NRC expects to consider approximately 150 to 200 materials enforcement actions during FY 1995.

The Office of Enforcement will continue to develop and promulgate enforcement policy, including the maintenance of an enforcement manual. Commission directives will continue to be reviewed for their effect on the enforcement policy or program, and changes will be made as necessary.

**HIGH-LEVEL NUCLEAR
WASTE REGULATION**

HIGH-LEVEL NUCLEAR WASTE REGULATION PROGRAM

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

Total FY 1995 Estimate \$22,000,000

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 6,161 | 5,668 | 5,668 | 5,574 | -94 |
| Program Support | 14,605 | 16,062 | 16,062 | 16,189 | 127 |
| Travel | 334 | 270 | 270 | 237 | -33 |
| Total | 21,100 | 22,000 | 22,000 | 22,000 | 0 |
| Budget Authority by Program Element (\$K) | | | | | |
| High-Level Waste Licensing | 13,236 | 14,560 | 14,560 | 13,857 | -703 |
| Assessing the Safety of High-Level Waste Disposal | 6,302 | 6,888 | 6,888 | 7,119 | 231 |
| Independent Safety Advice and Adjudicatory Reviews | 501 | 471 | 471 | 421 | -50 |
| Licensing Support System | 1,061 | 81 | 81 | 603 | 522 |
| Total | 21,100 | 22,000 | 22,000 | 22,000 | 0 |
| Full-Time Equivalent Employment by Program Element | | | | | |
| High-Level Waste Licensing | 60 | 58 | 58 | 52 | -6 |
| Assessing the Safety of High-Level Waste Disposal | 7 | 6 | 6 | 6 | 0 |
| Independent Safety Advice and Adjudicatory Reviews | 5 | 5 | 5 | 4 | -1 |
| Licensing Support System | 3 | 1 | 1 | 1 | 0 |
| Total | 75 | 70 | 70 | 63 | -7 |

HIGH-LEVEL NUCLEAR WASTE REGULATION

| Changes in Budget Authority (\$K) | | | |
|--|--------------------------------------|----------------------|-------|
| Program Element | FY 1995 Change from FY 1994 Proposed | | |
| | Current Services | Program Requirements | Total |
| High-Level Waste Licensing | 653 | -1,356 | -703 |
| Assessing the Safety of High-Level Waste Disposal | 231 | 0 | 231 |
| Independent Safety Advice and Adjudicatory Reviews | 31 | -81 | -50 |
| Licensing Support System | 22 | 500 | 522 |
| Total | 937 | -937 | 0 |

EXPLANATION OF RESOURCE CHANGES FOR CURRENT SERVICES

The increase for personnel compensation reflects the costs of the 1.6 percent Federal sector pay increase expected in CY 1995; the full cost of the 4.23 percent locality pay increase which was effective January 1994; within-grade increases; and several minor adjustments, such as the increased number of staff entering the Federal Employees Retirement System and benefits cost increases. The increase for program support and travel reflects inflation estimated at 2.9 percent in FY 1995.

EXPLANATION OF RESOURCE CHANGES FOR PROGRAM REQUIREMENTS

High-Level Waste Licensing

The resource decrease for FY 1995 primarily reflects a decrease in headquarters efforts to a) review DOE Technical Reports, b) develop Technical Positions, c) review DOE Mission Plan Amendments and Project Decision Schedule Revisions, d) interact with DOE's Technical Review Board and the Nuclear Waste Negotiator, and e) review DOE waste acceptance documentation. The Center for Nuclear Waste Regulatory Analyses will assume a greater role in these efforts. The NRC will also delay non-critical path repository models, codes, and analysis efforts; and reduce effort on the MRS program as a result of modification and slippage in the DOE program.

HIGH-LEVEL NUCLEAR WASTE REGULATION

Licensing Support System

The FY 1995 funding increase for the LSS will support ongoing interaction with DOE in order to continue planning for NRC's LSS oversight and quality assurance activities and will enable the NRC to participate within DOE's schedule.

DESCRIPTION OF PROGRAM

The high-level nuclear waste regulation program encompasses all of NRC's public health and safety licensing, inspection, and environmental reviews for the safe management and disposal of high-level radioactive wastes (including spent fuel); research to assess the safety of high-level waste management, storage, and disposal; independent safety advice on NRC regulatory actions; and the use of the licensing support system (LSS) for the submission and management of documents in the repository licensing proceeding.

The regulatory activities in this program are mandated by the Nuclear Waste Policy Act (NWPA) of 1982, the Nuclear Waste Policy Amendments Act (NWPAA) of 1987, and the National Energy Policy Act of 1992. The NWPA specifies a detailed approach for the long-range undertaking of high-level waste disposal, with DOE having operational responsibility and the NRC having regulatory responsibility. This undertaking involves a complex, integrated system of waste handling, transportation, interim and retrievable storage, and ultimate deep geologic disposal of high-level radioactive waste, requiring the protection of the public health and safety and the environment over thousands of years. The NWPAA directs DOE to characterize only one candidate site, the Yucca Mountain site in the State of Nevada, and to terminate site-specific activities at all other candidate sites. The National Energy Policy Act directs the NRC to revise its regulations (10 CFR Part 60) within one year after the Environmental Protection Agency issues their new standards.

NRC's high-level waste repository program is proceeding according to the process established by the NWPA, as amended, and supports the current DOE schedule, which is reflected in DOE's Project Decision Schedule, Revision 1, dated June 1991 as modified to reflect that tunnel boring for the Exploratory Studies Facility (ESF) is scheduled to commence in August 1994. The NRC is developing guidance and license review criteria on a priority basis to ensure that all required licensing support and guidance documents are complete and available prior to submission of the license application by DOE in 2001. Completion of this guidance is necessary and independent of DOE's site characterization activities.

HIGH-LEVEL NUCLEAR WASTE REGULATION

The Center for Nuclear Waste Regulatory Analyses (CNWRA), a federally funded research and development center under contract to the NRC, has been established to provide technical assistance and conduct research for NRC's high-level nuclear waste regulation program. The center provides support, under NRC direction, for NRC activities related to the geologic repository and monitored retrievable storage facility, transportation, environmental, and other activities associated with the storage and disposal of nuclear waste under the NWPA and NWPAA. The NRC will continue to sponsor the CNWRA as a federally funded research and development center during FY 1995. This sponsorship will include providing for the administrative, management, and quality assurance procedures and practices necessary to operate the CNWRA.

This program comprises four major program elements: high-level waste licensing, assessing the safety of high-level waste disposal, independent safety advice and adjudicatory reviews, and the licensing support system administrator. Together, these program elements are designed to ensure that high-level nuclear waste is managed and disposed of safely.

The funds and staff for each of the four program elements are discussed on pages 128 through 139. The program support funds are allocated for work done by the CNWRA and some commercial contractors and universities for the NRC. The narrative that follows describes these program elements and addresses the reasons why the resources are needed.

HIGH-LEVEL NUCLEAR WASTE REGULATION

High-Level Waste Licensing Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------------|---------------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 4,929 | 4,696 | 4,696 | 4,602 | -94 |
| Program Support | 8,100 | 9,654 | 9,654 | 9,080 | -574 |
| Travel | 207 | 210 | 210 | 175 | -35 |
| Total | 13,236 | 14,560 | 14,560 | 13,857 | -703 |
| Full-Time Equivalent Employment | | | | | |
| | 60 | 58 | 58 | 52 | -6 |

This program element is conducted to ensure the effective, efficient, and timely discharge of NRC's licensing responsibilities under the NWPA and NWPAA.

The high-level waste licensing program element consists of work required to implement NRC's responsibility to license and inspect the national high-level waste repository. To fulfill these responsibilities without causing undue delay or unnecessary rework in the DOE program, ongoing interaction and prelicensing consultation will be conducted between the NRC and DOE. To provide for an effective and efficient licensing process, the NRC will develop methods to permit the independent determination of the acceptability of DOE licensing information. The NRC provides guidance to help ensure that the DOE program develops essential and acceptable data, provides onsite overview of DOE activities, identifies and resolves issues, and reviews and evaluates DOE submittals.

To provide reasonable assurance that DOE's license application can be reviewed within the 3-year period mandated by the NWPA, the NRC will provide appropriate and timely regulatory guidance to DOE to help ensure that potential licensing issues are identified and resolved in a timely manner and that DOE provides complete and high-quality information required by the NRC for licensing. During FY 1995, the NRC, with support from the CNWRA, will continue to conduct a systematic regulatory analysis (SRA) of 10 CFR Part 60 to determine how to reduce regulatory and technical uncertainties. The main focus of the SRA will be the development of compliance determination methods (i.e., review

HIGH-LEVEL NUCLEAR WASTE REGULATION: High-Level Waste Licensing

methods and acceptance criteria) and compliance determination strategies (review strategies) that together will form the technical substance of the license application review plan (LARP). The LARP will be the primary document used by the NRC staff to review DOE's license application. The LARP will also assist in the staff's review of DOE's site characterization reports, topical reports, technical reports, and issue resolution reports. During FY 1995, the NRC will continue SRA system development and will operate and maintain the data base of information used to develop the system.

During FY 1995, the NRC, with support from the CNWRA, will continue to develop the LARP for a geologic repository using inputs from the SRA process. NRC will complete approximately 8-14 compliance determination methods (review methods and acceptance criteria) during FY 1995. In FY 1995, NRC will issue the final license application format and content regulatory guide (FCRG) as necessary.

During FY 1995, the NRC will use the SRA to analyze the regulatory uncertainties concerning the following 10 CFR Part 60 requirements: (1) substantially complete containment of the high-level waste within waste package (SCC), (2) a limiting release rate for radionuclides from the engineered barrier system of the repository; and (3) groundwater travel time and will evaluate and select a method for reduction of the SCC uncertainties by FY 1995 and the other uncertainties by FY 1996. The SRA will be updated periodically with new information from DOE's site characterization activities and NRC's performance assessment results.

A majority of the uncertainties related to the requirements of 10 CFR Part 60 will be reduced in the FCRG and the LARP. During FY 1995, the NRC will complete the final rule on Design Basis Events. The rulemaking on elimination of inconsistencies between NRC regulations and EPA high-level waste standards will be completed within one year after EPA issues its revised standards, in accordance with the National Energy Policy Act. During FY 1995, the NRC, with support from the CNWRA, will continue to develop technical positions (TPs), on Expert Opinion and on Seismic Hazards. TPs provide guidance to DOE on the technical aspects of implementing NRC's regulations.

During FY 1995, the NRC will continue to conduct performance assessments of the repository system on an iterative basis, incorporating improved mechanistic models and system code methodology with each subsequent phase. The process uses predictive models and codes to obtain quantitative estimates of repository performance based on emerging data and increased understanding of the phenomena on which the models are based. Iterative performance assessments also develop the NRC staff's capability to evaluate DOE's site characterization program, EPA's high-level waste standard, and NRC's regulations;

HIGH-LEVEL NUCLEAR WASTE REGULATION: High-Level Waste Licensing

provide information for developing regulatory guidance; and develop and maintain the NRC staff's capability to review DOE's iterative repository performance assessments, which will be submitted periodically throughout the prelicensing period and will be part of the license application. This process will continue until DOE submits a license application containing an assessment of repository system performance.

During FY 1995, the NRC will continue to develop and revise the repository subsystem models such as: (1) Engineered Barrier System Performance Assessment Code (EBSPAC); (2) thermohydraulics and fluid flow within the EBS; (3) incorporation of the fault displacement hazard in the seismic code; (4) thermal/thermo-mechanical modeling; and (5) modeling of other topics identified by SRA in FY 1995. These models and codes will be used to evaluate ongoing DOE site characterization activities, develop the LARP and support rulemakings, provide for assumptions made in the development and application of the repository total system model and to provide information for design reviews and subsystem performance reviews.

The NRC will continue to review and comment on DOE's amendments to the Mission Plan and revisions to the Project Decision Schedule to help ensure that NWPA and NWPAA statutory actions are completed and the schedules are met. In addition, as required under the NWPAA, the NRC will provide limited support to the Nuclear Waste Technical Review Board and the Nuclear Waste Negotiator.

The NRC, with support from the CNWRA, will continue to evaluate the DOE quality assurance (QA) plans and their implementation through oversight of the DOE audits of its DOE-contractor quality assurance programs for site characterization. During FY 1995, the NRC, with CNWRA support, will observe 10 DOE QA audits of DOE's high-level waste repository program. The objective of these audits is to identify and resolve concerns with DOE's program before significant data collection activities are performed during site characterization. The NRC will also observe DOE surveillances each year to evaluate in detail the implementation of DOE's program in specific technical areas.

During FY 1995 with CNWRA support, NRC will continue to review DOE's Site Characterization Plan semiannual progress reports, study plans, technical reports, major design reports, topical reports, License Application Annotated Outlines, and iterative performance assessments. Approximately 15 study plans are expected from DOE in FY 1995. Approximately 30 percent of study plans received by NRC, those which concern key technical uncertainties or issues, will undergo a detailed technical review. Approximately 3 technical reports will be reviewed in detail during FY 1995.

HIGH-LEVEL NUCLEAR WASTE REGULATION: High-Level Waste Licensing

The NRC on-site liaison at the Yucca Mountain site in Nevada will continue during FY 1995 in order to facilitate direct exchange of information with the DOE and the State of Nevada and to provide QA and technical oversight of data, documents, and activities related to site characterization.

The NRC's licensing and inspection of high-level waste storage and transportation comprise activities related to the safe interim storage of spent fuel and high-level waste at a monitored retrievable storage (MRS) facility or an interim spent fuel storage facility, and NRC activities related to the transportation of high-level radioactive waste.

