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BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

The Nuclear Regulatory Commission: More Aggressive Leadership Needed

The Energy Reorganization Act of 1974 which established the Nuclear Regulatory Commission required GAO to evaluate the Commission's performance by January 18, 1980. This report responds to that requirement.

GAO concluded that, although improvements have been made, the Commission's nuclear regulatory performance can be characterized best as slow, indecisive, cautious—in a word, complacent. This has largely resulted from a lack of aggressive leadership as evidenced by the Commissioners' failure to establish regulatory goals, control policymaking, and most importantly, clearly define their roles in nuclear regulation.

GAO also compared the existing commission organization form with alternative forms. Ultimately, the Congress must decide which organization form, on balance, is best for nuclear regulation. GAO concluded that (1) if the existing organization form is retained, the Commission Chairman's role should be strengthened, and (2) a commission is the superior organization form for nuclear regulatory policymaking.



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E R R A T A

To readers of GAO report EMD-80-17, entitled "The Nuclear Regulatory Commission: More Aggressive Leadership Needed", pages 66 and 87 have been reversed. Page 87 is the first page of Commissioner Hendrie's comments. Page 66 is the first page of Commissioner Kennedy's comments.



COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

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To the President of the Senate and the
Speaker of the House of Representatives

This report discusses the Nuclear Regulatory Commission's performance regulating nuclear activities during the first years of its existence and presents recommendations for improvements.

We made our review in response to a congressional directive contained in the Energy Reorganization act of 1974 (42 U.S.C. 5801) which established the Nuclear Regulatory Commission. The act required us to audit and report on the Commission's performance not later than 60 months after the effective date of the act, January 19, 1975.

We are sending copies of this report to the Director, Office of Management and Budget, and to each of the five Nuclear Regulatory Commissioners.

James B. Stacks
Comptroller General
of the United States

D I G E S T

Since the Nuclear Regulatory Commission was created in January 1975, it has regulated the Nation's commercial nuclear power program and other nuclear activities in a critical period. The 5-year period has been one of continuing nuclear powerplant cancellations in parallel with dramatically increasing concern over nuclear powerplant safety. Concern over the future of nuclear power reached crisis proportions in March 1979 with the accident at the Three Mile Island nuclear powerplant.

If nuclear power is to survive the present crisis and contribute substantially to the Nation's future energy supply, the Commission must establish a foundation of public and industry confidence in its regulatory ability. The most important step necessary to establish that foundation is for the Nuclear Regulatory Commissioners to provide the leadership and direction in nuclear regulation which they failed to provide in the past. The Commissioners need to set measurable regulatory goals and evaluate progress and performance; they need to take control of regulatory policymaking; and above all else, they need to make the Commission Chairman the agency's principal executive officer in fact as well as in name.

The Energy Reorganization Act of 1974, which established the Commission, also required GAO to report within 5 years on the Commission's regulation of commercial nuclear activities. This report responds to that requirement. The report is based on 50 previous GAO reports on various aspects of the Commission's operations, new audit work, and a limited comparison of the present commission organization form with alternative organization forms for nuclear regulation.

EMD-80-17

In the Commission's 5-year existence it has made many changes to improve nuclear regulation, the most notable being to encourage public participation. But in GAO's view the Commission's regulatory performance can be characterized best as slow, indecisive, and cautious--in a word, complacent. In part this characterization is due to the inherent limitations the commission organization form imposes on an agency's ability to efficiently identify, address, and resolve regulatory issues. To a large extent, however, it is due to the failure of the Nuclear Regulatory Commissioners to take control of the Commission and provide leadership and direction to the Commission staff, the regulated industry, and the public.

First, the Commissioners have not established measurable regulatory goals, objectives, and systems for measuring performance. Without goals and an evaluation process, the only measurements the Commission has had of its performance have been either in terms of time or the frequency of events, such as the Three Mile Island accident. (See pp. 27 to 30.)

Second, the Commissioners have not controlled regulatory policymaking. While there are exceptions, the Commissioners have generally permitted the Commission staff to decide when new policies are needed and how they should be written. (See pp. 30 to 34.)

Finally, and most importantly, the Commissioners have not clearly defined either their own roles in nuclear regulation, or the role of the Executive Director for Operations. In 1975 the Congress made the Commission Chairman the principal executive officer, but the Commissioners have not defined the limits of this expanded authority, nor has any Chairman attempted to use the authority. GAO found substantial differences of opinion among Commissioners and senior Commission staff on the Executive Director's role in nuclear regulation. The ambiguity over the Executive Director's role has

contributed to Commission inefficiency.
(See pp. 35 to 38.)

GAO believes the lack of strong leadership by the Nuclear Regulatory Commissioners has been a major contributing factor to the Commission's slow, indecisive, and cautious performance in nuclear regulation. This has been particularly true in nuclear powerplant and nuclear waste regulation.

In the absence of strong Commissioner leadership in nuclear powerplant regulation, the Commission has relied too much on regulatory policies, initiatives, and procedures which it inherited from the former Atomic Energy Commission. For example, the Commission continued to substantially rely on licensees to detect and correct deficiencies, without enough emphasis on independent Commission inspection and analysis. As a result, the Commission could not independently ensure that nuclear powerplants were properly constructed. Furthermore, the Commission has not been aggressive in taking enforcement actions against utilities constructing and operating nuclear powerplants. It sometimes downgraded proposed civil penalties to lesser enforcement sanctions or deliberately kept civil penalty amounts low. Also, until the Three Mile Island accident occurred, the Commission did not recognize the critical need for having localities around nuclear powerplants prepared for emergencies. (See pp. 6 to 11.)

The Commission's nuclear waste regulatory activities have lacked focus, funds and coordination; and to a great extent this has resulted from early indecision by the Nuclear Regulatory Commissioners on the proper scope of the activities. There are indications, however, that this situation is now improving. (See pp. 12 to 15.)

On a positive note, the Commission had begun a review of Commissioners' roles in Commission administrative proceedings even before the accident at the Three Mile Island nuclear powerplant; and as a result of that accident, the Commission is reappraising some of its

guiding principles and concepts of nuclear regulation. (See pp. 43 to 48.)

RECOMMENDATIONS TO THE NUCLEAR
REGULATORY COMMISSIONERS

GAO believes the Nuclear Regulatory Commissioners should be providing more leadership and direction to the Commission staff, the nuclear industry, and the public. To provide this leadership GAO recommends that the Nuclear Regulatory Commissioners

- Develop measurable Commission goals, objectives, and systems for evaluating the Commission's performance in meeting goals and objectives.
- Elevate policymaking activities to the Commissioner level.
- Define the Commission Chairman's authority and duties as the Commission's principal executive officer, and place the Executive Director for Operations in charge of all Commission staff-level day-to-day operations. If necessary to implement this recommendation, the Commissioners should seek appropriate legislation from the Congress.

RECOMMENDATION TO THE CONGRESS

In view of the critical importance of effective and efficient regulation to the future of commercial nuclear activities, GAO believes that the Congress should continue to take an active oversight role in monitoring the Commissioners' progress in implementing GAO's recommendations. Because of the diversity of opinion among the Commissioners on the need to clarify and strengthen the roles of the Commission Chairman and the Executive Director for Operations, and whether or not legislation is needed to accomplish this, GAO recommends that the Congress pay particular attention to this important aspect of strengthening the Commission.

OBSERVATIONS AND CONCLUSIONS
ON ALTERNATIVE ORGANIZATION
FORMS

On October 30, 1979, the President's Commission on the Accident at Three Mile Island recommended replacing the commission form of nuclear regulation with a single administrator form. The President rejected this recommendation, but also said he will submit a plan to the Congress in early 1980 to reorganize and strengthen the Commission. The President's plan and the possibility of still other organizational recommendations resulting from ongoing Three Mile Island-related investigations have made organization for nuclear regulation an issue the Congress must address and eventually decide.

While GAO directed its evaluation toward improving the present commission form of regulation, it also examined other organization forms which might be better suited for the two dissimilar roles the Commission now performs. One role--policymaking--requires the deliberate contemplation of issues that affect both the near- and long-term direction of regulated nuclear activities. By contrast, the second role--day-to-day regulation--requires firm and timely licensing, inspection, and enforcement decisions. Alternatives GAO examined included an agency headed by a single administrator, splitting the Commission into separate policymaking and regulatory agencies, and variations on these basic forms.

GAO's analysis of alternative organization forms showed that:

--The single administrator form would provide the best organization to develop goals and objectives, measure performance, and address and resolve regulatory issues in a timely manner--all of which have been failings of the present Commission. On

the other hand, there would be much more potential for abrupt changes in the direction of nuclear regulatory policy with changes in administrators. (See pp. 51 and 52.)

--The present commission form, strengthened as recommended in this report, would offer the distinct advantage of bringing to bear much deliberation and contemplation on regulatory issues. Also, the staggered 5-year terms of the Commissioners help to ensure that nuclear safety policies evolve, rather than undergo the abrupt changes in direction possible under the single administrator organization form. (See p. 52.)

--Separating the present Commission into a regulatory policymaking commission and a regulatory agency headed by a single administrator would take advantage of the strengths of both basic organization forms. Policymaking on critical unresolved nuclear regulation issues could continue under the commission form, with the advantage of multi-member deliberations. At the same time, day-to-day nuclear regulation would proceed under an agency headed by a single administrator, with prospects for better management of these day-to-day activities. (See pp. 52 and 53.)

Ultimately, the Congress must decide on the organizational structure which, on balance, best represents what the Congress wants for nuclear regulation. Two conclusions, however, are evident to GAO. First, if the Congress retains the Commission in essentially its same organizational structure, the Chairman's role should be strengthened. Second, the commission organization form is clearly superior to the single administrator form for deciding nuclear regulatory policy issues, because decisions are reached after a process of deliberation and contemplation by a number of people, each with his own unique perspective. (See pp. 53 and 54.)

NUCLEAR REGULATORY COMMISSION
COMMENTS

Each of the five Nuclear Regulatory Commissioners provided written comments on this report. Four of the five Commissioners agreed, to varying degrees, with the general thrust of the report. The other Commissioner did not, although he agreed that our report contains many justified criticisms. The Commission staff chose to comment informally on the report. (See pp. 23 to 25 and 41 to 42, and appendices III through VII.)

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ABBREVIATIONS

AEC	Atomic Energy Commission
DOE	Department of Energy
EPA	Environmental Protection Agency
GAO	General Accounting Office
NRC	Nuclear Regulatory Commission

CHAPTER 1

INTRODUCTION

The Nuclear Regulatory Commission (NRC) is the focal point for Federal regulation of commercial nuclear activities. It influences, directly by regulation and indirectly by public confidence in its performance, the extent to which both nuclear power is used to supply the Nation's electricity and nuclear materials are used for commercial purposes. NRC came into existence on January 19, 1975, with implementation of the Energy Reorganization Act of 1974 (42 U.S.C. 5801). That act

- abolished the Atomic Energy Commission (AEC),
- created the Energy Research and Development Administration ^{1/} to develop both nuclear and nonnuclear energy technologies and manage the military application of nuclear energy, and
- created NRC to regulate commercial nuclear activities.

REGULATION OF COMMERCIAL NUCLEAR ACTIVITIES BEFORE NRC

Regulation of commercial nuclear activities emanates from the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011). That act permitted and encouraged commercial applications of nuclear energy, and directed AEC to regulate these activities to insure that they were conducted in a manner that would both protect public health and safety, and maintain national security. Until the 1954 act, development and use of nuclear energy had been reserved to the Federal Government.

Over the years, the conflict between AEC's dual role of encouraging and regulating commercial nuclear activities became more and more apparent; and AEC's research and development and military application programs dominated both its Commissioners' time and the AEC budget. Therefore, in 1957, the AEC Commissioners established a separate regulatory organization, and, in 1961, elevated and enhanced the autonomy of the regulatory organization by making it a separate

1/On Oct. 1, 1977, the Energy Administration became a part of the Department of Energy (DOE). Throughout this report, the Energy Administration is referred to as DOE.

AEC Directorate. In 1963, the Director of Regulation moved from AEC's headquarters at Germantown, Maryland, to Bethesda, Maryland. Finally, beginning in 1971, the Director of Regulation received its own operating budget.

During the same period, the Congress and the AEC Commissioners created Atomic Safety and Licensing Boards and Atomic Safety and Licensing Appeal Boards to conduct hearings and decide on license applications. This helped to insulate the Commissioners from the process of licensing and regulating the construction and operation of nuclear powerplants--the commercial nuclear activity where the AEC Commissioners' dual roles most obviously conflicted.

NRC'S AUTHORITY AND APPROACH TO REGULATION

The Energy Reorganization Act of 1974 established NRC as an independent regulatory agency. The President would appoint five NRC Commissioners, one designated as Chairman. Each Commissioner would have one vote in all Commission decisions and actions. The act also established NRC's basic organizational structure by creating offices of reactor regulation, material safety and safeguards, and research.

NRC's basic mission is to insure, by means of open and responsive regulation, that civilian nuclear activities are conducted in a manner that will protect public health and safety and maintain national security. This is set out in the Atomic Energy Act of 1954, as amended. NRC is also charged with other important responsibilities. As a Federal agency taking major actions which affect the environment, NRC must evaluate both radiological and nonradiological impacts on the environment of proposed major commercial nuclear facilities. Furthermore, in the Energy Reorganization Act of 1974, the Congress charged NRC with new or expanded responsibilities its regulatory predecessor did not have, including (1) administering major regulatory research programs; (2) regulating certain DOE nuclear waste storage and/or disposal activities; and (3) increasing emphasis on safeguarding nuclear materials and facilities against theft, diversion, or sabotage.

The regulatory system NRC employs to pursue its basic mission and discharge its other responsibilities generally consists of:

- Standards. NRC continually modifies its body of regulations and standards as it learns more about nuclear power and other nuclear activities. New knowledge comes from (1) design, construction, and operating

experiences; (2) licensing and inspection activities; (3) NRC's and others' research; and (4) the informed public.

--Defense-in-depth design. Nuclear powerplants and other major nuclear facilities must be designed to (1) prevent accidents, (2) prevent or minimize damage from accidents which might occur, and (3) prevent or minimize public health and safety consequences in case of accidents resulting in significant plant damage.

--Licensing. Nuclear powerplants may be built and operated only after lengthy construction and operating license proceedings consisting of NRC safety and environmental reviews, public hearings, and final decisions made by appeal boards or the NRC Commissioners. NRC also licenses the possession and use of nuclear materials.

--Inspection and enforcement. NRC inspects the construction and operation of nuclear powerplants and the use of nuclear materials on a routine basis and in response to incidents and allegations. Enforcement sanctions NRC can use include letters notifying licensees of violations, civil penalties, and orders to suspend, modify, or revoke licenses or stop unsafe practices.

Critical to NRC regulation is the opportunity for public participation. In all proposed licensing and enforcement actions, there is the opportunity--and for nuclear powerplant construction permit applications, the requirement--for public hearings. In developing standards, NRC also provides opportunities for public participation. NRC generally publishes proposed policy statements for public comment before adopting them. In developing new or revised regulations, NRC provides at least one and often more than one opportunity for public comment. Furthermore, anyone can petition NRC to develop a new or revised regulation.

REQUIREMENT FOR AND SCOPE OF OUR EVALUATION OF NRC'S PERFORMANCE

In the Energy Reorganization Act of 1974 (42 U.S.C. 5876), the Congress directed us to provide, no later than 60 months after the effective date of the act, a report containing but not limited to

- an evaluation of the effectiveness of NRC's licensing and related regulatory activities, including nuclear safety research and nuclear materials safeguards;
- an evaluation of the effect of such NRC activities on the efficiency, effectiveness, and safety with which the activities licensed under the Atomic Energy Act of 1954, as amended, are carried out; and
- recommendations for legislation we believe is necessary to improve NRC's performance.

This report is our response to the act's directive. The report presents our evaluation of NRC's performance in addressing four major responsibilities assigned to it by the Energy Reorganization Act and the Atomic Energy Act. They are (1) regulating the construction and operation of nuclear powerplants; (2) developing and implementing nuclear waste regulatory programs; (3) assuring that nuclear facilities and materials are safeguarded from theft, diversion, and sabotage; and (4) conducting research to enhance the quality of licensing and related regulatory activities. The report also discusses weaknesses in NRC's regulatory system and organization which adversely affect its efficiency and effectiveness in all program areas. Finally, the report presents our conclusions, observations, and recommendations to both the Congress and NRC for improving the effectiveness and efficiency of nuclear regulation.

In several prior reports we concluded that legislation affecting NRC was needed to better protect public health and safety from both commercial and Federal nuclear activities. (See Appendix II beginning on page 60.) The Congress has acted on some of the recommendations but not on others. As discussed in Appendix II, we still believe the Congress should act on many of these prior recommendations.

Comments on the scope of this evaluation

As a part of our continuing efforts to address nuclear energy issues of interest to the Congress and the public, we have issued 50 reports evaluating NRC regulatory programs and activities since that agency was formed. Twenty-five of the reports resulted from evaluations we initiated and 25 resulted from evaluations requested by Members, Committees, and Subcommittees of the Congress. A list of these reports appears in Appendix I.

It is important to recognize that this report is not based on comprehensive evaluations of all NRC regulatory

programs and activities. For example, the report does not address:

- NRC's nuclear export regulatory activities. We are evaluating these activities as part of our mandate to report by March 10, 1981, on the impact of the Nuclear Nonproliferation Act of 1978 (22 U.S.C. 3201) on foreign commerce in the nuclear industry.
- The Three Mile Island unit 2 nuclear powerplant accident. The Chairman, Subcommittee on Energy and Power House Committee on Interstate and Foreign Commerce, requested us to monitor the various investigations to provide both an overview of the accident and the adequacy of the various studies. We will monitor and evaluate these investigations, keeping in mind the recommendations of this and past reports, and will report on our monitoring effort in the first half of 1980.

As a part of our evaluation, we interviewed all present and former NRC Commissioners; present and former senior NRC staff officers; Environmental Protection Agency (EPA), DOE, and State officials; representatives of citizen groups which actively participate in nuclear regulation; and nuclear industry representatives. We also reviewed NRC internal audit reports and other NRC documents.

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The Three Mile Island accident occurred on March 28, 1979, after we had substantially completed the audit work for this report. The causes and consequences of the accident were investigated by the President's Commission on the Accident at Three Mile Island, and are still under investigation by the Congress, the NRC Commissioners, and the NRC staff. In this report, the accident is discussed only to the extent that it has resulted in specific NRC statements and actions important to the subjects discussed in the report.

CHAPTER 2

NRC HAS BEEN COMPLACENT

IN RECOGNIZING AND RESPONDING TO MAJOR NUCLEAR REGULATORY ISSUES

NRC's performance in both recognizing and responding to major nuclear regulatory issues can be characterized best as slow, indecisive, and cautious--in a word, complacent--but showing signs of improvement. Specifically:

- In nuclear powerplant regulation, NRC has relied too much on the basic regulatory philosophy it inherited from AEC.
- NRC has been slow to address and resolve major nuclear waste management issues. Much of this has been due to indecision by the NRC Commissioners. There are recent indications, however, that NRC is progressing much better in this area.
- NRC has been slow to upgrade its safeguards regulations.
- NRC has not established sufficient control over regulatory research to insure that research activities are conducted efficiently and results are used effectively.

NRC HAS BEEN COMPLACENT IN NUCLEAR POWERPLANT REGULATION

NRC has continued AEC initiatives and started new ones to improve nuclear powerplant regulation. Day-to-day, NRC has continued to impose new regulatory requirements developed from research, powerplant operating experience, and other sources. In addition, on several occasions NRC has ordered utilities to shut down operating nuclear powerplants because of safety-related concerns. In March 1979, for example, NRC ordered five powerplants to shut down until seismic-related questions were resolved. To improve regulation over the long-term, NRC has been encouraging nuclear powerplant design standardization and earlier site reviews, developing definitive statements of all safety and environmental licensing requirements, assigning resident inspectors to selected nuclear powerplants, systematically comparing older operating nuclear powerplants to today's safety requirements, and expanding opportunities for public participation in regulation.

At the same time, however, NRC has been complacent; that is, NRC has been slow to recognize the need to change some of the regulatory philosophy it inherited from AEC. This is demonstrated, we believe, by NRC's positions and subsequent inactions in responding to conclusions and recommendations in 7 of our 17 reports directly related to nuclear powerplant regulation. In those reports, we found that NRC

--relied on licensees to identify and correct deficiencies without enough emphasis on independent NRC inspection and analysis,

--did not attach sufficient importance to comprehensive and systematic evaluations of powerplant operating experiences, and

--did not recognize the critical need for sound offsite emergency preparedness.

We also made recommendations for correcting these weaknesses in nuclear regulation which NRC either rejected outright or implemented only to a limited degree.

NRC placed too little emphasis
on independent verification

In three reports ^{1/} issued between June 1977, and February 1979, we found that NRC was relying on licensees to monitor their own operations and identify and correct improprieties without enough independent NRC verification. For example, because NRC relied so much on utilities to identify and correct faulty nuclear powerplant construction and/or construction practices, it could not independently insure that powerplants were adequately constructed.

We also found that NRC needs to be tougher and more aggressive in enforcing compliance with its regulations. The procedures NRC followed in selecting enforcement sanctions sometimes resulted in downgrading proposed civil penalties to lesser enforcement sanctions or significantly reducing civil penalty amounts. NRC said penalty amounts were not of prime importance; what was important was the act of

^{1/}"Allegations of Poor Construction Practices on the North Anna Nuclear Powerplants," EMD-77-30, June 2, 1977; "The Nuclear Regulatory Commission Needs To Aggressively Monitor And Independently Evaluate Nuclear Powerplant Construction," EMD-78-80, Sept. 7, 1978; and "Higher Penalties Could Deter Nuclear Violations," EMD-79-9, Feb. 16, 1979.

imposing occasional civil penalties to provide licensees a clear signal of NRC's concerns.

One example illustrates both of these findings. In the latter part of 1976, NRC investigated alleged poor construction practices at the Virginia Electric and Power Company's North Anna units 1 and 2. NRC's special investigation centered on unit 1, which was over 90 percent constructed, with much less emphasis on unit 2, which was about 75 percent complete. The NRC inspectors found 32 instances of failure to meet acceptable construction criteria. Most of the investigation findings had not been identified earlier by NRC inspectors during routine inspections.

As a result of its investigation, NRC announced that: certain allegations were correct; collectively, the substantiated allegations and NRC-identified inspection violations were indicative of poor construction management control; but there was no direct safety significance associated with the inspection findings.

NRC's conclusion was based on the defense-in-depth design premise--if the identified construction defects had gone undetected and led to equipment failures, independent backup equipment or systems would have protected against a nuclear accident. In an unpublished analysis, however, NRC concluded that if some of the deficiencies had not been found and corrected, there could have been a decrease in reliability in certain secondary, backup, or supporting components or systems which could have prevented them from responding correctly in certain emergency situations. This might have removed one layer of safety required by NRC's nuclear power-plant design criteria.

As a result of its investigation, NRC

- imposed a \$31,900 civil penalty on the Virginia Electric and Power Company for 11 violations of NRC regulations,
- required the Company to correct the specific items of noncompliance, and
- directed the Company to strengthen its management and quality assurance efforts to preclude further deficiencies.

Several of the NRC investigators disagreed with or expressed reservations about NRC's announced conclusion that the investigation findings had no direct safety significance,

and they were surprised that a more harsh enforcement action was not taken in view of the investigation findings.

We concluded in this case that NRC was putting too much reliance on the Company to audit its own past engineering judgments and events, considering the weaknesses identified in the Company's construction management capabilities and its interest in completing powerplant construction. NRC, however, disagreed on the basis that NRC inspectors would provide intensive overview of the Company's audits.

NRC's enforcement policies of consolidating separate violations of the same basic requirement into one violation and deliberately keeping penalty amounts low is why the penalty in the above case was only \$31,900. What NRC did was consolidate many separate violations of regulations and license conditions--an absolute minimum of 32 violations, but possibly many more, depending on one's interpretation of what constitutes a separate violation--into 11 violations. Based on one's calculation of the number of separate violations ranging upwards from 32, the civil penalty amount NRC could have imposed could have ranged from about \$82,000 to about \$400,000. In commenting on our report which criticized NRC for not being tough enough in enforcing its regulations, NRC (1) disagreed that it was not sufficiently tough or aggressive in enforcing its regulations; (2) disagreed that it had not effectively used its civil penalty authority; and (3) acknowledged some internal disagreement on the practice of consolidating separate violations and said it was developing improved guidance in the interest of better enforcement uniformity.

In our September 1978 report concluding that NRC relied too much on utilities to identify and correct faulty nuclear powerplant construction and/or construction practices, we made 10 recommendations for improving (1) NRC's basis for judging the quality of nuclear powerplant construction and (2) NRC inspection practices and the use of inspectors. While NRC agreed with the thrust of our conclusions and recommendations, it did not fully agree in the areas of

- making more effective use of inspectors' time and talents by reducing the time they spend on nontechnical work,
- using construction craftsmen interviews as an inspection technique, and
- improving inspection documentation and reporting practices.

We continue to believe that the conclusions in our report in these areas are valid and that NRC should implement our recommendations.

NRC did not attach sufficient importance to comprehensive evaluations of operating experiences

NRC requires utilities operating nuclear powerplants to report unanticipated operating events which affect safety-related systems. In total, utilities report several thousand such events each year. From these reports, NRC prepares bi-weekly summaries and other standard reports which are widely distributed within NRC for review.

In an April 1978 report 1/, we found that no individual or group coordinates NRC's review of these event reports or considers their general application to the license review process. Although NRC's fragmented approach to reviewing event reports had been useful, a concentrated systematic and coordinated approach to analyzing event reports would enable NRC to better identify operating nuclear powerplant performance trends. NRC, in commenting on this report, said its review of operating data was well coordinated, and added that improvements would depend on additional manpower resources.

In a January 1979 report 2/, we concluded that NRC's fragmented approach to analyzing event reports does not assure that NRC promptly finds all identifiable safety-related problems. We recommended that NRC define the scope and frequency of required analyses, and documentation and disposition procedures, for use in assessing event reports. In May 1979--after the Three Mile Island accident and subsequent revelations that events similar to events contributing to the Three Mile Island accident had previously been reported to NRC by other utilities--NRC agreed that it needs procedures to assure complete and coordinated event report reviews. NRC also agreed that it should clearly define the scope and frequency of analysis required to identify safety issues. In July 1979 the NRC Commissioners established an office,

1/"Nuclear Powerplant Licensing: Need For Additional Improvements," EMD-78-29, Apr. 27, 1978.

2/"Reporting Unscheduled Events At Commercial Nuclear Facilities: Opportunities To Improve Nuclear Regulatory Commission Oversight," EMD-79-16, Jan. 26, 1979.

reporting to the Executive Director for Operations, responsible for systematic evaluation of operational events. The new office became operational in October 1979.

NRC did not recognize the need for sound offsite emergency preparedness

In a March 1976 report 1/, we recommended that NRC intensify its efforts to encourage and assist States with nuclear powerplants within or near their borders to develop sound nuclear emergency plans. We also concluded that if the efforts of NRC and other emergency-related Federal agencies were not successful, NRC would have to determine whether it should continue to license nuclear powerplants and other nuclear facilities in States without adequate nuclear emergency plans.

In a report 2/ issued 3 years later, we concluded that NRC had not made sufficient progress in encouraging States to develop sound emergency plans. We therefore recommended that NRC stop issuing nuclear powerplant operating licenses in States until they had developed satisfactory emergency plans and until the utilities had made agreements with State and local agencies assuring their full participation in annual emergency drills. While NRC does not have the authority to require States to develop nuclear emergency plans, NRC can make the issuance of an operating license to a utility contingent upon the existence of a sound State nuclear emergency plan and cooperative testing agreements.

In its December 18, 1978, comments on our draft report, NRC disagreed, asserting that State and local emergency plans provide an added margin of protection for the public in the vicinity of a nuclear facility in which an adequate measure of safety already exists. In this context, NRC said, State and local plans are not essential in determining whether NRC can license a powerplant to operate.

Only after the Three Mile Island accident did NRC decide that State nuclear emergency preparedness should be a major and integral part of nuclear powerplant regulation.

1/"Stronger Federal Assistance To States Needed For Radiation Emergency Response Planning," RED-76-73, Mar. 18, 1976.

2/"Areas Around Nuclear Facilities Should Be Better Prepared For Radiological Emergencies," EMD-78-110, Mar. 30, 1979.

NRC HAS BEEN SLOW AND INDECISIVE IN
RESOLVING NUCLEAR WASTE ISSUES

Since January 1975, we have issued eight reports on various nuclear waste regulation issues. In each case, we found that NRC's progress was slow in addressing and resolving major regulatory issues. For example, we concluded that:

- NRC should assign high priority to developing high-level 1/ waste performance criteria and licensing procedures.
- NRC should establish long-term care requirements for low-level 2/ waste disposal sites and require that adequate funding be established to support such requirements.
- NRC did not know if many commercial nuclear facilities, such as manufacturers using radioactive materials, closed down in the late 1950s and early 1960s had been properly decontaminated. Moreover, after we brought this to NRC's attention in September 1976, NRC did not begin determining if any of the facilities and/or grounds might constitute a public health problem until November 1977, and has yet to complete this effort.

NRC generally agreed that it needed to do much more in nuclear waste regulation, but over the years it has met few of its regulatory milestones because its activities have until recently been unfocused, uncoordinated, and underfunded. An underlying cause, we believe, has been NRC Commissioners' indecision on the proper scope and priorities of NRC's nuclear waste regulatory activities. There are several indications, however, that this situation is now improving; for example, in a fiscal year 1979 budget reprogramming action, NRC almost doubled the resources devoted to nuclear waste regulation.

1/High-level waste is created during reprocessing of spent nuclear fuel. Its radioactivity is measured in thousands of curies per gallon and is considered one of the most hazardous and complex of all radioactive wastes to manage.

2/Low-level waste or other waste contains much lower concentrations of radioactivity than high-level waste, is generated by a wide variety of nuclear activities, and generally consists of expendable items such as tissues and clothing.

The Commissioners have been indecisive
on the proper scope of NRC's nuclear
waste activities

In October 1975, the NRC staff presented the Commissioners a plan for developing nuclear waste regulatory programs. The NRC staff recommended taking the early initiative to develop a coordinated national regulatory program for nuclear waste management in advance of receiving any future waste disposal facility license applications by

- setting regulatory goals and milestones;
- clearly defining lead roles and interfaces with others, such as DOE, EPA, the Department of Transportation, and States 1/;
- identifying actions and resources needed to assume an active rather than passive regulatory role;
- preparing broadly scoped environmental impact statements to support regulatory programs; and
- encouraging DOE to cooperate, through an interagency steering group, with NRC and other Federal agencies in preparing separate NRC and DOE environmental impact statements on generic waste management issues.

The Commissioners neither approved nor disapproved the plan. Instead, they directed the NRC staff to explore with DOE possible cooperative arrangements for preparing a single programmatic environmental impact statement to support DOE's and NRC's respective high-level waste programs. To this day, the NRC Commissioners have not established a plan of the scope proposed by the NRC staff either for its overall nuclear waste regulatory program or for its individual high-level waste and uranium mill tailings control programs.

NRC nuclear waste activities have been
unfocused, underfunded, and uncoordinated

NRC has periodically expanded its nuclear waste regulatory program staff, budget, and regulatory research efforts; but the absence of a Commissioner-approved nuclear waste plan setting out goals, objectives, and milestones has resulted

1/The Atomic Energy Act of 1954, as amended (U.S.C. 2021), permits NRC to transfer regulatory authority for nuclear materials to States under certain conditions.

in unfocused, underfunded, and uncoordinated regulatory activities. Specifically, until about February 1979, when we had substantially completed our review, NRC had not established a relationship with DOE; had not established an agency-wide regulatory research plan; and had assigned a lower budget priority to nuclear waste activities than other activities, such as nuclear powerplant licensing.

The Congress assigned NRC responsibility for licensing and regulating DOE facilities for long-term storage or disposal of commercial- and DOE-generated high-level wastes. Therefore, NRC and DOE need to work closely together to insure an efficient and effective national high-level waste storage/disposal program. Their relationship, however, must also recognize NRC's need, as the regulator, for independence. The NRC staff's October 1975 nuclear waste plan recognized this and recommended an early determination of NRC's relationship with DOE in developing their respective nuclear waste management programs and accompanying programmatic environmental impact statements. The Commissioners, however, did not approve the recommended plan. As a result, until January 1979, the NRC staff did not make any efforts to keep itself informed about DOE's programs, and at that time discovered that NRC's and DOE's programs had been proceeding in different directions. Since then, the NRC staff has met monthly with DOE at public meetings to discuss high-level waste management issues.

By not taking the initiative to structure a relationship with DOE to coordinate their respective programs, NRC has still not decided, after 4 years, to what extent it should rely on DOE's high-level waste environmental statement in discharging NRC's own environmental responsibilities. Timely resolution of this issue is needed to reduce the chances of future delays in licensing one or more DOE high-level waste storage facilities. NRC has also largely wasted \$513,000 by paying a contractor to review background materials while awaiting an early draft of DOE's commercial high-level waste program environmental statement. According to NRC, an additional 1 to 2 staff-years of NRC and contractor effort will now be necessary to review the actual draft statement. Moreover, NRC is about 2 years behind DOE in assessing the suitability of various geologic media for potential high-level waste repositories, and may have lost the opportunity for early identification and resolution of inconsistencies between DOE's research and development activities and NRC's regulatory standards and criteria.

NRC has not established an agencywide plan for nuclear waste regulatory research. In the first years of NRC's existence, most research projects were funded and managed by NRC's Office of Nuclear Materials Safety and Safeguards

rather than its Office of Nuclear Regulatory Research; and, according to one waste program official, the limited research requested of the research office was often either too broad or too narrow in scope, and was requested without designation of priorities. This official acknowledged that NRC has performed poorly in identifying and acting on nuclear waste regulatory research needs.

In 1978, the Advisory Committee on Reactor Safeguards ^{1/} concluded that NRC's nuclear waste research program was uncoordinated and unfocused. The Advisory Committee found both a lack of systematic processes for identifying research needs and assigning them priorities, and inadequate communication of research needs to the Office of Nuclear Regulatory Research. NRC acknowledged these shortcomings and said it would improve procedures for identifying and coordinating nuclear waste research needs. In October 1979, the NRC staff told us that it is now devoting considerable effort to developing an agency-wide waste management plan which will integrate research requirements of all NRC offices.

NRC's nuclear waste regulatory program began with one professional and one non-professional staff member and has since grown into division status. NRC has budgeted more and more funds for nuclear waste activities in recent years, particularly for decommissioning--shutting down a nuclear facility with actions taken to prevent radiation-related health and safety problems--and low-level waste regulation. NRC's nuclear waste activities, however, have consistently received lower budget priority than other regulatory activities, such as staff reviews of nuclear powerplant license applications. Furthermore, nuclear waste regulatory activities have been assigned substantially different budget priorities among various NRC staff offices. In NRC's 1980 budget, for example, the Office of Nuclear Material Safety and Safeguards' nuclear waste activities were ranked 16th in agencywide priority, while nuclear waste activities in the Office of Nuclear Regulatory Research were ranked 37th.

NRC HAS BEEN SLOW TO UPGRADE SAFEGUARDS REGULATIONS

In the Energy Reorganization Act of 1974 (42 U.S.C. 5844), the Congress specified that NRC include safeguards against threats, thefts, and sabotage of licensed nuclear

^{1/}The Committee is a statutory advisory committee which independently reviews nuclear powerplant construction and operating license applications and other matters.

facilities and materials in its licensing and related regulatory functions. Safeguards encompass nuclear material accountability and control, and nuclear facility physical security requirements.

NRC has periodically upgraded its safeguards regulations in the areas of accounting for and control of special nuclear material, nuclear powerplant security, security at nuclear fuel cycle facilities, and transportation safeguards. Even so, NRC has been slow to act. A former NRC Chairman characterized NRC's safeguards program as one deserving "just dissatisfaction," and the current Chairman had described the program as "uneven"--with more stringent requirements for some nuclear operations than others. For example, in 1977, NRC defined the minimum threat level utilities must use in designing nuclear powerplant security programs, but NRC has not done so for nuclear fuel cycle facilities or the transportation of nuclear materials.

Following are examples demonstrating how NRC has been slow to act in safeguards regulation:

- NRC has always had the authority to require certain licensee employees to have NRC access authorizations to enter sensitive areas of licensed facilities. In May 1977, we recommended ^{1/} that NRC require certain licensees to develop and use personnel security clearance programs; however, NRC has still not adopted a policy and regulations to exercise this authority.
- Although AEC published draft regulations for nuclear powerplant security in November 1974, NRC (1) did not publish the final regulations until February 1977, 27 months later; (2) gave utilities an additional 18 months (until August 1978) to comply with construction and equipment-related provisions; and (3) subsequently further extended the compliance deadline because of deficiencies in utilities revised security plans submitted to NRC for approval.
- The above regulations did not require utilities to upgrade the caliber of guard forces. This aspect of nuclear powerplant security is recognized as the

^{1/}"Commercial Nuclear Fuel Facilities Need Better Security," EMD-77-40a, May 2, 1977.

major shortcoming. In April 1977, we recommended 1/ that NRC establish specific and stringent requirements for upgrading guard forces, and NRC adopted regulations requiring utilities to upgrade guard force training and equipment in October 1978.

--NRC requires licensees possessing special nuclear materials to account for inventories on a total plant basis rather than on individual process areas within a plant--called material balance areas. Therefore, material losses or thefts within one material balance area might not be isolated and identified because they could be canceled out by losses and gains measured elsewhere. In May 1977, we recommended 2/ that NRC account for special nuclear material by individual material balance area but NRC has not made such a change.

NRC HAS NOT ESTABLISHED SUFFICIENT REGULATORY RESEARCH PROGRAM CONTROLS

The Energy Reorganization Act of 1974 (42 U.S.C. 5845) assigned NRC responsibility for conducting research necessary for it to perform its licensing and related regulatory functions. According to NRC, this research involves establishing the validity of safety principles underlying nuclear technologies now in use. In December 1977, the Congress also directed NRC to develop a long-term plan for projects to develop new or improved systems for nuclear powerplants.

The Congress intended that NRC have an independent capability to develop and analyze technical information, but not to own research facilities. NRC was to use the facilities and expertise available from DOE, other Federal agencies, and private contractors to carry out its analytical and experimental research activities. NRC's research activities are managed by the Office of Nuclear Regulatory Research. Its budget has grown from \$98 million in fiscal year 1976 to about \$185 million in fiscal year 1980.

Both our office and NRC's Office of Inspector and Auditor have periodically reported on weaknesses in NRC's management of research projects, particularly in its

1/"Security At Nuclear Powerplants--At Best, Inadequate," EMD-77-32, Apr. 7, 1977.

2/"Commercial Nuclear Fuel Facilities Need Better Security," EMD-77-40a, May 2, 1977.

relationships with and use of DOE laboratories. These reports document, over a period in excess of 3 years, NRC's slow progress in establishing controls over its nuclear research activities to insure that research projects at DOE laboratories are conducted in the most effective and efficient manner, and that projects are tracked from inception through incorporation into nuclear regulation.

NRC has been slow to establish firm control over research at DOE laboratories.

NRC conducts a large portion of its research at DOE's national laboratories. Management responsibility for this research is divided between DOE and NRC and is laid out in agreements between the two agencies. On several occasions, however, GAO and NRC's Office of Inspector and Auditor have reported on weaknesses in NRC's management of research at DOE laboratories. Specifically:

- In March 1976, we reported 1/ that the memorandum setting out how DOE and NRC would manage NRC's loss-of-fluid test facility, NRC's major research project for reactor safety, should provide detailed procedures for conducting the project and resolving disputes. NRC and DOE agreed and implemented our recommendation. According to NRC officials, the project is now running smoothly within cost and schedule estimates.
- In July 1976, NRC's Office of Inspector and Auditor concluded that weaknesses in NRC/DOE research agreements covering four large projects have contributed to project management problems, and that, unless the weaknesses were corrected on future projects, they would continue to cause problems.
- In August 1976, we reported 2/ that NRC (1) had poorly managed a multi-million dollar reactor research project by hastily preparing cost and schedule estimates and using a contractor without demonstrated ability, and (2) was repeating some of the same mistakes in its planning and decisionmaking process for designing an alternative project.