Under the NWPA, as amended, the NRC is responsible for licensing any MRS facility. Monitored retrievable storage involves the receipt, handling, packaging, and storage of spent fuel and high-level waste in a facility that permits continuous monitoring and ready retrieval for subsequent shipment to a permanent repository. During FY 1995, the NRC will continue to consult with DOE on preliminary activities and review DOE siting and preliminary design activities and criteria for an MRS facility. The NRC will review and comment on two DOE MRS facility License Application Annotated Outlines which will be submitted after DOE identifies a site. NRC will also review any preliminary physical security and material control and accounting (MC&A) plans for an MRS or other spent fuel storage facility.

The NRC will also review and evaluate new transportation container designs required for shipping high-level waste under the NWPA. Technical guidance will be provided to DOE during the design, engineering, certification, and fabrication of a prototypical family of road and rail transport container designs. The NRC expects to receive one application for certification of a transportation container design in FY 1995. The Commission will continue to emphasize the importance of compatibility among storage, transportation, and disposal designs to minimize the handling of spent fuel and high-level waste. The NRC expects to receive an application from DOE for certification of a multi-purpose canister design for storage and transportation in FY 1996, in order to meet the NWPA schedule to accept spent fuel by 1998. The disposal aspects of the design will be considered during NRC's review of DOE's license application for the repository which is planned for 2001.

HIGH-LEVEL NUCLEAR WASTE REGULATION

Assessing the Safety of High-Level Waste Disposal Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 575 | 486 | 486 | 531 | 45 |
| Program Support | 5,680 | 6,367 | 6,367 | 6,552 | 185 |
| Travel | 47 | 35 | 35 | 36 | 1 |
| Total | 6,302 | 6,888 | 6,888 | 7,119 | 231 |
| Full-Time Equivalent Employment | | | | | |
| | 7 | 6 | 6 | 6 | 0 |

NRC's high-level waste (HLW) research is conducted to (1) develop the licensing tools and technical basis necessary to judge the adequacy of DOE's license application, (2) ensure sufficient independent understanding of the basic physical processes taking place at the geologic repository, or (3) maintain an independent but limited confirmatory research capability under NRC auspices. This research combines theoretical study with laboratory and field experiments and focuses on those technical issues that have the greatest uncertainty and importance to waste isolation. The technical issues of concern include the interaction of the waste form and container with the environment at the disposal site, the effects of geologic processes on long-term performance of the repository, the movement of radioactive material from the disposal facility to the accessible environment, and the long-term geologic stability of the Yucca Mountain site. Technical issues are identified based on the results of: (1) independent judgment based on staff expertise regarding technical and regulatory needs, (2) ongoing research, (3) interactions with DOE and others, (4) systematic regulatory analysis (SRA), and (5) iterative performance assessment (IPA).

Engineered systems research responds to technical issues in the areas of controlled release; waste package; and repository design, construction, and operation. The NRC research will provide the support needed to address technical uncertainties identified through SRA and IPA and will provide information to models and codes used for assessing the performance of the engineered barrier system. This research will also address whether the short-term, small-scale tests and experiments on waste packages and other engineered components of

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Assessing the Safety of High-Level Waste Disposal

the repository system that are performed by DOE in support of its license application are appropriate and sufficient to assess performance of engineered barrier systems within acceptable limits. Additionally, this research will address the effects of the coupled interactions between the repository system components (including the host rock and groundwater) in the zone affected by waste heat, and the effects on the long-term stability of the engineered facility (including shaft and borehole seals) in consideration of possible seismic effects.

During FY 1994-1995, the NRC will develop and issue a final report on verification and validation of the fully qualified codes, based on the comparison of the calculated response of excavations and groundwater in jointed rock, with physical model studies and field performance of dynamically loaded excavations and the results of research assessing the potential effects of seismicity on underground openings and groundwater.

In FY 1994, the NRC will begin a 5-year program to evaluate (1) the use of equivalent continuum models (simulating mechanical processes) for jointed rock and (2) the appropriateness of using two-dimensional models for three-dimensional jointed rock problems in HLW repository.

In FY 1994, the NRC will initiate a program to assess interactions between waste forms, packages, engineered components, and the repository environment in an attempt to evaluate the effect of these complex interactions on engineered system performance. In FY 1995, the program will be expanded to evaluate the effects of thermal loads on fractured tuff. Also in FY 1994, the NRC will begin long-term experiments and modeling of long-term degradation mechanisms on DOE-selected waste package materials and designs. This work will continue into FY 1995.

Geologic systems research responds to technical issues in the field investigation and data analysis techniques used by DOE to characterize the geology, hydrology, and geochemistry of the Yucca Mountain site. The NRC research will address the appropriateness of conceptual, mathematical, physical, and chemical models used by DOE to describe the Yucca Mountain site. Among the specific technical issues addressed by this research are the role of fractures in flow and transport, what model of geochemistry is physically and chemically correct, and potentially disruptive geological scenarios involving volcanism fault displacement and seismic activity.

During FY 1995, the NRC will continue research on the dynamics of volcanic eruptions and magmatic intrusions in the vicinity of the Yucca Mountain site. Also during FY 1995, the

HIGH-LEVEL NUCLEAR WASTE REGULATION

Assessing the Safety of High-Level Waste Disposal

NRC will issue topical reports that provide the technical data bases for NRC assessments of DOE estimates of rates of volcanic eruption at the Yucca Mountain site and magmatic intrusion that could affect HLW repository performance. During FY 1995, the NRC will begin to apply models of mantle dynamics to the regional data base of past and existing studies on the basin and range.

During FY 1995, the NRC will continue a research program on seismic hazards for use in performance assessment and the evaluation of engineered systems design. In FY 1995, the NRC will continue research on the tectonics of the Yucca Mountain region to ensure the capability to review DOE's understanding of the relationships between the long-term movements of fault-bounded blocks in the region and earthquakes, volcanism, and magnetism. Also in FY 1995, the NRC will develop topical reports that provide the technical bases for estimating probabilities of disruptive geologic events that could adversely affect HLW repository performance.

During FY 1995, the NRC will conduct research on the effectiveness of natural hydrogeochemical tracers that will be used by DOE in determining groundwater travel times and in understanding flow in unsaturated, fractured rock. In FY 1995, it will issue a topical report on hydrologic field testing in unsaturated, fractured tuff similar to Yucca Mountain, and of infiltration, percolation and recharge parameter measurement methods. In FY 1995, the NRC will continue work on hydrogeochemical modeling of near-field conditions.

During FY 1995, the NRC will continue theoretical and modeling studies of partially saturated to saturated, fractured rock to assist in the evaluation of groundwater flow and transport models for the Yucca Mountain site.

During FY 1995, the NRC will continue research on the containment transport of uranium in geologic systems that are similar to Yucca Mountain with respect to geochemical processes. This research will test DOE models of radionuclide transport and chemical interactions. During FY 1995, the NRC also will assess various approaches to modeling ion exchange and adsorption reactions, which could perform as an effective barrier to the transport of actinide elements to the accessible environment in actual site performance and should be reflected in DOE'S long-term performance assessment calculations.

In FY 1994, the NRC will conduct research to improve the understanding of coupled regional hydrologic and geological conditions and processes in an arid mountain system like Yucca Mountain. In FY 1995, the NRC will issue a report on the mechanisms and

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Assessing the Safety of High-Level Waste Disposal

conditions that create variations in groundwater recharge and perched water systems based on this research.

In FY 1994, the NRC will initiate evaluation of possible approaches to determine the effects of colloids on engineered system performance. In FY 1995, the NRC will issue a report on recommendations for research on effects of colloids on engineered system performance.

During FY 1995, the NRC will assess methods of dating geologic events with emphasis on methods for dating volcanic eruptions and prehistoric earthquakes and faulting to provide a technical base for reviewing DOE's assessment of geologic events at the Yucca Mountain site.

During FY 1995, the NRC will conduct research on the results of large-scale field tests in fractured tuff similar to Yucca Mountain tuff that will provide the NRC staff with the technical basis to review DOE site characterization methods. The NRC also will issue technical reports to assess the uncertainties in measuring, interpolating, and extrapolating values of hydrologic parameters.

Performance assessment research responds to technical issues regarding the mathematical models that will be used by DOE to estimate repository performance and demonstrate compliance with regulatory criteria. Another objective of this research is to integrate results from the HLW research program's more specialized projects into mathematical models that can be used by NRC staff to independently assess DOE performance calculations. This specific objective is being accomplished through NRC's iterative performance assessment efforts.

Quantitative tools (i.e., groundwater flow and transport models, biosphere transport models, dose-to-man models, and techniques for sensitivity and uncertainty analyses) which are the product of performance assessment research not only are used in performance assessment of the entire repository, but also can be used separately for such tasks as examining the adequacy of DOE's site characterization methods, interpreting DOE site investigations, and directing research toward areas that have the largest regulatory effect. In addition, these analyses help the staff provide specific guidance to DOE.

Performance assessment research and several supporting projects will provide support for the development of an independent performance assessment methodology and validation of the models on which the methodology is based. Related supporting projects will aid or test the validity of mathematical models and sub-models of HLW repository performance.

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Assessing the Safety of High-Level Waste Disposal

These projects concern natural analogues of HLW disposal, temporal and spatial scale effects in hydrogeology, stochastic analysis of groundwater flow and radionuclide transport, laboratory experiments on the effect of HLW-generated heat on groundwater flow, modeling of mantle processes that could cause earthquakes or volcanos that would disrupt repository performance, and regional hydrogeological considerations.

During FY 1994-1995, building on the results of thermohydrologics research done so far, the NRC will start experiments on coupled thermal, hydrological, and chemical interactions near emplaced HLW to provide a technical base for reviewing DOE assessment of the impact of waste heat on repository performance. The results will be provided in FY 1995.

During FY 1995, the NRC will reinitiate (after EPA issues a revised standard on HLW) and issue a proposed and a final rulemaking on elimination of inconsistencies between NRC regulations and EPA HLW standards, 10 CFR Part 60. Also during FY 1994-1995, the NRC will consider the need to initiate and develop proposed rulemakings on implementation of the EPA HLW standards, prewaste emplacement groundwater travel time/disturbed zone, substantially complete containment, and emergency planning criteria for the HLW repository.

HIGH-LEVEL NUCLEAR WASTE REGULATION

Independent Safety Advice and Adjudicatory Reviews Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 411 | 405 | 405 | 353 | -52 |
| Program Support | 50 | 41 | 41 | 42 | 1 |
| Travel | 40 | 25 | 25 | 26 | 1 |
| Total | 501 | 471 | 471 | 421 | -50 |
| | | | | | |
| Full-Time Equivalent Employment | 5 | 5 | 5 | 4 | -1 |

This program element is conducted to provide the Commission with independent technical review of and advice on the management and disposal of high-level nuclear waste and legal advice and assistance on high-level waste management issues.

The Advisory Committee on Nuclear Waste (ACNW) provides a focused center of expertise for independent technical review of and advice on high-level nuclear waste (HLW) regulatory activities. In order to perform objective reviews and provide advice on the issues, the ACNW relies on highly qualified members and specialized consultants. The ACNW is responsible for reviewing and providing advice on all aspects of nuclear waste disposal facilities within the purview of NRC responsibilities, as directed by the Commission.

The activities of the ACNW discussed in this program pertain only to high-level nuclear waste disposal facilities. The ACNW's activities in the area of low-level nuclear waste (LLW) are discussed separately in the Nuclear Material and Low-Level Waste Safety and Safeguards Regulation program. The ACNW's activities in the high-level waste area primarily focus on the disposal facility.

During FY 1995, the ACNW will review DOE's site characterization progress reports, the adequacy of the nexus between the revised Environmental Protection Agency (EPA) standards for the proposed Yucca Mountain repository and the NRC Regulations (10 CFR Part 60), and technical positions developed to clarify the intent of 10 CFR Part 60.

HIGH-LEVEL NUCLEAR WASTE REGULATION

Independent Safety Advice and Adjudicatory Reviews

During this period, the ACNW will review the development by the NRC staff of reliable techniques for independently evaluating ground-water travel time in an unsaturated fractured medium. The ACNW will also review trade offs among various barriers to radionuclide migration in the proposed HLW repository. In reviewing development and implementation of technical assistance support by the CNWRA, the ACNW may visit the CNWRA.

The ACNW will review the Office of Nuclear Regulatory Research programs supporting the Office of Nuclear Material Safety and Safeguards' Division of High-Level Waste Management, NRC staff activities associated with the iterative performance assessment program for the proposed HLW repository including issues associated with validation of predictive models of component behavior, development of associated guidance, and integration of results into the technical efforts

The Office of the General Counsel provides legal advice and assistance relating to storage, transportation, and disposal of high-level waste. This includes the development and review of NRC regulations and guides pertinent to licensing a high-level waste geological repository and an MRS or other interim storage facility. It also includes representing NRC in all areas which may impact the evidentiary hearings on the high-level repository application, through the review of material generated by NRC and by contacts with persons and entities outside NRC.