1/"Development of Interagency Relationships in the Regulation of Nuclear Materials," RED-76-72, Mar. 10, 1976.

2/"Poor Management of a Nuclear Light Water Reactor Safety Project," EMD-76-4, Aug. 25, 1976.

--In April 1978, we recommended 1/ that NRC establish a management information system to identify and document the degree to which the results of all research projects benefit the licensing process. At that time, NRC's procedures covered only the 88 more important of 500 or more research projects. As discussed below, NRC has still not completely implemented our recommendation.

--In March 1979, we reported 2/ that NRC was heavily relying on DOE laboratories without trying to identify other qualified contractors. As a result, NRC did not know if it received the best services at the most reasonable costs. NRC's reliance on DOE laboratories was largely based on the laboratories' historical abilities to meet NRC's needs, and working relationships built up over the years.

In November 1978, a former Commissioner told us that despite NRC's agreement with DOE governing management of NRC research, NRC had been "like a beggar" in scheduling work at DOE laboratories. He said DOE field offices had on occasion changed the direction and scope of NRC's research and had limited NRC's contracts with the DOE contractors who operate the laboratories. A present NRC official expressed concern that the DOE laboratories were assigning all of their best people to DOE projects.

NRC has not established controls to track research through incorporation into regulatory requirements

Each year NRC has used about 50 percent of its entire budget for research activities. Not until 1977, however, after the Office of Management and Budget questioned the effectiveness of NRC's research program, did NRC establish procedures to (1) insure that research users get a voice in deciding research priorities, (2) formally transmit important research results to user offices, and (3) track research results and document their final uses in developing

1/"Nuclear Powerplant Licensing: Need for Additional Improvements," EMD-78-29, Apr. 27, 1978.

2/Report to the Subcommittee on Nuclear Regulation, Senate Committee on Environment and Public Works, on system for acquiring and using outside assistance and expertise, EMD-79-37, Mar. 7, 1979.

regulations, regulatory guides, or other regulatory requirements.

These procedures have improved management control over NRC's research program, but they do not go far enough to "close the loop" so NRC management can match research projects and costs with their impacts on regulatory requirements. Furthermore, NRC's procedures do not cover most research projects nor do the procedures insure that research results are used in a timely manner.

In response to the Office of Management and Budget criticism, NRC developed a "research information letter" to transmit research results to user offices. Each letter summarizes the result, potential application, and regulatory impact of completed research. Each letter may include results from one, part of one, or parts of many research projects. The letters do not, however, identify the included research projects, or portions of projects, and their costs. The letters also do not tell NRC managers exactly how completed research was used in the regulatory process. The letters may state that research results have been used to modify or confirm existing regulatory requirements or develop new requirements, but they are not specific enough to describe how they affected the language of regulatory requirements. A more precise statement of how completed research was or could be used in the regulatory process would give NRC managers more confidence that research results are fully incorporated into the regulatory process. In this regard, several research office staff members have stated to us their concerns that the Office of Nuclear Reactor Regulation was not fully using research results.

By April 1978, about 1 year after NRC said it would establish research project tracking procedures, only the 88 most important of the 500 or more NRC research projects were covered by the research information letter system. By July 1979, the number of covered projects has increased to 104.

While it may not be necessary or practical to transmit all research project results in the form of research information letters, at a minimum, we believe, NRC should summarize and evaluate the results of each project and make them available for management review. This would help NRC's management evaluate research projects, allocate future research funds, and maximize the impact of NRC research on nuclear regulation.

NRC's procedures also do not insure timely incorporation of research results in nuclear regulation. For example, NRC has not yet incorporated in its regulations the results of two major research projects completed in early 1977. NRC

has not done so because it has not developed methods to assess their respective impacts on the overall level of safety provided by NRC's nuclear powerplant emergency core cooling system regulation.

NRC's nuclear research program has centered on confirming the validity of assumptions AEC used to develop regulatory requirements for emergency core cooling systems. In January 1976, the Director, Office of Nuclear Regulatory Research, told a nuclear industry group that research into two parts of its emergency core cooling system regulations was rapidly confirming substantial amounts of conservatism in these parts of the regulations. About 1 year later, in January 1977, and in March 1977, NRC published the results of the research projects which confirmed the Director's earlier prediction.

Changing NRC's regulations to reflect the completed research projects would have allowed utilities to operate nuclear powerplants more efficiently. NRC decided, however, that it could not change its regulations until it could assess the impact on the overall level of safety provided by the emergency core cooling regulations. NRC does not expect to complete this assessment until mid-1980.

Thus, despite the fact that in January 1976 NRC knew its research would probably demonstrate two overly conservative safety margins in its emergency core cooling system regulation, NRC does not plan to remove the excessive margins until mid-1980--about 5 years after the research office director's announcement and almost 4 years after NRC completed the two research projects.

CONCLUSIONS

Our evaluations of NRC's performance in nuclear powerplant regulation, in nuclear waste regulation, in safeguards, and regulatory research reveal a common pattern of complacency and general lack of aggressiveness in regulating commercial nuclear activities. Although NRC has made improvements in all of these areas, it has often been slow and indecisive in both recognizing and responding to new issues.

In nuclear powerplant regulation, NRC has continued AEC initiatives and started others on its own to improve the quality of regulation. At the same time, however, NRC has been slow to recognize that some of the basic regulatory philosophy it inherited from AEC needed to be changed; specifically, in the areas of inspection and enforcement policies which place too much reliance on utilities in identifying and correcting deficiencies, operating experience, and off-site emergency preparedness.

NRC's progress in addressing and resolving major nuclear waste management issues has been slow because its regulatory activities have been unfocused, uncoordinated, and underfunded. Much of this, we believe, stems from early and continuing Commissioner-level indecision on the proper scope, direction, and priority of nuclear waste regulatory activities. In particular, NRC needs to establish a formal relationship with DOE which will permit both agencies to effectively and efficiently coordinate their high-level nuclear waste programs without compromising NRC's ability to independently license and regulate future DOE high-level waste storage and/or disposal facilities. The recently initiated monthly NRC and DOE staff meetings appear to be a step in the right direction. On this same general subject, NRC should decide now whether or not, and if so, to what extent, it should rely on DOE high-level waste programmatic environmental statements in discharging NRC's own responsibilities under the National Environmental Policy Act of 1969. In 1979, there have been indications--the monthly meetings with DOE and the creation and staffing of a waste management division--that NRC may now be making significant progress in this important regulatory area.

In the area of nuclear safeguards, NRC has periodically upgraded its regulations governing special nuclear materials accounting and control, nuclear powerplant and fuel cycle facility physical security, and transportation. This upgrading, however, has been slow and uneven, resulting in more stringent requirements for some nuclear operations than others.

Finally, NRC has been slow to establish control over its research activities. Our Office and NRC's Office of Inspector and Auditor have continuously found management weaknesses related to control over NRC research performed at DOE laboratories, and matching research expenditures with research results and impacts on nuclear regulation. On the latter point, we believe NRC should track research projects from their inception through their end uses in the regulatory process to provide better assurance that research results are fully used.

RECOMMENDATIONS TO THE NUCLEAR REGULATORY COMMISSIONERS

We recommend that the Chairman, Nuclear Regulatory Commission, and the other NRC Commissioners:

- Take the initiative in formalizing a relationship between NRC and DOE which permits the agencies to coordinate their high-level waste programs without compromising NRC's ability to independently license and regulate future DOE high-level waste storage and/or disposal facilities.

--Decide whether or not, and if so, how much, NRC should rely on DOE high-level nuclear waste programmatic environmental statements in discharging NRC's responsibilities under the National Environmental Policy Act of 1969.

--Track research projects from inception through incorporation into licensing and related regulatory processes to insure that research results are incorporated to the fullest possible extent into nuclear regulation.

NRC COMMENTS AND OUR EVALUATION

Each of the five NRC Commissioners provided written comments on this report. The full text of their comments are in Appendices III through VII. Chairman Joseph M. Hendrie ^{1/} and Commissioners John F. Ahearne, Peter A. Bradford, and Victor Gilinsky agreed, to varying degrees, with the general thrust of our report. Commissioner Richard T. Kennedy did not, although he agreed that our report contains many justified criticisms.

The NRC staff chose not to formally comment on the report. NRC staff offices did, however, provide informal comments. Most of these comments pertained either to the factual accuracy of the report or to matters not discussed in the draft report which the NRC staff offices believed should be discussed.

Where appropriate, we have changed our report to reflect comments of NRC Commissioners and staff offices.

Although no commentators disagreed with our conclusion that NRC could not independently ensure that nuclear powerplants were properly constructed, three Commissioners--Chairman Hendrie and Commissioners Ahearne and Kennedy--noted that because of the size of the inspection task (1) NRC would have to continue its primary reliance on utilities, and (2) NRC would need additional resources to increase its independent verification capability. NRC is now receiving additional

^{1/}On December 7, 1979, the President designated Commissioner John F. Ahearne as NRC's chairman. Because Commissioner Hendrie, however, commented on our report in his capacity as NRC's chairman, we refer to him in our report as Chairman Hendrie.

staff resources, particularly to assign resident inspectors to nuclear powerplant sites. If properly used, these inspectors should go a long way towards providing the independent verification we considered desirable.

In his comments on emergency preparedness around nuclear powerplants, Commissioner Kennedy pointed out that (1) prior to Three Mile Island NRC required licensees to have agreements with State and local authorities to deal with off-site effects of emergencies, and (2) since 1975 NRC has had programs to assist states in developing emergency plans. Despite these efforts, as of March 1979, only 10 of 43 states with nuclear facilities had emergency response plans containing all the preparedness elements NRC considers necessary. This lack of progress is precisely the reason why we recommended that NRC not permit nuclear powerplants to operate until State emergency response plans meet NRC preparedness requirements.

Chairman Hendrie and Commissioners Ahearne, Gilinsky, and Bradford generally agreed with our comments on NRC's nuclear waste program, but they pointed out that much progress has been made in the past 6 months. Furthermore, Chairman Hendrie and Commissioner Kennedy wanted to clarify that the Department of Energy has the primary responsibility for providing nuclear waste storage/disposal solutions. Chairman Hendrie and Commissioner Bradford also pointed out that Administration decisions, for example deferral of spent fuel reprocessing, have complicated NRC efforts in waste management.

Commissioner Bradford commented that it was not meaningful to say that waste received a lower priority than items such as the staff review of nuclear powerplant license applications. We disagree. Issues which require input from many offices should be consistently related to an agency-wide priority. The NRC staff recognized the problem we pointed out and said it is studying how to structure priorities along the lines of program relevance.

Commissioners Bradford and Kennedy commented that it was not fair to say the NRC staff had deliberately not made any efforts to keep itself informed about DOE's high level waste management program. While the lack of coordination may not have been deliberate, NRC was clearly poorly informed on DOE's waste program. We have reworded our statement to highlight the lack of effective coordination, rather than its deliberateness.

Our draft report stated that NRC has never chosen to base its safeguards regulations on the highest realistic

threat--the maximum credible threat--to nuclear facilities and materials, as calculated in a 1974 AEC Director of Regulation study. Commissioner Kennedy and the NRC Office of Nuclear Material Safety and Safeguards stated that NRC's safeguards regulations are now based on the highest realistic threat as determined in a thorough NRC review completed in March 1979--a review which considered the 1974 AEC study and many others. Because we have no technical basis to support the higher threat level postulated in the 1974 AEC study, we deleted this discussion from our final report.

In his comments on our assessment of NRC's research program, Chairman Hendrie said he agreed with the NRC staff's position, which is that it is unnecessary and too costly to include each research project in its research tracking system. The staff's objection is based on a misinterpretation of our position. We do not believe that each project, no matter how small, needs to be fully covered by an elaborate tracking system. We do, however, believe that all research projects should be subjected to some managerial control to insure that NRC's research funds are well spent and that the results are recognized in the regulatory process.

CHAPTER 3

LACK OF EFFECTIVE

COMMISSIONER-LEVEL LEADERSHIP

HAS IMPAIRED NUCLEAR REGULATION

The complacency, indecision, and slow pace of progress in improving nuclear regulation discussed in the previous chapter is in large part due to NRC Commissioners' lack of leadership. To some extent, NRC's leadership problem may be a price that must be paid for the benefits of a commission rather than a single-headed agency. Several important benefits of commissions are that each decision reflects the combined judgments of all members, group decisionmaking provides a barrier to arbitrary and capricious action, decisions are based on different points of view, and each member must convince the others of his point of view and understand the views of his colleagues.

These advantages, however, must be balanced against the many problems which critics suggest are pervasive among independent regulatory commissions, including a failure to plan and develop long range goals and objectives; a seeming reluctance to formulate coherent regulatory policies as guides to adjudications and rulemakings; a neglect of program review and evaluation of regulatory effectiveness and impact; and a tendency toward procrastination and delay.

While the commission form may make effective and efficient management more difficult than in single-headed agencies, the NRC Commissioners' lack of leadership has exacerbated this problem. First, the Commissioners have not provided clear and timely direction for the NRC staff, the nuclear industry, and the public by establishing measurable NRC-wide goals, objectives, and systems for measuring performance. As a result, NRC has been able to measure its regulatory performance only by its ability to meet self-imposed schedules or by the frequency or infrequency of events--the most obvious of which occurred at the Three Mile Island nuclear powerplant.

Second, the Commissioners have not controlled policy-making within NRC. While there are exceptions, the Commissioners generally do not decide when new policies are needed, which new policy requirements should receive priority attention, or how policies should be written. Instead, the Commissioners have generally left these matters to the discretion of the NRC staff and reserved for themselves the prerogative of final approval. The NRC staff, on the other hand, has been

engaged in the day-to-day business of nuclear regulation, and has not had the time or ability to step back and objectively assess policy needs. The result has been poor policy-making performance. NRC has often been slow to recognize where new policies were needed and slow to develop policies when the needs were recognized.

Finally, the Commissioners have not clearly defined either their own roles in nuclear regulation, or their relationship to the Executive Director for Operations and the major NRC staff offices. This has seriously detracted from regulatory efficiency and effectiveness.

THE COMMISSIONERS HAVE NOT
DEVELOPED MEASURABLE GOALS,
OBJECTIVES, AND EVALUATION
SYSTEMS

Early in our review, we sought to identify and match NRC's goals and objectives against claimed accomplishments. While such a comparison would have provided a starting point for measuring NRC's performance--its own view of its successes and disappointments--NRC has poorly defined goals and, for that reason, no clear measure of its own success. Various officials referred us to one or more of three principal documents for statements of NRC goals and objectives. These are a 5-year plan, a management-by-objective document, and NRC's annual report to the President. The 5-year plan lists regulatory program objectives and the accomplishments NRC must make to achieve those objectives; the management-by-objective document identifies 11 NRC-wide objectives of "stated" interest to NRC's Commissioners; and the Energy Reorganization Act requires NRC to include a clear statement of short-range and long-range goals, priorities, and plans in its annual report. Collectively, however, these three sources have only limited value as statements of NRC goals and objectives. Specifically:

- Goals and objectives are so broadly stated that it would be difficult or impossible to measure performance. For example, in the 5-year plan, the first objective of NRC's nuclear powerplant licensing activities is to continue issuing licenses after comprehensive staff reviews and public hearings to assure that powerplants will operate without endangering public health and safety.
- The Commissioners never formally approved the 5-year plan, and have met only once to discuss the status of 1 of the 11 NRC objectives ostensibly of interest to the Commissioners.

--NRC's agencywide objectives bear no close relationship with NRC's budget plan. For example, the first agencywide management-by-objective program objective is developing a high-level nuclear waste regulatory program. Yet, the high-level waste program is a much higher priority item in the fiscal year 1980 budget of the Office of Nuclear Material Safety and Safeguards, the lead office for waste programs, than for the Office of Regulatory Research which must do research needed for a waste program. Furthermore, the budget priority for reviewing nuclear powerplant license applications was higher than the priority for the high-level waste program.

--Agencywide objectives are not very meaningful because no mechanism exists to review and update them.

We also requested NRC staff office directors to identify their major short- and long-range goals for each fiscal year beginning with fiscal year 1976 and match these goals against accomplishments. Their responses were, to a large extent, loose collections of tasks initiated and tasks completed, and none relied much on any of the three sources discussed above.

Other NRC officials acknowledged that either NRC does not have any overall goals and objectives, or that goals are implied rather than explicit. Several officials said the lack of clear NRC goals would make it difficult for an outsider to determine if NRC was regulating effectively. In fact, one former NRC official said that for precisely this reason, he was unable to effectively evaluate NRC's performance even though such evaluations were a part of his job.

Since January 1979, NRC has been developing a policy and planning guidance system by which the Commissioners can set out major objectives and specific guidance for program and budget development for a 5-year period. If developed and implemented, the system will replace the 5-year and management-by-objective documents discussed above. The NRC Commissioners have endorsed the new system concept, although one Commissioner is very skeptical about its usefulness; but development and implementation has been delayed by the Three Mile Island nuclear powerplant accident. NRC presently plans to use the system as the basis for preparing its fiscal year 1982 budget. This new planning system appears to be an improvement over the systems to be discarded because it will tie all NRC program and budget planning to a Commissioners' statement of regulatory policies and priorities. Whether or not the new system meets expectations, however, depends in large part on the support it receives at the outset from the NRC Commissioners.

The Commissioners have accepted regulatory practices without critical analysis

While performance evaluation is always important, it seems especially critical in a new organization created with broad new responsibilities and a clear mandate to improve regulatory performance. In its early years, however, NRC and the Commissioners seem to have been overly willing to accept current practice without critical analysis of performance.

In December 1976, a congressional committee review concluded that, despite the existence of regulatory management problems, the first NRC Commissioners assumed everything was in order and did not question, evaluate, or strengthen NRC management and regulatory procedures. We found similar and continuing indications of the Commissioners' acceptance of things as they were, until late 1978, when the Commissioners ordered a review of the appropriateness of continuing heavy reliance on Atomic Safety and Licensing Appeal Boards as NRC's final authority on license applications. The Atomic Energy Commissioners set up appeal boards to make final AEC decisions on commercial license applications because the AEC Commissioners were busy with their research and development as well as military applications responsibilities. The new NRC, however, had five Commissioners whose time was to be entirely devoted to nuclear regulation--thus the propriety of continuing to rely on appeal boards was finally raised when NRC was almost 4 years old.

The Commissioners have not fully used their inspection office to evaluate NRC performance

The Commissioners have not fully used their Office of Inspector and Auditor--an independent NRC office without vested program interests--to evaluate NRC's performance. In its initial audit program, this Office planned to perform a full management overview of NRC's principal functions by about October 1977. In January 1979, the Office director estimated that the plan had slipped 3 years because of unanticipated investigations and because it had been given the responsibility to surface and address staff dissenting views.

The Office of Inspector and Auditor has completed studies of NRC's reactor standardization program, export licensing procedures, and materials licensing, but has had to discontinue one nuclear powerplant inspection review, suspend a research review, and defer any work on nuclear waste management. These are all important elements of NRC's overall nuclear regulation program.

Increased use of the Office of Inspector and Auditor could provide the Commissioners with objective appraisals of NRC staff performance. It could also enhance acceptance of changes by the NRC staff and provide solutions to problems not seen by NRC's program offices since the Office is in a better position to objectively assess issues than are NRC's program offices.

THE COMMISSIONERS HAVE NOT
CONTROLLED POLICYMAKING

Policymaking may be the most important part of NRC's system for regulating commercial nuclear activities. NRC regulations and Commissioners' policy statements form the basic policies of nuclear regulation and shape NRC's licensing and other regulatory activities. Because NRC regulates in a dynamic environment, it is continually changing old and developing new policies to provide guidance to the regulated industry, the NRC staff, hearing and appeal boards, and the public.