HIGH-LEVEL NUCLEAR WASTE REGULATION

Licensing Support System Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 246 | 81 | 81 | 88 | 7 |
| Program Support | 775 | 0 | 0 | 515 | 515 |
| Travel | 40 | 0 | 0 | 0 | 0 |
| Total | 1,061 | 81 | 81 | 603 | 522 |
| | | | | | |
| Full-Time Equivalent Employment | 3 | 1 | 1 | 1 | 0 |

The Licensing Support System (LSS) rule (10 CFR Part 2, Subpart J) assigns DOE the responsibility to design and develop the LSS, and NRC the responsibility to operate and maintain it. The LSS is to be an electronic information management system that will contain the relevant licensing documents of DOE, NRC, and other parties to the Commission's high-level waste repository licensing proceeding. The staff will implement the revised approach to the LSS program, as recommended in SECY 93-107 and approved by the Commission on June 4, 1993. Implementation activities will involve (1) proposed and final rulemaking for appropriate changes to the LSS rule (10 CFR Part 2 Subpart J), (2) revisions to LSS Administrator's Compliance Assessment Program (CAP), (3) negotiation of a Memorandum of Understanding with DOE, and (4) procurement actions to obtain contractor support for the CAP audit and oversight activities in response to DOE's schedule for design and development of the capture and search systems components of the INFOSTREAMS, and QA reviews of DOE LSS-relevant documents.

**NUCLEAR SAFETY MANAGEMENT
AND SUPPORT**

NUCLEAR SAFETY MANAGEMENT AND SUPPORT PROGRAM

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

Total FY 1995 Estimate \$165,654,000

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|--|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 62,422 | 64,846 | 64,846 | 67,589 | 2,743 |
| Program Support | 16,008 | 9,971 | 9,971 | 6,987 | -2,984 |
| Administrative Support | 82,460 | 87,817 | 85,817 | 89,634 | 3,817 |
| Travel | 1,328 | 1,411 | 1,411 | 1,444 | 33 |
| Total | 162,218 | 164,045 | 162,045 | 165,654 | 3,609 |
| Budget Authority by Program Element (\$K) | | | | | |
| Commission | 3,677 | 3,653 | 3,653 | 3,526 | -127 |
| Commission Appellate Adjudication | 557 | 581 | 581 | 534 | -47 |
| Congressional Affairs | 803 | 830 | 830 | 799 | -31 |
| General Counsel | 8,274 | 8,555 | 8,555 | 9,004 | 449 |
| International Programs | 2,548 | 2,831 | 2,831 | 2,825 | -6 |
| Public Affairs | 1,312 | 1,344 | 1,344 | 1,343 | -1 |
| Secretariat | 2,580 | 2,624 | 2,624 | 2,696 | 72 |
| Executive Director for Operations | 1,960 | 2,153 | 2,153 | 2,278 | 125 |
| Controller | 14,634 | 16,000 | 16,000 | 17,288 | 1,288 |
| Policy Planning | 398 | 412 | 412 | 439 | 27 |
| Small and Disadvantaged Business Utilization and Civil Rights | 908 | 936 | 936 | 985 | 49 |
| State Programs | 3,277 | 3,205 | 3,205 | 3,376 | 171 |
| Administration | 39,775 | 45,580 | 45,580 | 47,685 | 2,105 |
| Consolidation | 11,146 | 3,835 | 3,835 | 0 | -3,835 |
| Information Resources Management | 49,750 | 49,580 | 47,580 | 51,347 | 3,767 |
| Personnel and Training | 11,202 | 11,763 | 11,763 | 11,965 | 202 |
| Regional Administrative Support | 9,417 | 10,163 | 10,163 | 9,564 | -599 |
| Total | 162,218 | 164,045 | 162,045 | 165,654 | 3,609 |

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|--|--------------------|------------|------------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Full-Time Equivalent Employment by Program Element | | | | | |
| Commission | 42 | 41 | 41 | 37 | -4 |
| Commission Appellate Adjudication | 7 | 7 | 7 | 6 | -1 |
| Congressional Affairs | 10 | 10 | 10 | 9 | -1 |
| General Counsel | 100 | 100 | 100 | 99 | -1 |
| International Programs | 28 | 30 | 30 | 29 | -1 |
| Public Affairs | 16 | 16 | 16 | 15 | -1 |
| Secretariat | 28 | 28 | 28 | 27 | -1 |
| Executive Director for Operations | 22 | 22 | 22 | 22 | 0 |
| Controller | 102 | 107 | 107 | 107 | 0 |
| Policy Planning ; | 5 | 5 | 5 | 5 | 0 |
| Small and Disadvantaged Business Utilization and Civil Rights | 7 | 7 | 7 | 7 | 0 |
| State Programs | 29 | 27 | 27 | 27 | 0 |
| Administration | 189 | 186 | 186 | 186 | 0 |
| Consolidation | 8 | 7 | 7 | 0 | -7 |
| Information Resources Management | 138 | 141 | 141 | 141 | 0 |
| Personnel and Training | 73 | 73 | 73 | 73 | 0 |
| Total | 804 | 807 | 807 | 790 | -17 |

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

| Changes in Budget Authority (\$K) | | | |
|---|-----------------------------|----------------------|--------|
| Program Element | FY 1995 Change from FY 1994 | | |
| | Current Services | Program Requirements | Total |
| Commission | 202 | -329 | -127 |
| Commission Appellate Adjudication | 33 | -80 | -47 |
| Congressional Affairs | 49 | -80 | -31 |
| General Counsel | 529 | -80 | 449 |
| International Programs | 160 | -166 | -6 |
| Public Affairs | 80 | -81 | -1 |
| Secretariat | 152 | -80 | 72 |
| Executive Director for Operations | 125 | 0 | 125 |
| Controller | 785 | 503 | 1,288 |
| Policy Planning | 27 | 0 | 27 |
| Small and Disadvantaged Business Utilization and Civil Rights | 49 | 0 | 49 |
| State Programs | 171 | 0 | 171 |
| Administration | 1,785 | 320 | 2,105 |
| Consolidation | 0 | -3,835 | -3,835 |
| Information Resources Management | 1,838 | 1,929 | 3,767 |
| Personnel and Training | 540 | -338 | 202 |
| Regional Administrative Support | 356 | -955 | -599 |
| Total | 6,881 | -3,272 | 3,609 |

EXPLANATION OF RESOURCE CHANGES FOR CURRENT SERVICES

The increase for personnel compensation reflects the costs of the 1.6 percent Federal sector pay increase expected in CY 1995; the full cost of the 4.23 percent locality pay increase which was effective January 1994; within-grade increases; and several minor adjustments, such as the increased number of staff entering the Federal Employees Retirement System and benefits cost increases. Rent charges for office space reflect an estimated 4.5 percent increase each year from GSA. Administrative support, program support, and travel reflects inflation estimated at 2.9 percent in FY 1995.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

EXPLANATION OF RESOURCE CHANGES FOR PROGRAM REQUIREMENTS

Commission

The decrease in staff resources for the Commission is the result of efficiencies realized through improved management practices and efforts by the Commission to streamline operations.

International Programs

IAEA's Operational Safety Assessment Review Team (OSART) missions to NRC-licensed nuclear facilities take place every two years. These reviews are supported by NRC. The resource decrease in FY 1995 reflects the fact that no OSART mission will take place in FY 1995.

Controller

The additional resources in FY 1995 are required to develop enhancements for the Federal Financial System, the agency's automated accounting system, and for employee relocation services.

Administration

Resource increases in FY 1995 are primarily required for the purchase of printing and reproduction equipment to replace equipment that has exceeded its useful life, and for purchase of systems furniture and demountable walls. These furnishings are needed to accommodate the shift of approximately 300 employees from work stations in One White Flint North (OWFN), which is overcrowded, to Two White Flint North (TWFN) and to restore conference rooms in OWFN that have been converted to office space.

These increases are partially offset by termination of shuttle service as headquarters consolidation is complete and a decrease in contract support for contract closeout as the current backlog will be reduced and stabilized.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

Consolidation

The resource decrease in FY 1995 reflects completion of TWFN office space and consolidation of headquarters staff into White Flint North.

Information Resources Management

Resources increase in FY 1995 as a result of the need to enhance the agency's Wide Area Network (WAN) and to relocate mainframe applications to new platforms. The WAN enhancement is needed to upgrade the agency's three existing networks into a single, optimized WAN and to accommodate increasing demand for robust, reliable, easy-to-use interfaces. Increased resources are also needed for customer support provided by IRM to user offices as a result of the increasing number of applications that have been or will be moved from a mainframe or minicomputer platform to a client-server type platform. As the result of GSA's decision to de-certify the National Institutes of Health (NIH) as a Federal Computer Center, resources increase in FY 1995 to accommodate the transition of agency applications from the NIH timesharing facility to another federal facility or to inhouse platforms.

Regional Administrative Support

Resources decrease in FY 1995 as a result of efficiencies realized from the consolidation of Region V as a field office of Region IV.

DESCRIPTION OF PROGRAM

The Nuclear Safety Management and Support Program encompasses NRC central policy direction, legal advice for the Commission, analysis of long-term policy issues, administrative proceeding 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 comprises the following 17 program elements: Commission, Commission Appellate Adjudication, Congressional Affairs, General Counsel, International Programs, Public Affairs, Secretariat, Executive Director for Operations, Controller, Policy Planning, Small and Disadvantaged Business Utilization and Civil Rights, State Programs, Administration,

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

Consolidation, Information Resources Management, Personnel and Training, and regional administrative support.

The funds and staff for each of the 17 program elements are discussed on pages 148 through 178. The program support and administrative support funds are allocated for services and products obtained from commercial contractors and other Federal agencies such as GSA and the Office of Personnel Management. The narrative that follows describes these program elements and addresses the reasons why the resources are needed.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

Commission Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|--|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$) | | | | | |
| Salaries and Benefits | 3,262 | 3,294 | 3,294 | 3,166 | -128 |
| Program Support | 70 | 62 | 62 | 63 | 1 |
| Travel | 345 | 297 | 297 | 297 | 0 |
| Total | 3,677 | 3,653 | 3,653 | 3,526 | -127 |
| | | | | | |
| Full-Time Equivalent Employment | 42 | 41 | 41 | 37 | -4 |

The Commission 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 the public health and safety, environmental quality, national security, and antitrust laws.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

Commission Appellate Adjudication Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 544 | 561 | 561 | 513 | -48 |
| Program Support | 5 | 5 | 5 | 5 | 0 |
| Travel | 8 | 15 | 15 | 16 | 1 |
| Total | 557 | 581 | 581 | 534 | -47 |
| | | | | | |
| Full-Time Equivalent Employment | 7 | 7 | 7 | 6 | -1 |

The Office of Commission Appellate Adjudication assists the Commission in its disposition of appeals of licensing board decisions and other adjudicatory matters coming before the Commission. The office reviews administrative proceedings and keeps the Commission advised of decisions that must be made. It consults directly with the Commission, advising it in formulating opinions and on the discretionary exercise of its supervisory authority over agency adjudication. The office monitors cases pending before licensing boards and associated matters, provides analyses and options to the Commission, and drafts adjudicatory decisions and orders, as necessary.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

Congressional Affairs Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 776 | 803 | 803 | 770 | -33 |
| Program Support | 15 | 15 | 15 | 16 | 1 |
| Travel | 12 | 12 | 12 | 13 | 1 |
| Total | 803 | 830 | 830 | 799 | -31 |
| Full-Time Equivalent Employment | | | | | |
| Full-Time Equivalent Employment | 10 | 10 | 10 | 9 | -1 |

The Office of Congressional Affairs assists the Chairman, the Commissioners, and senior NRC staff with congressional matters; coordinates relations between the agency and Congress; and serves as liaison between the Commission and congressional committees, congressional subcommittees, and individual members of Congress.

The primary objective of this program element is to ensure that Congress is kept fully and currently informed about agency activities and that congressional requests and inquiries are responded to in a timely manner. The Office of Congressional Affairs provides the Chairman, the Commissioners, and senior NRC staff with relevant and current information pertaining to major legislative activities likely to affect the agency. Additionally, the Office seeks to ensure that individual members of Congress are kept currently informed about significant NRC activities that might affect their respective States and districts.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

General Counsel Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 7,764 | 8,036 | 8,036 | 8,470 | 434 |
| Program Support | 375 | 385 | 385 | 396 | 11 |
| Travel | 135 | 134 | 134 | 138 | 4 |
| Total | 8,274 | 8,555 | 8,555 | 9,004 | 449 |
| | | | | | |
| Full-Time Equivalent Employment | 100 | 100 | 100 | 99 | -1 |

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

The OGC provides legal advice to the Commission on the implementation of employee conduct regulations, external investigations, and internal audits and on the application of Federal openness laws to Commission functions; drafts proposed legislation for Commission consideration and advises the Commission on the legal and policy implications of legislation sponsored by others, that is referred to the Commission for comment by OMB or Congress; provides advice to NRC offices that are developing NRC regulations and guides pertinent to the licensing of nuclear facilities and the use of nuclear materials; represents the NRC staff in public rulemaking hearings and provides legal assistance to NRC offices involved in issuing licenses for the use or possession of nuclear materials and disposal of nuclear waste; and provides support to the Office of the Inspector General.

Under this program element, the OGC develops legal policy and represents the NRC staff in public hearings conducted in conjunction with the licensing of nuclear facilities and licensing the users of nuclear materials; develops legal policy associated with such licensing;

NUCLEAR SAFETY MANAGEMENT AND SUPPORT: General Counsel

provides advice and consultation to the staff on health, safety, environmental, and antitrust issues arising from the licensing process; provides legal advice and assistance to the Commission, all regional offices, and the Offices of Enforcement, Nuclear Material Safety and Safeguards, and Nuclear Reactor Regulation on inspection and enforcement matters; and represents NRC offices in enforcement proceedings against licensees involving imposition of civil penalties and the modification, suspension, or revocation of licenses.

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

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

International Programs Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 2,174 | 2,411 | 2,411 | 2,481 | 70 |
| Program Support | 199 | 225 | 225 | 118 | -107 |
| Travel | 175 | 195 | 195 | 226 | 31 |
| Total | 2,548 | 2,831 | 2,831 | 2,825 | -6 |
| | | | | | |
| Full-Time Equivalent Employment | 28 | 30 | 30 | 29 | -1 |

The Office of International Programs ensures that NRC has effective relationships with international organizations and foreign governments. The establishment and maintenance of such relationships contribute to the assurance of U.S. nuclear safety and help support U.S. national security and other U.S. foreign policy objectives. This program element includes developing and implementing policies and programs on international issues; administering the Commission's responsibilities in the areas of nuclear nonproliferation, reactor safety, materials safety, international safeguards, waste management, and nuclear exports and imports; facilitating NRC access to foreign nuclear health and safety-related information and NRC technical cooperation with foreign countries and international organizations; and maintaining liaison with the Executive Branch, particularly the Department of State and Department of Energy on international matters.

The NRC will complete action on approximately 130 export license applications and on approximately 50 Executive Branch export consultation cases each year during FY 1994-1995. The agency will conduct active cooperative international exchanges in nuclear safety and safeguards during this period with about 30 countries and international organizations, including activities with the New Independent States (NIS) of the former Soviet Union and Central and Eastern Europe (CEE), and new activities with countries in the early stages of establishing a nuclear power program that might use U.S. nuclear technology. The Nuclear Safety Attache, at the U.S. Mission to UN Systems Organization in Vienna, a position provided by NRC, represents U.S. Government views on nuclear safety

NUCLEAR SAFETY MANAGEMENT AND SUPPORT: International Programs

and radiation protection issues to the International Atomic Energy Agency (IAEA) and to other diplomatic missions in Vienna and provide both programmatic and policy oversight of IAEA's nuclear safety program. In addition, diplomatic initiatives at several Presidential Summits, and most recently in the Gore-Chernomyrdin Commission will require active NRC participation in an expanded program of nuclear safety assistance and cooperation with the NIS and CEE. The NRC's involvement in international nuclear safeguards is also expected to continue. For example, the NRC has received formal requests from Russia and Ukraine to provide assistance in materials control and accounting and physical security of nuclear materials and is actively involved in responding to these requests. NRC activities in these areas are described under the Fuel Cycle Safety and Safeguards activity of the Nuclear Material and Low-level Waste Safety and Safeguards Regulation program.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

Public Affairs Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 1,242 | 1,286 | 1,286 | 1,283 | -3 |
| Program Support | 55 | 46 | 46 | 47 | 1 |
| Travel | 15 | 12 | 12 | 13 | 1 |
| Total | 1,312 | 1,344 | 1,344 | 1,343 | -1 |
| | | | | | |
| Full-Time Equivalent Employment | 16 | 16 | 16 | 15 | -1 |

The Office of Public Affairs assists the Chairman, the Commissioners, and senior NRC staff by managing and directing the NRC's public affairs program. This program element includes developing and administering agency policies and procedures for informing the public and the news media of NRC policies, programs, and activities; informing NRC management of media coverage of activities of interest to the agency; working with civic groups and administering a cooperative program with public schools; and advising management on providing information on NRC activities to the news media and general public and on conducting public meetings.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

Secretariat Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 2,174 | 2,250 | 2,250 | 2,310 | 60 |
| Program Support | 391 | 359 | 359 | 370 | 11 |
| Travel | 15 | 15 | 15 | 16 | 1 |
| Total | 2,580 | 2,624 | 2,624 | 2,696 | 72 |
| Full-Time Equivalent Employment | | | | | |
| Full-Time Equivalent Employment | 28 | 28 | 28 | 27 | -1 |

The Office of the Secretary of the Commission provides executive management services to support the Commission and to implement Commission decisions; advises and assists the Commission and staff on planning, scheduling, and conducting Commission business, including preparation of internal procedures; prepares the Commission's meeting agenda; codifies Commission decisions in memoranda directing staff action, monitors staff compliance of pending actions, and tracks commitments through the automated Commission tracking system; manages the staff paper and COMSECY systems; processes and controls Commission correspondence; maintains the Commission's official records and acts as Freedom of Information coordinator for Commission records; maintains the official adjudicatory dockets of the Commission; processes and controls motions, pleadings, and appeals filed with the Commission and individual licensing boards; issues and serves adjudicatory decisions and orders on behalf of the Commission and individual licensing boards; receives and distributes public comments in rulemaking proceedings and maintains the official rulemaking docket; issues proposed and final rules on behalf of the Commission; directs and administers the NRC historical program; operates and manages the NRC Public Document Room and its Bibliographic Retrieval System for providing access to members of the public, including representatives of foreign countries, to NRC's publicly available documents; and functions as the NRC Federal Advisory Committee Management Officer. The Office of the Secretary will also continue efforts to integrate and expand office automation initiatives into the Commission's administrative system to improve efficiency in the decisionmaking process and assist in the management of work products.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

Executive Director for Operations Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 1,708 | 1,768 | 1,768 | 1,882 | 114 |
| Program Support | 165 | 308 | 308 | 317 | 9 |
| Travel | 87 | 77 | 77 | 79 | 2 |
| Total | 1,960 | 2,153 | 2,153 | 2,278 | 125 |
| | | | | | |
| Full-Time Equivalent Employment | 22 | 22 | 22 | 22 | 0 |

The Office of the Executive Director for Operations (OEDO) supervises and coordinates policy development and operational activities of program and EDO staff offices and implements the Commission's policy directives pertaining to these offices. The EDO is the Chief Financial Officer of the Commission and the chief operations and administrative officer. 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.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

Controller Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 7,919 | 8,598 | 8,598 | 9,154 | 556 |
| Program Support | 2,920 | 3,983 | 3,983 | 4,306 | 323 |
| Administrative Support | 3,750 | 3,373 | 3,373 | 3,781 | 408 |
| Travel | 45 | 46 | 46 | 47 | 1 |
| Total | 14,634 | 16,000 | 16,000 | 17,288 | 1,288 |
| Full-Time Equivalent Employment | | | | | |
| | 102 | 107 | 107 | 107 | 0 |

The Office of the Controller provides for the overall financial management of the agency. This program element includes fulfilling the responsibilities for all budget and accounting activities; providing agency senior management with analyses of policy, program, and resource issues; and ensuring adherence to applicable legislation and Office of Management and Budget (OMB) circulars and bulletins, including the Chief Financial Officers (CFOs) Act of 1990, the Omnibus Budget Reconciliation Act of 1990, the Federal Employees Pay Comparability Act of 1990, the Federal Managers' Financial Integrity Act of 1982, the Prompt Payment Act and amendments, and OMB Circulars A-123, "Internal Management Control Systems", and A-127, "Financial Management Systems".

Compliance with the CFOs Act includes developing procedures and activities in concert with the Inspector General to produce a financial statement that is audited; assisting offices as required in reviewing and revising NRC management directives and procedures for conformance to OMB circulars and with the requirements of the Act; developing and using performance measures to assess program and financial performance; preparing periodic reports and analyses on financial management, including an annual financial management report to the Chairman and the Director of OMB and periodic reports to the Commission on budget execution; and conducting periodic reviews of agency financial management activities and providing training to allottee financial managers in all aspects of compliance with the CFOs Act.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT: Controller

The second legislative requirement, the Omnibus Budget Reconciliation Act of 1990, requires the NRC to recover 100 percent of the agency's budget authority through license and annual fees. Activities to meet this requirement include developing and issuing rules that reflect recovery of 100 percent of the budget authority each year; providing policy, processing applications, and analyzing fee-related data for approximately 3,000 reactor and fuel cycle license amendments, 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.

To fully comply with the requirements of the Federal Employees Pay Comparability Act of 1990, the NRC is transitioning to a new payroll system, which will be fully implemented in FY 1996. The current payroll system is inefficient and unable to meet future operational requirements.

Implementation of the requirements of the Federal Managers' Financial Integrity Act of 1982 and OMB Circulars A-123 and A-127, includes enhancing the NRC internal control program, providing training, and preparing all required reports to the President and Congress.

Compliance with the Prompt Payment Act includes processing over 40,000 commercial vouchers for payment in a timely manner and accounting for and reconciling these payments.

Financial planning, a key part of this program element, includes coordinating the NRC strategic planning process, including developing instructions and procedures and modifying goals and objectives; providing guidance and resolving Commission questions; modifying guidance to implement Commission decisions; developing and issuing the agency's Five-Year Plan, which supports the agency's budget requests; and developing for issuance to OMB an annual NRC Financial Management Five-Year Plan, which includes a financial management status report for the current year and a plan covering the strategies, goals, and initiatives required to strengthen agency financial management over the planning period.

The Controller also manages the NRC internal budget development process by preparing guidance and instructions, reviewing and modifying budget structure, performing analyses for the CFO's use in decision making, and maintaining detailed records and analyses to support the budget. Interaction with the Commission to resolve questions and implement Commission decisions is required. The Controller also develops the NRC budget request for OMB and Congress and manages the overall budget justification process.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT: Controller

The Office of the Controller oversees agency budget execution by preparing quarterly base tables for Congress; developing monthly performance reports on budget execution for the Executive Director for Operations (EDO) and quarterly reports for the Commission; performing midyear reviews and other periodic budget execution reviews; managing the allotment and financial plan for Commission and EDO offices, including certification of the availability of funds; managing the agency's salaries and benefits allocation and estimating the agency's salaries and benefits requirements; and ensuring administrative control of funds by maintaining expertise and interpreting appropriation law and policies; obtaining apportionments and reapportionments from OMB; managing the NRC allotment and financial plan process; and maintaining agency policy standards and procedures applicable to the administrative control of funds.

Other financial management functions and responsibilities in this program element include performing required debt-collection activity; maintaining travel services while processing over 20,000 travel authorizations and travel vouchers per year; managing the agency relocation services program; managing the NRC imprest fund; maintaining accounting policies; providing accounting training; maintaining accounting systems; providing financial and accounting data and reports to agency management and other Federal agencies; maintaining appropriate master records for financial management; maintaining the NRC general ledger, including reconciling billings, collections, travel, and NRC accounts with Department of Treasury accounts; and developing and issuing the agency's Information Digest.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

Policy Planning Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 388 | 402 | 402 | 428 | 26 |
| Program Support | 0 | 0 | 0 | 0 | 0 |
| Travel | 10 | 10 | 10 | 11 | 1 |
| Total | 398 | 412 | 412 | 439 | 27 |
| | | | | | |
| Full-Time Equivalent Employment | 5 | 5 | 5 | 5 | 0 |

The Office of Policy Planning develops and examines long-range policy issues of relevance to the NRC. Analyses are broad in scope and assess policy issues, operational environments, and alternatives to identify and take into account regulatory, industry, and public interest group viewpoints as well as other external factors or conditions of which the Commission should be aware in its consideration of the agency's long-range policies and plans. The office manages the agency's strategic planning process.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

**Small and Disadvantaged Business
Utilization and Civil Rights Program Element**

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 543 | 562 | 562 | 599 | 37 |
| Program Support | 345 | 359 | 359 | 370 | 11 |
| Travel | 20 | 15 | 15 | 16 | 1 |
| Total | 908 | 936 | 936 | 985 | 49 |
| | | | | | |
| Full-Time Equivalent Employment | 7 | 7 | 7 | 7 | 0 |

This program element provides for identifying small and disadvantaged businesses capable of performing NRC contractual requirements and providing information to such firms interested in NRC programs and contracting procedures. The program element also includes the functions and duties related to equal employment opportunity and civil rights matters within the NRC to increase the employment of minorities and women in the agency, and ensure a climate for improved employee morale by promoting and maintaining counseling activities and supporting advisory committees made up of special emphasis groups. The program element is managed by the Office of Small and Disadvantaged Business Utilization and Civil Rights and comprises three major activities: (1) the Small and Disadvantaged Business Utilization Program, (2) the Civil Rights Program, and (3) the Federal Women's Program.

Activities under the Small and Disadvantaged Business Utilization Program are authorized by Sections 8 and 15 of the Small Business Investment Act of 1958, as amended. Responsibilities include locating and referring small and disadvantaged businesses for procurement awards, negotiating a monetary goals program with the Small Business Administration for awarding NRC contracts to small and disadvantaged businesses and monitoring the results on a quarterly basis, monitoring NRC's procurement list to ensure equitable participation of small and disadvantaged businesses, offering advice and

NUCLEAR SAFETY MANAGEMENT AND SUPPORT
Small and Disadvantaged Business Utilization and Civil Rights

consultation to NRC offices on capabilities of small and disadvantaged business firms, disseminating information to such firms interested in NRC contracting procedures, and assisting historically black colleges and universities to secure grants and contracts from the NRC.

The civil rights activities are responsive to the Civil Rights Act of 1964, as amended, and are implemented by 29 CFR Part 1614 of the Equal Employment Opportunity (EEO) Commission regulations. The activities include developing, monitoring, and evaluating NRC's Affirmative Action Program; advising and assisting the Office of Personnel on the recruitment of minorities and women and EEO training for managers and employees; providing advice to senior management on civil rights and EEO matters; and developing and administering EEO counseling activities and the EEO complaints process. Activities also include supporting special emphasis and employee advisory groups; annually setting goals for the hiring and advancement of minorities and women; tracking agency performance on all affirmative action and EEO matters; and addressing any EEO issues resulting from financial assistance provided under Section 274 of the Atomic Energy Act of 1954, as amended.