Despite the importance of policymaking to nuclear regulation, the Commissioners have generally left to the NRC staff decisions on when new policies are needed, which new policy requirements should receive priority attention, and how policies should be written. The Commissioners established a Commission-level Office of Policy Evaluation to advise them on proposed policies, and have generally reserved to themselves only the prerogative of final policy approval. We found widespread agreement within and outside NRC--including several present NRC Commissioners--that Commissioners need to take a more active policymaking role, but we found few efforts to do so. On the other hand, while the NRC staff has both the responsibility and technical proficiency to identify and develop NRC policies, it has not had the objective perspective necessary for effective policymaking since it has been engaged in the day-to-day business of nuclear regulation.

As a result, NRC's overall performance in the important area of policymaking has been poor. Specifically:

- NRC has often been slow to recognize policy needs. Therefore, issues which should have been addressed once in an NRC policy have been addressed over and over in individual licensing proceedings, and hearing and appeal board decisions frequently have had the practical effect of setting NRC policies.
- NRC has often taken far too long to develop regulatory policies because of time consuming coordination procedures, the lack of sufficient

Commissioners' direction to the staff, and conversely, NRC staff disagreements with the Commissioners on proposed policies.

All of this has impaired regulatory effectiveness by forcing the NRC staff, licensing and appeal boards, the regulated industry, and the public to raise, address, and resolve issues in a piecemeal fashion in individual licensing proceedings.

NRC has been slow to recognize policy needs

The NRC staff offices with day-to-day responsibility for regulating commercial nuclear activities have often not been able to perceive either the need for NRC policies or the substance of policies the Commissioners desire. The Commissioners have provided the NRC staff with very little guidance or direction on issues which should be resolved by policy-making. As discussed below, the NRC staff usually has not had any Commissioner guidance on proposed policies until the policies have been drafted and submitted to the Commissioners for review.

As a result of the above, licensing and appeal boards have often found little in the way of NRC policies to guide them in deciding issues raised in individual licensing cases. In the absence of specific NRC policies, they have in effect made NRC policy in their decisions on these issues. For example, a major nuclear powerplant regulatory concern in recent years has been NRC's failure to resolve, on a generic basis, several issues common to many or all powerplants. The Commissioners have not established any policy on how the NRC staff should recognize and address these issues in each nuclear powerplant licensing case. In the absence of an NRC policy, an appeal board directed, in the context of a licensing decision, the NRC staff to explicitly document in its safety report what the NRC staff is doing in the subject licensing case, and all future licensing cases, to address each unresolved generic safety issue.

We found many similar examples of appeal board and licensing board decisions setting out guidance--in effect NRC policy--to the NRC staff for addressing issues in future licensing cases. It is no wonder that hearing and appeal boards find they must provide guidance to the NRC staff in the absence of NRC policy. Following the appeal board decision in the above example, the principal NRC staff officer sought Commissioners' clarification and guidance on how to proceed. The Chairman, however, told this official to talk to people and make his own decision; and the appeal board would let him know

if he decided correctly the next time the staff presented these issues in a licensing case.

Following are two additional examples demonstrating that NRC's tardiness in recognizing and acting on policy needs results in inefficient case-by-case consideration of issues in licensing proceedings. In November 1975, a citizen group petitioned NRC to correct the "environmental cost" NRC had assigned in a regulation to radioactive gas emissions from uranium mill tailings piles. The NRC staff agreed that the assigned value was inaccurate, but did not correct the regulation because it considered the discrepancy to be insignificant within the context of all of the environmental costs listed in the regulation. The same citizen group had also raised this issue in a nuclear powerplant licensing proceeding. In this case, the NRC Commissioners, in April 1978, agreed to review the appeal board decision. When the Commissioners finally appreciated the importance of the discrepancy, they ordered the NRC staff to correct the regulation. Furthermore, the Commissioners ordered hearing boards on 17 other licensing cases to reconsider this issue using the corrected regulation.

During hearings on nuclear powerplant licensing applications, issues arise which have general applicability to classes of powerplants. NRC staff studies issued in June 1977, and in June 1978, both concluded that NRC could improve regulatory efficiency by resolving these types of issues by policymaking rather than on a case-by-case basis. In January 1979, the NRC staff identified 10 candidate issues, but NRC has not yet developed day-to-day procedures to identify future candidate issues for resolution by policymaking. One suggested possibility would be to have the chairman of NRC's licensing board panel routinely submit to the Commissioners a list of new issues surfacing in public hearings which could be more efficiently resolved by Commissioners' policymaking.

NRC has taken too long to develop proposed policies

On many occasions in previous reports, we have found that NRC has taken a long time--sometimes over 5 years--to develop and implement new policies. This appears to be due to two reasons. First, it often takes a long time to coordinate a proposed policy among the various NRC staff offices and the NRC Commissioners. Lead NRC staff offices --usually but not always the Office of Standards Development--must obtain the concurrences of various NRC staff offices, including the staff's legal office. Frequently two or more of these offices disagree on the need for policies, the basic regulatory

approaches taken in draft policy statements, and/or specific language in draft policy statements. Resolving these disagreements, or at least narrowing them to agreeable extent, often takes a long time. In this regard, the Executive Director for Operations told us that the NRC staff does not want to submit proposed policies to the Commissioners until the staff believes it has come up with its best effort. Once the NRC staff has completed the often lengthy process of coordinating proposed policies at the staff level, it may still take an additional long period of time to obtain Commissioners' approval because

- meetings between Commissioners and the NRC staff to discuss proposed policies tend to be more like sterile staff presentations or hostile encounters than useful exchanges of ideas in pursuit of common objectives;
- often some of the Commissioners are not familiar with the basic objectives of the NRC staff's proposed policies, so they often return policies with requests that the staff address specific questions and/or consider alternative policy approaches; and
- Commissioners have different individual regulatory priorities and work schedules which add to the time required to obtain Commissioners' comments or concurrences.

The second major reason NRC has taken too long to develop policies is the lack of firm Commissioners' direction on how policies should be developed. Rather than the Commissioners taking the lead and giving the staff early directions on what they want to see in a policy, the general practice is that the staff presents policies to the Commissioners after the staff has decided on its own what the policies should be. Because the Commissioners do not have early input, they often have problems with the staff proposed policy which, in turn, require the staff to go through the time consuming process of drafting a new consensus position.

Furthermore, the NRC staff often resists revising its positions so that they are in line with the Commissioners' views. Such resistance results in unnecessary rounds of time-consuming redrafting.

The time-consuming process of coordinating proposed policies among the various NRC staff offices and the five Commissioners, the absence of firm Commissioners' direction, and conversely, NRC staff disagreements with Commissioners or

difficulty in fully understanding Commissioners' wishes are all illustrated in the following examples:

- In June 1975, the Commissioners directed the NRC staff to develop information necessary to revise NRC's nuclear powerplant siting regulation, and to prepare a proposed new siting regulation. The many siting issues surfacing in hearings had raised questions about the adequacy of the existing regulation. Three years later, in August 1978, after the NRC staff had submitted and the Commissioners had rejected several versions of a proposed new siting regulation, the Commissioners set up a special task force to try again. The task force anticipates presenting final recommendations for a revised siting policy about May 1980--5 years after the project began. The Commission Chairman told us that the major reason for the length of this policymaking proceeding has been a basic disagreement between the Commissioners and the NRC staff on the technical approach to the new regulation.

- Since 1972, AEC and now NRC have been developing a proposed policy on requiring medical licensees to report misadministrations ^{1/} to NRC so it could determine the causes and assess whether licensees took adequate corrective actions. Two reasons for this lengthy period, particularly over the last few years, have been major disagreements among three NRC staff offices and between Commissioners and the NRC staff.

- For almost 7 years, NRC and AEC had considered requiring licensees to have quality assurance programs for fabricating radioactive material transportation containers. NRC finally adopted a policy in August 1977, which was essentially the same as AEC had published in draft for public comment 4 years earlier. The principal reason why NRC took from January 1975 to August 1977--over 2-1/2 years--to finalize the subject policy was disagreement among the NRC staff over the value of the proposed policy compared to the NRC resources that might be required to enforce it.

^{1/}Error in administering a radioactive drug or treatment to a patient.

THE COMMISSIONERS HAVE NOT DEFINED
THEIR ROLES AND RELATIONSHIPS
WITH STAFF OFFICES

There is much disagreement within and outside NRC about the Commissioners' basic role as well as the relationship among the Commissioners, the Executive Director for Operations, and major staff offices. Clearly, nuclear regulation would benefit from a clear definition of what the Chairman's and other Commissioners' roles should be, and, by extension, the roles of other NRC components. By doing this, the Commissioners would be in a better position to lay out what areas the Chairman and other Commissioners will deal with and what will be left to the Executive Director for Operations and major office directors.

The Energy Reorganization Act of 1974 provided the Commissioners little guidance on what their roles should be. The act specified that the five Commissioners would have equal authority and responsibility in all decisions and actions and would have full access to all information relating to the performance of their duties and responsibilities, but the Chairman would

- preside at meetings of the Commissioners;
- be the official NRC spokesman in relations with the Congress, Government agencies, persons, or the public; and
- see to the faithful execution of the Commissioners' policies and decisions, and report thereon from time to time to the other Commissioners.

A 1975 amendment to the act made the Commission Chairman the principal executive officer of NRC. The amendment states that the Chairman

"shall exercise all of the executive and administrative functions of the Commission including functions of the Commission with respect to (a) the appointment and supervision of personnel employed regularly and full time except in the immediate offices of Commissioners other than the Chairman, and except as otherwise provided in the Energy Reorganization Act of 1974 (b) the distribution of business among such personnel and among administrative units of the Commission, and (c) the use and expenditure of funds."

This amendment was enacted as a part of the NRC fiscal year 1976 budget authorization. Its purpose, according to its sponsor, was to strengthen a statutorily weak NRC Chairman so he could manage and lead NRC. The first NRC Chairman, however, had requested the amendment without consulting the other NRC Commissioners; and since then, some Commissioners have so opposed any change in the relative authority between the Chairman and other Commissioners that no NRC Chairman has attempted to define and use this new authority. Furthermore, the new authority is ambiguous at best because the amendment did not change the provision of the Energy Reorganization Act pertaining to equality of authority and responsibility in decisions and actions and full access to all information.

While the act left to the Commissioners the task of establishing their own roles, they do not seem to have clearly done so. As discussed earlier, the Commissioners have neither set measurable NRC goals and objectives nor controlled policymaking. Also, the Commissioners have not agreed on how directly they should supervise the NRC staff, and how actively they should be involved in deciding cases in public hearings.

In one very important instance, the NRC Commissioners carried over a role which in a very different environment the AEC Commissioners played. The AEC Commissioners had the right to act as the final decision authority for matters in adjudication, but they relied almost entirely on appeal boards to perform this function, since they were busy administering research and development and military weapons programs. NRC's Commissioners, however, devote all of their time to regulating commercial nuclear activities. Therefore, the first NRC Commissioners could have reasserted their responsibility for making final decisions on licensing cases. The first NRC Commissioners, however, retained the appeal board to make final decisions and also retained the prerogative of ordering hearing and appeal boards to elevate cases to the Commissioners for final decision. In June 1977, the Commissioners, for the first time, began permitting parties to appeal licensing decisions to the Commissioners; but, to date, the Commissioners have chosen to review few appeals.

The Commissioners' continued reliance on appeal boards as the final agency decisionmakers in adjudication--with a seldom exercised option for the Commissioners to make final decisions--has extracted a heavy price in efficiency and effectiveness. In order to protect their option to make final decisions, the Commissioners must abide by NRC's

rule strictly limiting interaction with the NRC staff, license applicants, or other parties on any substantive issues in active public hearings. This makes it difficult for the Commissioners to talk with the NRC staff about new regulatory issues and for the NRC staff to seek Commissioners' guidance on these issues. With the Commissioners staying out of issues to protect their right to review appeal board decisions, and then rarely using that right, they have effectively taken themselves out of the cases. As a result (1) appeal boards sometimes set policies which the Commissioners should set, (2) the NRC staff receives needed Commissioners' guidance late, (3) the Commissioners have a more difficult time monitoring staff performance on a wide range of issues, and (4) the Commissioners effectively close their collective eyes and ears to substantive issues in cases needing their attention.

The role of the Executive Director for Operations should be clarified and strengthened

Section 209--"Other Offices"--of the Energy Reorganization Act of 1974 (42 U.S.C. 5849) established the position of an Executive Director for Operations and authorized the Director to perform "such functions as the Commission may direct." It also prohibited the Executive Director from preventing the Directors of the Offices of Nuclear Reactor Regulation, Regulatory Research, and Nuclear Materials Safety and Safeguards from communicating directly to the Commissioners. The act made the Executive Director equal in rank to these office directors. Under this structure, the three office directors mentioned above did not even have to keep the Executive Director advised of their contacts with the Commissioners--this despite the Executive Director's assigned responsibility for coordinating the offices' activities.

We found substantial differences of opinion among Commissioners, the Executive Director and Deputy Executive Director for Operations, senior NRC staff, and others on the Executive Director's role in nuclear regulation. In May 1977, the Commissioners defined the Executive Director's role in part as being "* * * responsible for supervision and coordination of policy development and operational activities * * *." While on paper the Executive Director's operational authority is clear, some of the major office directors and Commissioners are not clear that the Executive Director is a superior authority in the chain of command over the five major NRC staff offices. One Commissioner, for example, described the Executive Director as a senior staff--rather than line--officer. One office director described the Executive Director as an executive director for administration rather than

operations. These conflicting views suggest that the position's duties, authorities, and responsibilities are ambiguous, and, as a former Commissioner suggested, should be crystallized.

Illustrating the ambiguity of the NRC Executive Director for Operations' role is the fact that since February 1979, a period of over 8 months, the NRC Commissioners have been considering--but have not approved--amendments for NRC's organization manual intended to implement fiscal year 1979 authorization legislation which requires NRC office directors to keep the Executive Director informed of their direct communications with Commissioners.

The current ambiguous authority has contributed to past problems. For example, the former Deputy Executive Director told us it had been difficult to get the staff offices to work together harmoniously to resolve the issues which the March 1975, Brown's Ferry nuclear powerplant fire raised and which required multi-office involvement. Other NRC staff told us of similar difficulties getting the various offices to concur in unified staff positions. They also pointed out that the concurrence process often takes a long time. A stronger role for the Executive Director for Operations would better insure that the various offices both cooperate in these and other important areas and devote sufficient resources to NRC-wide goals.

The Executive Director has the main responsibility, although apparently not the authority, for coordinating NRC's budget. As discussed on page 28, various major staff office budget priorities are sometimes inconsistent with agency-wide goals and objectives. Again, because the Executive Director's authority and responsibility are not clearly defined, the Director seems to be in a weak position to insure a unified agency approach to nuclear regulation.

CONCLUSIONS

The complacency, indecision, and slow pace of progress in improving nuclear regulation discussed in the previous chapter is in large part due to the lack of leadership by the Commissioners. The Commissioners have not

- developed measurable goals, objectives, and evaluation systems to provide both clear and timely direction of nuclear regulation and capabilities for NRC and others to evaluate NRC's performance;

--taken active control of the important area of policymaking, but rather have generally delegated this role to the NRC staff;

--clearly defined their roles in nuclear regulation and their proper relationships to the Executive Director for Operations and the major NRC staff offices.

NRC's goals and objectives are generally so broadly stated that it would be difficult, if not impossible, to measure NRC regulatory performance. As a result, the only real measurements NRC has had of its performance have been either in terms of meeting self-imposed schedules for completing licensing and other regulatory actions, or in terms of actual events such as the Three Mile Island accident.

In addition to setting NRC's goals and objectives, the Commissioners could have significantly enhanced the efficiency and effectiveness of NRC regulation by taking an active role in setting NRC policies. The Commissioners' general delegation of policymaking to the NRC staff has resulted in poor overall performance in this important area. NRC has been slow to recognize the need for them. This has impaired regulatory efficiency and effectiveness because issues which could have been resolved by NRC policy were instead addressed over and over in individual licensing proceedings.

One other effect of the Commissioners' failure to take a more active policymaking role has been the necessity of hearing and appeal boards to fill this void by setting out regulatory requirements in licensing decisions which in effect become NRC policies.

We found widespread agreement that the Commissioners should be more active in policymaking. One possibility, which we favor, would be to elevate policymaking activities to the Commissioner-level--for example, to the Commissioners' Office of Policy Evaluation. Placing policy development responsibility at the Commissioner-level would enhance the Commissioners' ability to communicate their policy ideas to the staff engaged in writing policies. Furthermore, a Commissioner-level policy staff could have both the advantage of technical proficiency and remoteness from the pressures and influences of the day-to-day business of nuclear regulation. All of these advantages should serve to remove some of the impediments--such as the frequent impasses among NRC staff offices and between the NRC staff and Commissioners on proposed policies--that have resulted in lengthy delays adversely affecting NRC policymaking.

The Commissioners have not defined their own roles in nuclear regulation. Besides not setting measurable goals and objectives, measuring performance, and actively setting NRC policies, the Commissioners have not agreed how directly they should supervise the NRC staff or how active the Commissioners should be in making final NRC decisions in public hearings. To the Commissioners' credit, they recently began a reexamination of their role in public hearings.

A 1975 amendment to the Energy Reorganization Act expanded the Commission Chairman's authority to, according to its sponsor, permit the Chairman to manage and lead NRC. None of the three NRC Chairmen to date have attempted to define or use this expanded authority. We believe the Chairman, in conjunction with the other four Commissioners, needs to carefully define the Chairman's expanded authority and duties. While recognizing the reluctance of the Commissioners to limit their own positions, nevertheless, we strongly believe such a limitation is necessary to improve the efficiency and effectiveness of nuclear regulation. We also believe that NRC's rulemaking procedures--whereby it actively seeks the views of the public and the regulated industry on proposed changes to its regulations--provide both the proper vehicle and safeguards to insure that the NRC Chairman's expanded authority is carefully defined.

The NRC Commissioners also need to further define the role of the Executive Director for Operations to make it clear that the Director is in charge of the operations of all NRC staff-level offices. We found substantial differences of opinion on the role of the Executive Director for Operations and the Executive Director's relationship with the Commissioners and NRC staff offices.

Enhanced authority would put the Executive Director in a stronger position to provide central direction to the staff. Central direction within the staff organization is especially important in circumstances wherein the Commissioners cannot provide that direction. For example, the NRC staff must run itself in dealing with the many matters in adjudication in administrative proceedings because (1) the entire staff is considered to be a party to such administrative proceedings, and (2) NRC's rules severely restrict communication between the parties and the Commissioners.

RECOMMENDATIONS TO THE NUCLEAR REGULATORY COMMISSIONERS

We recommend that the Chairman, Nuclear Regulatory Commission, and the other NRC Commissioners:

- Develop measurable NRC goals, objectives, and systems for evaluating NRC's performance in meeting goals and objectives.
- Increase the Commissioners' use of the Office of Inspector and Auditor in evaluating the NRC staff's performance in meeting NRC goals and objectives.
- Elevate policymaking activities to the Commissioner-level. A logical place for these activities would be the Commissioners' present Office of Policy Evaluation.
- Define the NRC Chairman's authority and duties as NRC's principal executive officer, and place the Executive Director for Operations in charge of all NRC staff-level day-to-day operations. If necessary to implement this recommendation, the Commissioners should seek appropriate legislation from the Congress.

NRC COMMENTS AND OUR EVALUATION

The NRC Commissioners expressed a range of views on our recommendation to define the NRC Chairman's authority and duties as NRC's principal executive officer. Chairman Hendrie and Commissioner Kennedy believe the 1975 amendment to the Energy Reorganization Act provides the authority for defining the principal executive officer duties. Commissioner Ahearne said he would prefer to see the commission form of organization replaced by a single administrator but, failing this, he believes additional legislative authority is necessary and desirable to make the NRC Chairman the agency's principal executive officer. Commissioner Gilinsky said that while further definition may strengthen the Chairman's role and improve Commission performance, the real problem is that the five Commissioners have such divergent views on nuclear issues that the Chairman lacks the working majority he needs to move on issues. Commissioner Bradford said the NRC Chairman has the authority to lead; the problem is that the Chairman is trying to move the Commission in directions opposed by the majority of Commissioners.