The Federal Women's Program was established in October 1967 as a result of Executive Order 11375, which added gender to other prohibited forms of discrimination in the Federal Government. In August 1969, Executive Order 11478 integrated the Federal Women's Program into the overall Equal Employment Opportunity Program placing it under the stewardship of agency directors of equal employment opportunity. The purpose of the Federal Women's Program is to expand and enhance opportunities for NRC women employees. This includes advising management and EEO officials of any policies and practices that are, or appear to be sex discrimination or that serve as barriers in the workplace; staying in touch with the NRC work force to identify any problem areas; assisting the Office of Personnel in recruitment actions directed toward women; participating in developing the agency affirmative action plan; maintaining communication with women's organizations and participating in meetings, conferences, and seminars within and outside the agency on issues relating to the FWP; and coordinating and supporting the Federal Women's Program Advisory Committee.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

State Programs Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 2,251 | 2,169 | 2,169 | 2,310 | 141 |
| Program Support | 943 | 951 | 951 | 979 | 28 |
| Travel | 83 | 85 | 85 | 87 | 2 |
| Total | 3,277 | 3,205 | 3,205 | 3,376 | 171 |
| Full-Time Equivalent Employment | 29 | 27 | 27 | 27 | 0 |

This program element provides for cooperation, training, oversight, technical assistance, and liaison with States, local governments, Indian tribes, and interstate organizations to assure adequate protection of public health and safety from the hazards associated with the use of radioactive material. As a part of these responsibilities, the Office of State Programs administers agreements with the 29 Agreement States that exercise jurisdiction over the use of radioactive materials; provides assistance to other non-Agreement States seeking agreement state status; conducts major training courses, special topic workshops and technical meetings for Agreement State staff; makes periodic visits to review programs for adequacy and compatibility with NRC programs; provides early and substantive involvement of the States in NRC rulemaking and other regulatory efforts; provides assistance to State and local governments in radiation control; and conducts an all-Agreement States annual meeting. The administration and oversight of the Agreement State program assures there is a coherent, consistent national program that provides adequate levels of safety among all Agreement State and NRC programs. The Office of State Programs also coordinates activities of interest to State, local, and Indian tribal governments with other NRC offices; and participates in the Conference of Radiation Control Program Directors, Inc. In addition, the office negotiates memoranda of understanding with States on various NRC and State activities involving mutual cooperation, monitors State legislation, and informs the Commission and staff of significant State actions concerning nuclear issues. It also regularly consults and conducts meetings with Governor-appointed State liaison officers and maintains contact with national organizations, such as the National Governors' Association, National Association of Regulatory Utility Commissioners, National Congress of American Indians,

NUCLEAR SAFETY MANAGEMENT AND SUPPORT: State Programs

and National Conference of State Legislatures, to identify NRC regulatory initiatives affecting States and to keep NRC apprised of those organizational activities that could affect the agency.

In cooperation with the Office of Nuclear Regulatory Research and Nuclear Materials Safety and Safeguards, the Office of State Programs supports NRC materials program rulemaking, guidance development, and policy development activities.

This program element also provides for Federal liaison support to increase cooperation and communication between the NRC and other Federal agencies on policy matters. The Federal liaison program manager conveys the Commission's viewpoints and policies to Federal agencies and notifies NRC senior management about significant actions by other Federal agencies that may affect NRC actions, plans, and policies.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

Administration Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 14,674 | 14,947 | 14,947 | 15,914 | 967 |
| Administrative Support | 25,026 | 30,556 | 30,556 | 31,690 | 1,134 |
| Travel | 75 | 77 | 77 | 81 | 4 |
| Total | 39,775 | 45,580 | 45,580 | 47,685 | 2,105 |
| | | | | | |
| Full-Time Equivalent Employment | 189 | 186 | 186 | 186 | 0 |

This program element provides for centralized administrative and logistical support services for headquarters, specifically in the areas of procurement, duplicating, property management, facilities support, transportation, security, printing, publications services, mail and distribution services, Freedom of Information Act requests, privacy protection, rulemaking support, and local public document rooms (LPDRs) as well as certain support services for the regional offices.

Administrative support funds include rent payments to the General Services Administration totaling \$17.3 million in FY 1994 and \$17.8 million in FY 1995. These mandatory payments are more than 55 percent of the total administrative support costs for this program element.

Other requirements for administrative support funds include transportation of persons and things including the rental or lease of motor vehicles from commercial vendors and government motor pools and funding for subsidies for public transit and for freight and express services; duplicating and contract printing; photography services; security services, including costs for guard services, personnel security investigations, and the NRC drug testing program to protect NRC personnel, property, and information; supplies, materials, postage, and equipment, which include consumable supplies and office furniture, filing equipment, office machines, general equipment, draperies, and carpeting, and other operational costs, which cover alterations and supplementary heating, ventilation and air conditioning; parking; automotive maintenance; fuel and tires; maintenance of office machines and security equipment; duplicating, typesetting, and photography equipment;

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audiovisual services; assistance to LPDRs; translations; contract typing; mail and messenger services; and document distribution services.

This program element is conducted to develop and implement agencywide contracting policies and procedures; direct and coordinate contracting activities; negotiate, award, administer, and close-out contracts, task orders, purchase orders, grants, cooperative agreements, and interagency agreements; provide advice and assistance to offices on procurement and property regulations and requirements and methods of meeting program objectives consistent with such requirements; settle claims and terminations; perform other normal duties of a contracting office as specified in the Federal Acquisition Regulation and the Federal Information Resources Management Regulation; manage the Department of Energy (DOE) laboratory project, including providing oversight to ensure that sound contracting principles are applied to DOE laboratory agreements; assist program offices in cost negotiation and administration of laboratory agreements; develop agency policy for placement and monitoring of DOE laboratory agreements; conduct training for agency staff in contract management; and develop and implement screening criteria to determine if an organizational conflict of interest exists in placing work with DOE.

Property management is a major portion of this activity. Key areas of property management include managing the GSA building delegation program, space acquisition and utilization, space renovations, building management, supply and warehouse operations, and office and equipment moves. This activity also includes the development and administration of programs for motor vehicle operations, transportation services, conservation, and recycling.

The agency's overall security program is designed to protect NRC personnel, property, and information. This includes the safeguarding of restricted data and national security information documents or material at all NRC offices and at contractor, licensee, and other facilities containing such documents or material; approving the security requirements related to the protection of national security information and restricted data for licensing, certifying, or regulating uranium enrichment facilities such as Louisiana Energy Services and U.S. Enrichment Corporation; the safeguarding of sensitive intelligence information and providing intelligence support services to the Commission and senior management; the operation of NRC secure communications systems; the NRC drug testing program, which requires approximately 900 random drug tests annually of employees and approximately 35 tests of applicants; the physical protection of personnel and property at headquarters and other agency locations; the NRC criminal history check program, under which approximately 60,000 fingerprint cards are processed each year; implementing the National Industrial Security Program and Presidential Review Directive 29, National Security Protected Information, requirements; and the yearly processing and maintaining of the 700 initial and

NUCLEAR SAFETY MANAGEMENT AND SUPPORT: Administration

650 continuing security clearances and/or special nuclear material access authorizations for agency employees, consultants, contractors, licensees, and others.

Under the facilities security program, security personnel conduct facility/organization security surveys of headquarters, regional office, licensee, and contractor interests to ensure protection of classified and sensitive unclassified information and NRC personnel and property; provide security support to the Commission, Atomic Safety and Licensing Board Panel, Advisory Committee on Reactor Safeguards, and other NRC offices during public meetings; assist regional office staffs, as requested, with the installation of security systems, such as key card reader access control systems compatible with the system used at headquarters; review and monitor guard force activities for contract compliance and cost efficiencies; manage and administer the physical security program for all headquarters buildings, including the operation of a comprehensive access control and alarm system, the issuance of NRC photo identification badges, and the deployment of protective personnel. Security personnel also manage a security awareness program to ensure employees are aware of their responsibilities with respect to the protection of NRC assets, including classified and sensitive unclassified information.

This program element is also conducted to develop policies, procedures, and rules for implementing the Freedom of Information Act, Privacy Act, Federal Register Act, and Regulatory Flexibility Act; develop and review amendments to agency regulations and petitions for rulemaking; provide advice and assistance to offices and the public on filing petitions for rulemaking; administer the agency's management directives system; provide a centralized system for noticing public meetings of the staff; and direct and coordinate local public document room activities near all reactor sites and near certain other fuel cycle and waste sites throughout the United States. This program element also provides centralized agencywide publication control and processing, technical writing and editing services, mail and distribution services, and translation services; publishes regulatory and technical reports; provides direction and coordination of agencywide document composition, duplicating and contract printing through Government Printing Office printing contractors; copy management, photography, and audiovisual and related services; and automated reports processing and proofreading services agencywide, including electronic communication with the regional offices and contractors.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

Consolidation Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| b. Net Authority by Function (\$k) | | | | | |
| Salaries and Benefits | 621 | 562 | 562 | 0 | -562 |
| Program Support | 10,525 | 3,273 | 3,273 | 0 | -3,273 |
| Total | 11,146 | 3,835 | 3,835 | 0 | -3,835 |
| | | | | | |
| Full-Time Equivalent Employment | 8 | 7 | 7 | 0 | -7 |

The Office of Consolidation is responsible for the project planning and coordination and procurement of goods and services required to consolidate the NRC headquarters staff in Rockville, Maryland.

In April 1988, the first phase of the two-phase consolidation effort was completed when approximately 1,400 employees moved into One White Flint North. The second phase will involve moving approximately 1,400 employees into Two White Flint North beginning in CY 1994. When the consolidation effort is complete, NRC headquarters will be housed in two buildings at one location, rather than the six locations it currently occupies.

Excavation for the second building began in September 1991. Project planning and coordination activities associated with the second building include preparing housing plans and office standards; coordinating the activities of building architects, space planners, General Services Administration, and NRC staff to develop support and special-space requirements to accommodate employees; modernizing the telecommunications system; procurement planning and managing contracts for demountable walls, systems furniture, local area network cabling, furniture, equipment, and supplies; and scheduling and coordinating the moves of the NRC staff to the second building.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

Information Resources Management Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 10,714 | 11,331 | 11,331 | 12,064 | 733 |
| Administrative Support | 38,906 | 38,086 | 36,086 | 39,115 | 3,029 |
| Travel | 130 | 163 | 163 | 168 | 5 |
| Total | 49,750 | 49,580 | 47,580 | 51,347 | 3,767 |
| | | | | | |
| Full-Time Equivalent Employment | 138 | 141 | 141 | 141 | 0 |

This program element provides for centralized information resources in the areas of computer, telecommunications, and information support services, including planning and program management, nationwide telecommunications equipment and services, systems development, data administration, office automation, microcomputers, records management and services, library services, document control and management, computer operations, computer security, user support services, and graphics. It provides for the essential services and technical means for the agency staff to receive, store, retrieve, manipulate, process, and transmit information in support of the agency's health and safety mission. The program element is managed by the Office of Information Resources Management (IRM).

IRM provides for strategic planning for information technology for the agency. Key elements in the strategy are: 1) the maintenance of a robust and technologically current office automation and telecommunications infrastructure, 2) implementation of a new text and image management system for agencywide use, and 3) improvement in the information technology (IT) area by modifying the IT planning and budgeting process and establishing an IT Council.

IRM reviews information management activities, programs, and systems to determine if they are meeting NRC's requirements in an efficient and cost-effective manner. It identifies any potential areas in which technology or centralization can be used to improve efficiency and effectiveness for cost avoidance. This includes participation in an IRM review program to measure the effectiveness and efficiency of the agency's IRM program and compliance with

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

Information Resources Management

the Paperwork Reduction Act of 1980 and the Federal Information Resources Management Regulation, Subpart 201-221, which require the NRC to conduct periodic reviews of information resources management activities. IRM will also continue to acquire, evaluate, demonstrate, develop, and begin the implementation of new initiatives and pilot projects in such areas as computer-aided design and modeling, electronic data interchange, full text and image technologies, and other technologies with the potential for improving the performance of NRC's mission.

Activities related to computer and telecommunications services include the evaluation, support, maintenance, and purchase of telecommunications equipment and services and the development of the architecture for the agency's telecommunications network. Additional activities include maintenance, support, and improvements of existing NRC automated systems; development of shared data bases and new systems; and office automation planning and the purchase of microcomputer hardware and software and local area networks.

IRM provides maintenance and support for emergency and routine telecommunications services for the agency. Specifically, this includes telecommunications for the NRC Operations Center and maintenance of the Emergency Telecommunications System, as well as routine local and long-distance service.

During FY 1994-1995, IRM will continue to implement a telecommunications architecture that will allow the connection of all agency microcomputers to a common network that will provide connectivity and high-speed information transfers among diverse workstations, NRC-owned computers, and outside locations, such as the Southwest Research Institute, DOE laboratories, and timesharing facilities, in order to increase the effectiveness and efficiency of agency operations.

IRM maintains and enhances current computer applications to support staff demands for information on nuclear facilities and safety issues. Applications include computer systems such as the Safety Issues Management System, Master Inspection Planning System, and Licensing Management System. This includes continuing to develop systems to meet new office requirements and replacing older systems in need of redevelopment. In particular, IRM will continue efforts for the replacement of the aging personnel and payroll systems; implement applications needed in support of the high-level waste program; and implement applications to support efforts to more effectively manage agency contracts.

IRM also provides office automation capabilities to NRC headquarters staff. During FY 1993, existing word processing systems were replaced with microcomputer-based local area networks, which are deployed throughout the agency providing enhanced intra-agency

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

Information Resources Management

communication; improving the capability to electronically create, modify, transfer, and share documents and data; improving personal productivity; and streamlining administrative functions. In FY 1994, IRM will begin a microcomputer replacement program that will maintain a technologically current inventory of microcomputers capable of running the applications needed. This will help ensure that by FY 1996 NRC's inventory of microcomputers will be maintained, on the average, within one generation of the latest technology.

In regard to information support services, IRM provides for the management of the flow of information related to the agency's regulatory, research, inspection, legal, management, and external relations programs, and provides technical support for the staff in the use of information technology, including computer services, library and records management services, document and drawing management, graphics services, scientific code dissemination, commercial data base services, and user training and assistance. Additionally, IRM ensures agency compliance with statutory requirements under the Paperwork Reduction Act of 1980, the Federal Records Act, the Federal Information Resources Management Regulation, and the Computer Security Act of 1987.

IRM also provides agencywide records management and library services. This includes:

Ensuring that all record collections have National Archives and Records Administration or GSA-approved disposition authorities; maintaining the file center, the agency's archival facility, and the automated accountability system of agency records; coordinating the agency's vital records program; providing continued support to preserve the agency's official records in a secure, environmentally controlled facility; and providing pickup and delivery services between the contractor site and all NRC buildings, the Federal Records Center, and the recycling center. During FY 1994, large quantities of documents will be retired from central files.

Managing the agency's Information Collection Budget to ensure compliance with the requirements of the Paperwork Reduction Act; continuing to work with other NRC offices to reduce the burden imposed primarily on NRC licensees; establishing procedures as required by OMB Circular 89-18, "Fiscal Year 1990 Information Collection Budget," in order to minimize the effort required of NRC licensees while ensuring legislative requirements are met; continuing the routine review of all agency proposed and final rules, policy statements, and regulatory guides to ensure that all information collection requirements are consistent with OMB's requirements.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

Information Resources Management

- Enhancing the agency's records management program with special emphasis on decommissioning records in response to a General Accounting Office report entitled "NRC's Decommissioning Procedures Need To Be Strengthened" (May 1989).
- Providing library services, including the acquisition and maintenance of scientific and technical books, journals, reports, standards, codes, and microforms to support the agency.
- Providing access to off-site commercial data bases, both bibliographic and source (actual data) and providing services to cataloging and interlibrary loan.
- Exploring the feasibility of electronic communications among NRC licensees and the public and continuing to explore the compact disc/read only memory application for more efficient and effective dissemination, storage and retrieval of information.

IRM maintains the Nuclear Documents Management System/Repository (NUDOCS), the centralized search and retrieval system for licensing, enforcement, technical, and adjudicatory documentation. The information available through NUDOCS consists of on-line bibliographic data and off-line microfiche for all captured documents as well as the full text of certain categories of documents. NUDOCS information products are critical to the functioning of the agency's headquarters and local public document rooms, and have become integrated into the way the NRC conducts its business. IRM is also examining more efficient and cost-effective ways of document processing and dissemination, including the exchange of electronic documentation, both internal and external to the NRC.

Information technology services include training; microcomputer user support; installation, maintenance, and assistance for computer systems; graphics design; and consultation services. IRM provides access to timesharing facilities such as the Federal Computer Center at the National Institutes of Health, the Idaho National Engineering Laboratory, and the Oak Ridge National Laboratory.

IRM also implements and makes available scientific codes so that they may be tested or used in the regulatory or safety research programs, continues to meet NRC staff requirements for scientific code support, and assists NRC staff and/or contractors in preparing all necessary materials to submit a scientific computer code package to Federal software centers; responds to walk-in and telephone requests for codes with information on their availability; continues to install codes as required by the NRC technical programs on INEL, NIH, or NRC computers for use in regulatory and research programs; annually updates the inventory of documented NRC scientific software; continues to provide support

NUCLEAR SAFETY MANAGEMENT AND SUPPORT
Information Resources Management

for microcomputer-based tools such as those used to establish the reliability of reactor systems and to analyze the risk of reactor accidents; and completes the training programs for agency use of computer codes.

IRM is also responsible for meeting the requirements of the Computer Security Act of 1987 (Public Law 100-235), specifically to identify any computer system containing sensitive information; establish a plan for the security and privacy of each system identified; conduct a security awareness and good practices training program for all employees involved with the management, use, or operation of any computer system in the agency; and ensure compliance with OMB Circular A-130, "Management of Federal Information Resources," and NRC Manual Chapter 2301, "Systems Security."

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

Personnel and Training Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 5,668 | 5,866 | 5,866 | 6,245 | 379 |
| Administrative Support | 5,361 | 5,639 | 5,639 | 5,484 | -155 |
| Travel | 173 | 258 | 258 | 236 | -22 |
| Total | 11,202 | 11,763 | 11,763 | 11,965 | 202 |
| | | | | | |
| Full-Time Equivalent Employment | 73 | 73 | 73 | 73 | 0 |

The Office of Personnel (OP) provides for the effective recruitment, organization, utilization, and development of the agency's human resources through an integrated career management system; plans and implements NRC personnel policies, programs, and services; administers agencywide recruitment, staffing, compensation, and position management; provides for training, awards and benefits administration, employee health assistance, and counseling services; provides labor relations policy guidance and negotiates the collective bargaining agreement; collects, analyzes, and provides data on NRC's work force and supports agencywide equal employment opportunity and affirmative action programs and activities; and provides administration and guidance for the human resources strategic planning effort.

Personnel management and organizational activities include recruitment, staffing, and placement; compensation; position management; administration of employee and executive awards; personnel policy and program development; performance management; Federal labor relations and employee relations services; organization and management analyses; support to the Executive Resources Board and its subgroups, including the Performance Review Board and Recertification Performance Review Board; the occupational health and safety program; the employee health assistance program; and the wellness/fitness, child development, and health care programs. Personnel management activities also include equal employment opportunity programs, which encompass minority career development; handicapped employee and upward mobility programs; special recruitment, development,

NUCLEAR SAFETY MANAGEMENT AND SUPPORT: Personnel and Training

and retention programs, including cooperative education, intern, graduate fellowship, senior fellowship, visiting fellows, Senior Executive Service sabbatical and candidate development, and distinguished engineer and scientist; and other specialized activities, such as the differing professional opinion process. Efforts to establish a child development center and a wellness/fitness center as part of the NRC headquarters consolidation in Rockville, Maryland will be completed in FY 1995.

Training and development activities provide for all education and training (other than reactor technology and associated technical training under the purview of the Technical Training Center) for agency headquarters and regional staff. This includes graduate fellowships; scholastic support of cooperative education program students; retraining of NRC employees; support for the Technical Training Center qualifications training; individual employee, supervisory, management, and executive development training; equal employment opportunity and affirmative action; career development counseling; risk analysis; regulatory process; end-user computing; and other internal and external training and development activities to improve employee performance. OP also provides for organizational development, including management succession activities, team building, and rotational assignments, and for agencywide support for improving training delivery through the development and application of improved or alternative methods and increased employee training opportunities utilizing the Individual Learning Center.

OP also provides secretarial and clerical support to meet the short-term needs of headquarters offices through the assignment of Central Support Unit staff or acquisition of temporary services from the private sector. OP manages this function in response to agency requirements.

NUCLEAR SAFETY MANAGEMENT AND SUPPORT

Regional Administrative Support Program Element

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|------------------------------------|--------------------|---------|----------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Administrative Support | 9,417 | 10,163 | 10,163 | 9,564 | -599 |

This program element provides administrative and logistical support services for NRC's regional offices. Prompt, efficient, and dependable administrative services are provided to support the regional staff in meeting NRC's mission, goals, and objectives. Included in these support services are the following:

- Transportation - rental or lease of motor vehicles from commercial vendors and government motor pools, and freight and express services
- Rental of Space - rent payments to GSA and payments for public meeting rooms when government space is not available
- Printing and Reproduction - printing, reproduction, and photography services
- Security - services to protect NRC personnel, property, and information
- Supplies, Materials, Postage, and Equipment - consumable supplies and office furniture, filing equipment, office machines, and general equipment
- Telecommunications - local services at resident sites and regional offices, long-distance services for non-Federal telecommunications system telephone calls, and necessary equipment
- Automated Systems - systems development efforts, data entry, maintenance and support, evaluation and implementation of options for replacing existing data and word processing and office automation equipment, and procurement of microcomputer hardware and software
- Other Operational Services - alterations and supplementary heating, ventilation, and air conditioning; parking, automotive maintenance, fuel, and tires; maintenance of

NUCLEAR SAFETY MANAGEMENT AND SUPPORT
Regional Administrative Support

office machines and security, printing and reproduction, graphics, and photography equipment; graphics and audiovisual services; translations; contract typing; and mail and messenger services

INSPECTOR GENERAL

INSPECTOR GENERAL

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

Total FY 1995 Estimate \$5,080,000

| | FY 1993 Enacted | FY 1994 | | FY 1995 Estimate | |
|---|--------------------|--------------|--------------|------------------|------------------------------------|
| | | Enacted | Proposed | Request | Change from FY 1994 Proposed |
| Budget Authority by Function (\$K) | | | | | |
| Salaries and Benefits | 3,750 | 3,933 | 3,933 | 4,192 | 259 |
| Program Support | 585 | 662 | 662 | 677 | 15 |
| Travel | 250 | 205 | 205 | 211 | 6 |
| Total | 4,585 | 4,800 | 4,800 | 5,080 | 280 |
| Full-Time Equivalent Employment | | | | | |
| Audits | 19 | 19 | 19 | 19 | 0 |
| Investigations | 17 | 17 | 17 | 18 | 1 |
| Inspector General & Resources Management and Operational Support | 5 | 7 | 7 | 7 | 0 |
| Total | 41 | 43 | 43 | 44 | 1 |

| Changes in Budget Authority (\$K) | | | |
|--|--------------------------------------|----------------------|-------|
| Program | FY 1995 Change From FY 1994 Proposed | | |
| | Current Services | Program Requirements | Total |
| Inspector General | 193 | 87 | 280 |

INSPECTOR GENERAL

EXPLANATION OF RESOURCE CHANGES FOR CURRENT SERVICES

The increase for personnel compensation reflects the cost of the 1.6 percent Federal sector pay increase expected in CY 1995; the full year cost of the 4.23 percent locality pay increase, which was effective January 1994; within-grade increases; and several minor adjustments, such as the increased number of staff entering the Federal Employees Retirement System and benefits cost increases. The increase for program support and travel reflects inflation estimated at 2.0 percent in FY 1995.

EXPLANATION OF RESOURCE CHANGES FOR PROGRAM REQUIREMENTS

The resource increase in FY 1995 is required to fund one additional full-time equivalent (FTE). This FTE is needed to operate the NRC's Office of the Inspector General (OIG) hotline. The Inspector General Act of 1978 requires the OIG to receive and investigate allegations concerning violations of laws, rules, and regulations; mismanagement; waste; fraud; and danger to the public health and safety.

Hotlines provide employees, contractors, and the public with a method for reporting allegations. Consequently, every statutory Inspector General (IG) is administering a hotline program to satisfy this requirement. Approximately 32 percent of all allegations received by NRC's OIG are the result of the hotline program. Several significant cases were opened deriving from hotline allegations. This FTE will provide the OIG with the necessary full-time support to operate its hotline program.

DESCRIPTION OF PROGRAM

The NRC's OIG was established in April 1989. The OIG's primary mission is to assist the agency in operating more effectively and efficiently by identifying ways to improve its programs and operations, and to prevent and detect fraud, waste, and abuse. The OIG accomplishes its mission by performing audits, investigations, and inspections, and by reviewing existing and proposed legislative and regulatory initiatives.

The NRC's OIG also shares some unique responsibilities with the agency. The NRC's primary mission is to provide adequate assurances 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 NRC's efforts to ensure that its safety-related programs are operating effectively.

INSPECTOR GENERAL

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.

Below is a description of the components within the OIG program.

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 NRC's administrative and program operations. OIG's financial audits review NRC's internal control systems, transaction processing, and financial systems.

During FY 1994-1995, the OIG will perform approximately 15-20 audits each year. Five of these audits are required by statute, OMB, or by agency directive. The remaining audits will focus on high-risk, high-cost agency programs that are examined regularly in a multi-year cycle.

The audits planned for FY 1994-1995 are based on a comprehensive annual audit plan that includes input from the NRC Commission, Congress, GAO, OMB, DOE, and the nuclear industry, as well as the OIG staff. The plan identifies key, high-risk, high-cost programs for audit, including NRC's inspection, research, and information resource management programs. Audit surveys of these areas identified 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 those mandated by the Chief Financial Officers Act. Furthermore, the NRC is required by the Omnibus Budget Reconciliation Act of 1990 to recover approximately 100 percent of its budget authority. In FY 1995, the NRC will collect approximately \$525 million in fees from the industries that it regulates. Therefore, the agency must employ sound financial practices to fully comply with its legislative mandates. The OIG assists the agency in meeting these objectives through the conduct of its financial audits.

Additionally, during FY 1994-1995, the OIG will assess and report on NRC's response to the recommendations that the OIG, and other audit entities, such as GAO, have made concerning NRC programs.

INSPECTOR GENERAL

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 the public health and safety. The mission of the investigative program is to perform investigative and inspection activities related to the integrity of NRC's programs and operations.

By nature, investigations and inspections are primarily reactive. The investigative caseload is driven by the number of allegations received and the complexity of the given issues. On the basis of historical trends, the investigative workload has continually increased in number and complexity since the inception of the OIG in April 1989. As shown in Figure 1, 178 allegations were received in FY 1990, 244 in FY 1991, 296 in FY 1992, and 550 in FY 1993.