It is precisely because the five-member Nuclear Regulatory Commission can have such a wide range of views, the majority of which may be at odds with its chairman on any number of issues, that we believe a single official--the NRC Chairman--should be vested with executive authority and responsibility to manage NRC.

In commenting on the need to define the authority and role of the Executive Director for Operations, Chairman Hendrie and

Commissioners Kennedy, Ahearne, and Bradford agreed that such a definition is necessary. Commissioner Gilinsky disagreed, stating that the Executive Director's problems result from not having the confidence of a majority of Commissioners.

On goal setting and policymaking, Chairman Hendrie and Commissioner Ahearne said our report should reflect NRC's recent development of a policy program and planning guidance system. We revised our report to recognize the current status of the system's implementation. While agreeing that the NRC Commissioners should make greater use of their Office of Policy Evaluation, Chairman Hendrie pointed out that that Office does not have sufficient personnel to take over policy development.

Commissioner Kennedy said our report inaccurately implies that the NRC Commissioners have not provided NRC with policy leadership or guidance; yet, he also said our report accurately reflects the deficiencies in the organization and mode of operation and policymaking.

Commissioner Kennedy also said our assessment of Commission goal setting failed to consider the management-by-objective tracking system, the decision unit tracking system now in a pilot program phase, or the performance appraisal briefings the Executive Director for Operations presents to the Commissioners. The management-by-objectives system is discussed on pages 27 and 28. As for the performance briefings briefings, the Executive Director told us he never received feedback from Commissioners on the results of these briefings. The decision unit tracking system is being developed along with the policy planning and program guidance system described on page 28. If they are supported by the NRC Commissioners and used they can, we believe, improve policymaking, goal setting, and performance monitoring.

CHAPTER 4

OVERALL ASSESSMENT OF NRC'S

PERFORMANCE IN NUCLEAR REGULATION

Based on our evaluations of various NRC regulatory programs and activities--as discussed in this report and 50 earlier reports--we concluded that NRC's performance has not been satisfactory. As discussed in this report, NRC has

- been complacent in licensing and regulating the construction and operation of nuclear powerplants,
- been slow and indecisive in resolving nuclear waste issues,
- been slow to upgrade safeguards regulations consistent with a consensus of the maximum credible threat,
- not effectively managed its regulatory research program to insure that its research activities are conducted efficiently and research results are effectively used in its various regulatory programs,
- not set meaningful and measurable agency goals and evaluated progress and performance, and
- performed poorly in formulating regulatory policy.

To a large extent, our assessment of NRC's regulatory performance stems from what we believe was a poor beginning. That is, NRC continued nuclear regulation as it found it; and the NRC Commissioners failed to clearly define their roles in directing nuclear regulation, or their relationship to the Executive Director for Operations and the major NRC staff offices.

On a more positive note, NRC has belatedly begun--even before the Three Mile Island unit 2 nuclear powerplant accident--some of the self-appraisal which it should have made at its beginning. At one Commissioner's insistence for example, NRC began addressing the question of whether or not the Commissioners should routinely make final NRC decisions in administrative proceedings in place of appeal boards. And of course, the Three Mile Island accident has resulted in a critical reappraisal of the Commissioners' role

in such emergencies and, in a larger context, of NRC's nuclear powerplant regulatory process.

In our opinion, it is unlikely that NRC will realize major improvements in its regulatory performance until the authorities and responsibilities of the NRC Chairman, the other Commissioners, the Executive Director for Operations, and major NRC staff offices are clearly established along the lines of the recommendations in this report on pages 40 and 41.

NRC ACCEPTED AND CONTINUED NUCLEAR
REGULATION AS IT FOUND IT

NRC came into existence in January 1975 at a critical juncture in the short history of the commercial application of nuclear technologies. First and perhaps foremost among issues at the time--the issue which caused the Congress to create NRC--was the dual nature of AEC's role as developer/promoter and regulator of commercial nuclear activities. By creating NRC, the Congress recognized that only by establishing an organizationally independent regulatory agency could the commercial nuclear industry have any real opportunity to grow in an atmosphere of reasonable public confidence in the safety of nuclear activities. Other important issues were also developing. For example:

- By the end of 1974, the nuclear industry and AEC still forecasted that several hundred nuclear powerplants would be built in this century. Yet, 1974 saw the beginning of a large number of powerplant cancellations and deferrals as a result of reduced electrical power growth rates and worsening utility financial positions.
- Concern over the possible theft or diversion of nuclear weapons-grade materials and sabotage of nuclear facilities.
- Growing concern over the expansion, and even continuance, of a commercial nuclear power program in the absence of demonstrated methods and regulatory programs governing the decommissioning of nuclear facilities and disposal of high-level nuclear waste.
- Concern over the costs of decommissioning nuclear facilities and disposing of the wastes, and particularly concern that these costs were not reflected in the cost of nuclear power.

--Growing concern over the health effects of low levels of exposure to radiation from commercial nuclear activities.

At this critical time, NRC was also faced with the formidable tasks of simultaneously (1) continuing nuclear regulation, (2) organizing and staffing the agency to address both old and new regulatory responsibilities, and (3) initiating major safeguards and nuclear energy center studies mandated in the Energy Reorganization Act. On top of this, within 2 months after NRC became operational, cracks were detected in safety system pipes at several nuclear powerplants and a major fire occurred at the Tennessee Valley Authority's Browns Ferry nuclear powerplant site in Alabama. Thus NRC was faced with major regulatory challenges at the outset.

Compounding the difficulties of meeting these early tasks was the scattered physical locations of the many NRC organizational components. The NRC Commissioners, Commissioner-level staff offices, and the Advisory Committee on Reactor Safeguards were housed in Washington, D.C. The rest of NRC, however, was scattered among several other office buildings in Bethesda, one building in Rockville, and one building in Silver Spring. This scattering--and its adverse impact on NRC's efficiency--will continue until the Federal Government can provide NRC with a single location large enough for the entire headquarters organization.

On the other hand, the climate of nuclear regulation--the issues that were surfacing in the period before and immediately after January 1975--and the organizational tasks and substantive regulatory challenges with which NRC was faced, provided NRC with the opportunity to review the regulatory approaches and concepts it had inherited and charter its own course for nuclear regulation. Specifically, NRC had the opportunity to revise regulatory priorities; restructure its organizational approach to regulation; clearly define Commissioner and NRC staff-level duties and responsibilities; and re-examine basic regulatory premises and approaches. For example:

--Given the relative neglect, compared to nuclear powerplant development, previously accorded to other aspects of the nuclear fuel cycle, NRC could have assigned highest priority to establishing regulatory criteria and standards in these neglected areas.

- The NRC Commissioners, relieved of the nuclear development and military application responsibilities of their AEC predecessors, could have assumed the responsibility of routinely making final decisions in NRC administrative proceedings.
- The NRC Commissioners could have removed policy-development responsibility from the NRC operating groups and placed it at the Commissioner level.
- The Commission and/or senior NRC staff management could have reviewed past AEC regulatory policies and procedures, such as enforcement policies and procedures, to determine if they were sound and consistent with the need for aggressive, independent nuclear regulation.

The opportunity for timely and critical self evaluation was lost. NRC did not undertake any serious reexamination of the direction and structure of nuclear regulation it inherited from AEC, but, instead, continued uninterrupted, and in some cases intensified, regulatory initiatives and procedures it inherited.

Perhaps the above was inevitable, given the composition of NRC's top management and its staff in its earlier years. Of the five original NRC Commissioners, four had former ties to AEC: NRC's first Chairman had been an AEC Commissioner; another original NRC Commissioner, who became NRC's second Chairman, had been AEC's General Counsel; another Commissioner has been a member of the AEC staff; and another NRC Commissioner had been a member of the Advisory Committee on Reactor Safeguards. Finally, NRC's Executive Director for Operations had been the former Deputy Director of AEC Regulation.

Of practical necessity, given the need to continue nuclear regulation through the transition period and to protect AEC employee employment rights, the preponderance of NRC's staff in its earliest years were former AEC employees. It would be too much to expect, we believe, that the new NRC staff team--comprised mainly of former AEC regulatory-related staff--would have conducted any substantive critical reevaluation of regulatory policies and procedures it had shaped and implemented over the years as part of AEC. Thus, the burden of such an exercise would have had to fall to the new NRC Commission and, to a lesser extent, to the appointed senior NRC staff management. The Commission's failure to exercise the opportunity for a searching reappraisal of the direction and approach to nuclear regulation led to continued acceptance and perpetuation of AEC's regulatory principles, priorities, and programs.

LOOKING TO THE FUTURE

As a result of the Three Mile Island unit 2 accident, NRC--at both the Commissioner and staff levels--is now re-appraising some of the fundamental principles and concepts that have guided nuclear powerplant regulation over the years. Already, for example, NRC has (1) reversed its previously held view that State and local government emergency preparedness was relatively unimportant, and (2) concluded that much more regulatory emphasis is required in the areas of nuclear powerplant operator training. Others independent of NRC--for example, the President's Commission on the Accident at Three Mile Island and congressional committees--have investigated or are investigating the accident with a view toward improving nuclear powerplant safety and the quality of nuclear regulation.

Based on our evaluations of NRC regulatory activities over the past 5 years, and the issues previously discussed in this report, we firmly believe that NRC needs to extend its self-appraisal of nuclear powerplant regulation to other aspects of regulation. For example:

- How can the Commissioners break down NRC's mission of protecting public health and safety, insuring the common defense and security, and preserving the environment, into measurable NRC goals and objectives?
- Are NRC priorities and regulatory programs properly structured to recognize that the continued use of nuclear power depends in part on timely resolution of safety and environmental issues relating to all stages of the nuclear fuel cycle?
- What are the Commissioners' roles in nuclear regulation? Should Commissioners routinely make the second and final NRC decisions in licensing and enforcement administrative proceedings? Should they take the initiative and direct the work of the NRC staff or sit back and decide those matters which come before it much as it has done to date? Should the Chairman have more authority to direct the work of the NRC staff? As previously noted, the Commissioners are now examining their roles in the public hearing process.
- What is the role of the Executive Director for Operations? Should the Director have clear authority and responsibility to direct the work

of all NRC offices and to arbitrate differences among these offices?

At the same time, we believe the NRC Commissioners should be providing the leadership seriously lacking since NRC's beginning by defining meaningful regulatory goals and objectives, and measuring performance in meeting them; and assuming control of policymaking functions of deciding when policies are needed and how they should be written. Development and implementation of the new policy and program guidance system may move the Commissioners into these leadership areas.

We recognize the difficulty of leading when there are five leaders, each with equal responsibility and authority in all Commission decisions and actions. The very nature of the commission form of regulation builds in day-to-day inefficiencies and constraints on "leadership" in the hope that the different perspectives, talents, and experiences of individual commissioners will make regulation more effective over the long-term. Inevitably, some balance must be struck between leadership--the ability to make timely day-to-day decisions affecting the general direction of regulation--and enhanced effectiveness available from diverse perspectives and talents.

Earlier in this report, we recommended that the NRC Commissioners clearly define the Chairman's principal executive officer role and the Executive Director for Operations' role as the director of all staff operations. To insure timely and effective NRC implementation of these and other recommendations in this report, we believe that the Congress, through its oversight committees, should take an active role in overseeing their implementation.

RECOMMENDATION TO THE CONGRESS

In this report, we are recommending actions the Nuclear Regulatory Commissioners should take to provide the leadership necessary for an aggressive nuclear regulation program, including clarifying and strengthening the roles of the NRC Chairman and the Executive Director for Operations. In view of the critical importance of effective and efficient regulation to the future of commercial nuclear activities we believe that the Congress should continue to take an active oversight role in monitoring the Commissioners' progress in implementing our recommendations. Because of the diversity of opinion among the NRC Commissioners on the need to clarify and strengthen the roles of NRC's Chairman and Executive Director, and whether or not legislation is needed to accomplish this, we recommend that the Congress pay particular

attention to this important aspect of strengthening NRC.

The recommendation to the Congress discussed above and the related recommendations to the NRC Commissioners are directed towards strengthening NRC in its existing organizational form. On October 30, 1979, however, the President's Commission on the Accident at Three Mile Island recommended abolishing the present commission form of nuclear regulation in favor of a new agency headed by a single administrator. The President's Commission concluded that the present NRC did not have the organizational and management capabilities to effectively pursue safety goals. Other ongoing Three Mile Island-related investigations may also recommend organizational changes to NRC. The next chapter of our report compares and contrasts organizational alternatives, and presents our observations and conclusions on alternative forms for nuclear regulation.

CHAPTER 5

OBSERVATIONS AND CONCLUSIONS

ON ALTERNATIVE ORGANIZATION

FORMS FOR NUCLEAR REGULATION

The President's Commission recommendation to replace NRC with a single administrator-headed agency, and the possibility that others investigating the Three Mile Island accident will also recommend organizational changes, make the organizational form for nuclear regulation an issue the Congress will have to consider. This chapter discusses principal advantages and disadvantages of the present commission form, the single administrator form recommended by the President's Commission, and a third organizational form--placing national nuclear safety policymaking in a commission and assigning day-to-day nuclear regulation to a separate agency headed by a single administrator.

ALTERNATIVE ORGANIZATION FORMS FOR NUCLEAR REGULATION

The Energy Reorganization Act of 1974 required us to evaluate NRC's effectiveness and recommend legislation we believe necessary to improve NRC's performance. During our evaluation it became apparent that NRC has dual roles which sometimes conflict. One role--policymaking--requires the deliberate contemplation of issues that affect both the near- and long-term direction of regulated nuclear activities. By contrast, the second role requires firm and timely licensing, inspection and enforcement decisions--consistent with NRC policies--in the day-to-day regulation of the nuclear industry. In this report, we concluded that NRC has been slow, indecisive, and cautious in carrying out these roles. A major reason has been the failure of the NRC Commissioners to provide the necessary leadership and direction to the agency by setting goals, controlling policymaking and clearly defining the authorities and responsibilities of the Chairman, other Commissioners, and the Executive Director for Operations.

While we concentrated our evaluation on identifying areas in which the present commission form of regulation could be strengthened, we also identified other organizational forms which might be better suited to perform the dual roles of policymaking and day-to-day regulation. Alternatives we identified included an agency headed by a single administrator, separating NRC into separate

policymaking and regulatory agencies, and variations on each of these basic forms. Nonetheless, we chose not to recommend any alternative to strengthening the present commission because none of the alternative forms appeared to have a clear-cut advantage.

The President's Commission, however, concluded in its October 30, 1979, report that the present Nuclear Regulatory Commission lacks the necessary organizational and management capabilities to effectively pursue safety goals. Therefore, it recommended abolishing the five-member commission in favor of a new agency to be headed by a single administrator with substantial authority to organize and staff the agency. On December 7, 1979, the President announced that he would not seek legislation to implement this recommendation because he did not believe sufficient support for it existed in the Congress. Instead, he said he will submit a plan to the Congress in early 1980 to reorganize and strengthen NRC. To assist the Congress on this issue, we compared and contrasted the present commission form, the single administrator form, and the alternative of splitting nuclear regulation into separate policymaking and regulatory agencies, keeping in mind the need for contemplative, collegial decisionmaking on the one hand, and for timely, efficient regulation on the other.

Single Administrator Agency

The single administrator form would offer the advantage of clear delineation of authority and responsibility. It would provide the best organization to develop goals and objectives, measure performance, and address and resolve regulatory issues in a timely manner. These are all failings of NRC which are discussed in this report.

There are, however, some potentially important disadvantages to the single administrator-headed agency. First, as proposed by the President's Commission, this agency would be placed within the executive branch of the Federal Government, with the administrator appointed and subject to removal by the President. This could reduce the objectivity of the agency and subject it to undue influence from executive branch energy policies. Secondly, because the responsibility for establishing near- and long-term nuclear safety policies would rest with a single person, removable from office at the pleasure of the President, there would be at least the potential for major shifts in the direction of nuclear safety policymaking and regulation with each change of administration. This would make it difficult to develop coherent and consistent nuclear safety policies necessary for the orderly regulation of nuclear power. Finally, a single administrator

would not offer the range of perspectives important in deciding nuclear safety policy issues. Considering the controversial nature of nuclear power, it is important that decisions be made by consensus rather than by one individual subject to removal every 4 years. This provides a greater degree of impartiality and offers the public some assurance that divergent views are at least considered in the decision-making process.

Present commission organization

The second alternative--the present commission form--offers continuity of regulation and independence from the policies and actions of the executive branch. It also has the distinct advantage of bringing to bear much deliberation and contemplation on issues. The importance of this advantage should not be underestimated. Many key nuclear safety policy issues which need to be resolved in the next few years--on subjects such as acceptable methods for the long-term storage and/or disposal of nuclear waste and for decommissioning contaminated nuclear facilities--will have a profound effect on the long-term direction of regulated nuclear activities, and in a broader sense will affect the Nation for many future generations. Finally, another related advantage of the present commission form of nuclear regulation is that the staggered 5-year terms of the NRC Commissioners help to ensure that nuclear safety policies evolve, rather than undergo the abrupt changes in direction possible under the single administrator organization form.

The above discussion, however, assumes a reasonable degree of timeliness and efficiency in nuclear regulation--a condition which we found lacking at NRC. Thus, if the Nation is to obtain the above benefits of nuclear regulation under the present commission organization form, we believe it is important that the Commissioners strengthen NRC's organizational and management capabilities as recommended on pages 40 and 41. In particular, the Commissioners should define the NRC Chairman's authority and duties as NRC's principal executive officer, and place the Executive Director for Operations in charge of all NRC staff-level day-to-day operations.

Separate NRC into two agencies

A third alternative involves separating the present NRC into two agencies. One agency could be a commission responsible for setting national policy for nuclear regulation--policies which would apply to all Federal, as well as to all commercial, nuclear activities. The other agency, headed by a single administrator, could be responsible for carrying out

the day-to-day tasks of regulating nuclear activities. This organizational alternative offers the potential for (1) timeliness and efficiency in day-to-day nuclear regulation; (2) contemplation, deliberation, and continuity in nuclear safety policymaking; and (3) uniform Federal nuclear safety policymaking on issues which transcend agency lines.

Many nuclear safety-related issues applying to commercial nuclear activities also apply to DOE, and in some cases to other Federal agencies such as the Department of Defense. In three previous reports ^{1/}, we have recommended that the Congress give NRC some form of independent regulatory oversight over Federal nuclear activities. For example, in June 1977, we recommended that the Congress assign NRC lead-agency responsibility for developing a decommissioning strategy applicable to both commercial and Federal nuclear facilities.

Separation of NRC into two agencies could build on the strengths of both the commission and single administrator organization forms. Policymaking on critical unresolved nuclear regulation issues could continue under the commission form, with the advantage of multi-member deliberations. At the same time, day-to-day regulation of nuclear activities could proceed under an agency headed by a single administrator, with prospects for better management of these day-to-day activities.

We discussed this alternative with a cross-section of people knowledgeable of nuclear regulation, including representatives of Government, the nuclear industry, public interest groups, and academia. Opinion on the alternative ranged from active interest to a belief that it represents an unnecessary proliferation of Federal regulatory agencies.

OBSERVATIONS AND CONCLUSIONS

A wide range of factors must be considered in deciding on the optimal organizational form for nuclear regulation, including such obvious ones as organizational independence.

^{1/}"Commercial Nuclear Fuel Facilities Need Better Security," EMD-77-40a, May 2, 1977; "Cleaning Up The Remains of Nuclear Facilities--A Multibillion Dollar Problem," EMD-77-46, June 16, 1977; "Nuclear Energy's Dilemma: Disposing of Hazardous Radioactive Waste Safely," EMD-77-41, Sept. 9, 1977.

timeliness and efficiency of regulation, and public confidence in nuclear regulation. We think other, not so obvious factors also should be explicitly considered and balanced in reaching this decision. For example, nuclear safety policy decisions which need to be made in the 1980s, such as decisions relating to nuclear waste management and nuclear powerplant decommissioning, will affect our society for generations to come. If the Nation proceeds with a substantive nuclear power program, other nuclear safety issues of this magnitude are also on the horizon. The possible use of plutonium as fuel for present generation nuclear powerplants is one issue and, beyond that, the possible deployment of the breeder reactor with its own set of nuclear safety and safeguards issues. This argues for the relatively independent, contemplative, and evolutionary nature of nuclear safety policymaking offered by the commission form.