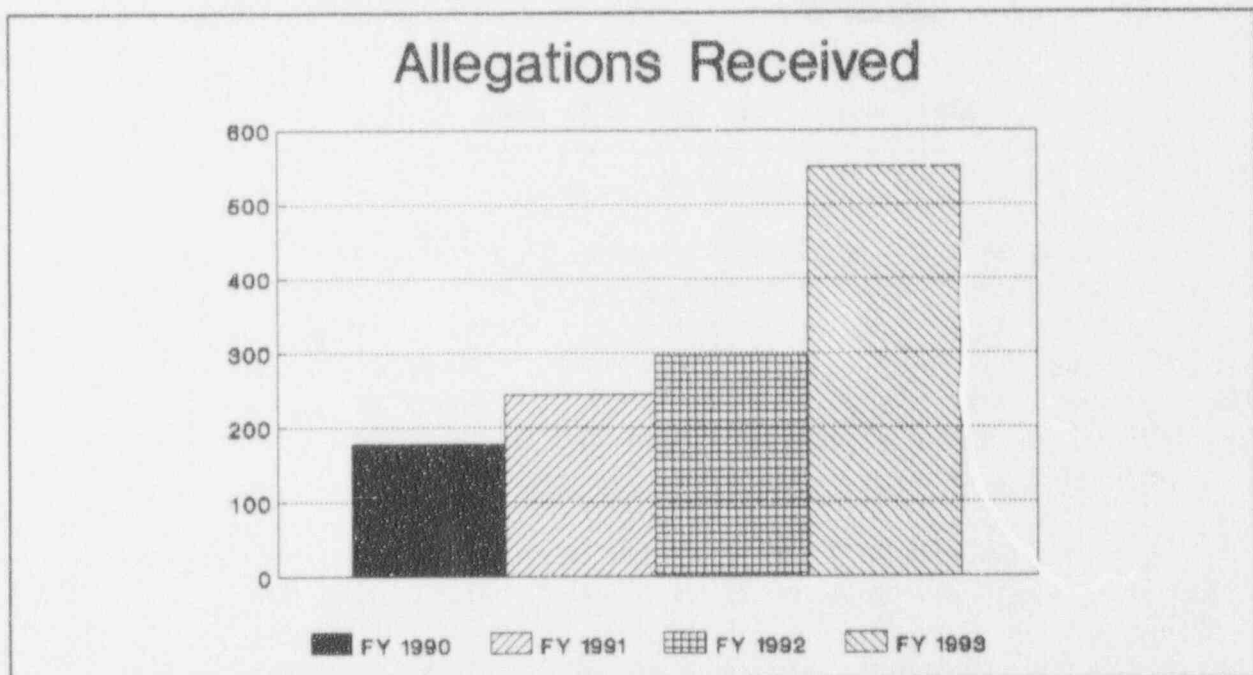


Figure 1

Many of the allegations received result in investigative and inspection case openings. Figure 2 shows that 68, 80, 93, and 110 investigations and inspections were opened in FYs 1990, 1991, 1992, and 1993, respectively. It is expected that a similar number of cases as opened in FY 1993 will be opened in FY 1994-1995. During FY 1994-1995, the OIG expects to close approximately 8^e investigations and inspections each year.

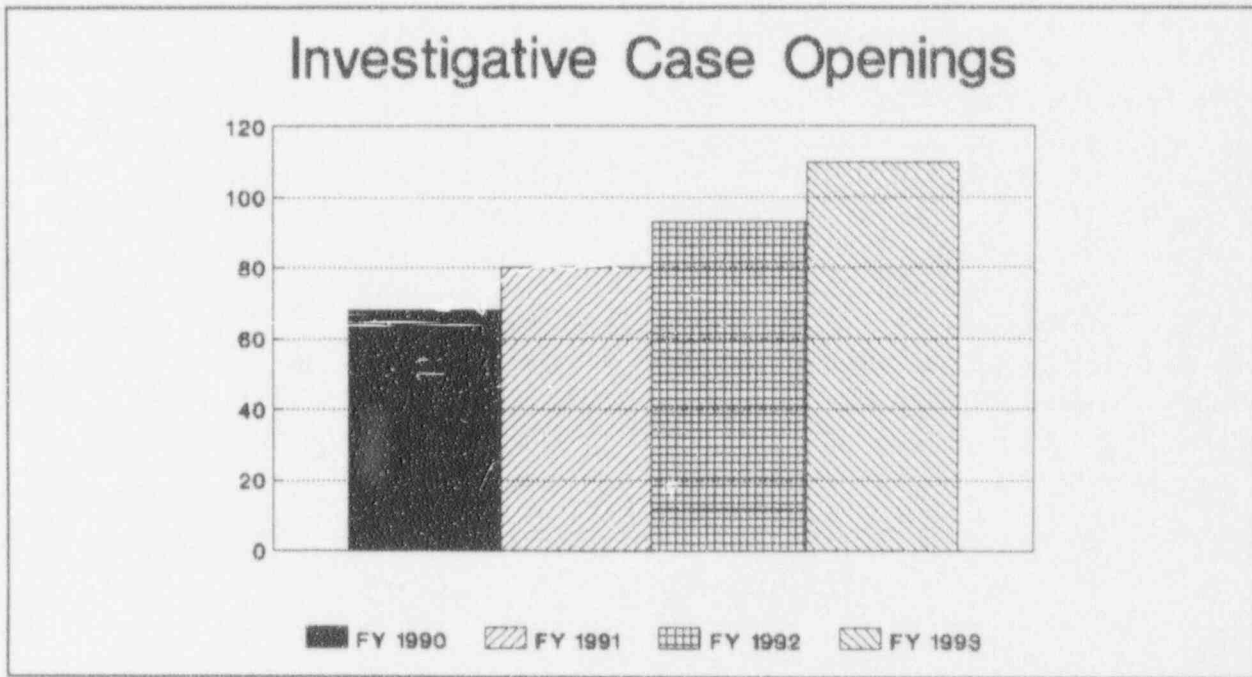


Figure 2

In addition, the investigative staff also participates as observers in agency task forces to examine ways to strengthen agency operations. For example, the OIG joined the agency in an investigation into the death of an 82-year old woman who was receiving radiation therapy. A wire containing highly radioactive material broke and was unknowingly left inside the woman's body. The woman died 5 days later. This work, augmented by an OIG audit, and OIG counsel's regulatory review provided valuable insight which is assisting the agency in strengthening its medical licensee program.

In conclusion, the demonstrated rise in allegations, and increasing investigative casework requires a continued focus on the resources allocated to this program.

Inspector General and Resource Management and Operational Support

The Inspector General's staff consists of secretarial support and legal counsel. The OIG legal counsel provides independent advice on issues concerning appropriation law, financial management statutes, procurement and funding, personnel, labor law, and the Privacy and Freedom of Information Acts. Other legal responsibilities include providing counsel regarding criminal law, criminal procedure, evidence, and constitutional law issues as they relate to OIG's investigative program. The OIG counsel also provides detailed review and comment of agency regulations and legislation.

INSPECTOR GENERAL

The Resource Management and Operational Support Staff provides operational support to the OIG. It prepares the OIG's "Semiannual Report" to the U.S. Congress, formulates and administers the OIG budget, operates an independent personnel 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.

SPECIAL SUPPORTING TABLES

SPECIAL SUPPORTING TABLES

This section contains the following:

Legislative Program Projections which provides a summary of NRC's budget authority and outlays by appropriation for FY 1993-1999.

A report on consulting services required by 31 U.S.C. 1114(a), which provides resource estimates and a description of the consulting services used by NRC in FY 1993 and planned for FY 1994-1995.

A report on drug testing required by 31 U.S.C. 1105(a), which describes NRC's drug testing activities conducted in accordance with Executive Order 12564.

A report on metrication, required by Public Law 100-418, which describes NRC's actions that have been taken and those planned for FY 1994 to implement the Metric Conversion Act of 1975, as amended.

A report by the Office of the Inspector General, required by 31 U.S.C. 1114(b), on NRC's progress in establishing effective management controls and improving the accuracy and completeness of information provided to the Federal Procurement Data System on contracts for consulting services.

A report by the Office of the Inspector General on NRC's compliance with, and the effectiveness of, Public Law 101-121 on the use of appropriated funds to influence certain Federal contracting and financial transactions.

A summary of NRC's reimbursable work agreements including the source and amount of funding, a project description, a description of the billing procedures and the extent of full-cost recovery and a justification for NRC's involvement in each project.

Special Supporting Tables

LEGISLATIVE PROGRAM PROJECTIONS
(Dollars are in millions)

| | FY 1993 ACTUAL | FY 1994 ENACTED | FY 1994 PROPOSED | FY 1995 ESTIMATE | FY 1996 ESTIMATE | FY 1997 ESTIMATE | FY 1998 ESTIMATE | FY 1999 ESTIMATE |
|--|-------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| NRC Appropriation: Salaries and Expenses | | | | | | | | |
| Budget Authority | 535.4 | 542.9 | 530.2 | 541.4 | 541.4 | 541.4 | 541.4 | 541.4 |
| Budget Outlays | 483.5 | 529.0 | 519.5 | 529.4 | 528.7 | 528.3 | 528.0 | 527.5 |
| NRC Appropriation: Inspector General | | | | | | | | |
| Budget Authority | 4.6 | 4.8 | 4.8 | 5.1 | 5.1 | 5.1 | 5.1 | 5.1 |
| Budget Outlays | 4.7 | 4.8 | 4.8 | 5.0 | 5.1 | 5.1 | 5.1 | 5.1 |

Special Supporting Tables: Schedule of Consulting Services By Program

U.S. NUCLEAR REGULATORY COMMISSION
 SCHEDULE OF CONSULTING SERVICES BY PROGRAM
 (Thousands of Dollars)

Salaries and Expenses, Account No.: 31X0200

Inspector General, Account No.: 31X0300

| <u>Type of Service/Program</u> | <u>FY 1993 Actual</u> | <u>FY 1994 Estimate</u> | <u>FY 1995 Estimate</u> |
|--|---------------------------|-----------------------------|-----------------------------|
| <u>Management and Professional Support Services:</u> | | | |
| Reactor Safety and Safeguards Regulation | \$394 | \$86 | \$90 |
| Nuclear Safety Management and Support | 12 | 0 | 0 |
| Subtotal | \$406 | \$86 | \$90 |
| <u>Engineering and Technical Services</u> | | | |
| Reactor Special and Independent Reviews, Investigation, and Enforcement | 45 | 45 | 46 |
| Nuclear Regulatory Commission Salaries and Expenses Account | TOTAL | \$451 | \$131 |
| Nuclear Regulatory Commission Office of Inspector General Account | \$0 | \$0 | \$0 |
| Amounts included in the categories listed above for R&D activities: | \$0 | \$0 | \$0 |

Reactor Safety and Safeguards Regulation

Consultant services are used to provide technical expertise in: 1. Assessing the feasibility of recentralizing the operator licensing function. 2. Providing expertise in the financial modeling of power reactor licensees as part of the responsibility to evaluate the financial qualifications of reactor licensees to determine that licensees' financial situations do not adversely affect protection of public health and safety. 3. Developing risk-based regulations with regard to cost and benefits, and the advantages and disadvantages with the implementation of these regulations. 4. Reviewing of test programs and computer codes, insights in the development and scope of Advance Reactor Design Test Programs, and the application of sensitivity analysis for operating Reactor Thermal Hydrology.

Reactor Special and Independent Reviews, Investigations, and Enforcement

The ACRS is responsible (1) to advise the NRC on the safety aspects of proposed and existing nuclear facilities and the adequacy of proposed reactor safety standards; (2) to perform other such duties as the Commission may request; and (3) to consider a diversity

Special Supporting Tables: Schedule of Consulting Services By Program

of matters relating to the nuclear fuel cycle, and power plants. While the members represent a variety of disciplines in the scientific and engineering fields, they cannot be expert in all the specific in which the Committee is called on to advise. Accordingly the Committee relies on specialized consultants to furnish expert, authoritative advice or to provide "a second independent opinion" when the need arises. These national laboratories are one source of expertise, since it conducts nuclear energy research in a number of areas, and has a well-established reputation in the field.

Nuclear Safety Management and Support

Contractual services are used to assist in the development of a quality child care facility for use by NRC employees.

FY 1995 CONGRESSIONAL BUDGET REQUEST
REPORT ON NRC'S DRUG TESTING ACTIVITIES

NRC's Drug Testing Plan was approved in August 1988 and all components of NRC's drug testing program for employees and applicants remain in place. Drug testing requirements imposed by NRC upon the nuclear industry through regulations are separate from this program and not covered by this report. NRC's Drug Testing Program under E.O. 12564 includes random, applicant, voluntary, follow-up, 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.

NRC positions which meet the following criteria are considered testing designated positions and the employees are subject to random testing:

- (1) Regional and Headquarters employees who have unescorted access to vital 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 1,813 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 937 tests of all types were conducted between January 1, 1993 and December 31, 1993. 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 one employee who tested positive. That employee is now undergoing assessment by the NRC's Drug Rehabilitation Assessment Coordinator. Another employee who tested positive under random testing conducted in 1992 is in follow-up testing. A third employee who tested positive under random testing conducted in 1991 successfully completed follow-up testing in September 1993 and is now 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.

Special Supporting Tables: Report on NRC's Drug Testing Activities

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

U. S. NUCLEAR REGULATORY COMMISSION
REPORT TO CONGRESS ON METRICATION

This report is in response to Public Law 100-418, Section 5164 of the Omnibus Trade and Competitiveness Act of 1988, which requires each Federal Government agency to report to the Congress on its metrication activities for the preceding year and plans for the coming year.