On the other hand, the Nation cannot have effective regulation without reasonable degrees of timeliness and efficiency in both day-to-day regulation and policymaking. Deliberation and contemplation must not become procrastination. Furthermore, to the extent that the Nation moves into an era of energy shortages, nuclear regulators must be responsive to national energy policies, and yet sufficiently removed from direct executive branch control to preserve their integrity as regulators. These factors argue for a dynamic organizational format such as an agency in the executive branch headed by an administrator.

Ultimately, the Congress must consider the advantages and disadvantages of various organizational forms and decide on the organizational structure which, on balance, best represents what the Congress wants for nuclear regulation.

The above discussion of alternative organizational forms, and their principal advantages and disadvantages, is intended to assist the Congress in its deliberations. Two conclusions are evident, however, based on our evaluation of NRC and limited comparison of alternative organizational forms. First, if the Congress decides to retain the present Nuclear Regulatory Commission, the Chairman's authority and responsibility should be strengthened to better balance the sometimes conflicting needs for timely, efficient regulation and contemplative, collegial decisionmaking. Second, the advantages of the commission form in deciding nuclear safety policy questions with long-term ramifications are clearly superior to the single administrator form. For this reason, we prefer retention of the commission organization form--either the present commission form or some other alternative, such as the form described in our third alternative--for nuclear safety policymaking.

LIST OF GAO REPORTS ON THE
NUCLEAR REGULATORY COMMISSION

Opportunities for Improvements in the Nuclear Standards Development Program (May 21, 1975).

Controlling the Radiation Hazard From Uranium Mill Tailings (RED-75-365, May 21, 1975).

Federal Investigations into Certain Health, Safety, Quality Control, and Criminal Allegations at Kerr-McGee Nuclear Corporation (RED-75-374, May 30, 1975).

Organization of the Nuclear Regulatory Commission (RED-76-3, July 18, 1975).

Report to the Executive Director for Operations, Nuclear Regulatory Commission on The Nuclear Regulatory Commission's Environmental Protection Program in the Licensing of Commercial Nuclear Powerplants (October 22, 1975).

Improvements Needed in the Land Disposal of Radioactive Wastes--A problem of Centuries (RED-76-54, January 12, 1976).

Management of the Licensing of Users of Radioactive Materials Should Be Improved (RED-76-62, February 11, 1976).

Bellefonte Nuclear Plant (PSAD-76-86, March 1, 1976).

Development of Interagency Relationships in the Regulation of Nuclear Materials (RED-76-72, March 10, 1976).

Stronger Federal Assistance to States Needed for Radiation Emergency Response Planning (RED-76-73, March 18, 1976).

This Country's Most Expensive Light Water Reactor Safety Test Facility (RED076-68, May 26, 1976).

Poor Management of a Nuclear Light Water Reactor Safety Project (EMD-76-4, August 25, 1976).

Letter report to the Chairman, Nuclear Regulatory Commission on the need for NRC to identify and

review nuclear facilities no longer used (September 17, 1976).

Letter report to the Chairman, Nuclear Regulatory Commission, on coordination of Federal activities to detect, monitor, and release information regarding radioactive fallout (EMD-77-2, October 26, 1976).

Radioactive Materials Users by Agreement States (EMD-77-4, November 11, 1976).

Evaluation of Nuclear Regulatory Commission's Information Gathering Program and its Management Practices (ACGRR-77-3, December 28, 1976).

Reducing Nuclear Powerplant Leadtimes: Many Obstacles Remain (EMD-77-15, March 2, 1977).

Issues Related to the Closing of the Nuclear Fuel Services, Inc., Reprocessing Plant at West Valley, New York (EMD-77-27, March 8, 1977).

Security at Nuclear Powerplants--At Best, Inadequate (EMD-77-32, April 7, 1977).

Commercial Nuclear Fuel Facilities Need Better Security--Unclassified Digest (EMD-77-40a, May 2, 1977).

Letter report to the Honorable Christopher Dodd on the Nuclear Regulatory Commission's procedures to assure safety in the transportation of radioactive materials (EMD-77-35, May 11, 1977).

Allegations of Poor Construction Practices on the North Anna Nuclear Powerplants (EMD-77-30, June 2, 1977).

Cleaning Up the Remains of Nuclear Facilities--A Multibillion Dollar Problem (EMD-77-46, June 16, 1977).

An Evaluation Of The National Energy Plan (EMD-77-48, July 25, 1977).

Nuclear Energy's Dilemma: Disposing of Hazardous Radioactive Waste Safely (EMD-77-41, September 9, 1977).

An Evaluation Of The Administration's Proposed Nuclear Non-proliferation Strategy (ID-77-53, October 4, 1977).

Letter report to the Honorable Willian J. Hughes on the Nuclear Regulatory Commission's environmental review process (EMD-78-4, October 28, 1977).

Letter report to the Director, Office of Science and Technology Policy on the use of nuclear powered electric generators in satellites (December 7, 1977).

Letter report to the Chairman House Subcommittee on Public Works, Committee on Appropriations on the Nuclear Regulatory Commission's licensing of two Tennessee Valley Authority nuclear powerplant projects (EMD-78-37, February 16, 1978).

Letter report to the Chairman, Senate Subcommittee on Nuclear Regulation, Committee on Environment and Public Works on the Nuclear Regulatory Commission's practice of submitting information to the Atomic Safety and Licensing Board (EMD-78-42, March 6, 1978).

Letter report to the Vice Chairman, Joint Economic Committee, regarding the Nuclear Regulatory Commission's role in selecting fission technologies (EMD-78-44, March 7, 1978).

Nuclear Powerplant Licensing: Need for Additional Improvements (EMD-78-29, April 27, 1978).

Letter report to the Chairman, House Subcommittee on Energy and Power, Committee on Interstate and Foreign Commerce on reconciliation of special nuclear material unaccounted for (EMD-78-58, May 5, 1978)

Administrative Law Process: Better Management Is Needed (FPCD-78-25, May 15, 1978).

Uranium Mill Tailings Cleanup: Federal Leadership at Last? (EMD-78-90, June 20, 1978).

Letter report to the Chairman, Subcommittee on Public Works, House Committee on Appropriations on off gas explosions at nuclear powerplants (EMD-78-99, August 4, 1978).

Need for Greater Regulatory Oversight of Commercial Low-Level Radioactive Waste (EMD-78-101, August 16, 1978).

NRC Needs to Aggressively Monitor and Independently Evaluate Nuclear Powerplant Construction (EMD-78-80, September 7, 1978).

Before Licensing Floating Nuclear Powerplants, Many Answers Are Needed (EMD-79-36, September 13, 1978).

Nuclear Diversion in the U.S.? 13 Years of Contradiction and Confusion--Secret (EMD-79-8, December 18, 1978).

Reporting Unscheduled Events at Commercial Nuclear Facilities: Opportunities To Improve Nuclear Regulatory Commission Oversight (EMD-79-16, January 26, 1979).

Cleaning Up Commingled Uranium Mill Tailings: Is Federal Assistance Necessary? (EMD-79-9, February 5, 1979)

Higher Penalties Could Deter Violations of Nuclear Regulations (EMD-79-9, February 16, 1979).

Letter report to the Chairman and Ranking Minority Member, Subcommittee on Nuclear Regulation, Senate Committee on Environment and Public Works, on the Nuclear Regulatory Commission's use of private contractors and Department of Energy laboratories (EMD-79-37, March 7, 1979).

Areas Around Nuclear Facilities Should Be Better Prepared for Radiological Emergencies (EMD-79-18, Mar. 30, 1979).

Federal Actions Are Needed to Improve Safety and Security of Nuclear Materials Transportation (EMD-79-18, May 7, 1979).

Letter report to the Honorable Richard Schweiker on the Nuclear Regulatory Commission's program for licensing nuclear powerplant personnel (EMD-79-67, May 15, 1979).

Nuclear Power Costs And Subsidies (EMD-79-52, June 13, 1979).

**Emergency Preparedness Around The Rancho Seco Nuclear
Powerplant: A Case Study (EMD-79-103, October 2, 1979).**

**Placing Resident Inspectors At Nuclear Powerplant Sites:
Is It Working? (EMD-80-28, November 15, 1979).**

RECOMMENDATIONS TO CONGRESSAFFECTING THE NUCLEAR REGULATORY COMMISSION

Poor Management Of A Nuclear Light Water Reactor Safety Project (EMD-76-4, August 25, 1976).

The Nuclear Regulatory Commission's Plenum Fill Experiment is a reactor safety test project which is supposed to tell the Commission whether its licensing regulations for emergency core cooling systems and reactor power outputs are too stringent. Because of past mismanagement the project cost increased significantly and was canceled. In 1976 the Commission was planning a new Plenum Fill project with some of the same mistakes repeated.

We therefore recommended that NRC take corrective actions and that the Joint Committee should

--require the Nuclear Regulatory Commission to prepare a conceptual design, fully justify and explain its approach for the new Plenum Fill Experiment, and reach an agreement with the Energy Research and Development Administration, now the Department of Energy, for managing reactor safety research projects before authorizing any additional funds for a new project; and

--require the Nuclear Regulatory Commission and the Energy Research and Development Administration to institute measures to minimize the use of operating appropriations for construction and to alert the Congress to any construction activities for which more than \$1 million of operating appropriations is obligated.

STATUS:

The intent of the first recommendation has been realized because NRC performed a conceptual design study which led it to cancel the experiment.

The second recommendation is still open and valid.

Commercial Nuclear Fuel Facilities Need Better Security (EMD-77-40a, May 2, 1977).

The Department of Energy, successor to the Energy Research and Development Administration, regulates its own nuclear

facilities while the Nuclear Regulatory Commission regulates commercial nuclear facilities. To minimize the risk to the public of the Department subordinating regulatory to promotional functions, to maximize objectivity and impartiality, and to increase public confidence in the safe operation of nuclear facilities we recommend that Congress:

- amend the Energy Reorganization Act of 1974 to provide independent assessments of all Department of Energy nuclear facilities. Such assessments should cover both the adequacy of safeguarding nuclear material, and assuring the health and safety of the public from nuclear operations.

STATUS:

Congress has not acted on this recommendation, which we believe is still valid.

Higher Penalties Could Deter Violations Of Nuclear Regulations (EMD-79-9, February 16, 1979).

The Nuclear Regulatory Commission uses civil penalties to enforce its regulations governing the construction and operation of commercial nuclear facilities and the possession, use, and disposal of nuclear materials. The maximum penalty which it can assess is too low to be an effective enforcement tool.

This report recommended that the Congress increase the civil penalty amount the Commission can impose for nuclear violations from \$5,000 to \$100,000 for a single violation, and eliminate the limitation on the amount that can be imposed for all violations in a period of 30 consecutive days.

STATUS:

This recommendation is still valid. As of December 1979, the Congress was acting on it as part of NRC's fiscal year 1980 authorization legislation.

Nuclear Powerplant Licensing: Need For Additional Improvements (EMD-78-29, April 27, 1978).

Several bills have been introduced between 1975 and 1978 to amend NRC's process for licensing nuclear powerplants. In

this report we recommended that certain conditions should be met in the licensing bill the Administration submitted to Congress in March 1978 before Congress passed it.

We recommended that

- NRC, if it approves sites before construction is to start, should have a method to update and certify the continued acceptability of the proposed powerplant site.
- The Advisory Committee on Reactor Safeguards should review all applications which do not include plant designs approved under a formal NRC standardization program.
- Adequate public hearings be held by the States and NRC if they make environment-related decisions. The public should continue to have access to all pertinent licensing documents and be able to participate in public hearings by subpoenaing and cross-examining witnesses.
- NRC, before transferring National Environmental Policy Act requirements to the States, insure that the States' environmental programs are adequate and will not unduly delay licensing decisions.

STATUS:

The 1978 bill was not enacted. However, since current licensing issues are similar to those which the report commented on our recommendations are still appropriate for future legislation.

Nuclear Energy's Dilemma: Disposing Of Hazardous Radioactive Waste Safely (EMD-77-41, September 9, 1977).

Growth of nuclear power in the United States is threatened by the problem of how to safely dispose of radioactive waste potentially dangerous to human life. Among the many problems in waste management, we pointed out in this report that gaps exist in Federal laws and regulations governing the storage and disposal of nuclear wastes.

To close the regulatory gaps this report recommended that Congress

--amend the Energy Reorganization Act of 1974 to provide for independent assessments of the facilities of the Energy Research and Development Administration--including research and development facilities--intended for the temporary storage and/or long-term storage or disposal of commercial and its own transuranic contaminated waste; the temporary storage of the Energy Research and Development Administration's high level waste; and the temporary storage and/or long term disposal of commercial spent fuel.

To provide such an independent assessment Congress should adopt one of three alternatives:

- Give the Nuclear Regulatory Commission the authority and responsibility for establishing policies, standards, and requirements in cooperation with the Energy Research and Development Administration, for carrying out these assessments.
- Retain this responsibility and authority within the Energy Research and Development Administration, subject to certain statutory provisions, to insulate the oversight activities.
- Authorize the Nuclear Regulatory Commission to assess periodically the Energy Research and Development Administration's facilities and annually report the results to the agency and the Congress.

In testimony before congressional committees, GAO has stated a preference for the first alternative.

We also recommended that the Congress closely scrutinize, through the annual authorization and appropriation process, the progress of the Energy Research and Development Administration's program for long term waste management.

STATUS:

Congress has not adopted these recommendations. We believe they are still valid.

Cleaning Up The Remains Of Nuclear Facilities--A Multibillion Dollar Problem (EMD-77-46, June 16, 1977).

Because nuclear facilities and equipment remain radioactive long after their useful life, decommissioning them

presents unique difficulties. The Department of Energy and the Nuclear Regulatory Commission, with help from the Environmental Protection Agency and the 50 States, are responsible for insuring that nuclear facilities are safely decommissioned. The diverse efforts of these groups have not adequately provided for decommissioning.

Therefore, we recommended that Congress

--designate one lead Federal agency--the Nuclear Regulatory Commission--to approve and monitor an overall decommissioning strategy. The Commission is uniquely suited for this role because of its charter to independently regulate commercial nuclear activities to assure public health and safety.

STATUS:

Congress has not adopted this recommendation. We believe it is still valid.

Cleaning Up Commingled Uranium Mill Tailings: Is Federal Assistance Necessary? (EMD-79-29, February 5, 1979).

Uranium mills produce sand-like radioactive wastes called tailings as a result of processing raw uranium for eventual use in nuclear weapons or nuclear powerplants. The Federal Government and the mill owners only recently found that these tailings are a potential health hazard and should be controlled.

We recommended that the Congress

--provide assistance to active uranium mill owners to share in the cost of cleaning up that portion of the tailings which were produced under Federal weapons contract. Further, we believe that the Congress should consider having the Federal Government assist those mills who acted in good faith in meeting all legal requirements pertaining to controlling the uranium mill tailings that were generated for commercial purposes and for which the Federal Government is now requiring retroactive remedial action. At this same time, the Congress should make sure that this action establishes no precedent for the Federal Government assuming the financial responsibility of cleaning up other non-Federal nuclear facilities and wastes, including those mill tailings generated after the date

when the Federal Government notified industry that the tailings should be controlled.

STATUS:

The Congress has not adopted this recommendation. We believe it is still valid.

The Uranium Mill Tailings Cleanup: Federal Leadership At Last? (EMD-78-90, June 20, 1978).

Uranium mills produce sand-like radioactive wastes called tailings as a result of processing raw uranium for eventual use in nuclear weapons or nuclear powerplants. The Federal Government and the mill owners only recently found that these tailings are a potential health hazard and should be controlled. Over 22 mills have already shut down and there are over 25 million tons of tailings spread over several States.

If Congress believes that a strong Federal role in cleaning up the tailings is necessary, legislation was necessary to allow the cleanup program to begin.

We recommended that the proposed legislation be amended in several ways. It should

--require NRC, with assistance from DOE and EPA, to report to the Congress on the need, and adequacy of plans, to clean up mill tailings sites excluded by the legislation, and to make recommendations, if needed, for additional legislation or executive branch actions to insure the cleanup of all sites.

STATUS:

Congress has adopted this recommendation.



OFFICE OF THE
COMMISSIONER

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

November 28, 1979

Mr. J. Dexter Peach, Director
Energy and Minerals Division
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

I appreciate this opportunity to comment on the GAO draft report on "Opportunities to Improve the Effectiveness of the Nuclear Regulatory Commission," which you enclosed with your letter of October 19, 1979. The comments which I am providing are my own individual thoughts and as such do not represent those of the Commission or my colleagues. Nor do they purport to discuss the report comprehensively or in detail. The Commission staff has provided detailed comments and I commend them to you.

The Commission and its staff are subject in many areas to deserved criticism for failure to act as decisively or quickly as might have been expected. The report's criticisms and suggestions are appreciated and I am confident will be helpful as the Commission moves forward on a broad front with programs of corrective action. Indeed the Commission and its staff over the past year have been moving to resolve a large number of issues and to clarify and strengthen the basis of its regulatory philosophy and framework. However, these efforts, in some cases at least, go unnoticed in the report.

The general tone of the draft report seems to suggest that the NRC Commissioners have not provided policy leadership or guidance since the NRC's inception. This impression is simply inaccurate in my view. The Commission has spent countless hours since its creation in meetings with the heads of the principal staff offices reviewing in great detail virtually every aspect of the NRC's regulatory role. The draft report itself cites many examples of the Commission's continuing interaction with its staff in important areas of regulation. As just one example it notes on p. 47 that as early as June of 1975 the Commission directed the NRC staff to develop the information necessary to completely revise NRC's nuclear power plant siting regulations. From its inception, too, the Commission has directed its staff and led it actively in the development of a comprehensive regulatory framework for fuel cycle related activities. I emphasize that these are but examples of a pattern of Commission efforts over the full range of its activities. The record is clear on these points and should be carefully examined and reflected in the report.

I was interested to note from the draft report that in October 1975 the NRC staff had presented a plan to the Commission for a coordinated national regulatory program for nuclear waste management. I was not, of course, in the government at that time and cannot speak to the reasons the Commissioners did not act on the plan. It may have been because the national waste disposal program is a primary responsibility of the Department of Energy and has taken several turns and twists in recent years. The Commissioners may have felt that a strong regulatory advance in one direction might turn out to be the wrong direction. In this regard, I would note that this section of the draft report somehow sounds as though the NRC had primary responsibility on the national level for waste management programs. I think it would be helpful if there was some indication that that is indeed not the case and some recognition of the fact that our own regulatory waste management programs have had to deal with a shifting target from the Executive Branch in this area.

You have had comments from the NRC staff on all of the sections of Chapter 2 of the draft report. I recommend them to your attention. In particular, I am in agreement with the staff comments on the sections on safeguards regulations and on controls on the research program.

In Chapter 3, dealing with the Commission itself and its principal officers, the draft report correctly notes the difficulties in providing aggressive leadership to an agency with the commission form of executive management. The benefits of the commission form come in having diverse views, perspectives, and backgrounds represented on a commission. To the extent that commissioners with different backgrounds and perspectives are chosen, it is more difficult for a commission to coalesce rapidly on particular positions and thereby to provide strong leadership to an agency. Obviously, a commission composed of people all agreeing on the general thrust that they would like to see an agency take can agree easily on policy matters and provide at least the appearance of a greater degree of leadership. But since the value of the commission form lies precisely in its ability to require different viewpoints to be compromised and accommodated in reaching policy decisions, then rapid decision-making is not likely to be a feature of a commission. That is not entirely a bad feature of commissions. In regulatory matters, whether in the safety area or in economic matters, a certain amount of care and deliberation in policy decisions is much to be preferred over hasty decision-making.

I have come after long consideration of the matter to the conclusion that nuclear regulation is best done by an independent agency headed by the Commission. In reaching that conclusion, however, I do not argue

with the assessment of the draft report that the Commission has failed to provide adequate leadership and management for nuclear regulatory activities. The Commission has failed to make decisions in some matters, has often taken much too long a time to reach decisions, and has a general tendency to spend time on administrative, personnel, and staff management matters that would be more effectively and rapidly dealt with by the Chairman and the Executive Director. The result is as portrayed in the draft report.

But these deficiencies are only in part attributable to the commission form of organization. In the NRC's case, they are more the result of the present uneasy balance in the understandings among Commissioners as to the prerogatives and reach of authority of the individual Commissioners. They can, and should, be cured by agreement among the Commissioners to implement the thrust of the 1975 amendment of the Atomic Energy Act on the powers of the Chairman. I would note that I believe the section of the draft report on this matter correctly reflects the situation to date.

The changes needed are clear and straightforward. First, the Commission should continue to deal on a collegial basis with all adjudicatory matters, rulemaking decisions, significant regulatory policy matters, and such other matters as a majority of the Commissioners want to consider. The collegial Commission should establish the basic policy, planning, and program guidance statements for the agency and should continue to review and approve the agency's budget proposals. Selection of the Executive Director, the five principal office directors, the Executive Legal Director, and the heads of Commission-level staff offices should be made by the collegial Commission. Commissioners should, of course, have complete control over their own office staff appointments. To assure timely working of the collegial decision process, Commissioners should agree to state their views or abstain from a decision within a reasonable time after a majority of Commissioners have reached agreement, provided that the majority wishes to go ahead with the decision.

Second, on all other matters the Chairman should manage the agency as the 1975 amendment provides by exercising the executive and administrative functions of the Commission with regard to personnel matters, the distribution of business among the officers and units of the agency, and the use and expenditure of funds. In doing so, the Chairman should act through the Executive Director to exercise management control over the staff and resources of the agency. The Chairman inevitably must spend substantial time on agency relations with other government agencies, the Congress, official visitors, and other matters. Effective management of

the agency staff requires the full-time attention of a single individual acting under the Chairman's general direction and exercising the Commission's full authority. The Executive Director is the obvious choice.

If implemented, these changes will cure a large part of the leadership and management deficiencies that are all too apparent in the agency, while preserving the major benefits for careful nuclear regulation that I see in the independent commission form of the agency. Under these changes the collegial Commission has authority and is accountable for the adjudicatory, rulemaking, and regulatory policy decisions of the agency. The Chairman, in turn, has authority and is accountable for implementing those decisions and managing the staff and resources of the agency, working through the Executive Director and the senior officers of the staff.

With regard to the role of the Executive Director, I should note that I agree fully with the assessment and recommendations for that office in the draft report. The Executive Director must have authority, under the Chairman, to direct the staff (excepting the Commission-level offices), including the heads of the statutory offices. There is no intent in this comment to deny the access to the Commissioners for the heads of the statutory offices provided in the Energy Reorganization Act of 1974. As a practical matter, every staff member has full and personal access to every Commissioner under the Commission's long-standing Open Door Policy. But that right of access must not be allowed to create any impression that the statutory offices are independent fiefdoms, to be operated without direction and control by the Executive Director. I must add that I believe there is much less tendency in this direction now than was the case in the early days of the NRC, but there remains a flavor of major office independence due to the unresolved differing views of Commissioners on the Executive Director's role. I should also note that the Commission is now working on a clarification of the Executive Director's role.

In the section on developing measurable goals, objectives, and evaluation systems, I think it would be helpful to note that last year the NRC commenced a trial use of the decision unit tracking system and had an early draft of a policy, planning, and program guidance document. The Commission is now engaged in establishing the policy, planning, and program guidance document as the fundamental goals and objectives guidance for the agency and is replacing the old management-by-objective document and its associated review system with the PPPG document. The evaluation system that goes with the PPPG system is the decision unit tracking system, and program review meetings of the staff are now based upon those decision units in the system. The decision unit tracking system provides an immediate tie to the agency budget and staff resource requests.

The draft report comments on the acceptance by the Commissioners in 1975 of the system of nuclear regulation that had been created under the AEC. I cannot comment on the basis of first-hand knowledge, but it seems to me likely that the new Commission, operating under the oversight of the Congressional Joint Committee on Atomic Energy, might have found that any substantial changes in the nuclear regulatory scheme would be difficult to make in view of that oversight. The Joint Committee had, after all, closely supervised the AEC and its regulatory activities for many years. I suspect that the Joint Committee members and staff would have looked askance at attempts by the newly-formed regulatory commission to strike out in new directions.

While I agree that the Commission needs to improve its policy-making activities, I think the draft report section on this matter underestimates the influence of Commissioners and the Commission on the staff with regard to the need for, timing, and direction of policy papers. Guidance to the staff from Commissioners is given in assorted ways besides the more formal communication to the staff from the Secretary on behalf of the Commission. Discussions at Commission meetings and individual comments and discussions between Commissioners and staff officers have played a substantial role in directing policy-making activities, at least in the time I have been on the Commission. These less formal routes of communication are not easily apparent to outside auditors, but are present and have effect.

The draft report recommends placing of policy-making activity in the Commission-level Office of Policy Evaluation. A strengthening of the OPE role in policy-making is appropriate, and is now included in a new definition of the OPE functions in preparation by the Commission. It must be recognized, however, that a full transfer of policy paper preparation to OPE is not practical. Only the line staff offices have the resources and the intimate familiarity with all phases of our regulatory practices to deal with the details of most policy papers.

In connection with the comments in the draft report on the Appeals Panel function and the possibility of the Commission itself assuming that function, it should be noted that most of the work of the Appeals Panel is in providing a thorough review of Licensing Board decisions for adequacy and for consistency with Commission regulations. The Appeals Panel is a highly professional group, devoted full-time and without other distractions to this work. I doubt the Commission could do the job as well as the Appeals Panel. What is needed is a better and more rapid way for policy issues arising in the adjudicative process to be referred to the Commission. In the aftermath of the Three Mile Island accident, the Commission has taken final license issuance into its own hands and has defined a process for early identification of issues that should be determined by the Commission.

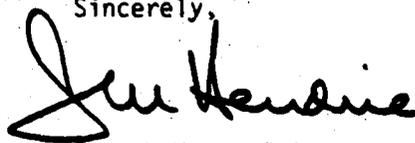
There are two matters not touched on in the draft report that I think are worth noting. One has to do with the actions of the Commission itself in emergency situations, a matter the Commission is now discussing. We find that as written, the statutes do not permit delegating the powers of the collegial Commission to the Chairman or any single Commissioner, even in an emergency when fast and decisive actions may be needed. It is, I think, another manifestation of the conflicting directives in the statutes between a Commission of totally equal individuals, able to take action only as a collegial group, and the 1975 amendment making the Chairman the chief executive officer of the agency. Whatever the Commission's final decision on its own role in an emergency, it seems to me preposterous that the Chairman or Acting Chairman cannot be delegated the Commission's full powers to issue orders to a licensee in an emergency. I think the statutes should be amended to allow that delegation.

The other matter concerns an increasing tendency of the Congress to require review and approval by the Commission itself of safety research contracts. The agency budget requests, and especially the research requests, are thoroughly reviewed by the staff offices, the Executive Director, and the Commission in forming the annual budget. To go beyond that review and require Commission approval of specific research contracts may be appropriate for very large contracts and major new research effort initiations. But requiring the personal attention of Commissioners to contracts as small as \$20,000, as is now the case in the safeguards research area, seems to me inconsistent with the strong thrust of the draft report, with which I agree, that the Commission should concentrate its attention and move more effectively on the significant policy issues before it.

Finally, I wish to record my full agreement with the recommendations to the Commission at the close of Chapter 3 of the draft report, subject only to the comment above about continued staff office involvement in the details of policy papers.

I want to thank you for the opportunity to comment on the draft report and for your helpfulness in discussing it with me and other members of the Commission and staff. I can assure you that your comments and recommendations will receive the most serious attention of the Commission and will be most helpful to us in improving the operation of the agency.

Sincerely,



Joseph M. Hendrie



OFFICE OF THE
COMMISSIONER

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

October 26, 1979

Mr. J. Dexter Peach
Director, Energy and Minerals Division
United States General Accounting Office
Washington, D. C. 20548

Dear Mr. Peach:

I appreciate receiving your letter of October 19th, forwarding a draft report on "Opportunities to Improve the Effectiveness of the Nuclear Regulatory Commission." As you requested, I am providing you my comments on this report. I also appreciated the opportunity to discuss these comments with members of your staff on October 24th.

My principal concerns relate to the following areas:

- (1) Policy development and guidance;
- (2) Role of the Chairman;
- (3) Waste management planning.

Regarding policy planning, I agree with your report that it is essential the Commissioners elevate responsibility for policy making to the Commissioners, change the way the policy is made, set measurable Commission goals, and develop systems for evaluating performance. I am distressed by the lack of your recognition of the effort that has been made over the last ten months to move in that direction. I speak in particular of the development of the NRC Policy and Planning Guidance. Many members of the NRC have been actively working for the last ten months to develop a framework for policy guidance which would have the Commissioners provide, after development with the staff, a document which would summarize the major objectives of the Commission and provide Commission guidance for programs and for budget development. Both the Commissioners and the staff have been very active in development of this concept. I enclose several documents (Attachment 1) which illustrate these points: (1) January 19, 1979 memorandum which summarizes many points similar to those you are urging us to adopt; (2) a summary of the chronology of the current stages of the development of the Policy, Planning, and Programming Guidance; and (3) the latest version of this guidance recently forwarded to the Commission by the Executive Director. I believe we are addressing those policy issues you raised and believe your report should so indicate.

GAC Note: The attachments to this letter are not included in our report.

The second point I would like to address is your description of the role of the Chairman and the related concerns about leadership. I believe you have downplayed the ambiguity that exists under the current statute. It is certainly correct that an amendment to the original NRC Charter expanded the role of the Chairman in that it describes him as "the principal executive officer of the Commission." However, the law goes on to state, "In carrying out any of his functions. . . the Chairman shall be governed by general policies of the Commission. . . and determinations as the Commission may by law be authorized to make." The amendment you referred to did not delete the section of the law which states, "Each member of the Commission, including the Chairman, shall have equal responsibility and authority in all decisions and actions of the Commission, shall have full access to all information relating to the performance of his duties and responsibilities, and shall have one vote." Therefore, a legal and practical case can be made that each Commissioner has equal authority to get all the information the Chairman is getting and that each Commissioner has equal responsibility for all actions of the Commission and, therefore, can effectively constrain the Chairman's carrying out any perceived mandate of the amendment that you quote. I believe that if the Chairman were to attempt to become the strong Chairman that your draft implies he could be, such behavior would lead to heated dissent and would effectively hamstring the Commission. I believe the only adequate solution is a legislative change.

In depositions before the President's Commission, the Hart Subcommittee Investigation, and our own internal investigation, I have testified that the appropriate solution is to go to a single-headed agency, bearing close relationship to the EPA structure. Failing this, I believe the NRC should be modeled after the FERC, i.e., make it clear that the Chairman is the Chairman in fact as well as name. However, I strongly believe the best solution would be a single-headed agency, and that legislative change is required.

In the area of waste management, while I endorse most of the points you have made, I believe there has been substantial progress over the last half year in this area. I recognize the GAO's audit review probably ended about six months ago. However, when this report comes out, it will be interpreted as being a snapshot at the current time. Therefore, given the length of time between the audit and the report coming out, I believe it appropriate to at least acknowledge that over the last half year the NRC has moved relatively aggressively in this area. Attachment 2 indicates we have increased funding and people in the waste management area. (I am sure Mr. Dircks will provide more detail.)

I agree that if the Commission structure is retained, the role of the Executive Director must be clarified. I believe that currently it is an unworkable arrangement, both in the description of the position as well as in NRC practice over the last several years. Consequently,

APPENDIX IV

APPENDIX IV

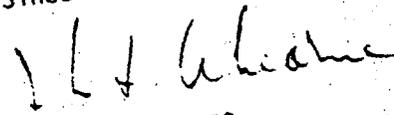
I believe it important to have a clarification of the role. Whether or not this would be a strengthening of the role depends upon how one perceives the role at present. (I believe it would be a strengthening of the role.)

Your report does not address nuclear export activities, but I believe it should. I believe the NRC as a Commission devotes a disproportionate amount of time to nuclear export matters, certainly disproportionate in the sense of its responsibilities for domestic health and safety as well as the small staff dedicated to this function. I have attached pertinent sections of a recent speech I gave addressing this issue (Attachment 3).

Finally, with regard to the previous GAO recommendations to modify our inspection program, I believe it important to note that a recommendation to significantly expand the NRC's monitoring of licensee activities should be coupled with a recommendation for a significant increase in the NRC staff. Currently our inspection program is based upon audits and upon licensees being held responsible for conformance with our regulations. If it is to be changed to one in which our inspectors review all actions rather than audit them, then we need a substantially increased staff. If you recommend these changes in philosophy of inspection, you should also recommend the Congress increase the NRC staff.

I appreciate the opportunity to comment on this report, agree with many of its points, and urge you to take into consideration the above comments.

Sincerely,



John F. Ahearne
Commissioner

Enclosures

Attachment 1

- (1) 1/19/79 memo "NRC Policy and Planning Guide"
- (2) Chronology of NRC Policy, Planning and Programming Guidance (PPPG)
- (3) 10/19/79 memo, FY 1982-86 Policy, Planning, and Programming Guidance (PPPG)

Attachment 2

Actions to Increase Waste Management Activities

Attachment 3

Excerpt from speech to ANS, 9/11/79



OFFICE OF THE
COMMISSIONER

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

November 14, 1979

Mr. J. Dexter Peach
Director, Energy and Minerals Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

As requested, I have reviewed the draft report entitled "Opportunities to Improve the Effectiveness of the Nuclear Regulatory Commission." By and large, I think that the strong criticisms contained in the report are justified, wholly or in substantial part. However, I think that the report misses the boat in one important respect which will distract from successful implementation of the useful recommendations that it contains. The recommendation that concerns me is that the Commissioners "define the Commission Chairman's duties and authority as principal executive officer and place the Executive Director for Operations in charge of all Commission staff-level day-to-day operations."

This recommendation seems to suggest that you have reason to believe that the Commission's shortcomings lie in some significant part in the fact that the agency's Chairmen (and perhaps their predecessors at the AEC) were straining mightily toward major changes and reforms in the agency's operations, but were in some way hampered by either the collegial structure or the disagreements of their colleagues. To be blunt about it, such a perception seems to me to be sheer nonsense. I do not think that a shred of support can be found for the proposition that NRC Chairmen do not have the power to manage the agency effectively as long as they are representing a position of a majority of their colleagues. The present situation does indeed sometimes present the difficult situation of the Chairman finding himself supporting what turns out to be a minority viewpoint on key personnel or administrative or policy decisions. Such a situation will, of course, hamper his ability to convert his views into agency policy or to manage the agency in what he would view as the most effective or desirable manner. However, to strengthen the Chairman's position in such a way that he could manage the agency as he saw fit even when his was a minority viewpoint seems to me to make a mockery of collegial decisionmaking. Similarly, I agree that the role of the Executive Director needs to be clearly defined to an extent that it is not at present. However, in the case of significant disagreement between the commission's major line offices, I feel that those disagreements should be brought to the attention of the Commission for resolution by the Commissioners. To imply that the Executive Director's job is to manage the staff so firmly that he is to achieve a staff consensus on all issues before presenting them to the Commission is to guarantee that some issues will come to the Commission belatedly and presented at an almost useless level of abstraction in which significant differences

are merged for the moment in a manner that will be of little use when the general policy comes face to face with concrete real-world problems.

The third chapter of the draft report suffers from a fundamental flaw related to the discussion above. It assumes that, as of March, 1979, the NRC was a leaderless shambles. It does not consider the possibility that this place was in fact not a ruin at all, but was in perfect working order. If it was in perfect working order, what then was it designed to do? Well, supposing the point was to keep issuing licenses as fast as possible in the face of mounting evidence that the guiding premise of the 1970's - that adequate levels of safety had been reached already - was in many respects wrong or at least highly uncertain (take for example the reassessments going on in INFCE, the interagency review group on waste management, low-level radiation, the repudiation of parts of the Rasmussen Report, and the various economic questions). In such a climate, you would need an agency that tolerated divergent Commissioner views and extensive legal proceedings, even to the point of inefficiency, in order to give an appearance of true diversity and openness. At the same time, significant changes of the sort urged in GAO reports and elsewhere over the years would get sidetracked, rejected, delayed, or made only to an extent compatible with uninterrupted licensing.

In short, the NRC, at least pre-TMI, was a machine designed to license as many plants as would be tolerated by a society and a Congress increasingly incredulous of the premise that adequate levels of safety were already assured. Far from being "leaderless," the Agency was as resolute in pursuit of this goal as the times would allow. The draft report seems to see this exceptionally clearly at pages 60-61, but the points made on those pages, especially the last paragraph of page 61, contradict the charge of "lack of leadership." That charge suggests an agency that wanted to do the things that the GAO and others were urging but failed because the Commission and Commissioners were somehow irresolute. For most important purposes, that seems to me to have been anything but the case.

My other specific comments are as follows:

1. I strongly endorse the cautionary sentence that the decision on the Commission structure must "take into consideration that the Commission forum - while inherently less efficient than a single administrator - offers the advantage of bringing together a multiplicity of views on regulatory issues." Furthermore, the collegial structure is more stable than the single administrator structure, and it is also more independent. Thus it is less prone to the problems created when the Atomic Energy Commission subordinated the workings of its regulatory staff to an overall view regarding the desirability of nuclear power.
2. I think that the comments regarding NRC's past use of its civil penalty authority are basically fair. That is why the Commissioners had approved, even before Three Mile Island, a request to Congress

GAO note: Page numbers in these appendices refer to the draft report, not this final report.

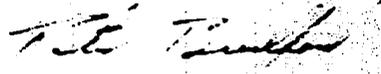
for a vastly increased authority to level civil penalties. In addition, at the time we appointed Victor Stello to head I&E, the Commission agreed to undertake a complete review of I&E's approach to enforcement actions and to the use of civil penalties.

3. I think it is true that the NRC did not attach sufficient importance to comprehensive evaluation of operating experience. Commissioner Gilinsky has commented on the history of this deficiency. In addition, you should perhaps note that we have now (as of July, 1979) established an office to remedy this deficiency.
4. It is true that NRC did not recognize the need for a sound offsite emergency plan as a precondition to an operating license. Indeed, it specifically rejected a Public Interest Research Group Petition to this effect in July, 1977. However, the NRC has now made a commitment to reverse its position on this subject.
5. I think that Commissioner Gilinsky's comments regarding nuclear waste management are about right. However, perhaps you should also note that the waste management program uncertainties stem in some part from pre-1977 uncertainties regarding the role of reprocessing in the nuclear fuel cycle. Also, I do not think that it can fairly be said that "The NRC staff has deliberately not made any efforts to keep itself informed about DOE's (waste management) programs." Nor is it meaningful to say that "NRC's nuclear waste activities, however, have consistently received lower budget priority than other regulatory activities, such as staff reviews of nuclear power plant license applications." It is almost inevitable that the licensing review for a hundred or so nuclear power plant applications will cost more than those for one or two high-level waste repositories. In fact, I can think of no times since I have been at the NRC when we have significantly reduced staff requests regarding high-level waste management resources, and on at least one occasion the Commission actually increased the amount requested by the staff.
6. I think that your overall comments regarding the NRC's refusal to use its adjudicatory process to issue clear guidance to the staff is absolutely correct and deserves all the emphasis you can give it. I have personally urged that review be taken in several cases in which it has been denied, and I also feel that Commission rule should provide for review upon a vote of two rather than three of the Commissioners. This would be consistent with Supreme Court practice and would assure that matters that seemed important to 40% of the agency's governing body received detailed scrutiny.
7. With regard to your sentence on page 50, "One Commissioner told us that because his role was not sharply defined, he decided to spend much of his time traveling and speaking on nuclear regulation to various industry, public and governmental meetings." I share Commissioner Gilinsky's concern that you at least make clear who did not make such a statement. Those are certainly not my sentiments, and the anonymity afforded the speaker casts a cloud over all of us

- S. In general, I agree with the comments already sent to you by Commissioner Gilinsky.