The major metrication activities within the Nuclear Regulatory Commission (NRC) in 1993 dealt with the ongoing assessment of (a) the state of metric use by the NRC's licensees and (b) the effectiveness of the NRC's metrication policy. NRC's metrication transition, as called for in its policy statement, appears to be working smoothly. In January 1993, the NRC began publishing rulemakings and other regulatory actions in dual units (metric followed parenthetically by inch-pound).

In June 1993, the NRC's Executive Director for Operations responded to a letter from the Honorable John D. Dingell, Chairman, Committee on Energy and Commerce of the United States House of Representatives, addressed to the Chairman of the Federal Energy Regulatory Commission (FERC) in which Chairman Dingell discussed the application of the Metric Conversion Act of 1975, as amended, and Executive Order 12770, "Metric Usage in Federal Government Programs." The NRC response reiterated its support and encouragement of the use of the metric system of measurement by its licensees, and described its metrication policy.

In October 1993, the NRC's Metric Executive voted affirmative for publication of "Federal Agency Guidance on the Use of the Metric System in Acquisitions." The NRC will adhere to the Federal Acquisition Regulation (FAR) and the General Service Administration's (GSA) metrication program for its own purchases, as the majority of the NRC's purchases for goods are made through the GSA's Federal Supply Schedules.

The NRC's metrication objectives for 1994 will continue to be the ongoing assessment of the state of metric use by the NRC's licensees and the effectiveness of the NRC's metrication policy.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20545

December 30, 1993

OFFICE OF THE
INSPECTOR GENERAL

MEMORANDUM FOR: The Chairman
Commissioner Rogers
Commissioner Remick
Commissioner de Planque

FROM: *David C. Williams*
David C. Williams
Inspector General

SUBJECT: OFFICE OF THE INSPECTOR GENERAL'S (OIG)
EVALUATION OF THE NUCLEAR REGULATORY
COMMISSION'S CONTRACTING FOR CONSULTING
SERVICES

Section 1114(b) of the Title of the U.S. Code requires the Inspector General or comparable official of each Federal agency to submit to Congress each year, along with the agency's budget justification, an evaluation of the agency's progress in establishing effective management controls and improving the accuracy and completeness of the information provided to the Federal Procurement Data System (FPDS) on contracts for consulting services. This memorandum is intended to fulfill the requirements of Title 31 and will be included in the Nuclear Regulatory Commission's (NRC's) Fiscal Year 1995 budget submission.

The OIG has completed an audit of NRC's use of consulting services. The report was issued on December 28, 1993. The OIG concluded in the report that NRC had established a system of management controls for the approval of contracts for consulting services; and has continued to improve, in terms of accuracy and completeness, the information reported to the FPDS.

cc: J. Taylor, EDO
H. Thompson, EDO
J. Sniezek, EDO
S. Chilk, SECY
W. Parler, OGC
R. Scroggins, OC
P. Norry, ADM
E. Halman, ADM
J. Blaha, EDO
J. Funches, ICC



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

July 15, 1993

OFFICE OF THE
INSPECTOR GENERAL

MEMORANDUM FOR: The Chairman
Commissioner Rogers
Commissioner Remick
Commissioner de Planque

FROM: *David C. Williams*
David C. Williams
Inspector General

SUBJECT: The Nuclear Regulatory Commission's
Compliance with the Anti-Lobbying Act;
Section 319 of Public Law 101-121.

In accordance with Public Law 101-121's requirement for an annual report to Congress, we submit our findings in regard to the Nuclear Regulatory Commission's compliance with, and the effectiveness of, the requirements of the Anti-Lobbying Act.

In order to assess NRC's compliance with the Act, we reviewed Fiscal Year 1993 contract actions to determine if the required contract clause and certification were included, where necessary. Specifically, we reviewed 19 of 61 contract actions, each with a value over \$100,000. We found the agency to be in compliance with the Anti-Lobbying Act.

Additionally, the Act requires statistics on the following:

- All alleged violations, during the year covered by this report, which relate to the following NRC actions:
- (a) the awarding of any Federal contract
 - (b) the making of any Federal grant
 - (c) the making of any Federal loan
 - (d) the entering into of any cooperative agreement
 - (e) the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement

- the actions taken by the Chairman, in the year covered by this report, with respect to those alleged violations and alleged violations in previous years; and
- the amounts of civil penalties imposed by NRC.

There have been no alleged violations relating to NRC's covered Federal actions, therefore, no action was required by the Chairman and no penalty was imposed by NRC.

This report on our audit, which was conducted in accordance with generally accepted Government auditing standards, is to be submitted with NRC's 1995 budget justification.

cc: J. Taylor, EDO
H. Thompson, EDO
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S. Chilk, SEC
W. Parler, CGC
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P. Norry, ADM
R. Scroggins, OC
J. Funches, ICC
Financial Management Division, OMB

SUMMARY OF REIMBURSABLE WORK AGREEMENTS
(new budget authority)

| FY 1993 | FY 1994 | FY 1995 |
|---------------|----------------|-----------------------------|
| \$6.8 million | \$11.6 million | \$11.6 million ¹ |

¹While other government agencies have not provided to NRC specific reimbursable work requests, for planning purposes, it is assumed that a similar level of effort will continue in FY 1995 as that outlined in the attached summary of reimbursable work agreements detailed for FY 1993 and FY 1994.

Special Supporting Tables

SUMMARY OF REIMBURSABLE WORK AGREEMENTS

New Budget Authority for FY 1993:

1. Plutonium Air Transport Package.

FY 1993 Funding: \$150,000

Source: Japanese Power Reactor and Nuclear Fuel Development Corporation (PNC)

Description of Work: The NRC and the PNC signed an agreement in December 1988. NRC efforts began in FY 1989 and concluded in FY 1993. Under this agreement the NRC was to: (1) collect, review and assess relevant data on major transport air crashes; (2) develop draft criteria for drop testing candidate packages filled with test material from aircraft; (3) develop draft requirements for crash testing a cargo plane fully loaded with candidate packages filled with test material; (4) develop draft criteria for controlled tests to be used in developing the package, as an alternative to crash testing a cargo plane; and (5) conduct feasibility studies for performing controlled, drop, and aircraft crash tests.

Justification for NRC Involvement: To develop criteria to comply with Public Law 100-203, Section 5062, which imposes requirements on containers used for air transport of plutonium from one foreign country to another where such transportation passes through U.S. airspace. Public Law 100-203, Section 5062, required that all NRC costs associated with the required package testing and related administrative costs be reimbursed.

Reimbursement Procedures: The PNC provided incremental payments to the NRC in advance of expenditures. Such payments totalled \$4,390,000. NRC costs for this effort were \$4,201,910. All costs were fully recovered. The NRC returned the remaining \$188,090 to PNC.

2. Regional Energy Efficiency Project.

FY 1993 Funding: \$1,623,000

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

Description of Work: The purpose of this AID initiative is to promote the efficient and environmentally sound use of energy in the countries of Eastern and Central Europe. Technical (nuclear safety) subject areas include: international code assessment, severe accident and risk and accident management, nuclear safety orientation and training which includes hosting nuclear specialists, training at NRC's Technical

Special Supporting Tables : Summary of Reimbursable Work Agreements

Training Center in Chattanooga, Tennessee as well as supporting membership in the International Piping Integrity Research Group.

Justification for NRC Involvement: NRC is assisting AID in providing support to the countries of Eastern and Central Europe in the area of nuclear safety due to 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 expenses 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, a receivable is created in the NRC accounting system and bills are issued to AID in accordance with the terms of the agreement. Upon collection of all costs incurred under the agreement and the deobligation of any uncosted obligations, any remaining unobligated allotment balance will be withdrawn by NRC.

3. Energy Efficiency and Market Reform (Lisbon Initiative).

FY 1993 Funding: \$5,000,000

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

Description of Work: The purpose of this AID initiative is to implement nuclear safety initiatives in Russia and Ukraine. NRC is working with established regulatory bodies in Russia and Ukraine to develop and implement projects that would assist these bodies in meeting their responsibilities. NRC actions include: (1) training former Soviet Union regulatory representatives to set up a governing structure adopting appropriate U.S. standards, requirements and procedures; (2) participating in simulator training and technical assistance areas developed under operational safety enhancements; (3) participation of regulatory officials in training in the U.S., training includes selected inspection techniques and evaluation methods, design and construction considerations and familiarization with Standard Review Plans; (4) observing Russian and Ukrainian planned team inspections; (5) establishing Incident Response Centers; (6) performing a fire hazard analysis; (7) implementing analytical methodologies in performing safety analysis of operating plants; and (8) providing analytical simulators.

Justification for NRC Involvement: NRC is assisting AID in providing support to Russia and Ukraine in the area of nuclear safety due to 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 expenses for travel, contractor support, and administrative expenses (e.g. interpreters). Salary costs for NRC employees working under this agreement are not reimbursed by AID.

Special Supporting Tables : Summary of Reimbursable Work Agreements

As costs are incurred by the NRC, we create a receivable in the NRC accounting system and issue bills to AID in accordance with the terms of the agreement. Upon collection of all costs incurred under the agreement and the deobligation of any uncosted obligations, any remaining unobligated allotment balance will be withdrawn by NRC.

4. Energy Conservation Project.

FY 1993 Funding: \$16,000

Source: General Services Administration (GSA)

Description of Work: NRC initiated an energy conservation project to replace exit signs with energy efficient signs at NRC's One White Flint North Building, and GSA approved the funding. This project qualifies for the PEPCO Rebate Program and upon completion of the work, NRC will receive a \$4,000 credit towards its electric bill. The estimated annual savings are 155,090 KWH and the payback period to recoup the cost of the project is 2.4 years.

Justification for NRC Involvement: Public Law 100-615 established a goal of reducing energy consumption by 10 percent in both federally owned and leased buildings by 1995 from 1985 levels. Executive Order 12759 requires a 20 percent reduction through the year 2000. GSA earmarked funds for energy conservation projects in delegated facilities.

Reimbursement Procedures: GSA has transferred \$16,000 to NRC via an SF 108 voucher and Schedule of Withdrawals and Credits. NRC will issue purchase order based on this transfer. This payment fully covers NRC's costs for this project.

The NRC anticipates additional reimbursable work for FY 1994 as follows:

1. Nuclear Safety Initiatives for the Newly Independent States: Energy Efficiency and Market Reform Project.

Expected FY 1994 Funding: Approximately \$10,000,000

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. (Additional funding for Ukraine is also being considered.) Activities anticipated 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.

Special Supporting Tables: Summary of Reimbursable Work Agreements

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

Reimbursement Procedures:

It is anticipated that AID will provide budget authority in the same manner and for similar expenses as it did in FY 1993.

As costs are incurred by the NRC, we will create a receivable in the NRC accounting system and issue bills to the ordering agency in accordance with the terms of the agreement. Upon collection of all costs incurred under the agreement and the deobligation of any uncosted obligations, any remaining unobligated allotment balance will be withdrawn by NRC.

2. Safe and Secure Dismantlement.

Expected FY 1994 Funding: Up to \$1,600,000 (\$400,000 per country) (NRC is currently establishing an agreement for reimbursement of costs.)

Source: Department of Defense

Description of Work: To cooperate with the Department of Defense and the Department of Energy in a program for the transportation, storage, safeguarding and destruction of nuclear and other weapons in the former Soviet Union and its successor entities (e.g., Russia, Ukraine, Belarus, and Kazakhstan). The program began in FY 1992 and is not expected to exceed 5 years. NRC's involvement is in the areas of material control and accounting (MC&A) and physical protection. MC&A systems provide the capability of detecting possible theft, diversion or other unauthorized use of nuclear material and deterring such acts. Physical protection provides the capability of detecting, delaying and responding to adversarial acts, including theft and sabotage, and if necessary, aiding in the recovery of nuclear material. Building on existing national MC&A and physical protection policies and practices, the DOD, DOE and NRC will assist Russia, Ukraine, Belarus, and Kazakhstan in developing programs for: (1) effective regulatory oversight of MC&A and physical protection, (2) enhanced capability for effectively tracking and reporting on nuclear material inventories and transfers, (3) enhanced capability for both the national authority and facilities to positively determine and account for nuclear material inventories, (4) effective physical protection measures for nuclear material and facilities, and (5) effective technical support for MC&A and physical protection, including resources for training, development and implementation of technologies and equipment, and technical assistance to facilities.

Justification for NRC Involvement: NRC is assisting DOD in providing support to the former Soviet Union and its successor entities due to NRC's specialized expertise in the areas of material control and accounting and physical protection.

Special Supporting Tables: Summary of Reimbursable Work Agreements

Reimbursement Procedures:

It is anticipated that DOD will provide budget authority in the same manner and for similar expenses as under the FY 1993 agreement with AID.

As costs are incurred by the NRC, we create a receivable in the NRC accounting system and issue bills to the ordering agency in accordance with the terms of the agreement. Upon collection of all costs incurred under the agreement and the deobligation of any uncosted obligations, any remaining unobligated allotment balance will be withdrawn by NRC.

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Washington, DC 20555 -0001

10. SUPPLEMENTARY NOTES

11. ABSTRACT (200 words or less)

This report contains the fiscal year budget justification to Congress. The budget provides estimates for salaries and expenses and for the Office of the Inspector General for fiscal year 1995.

12. KEY WORDS/DESCRIPTORS (List words or phrases that will assist researchers in locating the report.)

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