I am also attaching some separate views that I have sent to the Office of Science and Technology Policy regarding the Kemeny Commission Report. They have some bearing with regard to your draft report as well. Lastly, I apologize for the lateness of these comments. As you know, the last few weeks have been especially hectic for the Nuclear Regulatory Commission, and I simply could not complete them sooner.

Sincerely,



Peter A. Bradford
Commissioner

Attachment:
As stated

GAO Note: The separate views noted above, regarding the Kemeny Commission (President's Commission on the Accident at Three Mile Island) report are not included in this report.



OFFICE OF THE
COMMISSIONER

UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON D.C. 20555

November 1, 1979

J. Dexter Peach
Director
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

I am writing to offer my comments on the draft report entitled "Opportunities to Improve the Effectiveness of the Nuclear Regulatory Commission," sent to me under cover of your letter of October 19, 1979.

Generally I agree with the observations made in the report and with the recommendations for change. There are, however, a few points on which I would like to comment, some minor, others more important.

I have, for the sake of convenience, listed my comments in the order in which the points they touch upon first appear in the draft.

Page ii

"The Commission has been slow and indecisive in resolving nuclear waste regulatory issues."

Page 19

"Specifically, (1) NRC has not established a relationship with DOE, (2) NRC has not established an agencywide regulatory research plan, and (3) NRC nuclear waste activities have received relatively low budget priority."

Comment: The draft report does not take sufficient account of NRC's recent actions in this area. I expect our staff will provide a fuller reply.

Page iii

"The Commissioners need to: strengthen the authority of the Commission Chairman and the Executive Director for Operations. In 1975, the Congress made the Commission Chairman the principal

executive officer, but no Chairman has attempted to use this authority. Strengthening the Chairman's authority and the Executive Director's role should help make the Commission more efficient and timely."

Comment: The Chairman has ample authority, more than that of any former Atomic Energy Commission Chairman. The incumbent Chairman's willingness to exert the full authority which the 1975 amendment bestows is affected by the fact that he has no working majority on this Commission. As regards the Executive Director for Operations, his role appears to be a weak one only because the functions of that office have not been exercised vigorously. The position can be said to be almost open-ended in authority if the person who fills it has the confidence of a Commission majority.

Page 8

"NRC has been very slow to address and resolve major nuclear waste management issues. Much of this is due to indecision by the NRC Commissioners."

Comment: The Commission has been slow. But some of what seems to be indecision on the Commission's part has in fact been a disinclination to take up tough issues that might raise questions about continuing to license reactors. The Commission's philosophy in past years was to let sleeping dogs lie.

Page 10

"NRC did not attach sufficient importance to comprehensive and systematic evaluations of power plant operating experiences."

Page 15

"In June 1979 an NRC task force concluded that NRC needs a full-time group to review nuclear power plant operating data."

Comment: You might be interested to know that in 1972 an Office of Operations Evaluation was set up to feed back operating experience to the licensing process. That office was abolished by the EDO in 1975 in a decision supported by a majority of the Commissioners and opposed only by Commissioner Mason and myself.

Page 11

"NRC said penalty amounts were not of prime importance. What was important was the act of imposing occasional civil penalties to provide licensees a clear signal of NRC's concerns."

Comment: Commissioner Bradford and I disagreed with the Commission's comment and drafted a separate response which was sent on October 19, 1979 as an addition to the Commission response, which went earlier.

Page 17

"NRC generally agreed that it needed to do much more in nuclear waste regulation. NRC, however, has met few of its regulatory milestones because its activities have been unfocused, uncoordinated, and under-funded. An underlying cause, we believe, has been indecision by the NRC Commissioners on the proper scope and priorities of NRC's nuclear waste regulatory activities."

Comment: One underlying cause of indecision on scope and priorities has been that the Commission was overly inclined to defer to DOE in defining the NRC role.

Page 26

"NRC HAS NOT ESTABLISHED SUFFICIENT REGULATORY RESEARCH PROGRAM CONTROLS."

Page 27

"NRC has not established firm controls over research at DOE laboratories."

Comment: The Commission has recently designated a new director for the office of Nuclear Regulatory Research and I expect that substantial improvement in the operation of that office will come about as a result of that appointment.

Page 36

"[T]he Commissioners have not controlled policymaking within NRC. While there are exceptions, the Commissioners generally do not decide when new policies are needed, which new policy requirements should receive priority attention or how policies should be written. Instead, the Commissioners have generally

left these matters to the discretion of the NRC staff and reserved for themselves the prerogative of final approval. The NRC staff, on the other hand, has been engaged in the day-to-day business of nuclear regulation, and has not had the time or ability to step back and objectively assess policy needs. The result has been poor policymaking performance. NRC has been slow to recognize where new policies were needed and slow to develop policies when their needs were recognized."

Comment: The decision to insulate themselves from licensing and regulation was deliberate on the part of the AEC Commissioners, and the successor agency has not acted decisively, at least until recently, to turn that situation around. The agenda of the AEC was to grease the skids of the licensing process, a goal which was in their view more readily reachable by keeping out of it altogether.

Page 39

"We found similar and continuing indications of the Commissioners' acceptance of things as they were until late 1978, when one commissioner questioned the appropriateness of the Commissioner's continuing heavy reliance on the Atomic Safety and Licensing Appeal Board as NRC's final authority on license applications."

Comment: I assume you are referring to a speech I made in September of 1978. I made the same suggestion in July of 1978 in testifying on the Administration's Siting and Licensing Bill.

Page 41

"We found widespread agreement within and outside NRC -- including several present NRC Commissioners -- that Commissioners need to take a more active policymaking role, but we found few efforts to do so."

Comment: I agree with the observation. I have commented repeatedly on the need for the Commission to take a more active role in policymaking. However, previous Commissions have been reluctant to reexamine the doctrine inherited from the AEC. Our Policy Evaluation Office has not been encouraged to take a hard look at the bases of the Commission's system of regulation.

Page 45

"The Executive Director for Operations told us that the NRC staff does not want to submit proposed policies to the Commissioners until the staff believes it has come up with the best possible effort."

Comment: The fact is that the Executive Director for Operations has not been inclined to raise issues for Commission consideration on which there is a sharp division of views within the staff. What you refer to as "the lengthy process of coordinating" has often represented the time consumed in compromising to obtain consensus.

Page 46

"The lack of early Commissioners' input is compounded by staff resistance to revising their positions to accept Commissioners' desired modifications to proposed policies. Such resistance results in unnecessary rounds of time-consuming redrafting."

Comment: Here too the lack of a working majority on the Commission makes it impossible for the staff to predict what the Commission will do on a given policy proposal. Staff is reluctant to revise because they can't get a clear reading on what the Commission will find acceptable.

Page 49

"The first NRC Chairman, however, had requested the /Baker/ amendment /expanding the Chairman's powers/ over the strong objections of the other NRC Commissioners."

Comment: It was not "over the strong objections" of the other Commissioners but rather behind the backs of three Commissioners that the Baker amendment was adopted. Not only was there no public discussion and no public hearing on the proposal; the three Commissioners were not informed of the proposed amendment until after it was passed by the Senate.

The manner in which the Chairman's expanded powers were obtained tainted them and prevented their use by either the first Chairman or the second.

Page 50

"One Commissioner told us that because his role was not sharply defined, he decided to spend much of his time traveling and speaking on nuclear regulation to various industry, public and governmental meetings."

Comment: I would like to make clear for the record that I am not the Commissioner whose opinion is cited.

Page 55

"We believe the Chairman, in conjunction with the other four Commissioners, needs to carefully define the Chairman's expanded authority and duties. We recognize the reluctance of the Commissioners to limit their own positions but we strongly believe such a step is necessary to improve the efficiency and effectiveness of nuclear regulation."

Comment: Some further definition would be useful. But, as I mentioned earlier, it is the Chairman's lack of a working majority that inhibits exercise of his administrative authority. He has ample authority. To further increase the Chairman's powers to compensate for lack of such a majority is to head the agency in a certain direction without majority support.

Page 56

"We also believe that NRC's rulemaking procedures -- whereby it actively seeks the views of the public and the regulated industry on proposed changes to its regulations -- provide both the proper vehicle and safeguards to insure that the NRC Chairman's expanded authority is carefully defined."

Comment: I think the matter of the Chairman's expanded powers would probably be handled by an instruction to the General Counsel to draft a manual chapter; the Commission would not ordinarily seek the public's views on a change of this nature.

Page 56, 56a

"We recommend that the Chairman, Nuclear Regulatory Commission and the other NRC Commissioners elevate policymaking activities to the Commission level. A logical place for these activities would be the Commissioners' present Office of Policy Evaluation."

Comment: It seems to me that the report could usefully define what it labels "policy." In any case, our Policy Office was not designed to make policy but rather to evaluate the policy implications of a contemplated action. I agree that the Commission could and should use that office more effectively.

Page 60-61

"NRC had the opportunity to revise regulatory priorities; restructure its organizational approach to regulation; clearly define Commission, Commission-level staff, and major NRC staff-level component responsibilities and interrelationships; and re-examine basic regulatory premises and approaches. For example:

- "Given the relative neglect, compared to nuclear powerplant development, regulation and safety-related research, previously accorded to other aspects of regulating the nuclear fuel cycle, NRC could have assigned highest priority to establishing regulatory criteria and standards in these long-neglected areas.
- "The NRC Commissioners, relieved of the nuclear development and military application responsibilities of their AEC predecessors, could have assumed the responsibility of routinely making final decisions in NRC administrative proceedings.
- "The NRC Commissioners could have removed policy-development responsibility from the NRC operating groups and placed it at the Commission level.
- "The Commission and/or senior NRC staff management could have reviewed past AEC regulatory policies and procedures, such as enforcement policies and procedures, to determine if they were sound and consistent with the need for aggressive, independent nuclear regulation.

"The opportunity for timely and critical self evaluation was lost. NRC did not undertake any serious reexamination of the direction and structure of nuclear regulation it inherited from AEC but instead continued uninterrupted, and in some cases intensified, regulatory initiatives and procedures it inherited.

"Perhaps the above was inevitable, given the composition of NRC's top management and its staff in its earlier years. Of the five original NRC Commissioners, three had important former ties to AEC: NRC's first Chairman had been an AEC Commissioner; another NRC Commissioner, its second Chairman, had been AEC's General Counsel; and another NRC Commissioner had been a member of the Advisory Committee on Reactor Safeguards. The third and present Chairman had also been a senior AEC regulatory official. Finally, NRC's Executive Director of Operations had been the former Deputy Director of AEC Regulation."

Comment: This is the most insightful section of the whole report. It could usefully be expanded. The last paragraph cited above is particularly telling.

Sincerely,



Victor Gilinsky
Commissioner



CHAIRMAN

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

November 21, 1979

Mr. J. Dexter Peach, Director
Energy and Minerals Division
United States General Accounting Office
Washington, D. C. 20548

Dear Mr. Peach:

I very much appreciate the opportunity to comment on the draft report of the General Accounting Office on "Opportunities to Improve the Effectiveness of the Nuclear Regulatory Commission" enclosed with your letter of October 19, 1979. These comments are made on an individual basis and I have not discussed them with my colleagues. I understand that some of my colleagues may submit comments of their own.

I think it would be helpful in Chapter 1, especially in view of the nature of the GAO report as a report to the Congress, to note the change in oversight committee status that occurred almost two years after the NRC was formed. As I note later, I believe this circumstance may have had some effect on the nature of Commission activities in the earlier days of the agency.

In connection with the comments on NRC inspection and enforcement policies in Chapter 2, I think note should be taken of the Commission's request to Congress at the beginning of this year for higher civil penalty authority. With regard to whether or not NRC relies too much on the integrity of licensees, it must be recognized that NRC is unlikely to ever have the staff resources to conduct complete inspection activities at plants under construction so that a full independent assurance of adequate construction could be given. These are large plants and millions of man-hours go into them in the construction phase. The NRC audits the applicants' quality assurance programs to try to make sure that adequate quality construction programs are in place. I believe the vigor and effectiveness of the inspection program have increased substantially over the short life of the agency as more staff resources have been made available. With the implementation of the resident inspector program for both operating plants and plants under construction, I believe the NRC's inspection activity will reach a new high level of effectiveness.

With regard to the comments on comprehensive evaluations of operating experience and the need for off-site emergency preparedness in Chapter 2, I believe the Three Mile Island accident and the analyses of underlying causes and related matters that we have done since show the correctness of these comments. I believe that the recommendations in the GAO reports on these subjects are now being fully implemented.

Policy formulation in an ivory tower, in my view, is as ineffective as it is unwise. The NRC staff has provided the Commission with the operational experience in development and application of the regulatory objectives and process which is essential to the establishment and evaluation of sound regulatory programs. That is not an indication that the Commission was unwilling or unable to exercise policy leadership. It is simply a recognition of the competence of the Commission's staff and its ability to contribute positively to the process of developing regulatory programs.

The NRC's role in nuclear waste issues as discussed in the report also merits comment. The report gives the impression, unintentionally I am sure, that the NRC's role has been and is central to national policy-making in this field. That simply is not the case, nor should it be. The NRC has had a clear goal to be ready and able to conduct a thorough licensing review and to license a waste facility when it is proposed. I believe we will meet that goal. But I will note that it is unreasonable to assume the NRC should already have in place a completed regulatory scheme for an as yet undefined waste form, geologic medium or facility design. The draft report itself indicates that as early as 1975, the NRC began putting an organization in place to deal with the waste question and began formulation of a full-scale regulatory regime--it had inherited neither from its predecessor organization. While greater speed in the resolution of waste issues unquestionably would be highly desirable, the NRC can hardly be expected to continuously and indiscriminately expend its necessarily limited resources against a shifting and moving target. We set for ourselves, as I mentioned, the clear-cut objective that we should not be on the critical path of or an impediment to the solution of the waste question. I am confident that we will not be. Parenthetically, I would note that the facts which are matters of record clearly belie the report's assertion that NRC did not "structure a relationship with DOE to coordinate their respective programs." The relationship admittedly began fitfully, largely because of the need to structure organizational elements internally in both NRC and DOE (and earlier in ERDA). But a closer relationship, to the extent consistent with regulatory independence, was a prime and stated objective of the Commission. That relationship was established and has grown more effective with passage of time and with the firming up of agency lines of responsibility and authority throughout the government.

As to the report's comments on the Commission's safeguards activities, it is worthy of note that the Commission inherited on the one hand a Congressionally mandated responsibility and on the other hand little or no resources with which to discharge that responsibility. The facts, which again clearly are matters of record, are that the Commission moved almost immediately to develop a full-scale safeguards activity and to staff it with a substantial multidisciplinary team. From the outset, the Commission moved to put in place a comprehensive fuel cycle

and safeguards regulatory regime. Moreover, it undertook to put in place a system and a team of personnel necessary for the development of criteria and procedures for review of nuclear exports and of related international safeguards questions -- matters which previously had not been the responsibility of the regulatory arm of the Atomic Energy Commission. The regulatory framework for safeguards was a matter of direct and immediate concern on the part of the newly formed staff and the Commissioners themselves. A review of the Commission's record over the first year or two of its existence would make clear the extent to which direct Commission attention was given to these issues.

It is true that more can be done, but it is equally true that much has been done though the report implies the contrary. In passing, I would note that the implication that the Commission erred in not choosing to base its safeguards regime on the "maximum credible threat" fails to note that this was a conscious decision based upon the most thorough examination of the issues undertaken up to that time. The Commission's decision was based upon not only the cited 1974 AEC work but on a large number of studies done by acknowledged experts and representative of the views of the intelligence and law enforcement agencies most knowledgeable in the field. Again, the record in these matters is clear -- I commend it to your attention in order that the report may have the balance I am sure you would desire.

The views expressed in the draft as to the deficiencies in the organization and mode of operation and policymaking, in my view, by and large accurately reflect the situation to date. I believe the solution to the problems outlined lies in a clear and unequivocal decision to implement the principles of the 1975 amendment to the Atomic Energy Act as they relate to the powers of the Chairman and to clearly define the role of the Executive Director. The roles of both the Chairman and the Executive Director need to be strengthened and those strengthened roles fully supported by the Commission.

I have enclosed other more detailed comments on specific portions of the draft report which may be of help in the final drafting process.

I would also note that I have read Chairman Hendrie's November 21, 1979 letter to you, and for the most part I endorse heartily the comments he expressed and in particular as they pertain to the policymaking process and the roles of the Chairman, Commissioners and Executive Director. I would add that I share the view that the objectives of nuclear regulation are best served by an independent Commission despite the drawbacks inherent in such organization. The report fairly presents both sides of this question.

Please let me reiterate that my comments are intended to be helpful in your further drafting process. The draft report contains much justified criticism and many helpful worthwhile suggestions for the improvement of our operations and the regulatory process which the Commission supervises. Indeed much in the way of corrective action is already underway and I am confident that the Commission and its staff will move vigorously in all areas requiring attention.

Thank you again for the opportunity to comment. If there is any other way in which I can be helpful, I will be pleased to do so.

Sincerely,

Richard T. Kennedy
Commissioner

Enclosure:
Detailed Comments

DETAILED COMMENTS ON THE DRAFT GAO REPORT ENTITLED,
"OPPORTUNITIES TO IMPROVE THE EFFECTIVENESS OF THE
NUCLEAR REGULATORY COMMISSION"

A. Digest

1. Page iii. The comment that the Commissioners need to "set measurable Commission goals and evaluate progress and performance" does not reflect the existence at NRC of (a) an MBO tracking system, (b) a Decision Unit tracking system (pilot program), or (c) the Performance Appraisal Briefings conducted by the Executive Director for Operations.

B. Chapter 2

1. Page 10. The comment that a number of GAO's previous recommendations were "rejected outright or implemented to only a limited degree" is difficult to comment on without a listing of such recommendations and the actions taken on each of them. An Appendix would be useful.
2. Page 10. Comment is that, "NRC relies too much on utilities to identify and correct faulty nuclear power plant construction and/or construction practices." It should be recognized that some reliance on the utilities' and their subcontractors' quality assurance and quality control programs will be necessary. It is unreasonable to assume that the NRC would be able to take over all QA/QC functions at every site operating or under construction with any predictable level of resources. What the NRC can do and is doing is to reexamine and tighten its program of inspecting the licensees QA/QC programs to give ever higher levels of assurance that they are working effectively to ensure the public health and safety.
3. Page 11. Comment is that, "NRC should be tougher and more aggressive in enforcing compliance with its regulations ...". The NRC's attempts to obtain legislative approval to significantly modify the current restrictions on civil penalties should be noted.
4. Pages 14-15. The discussion under "NRC did not attach sufficient importance to comprehensive evaluations of operating experiences" needs to be updated to reflect the establishment of the Office for Analysis and Evaluation of Operational Data.

5. Page 16. Comment is, "Only after the Three Mile Island accident, did NRC decide that State nuclear emergency preparedness should be a major and integral part of nuclear power plant regulation." The report should recognize that even before Three Mile Island, the Commission had in place requirements that licensees have on-site emergency response plans which included arrangements with State and local authorities to deal with off-site effects of emergencies. In addition, since 1975 the NRC, in cooperation with seven other Federal agencies, has had a program to assist State and local governments in developing emergency response plans. Further, the NRC had developed detailed plans for its own response and for coordinating the assistance of other federal agencies in the event of an emergency. It is correct to note that the Commission has, since Three Mile Island, perceived the need to give dramatically increased attention to emergency preparedness and is doing so.
6. Page 16. The discussion under "NRC did not recognize the need for sound off-site emergency preparedness" also needs to be updated to reflect (1) the Commission's response to the GAO final report (as opposed to the staff's response to the GAO draft report) and (2) NRC's subsequent actions, including a proposed rule and NRR teams which are upgrading licensee emergency plans.
7. Page 18. The discussion under "The Commissioners have been indecisive on the proper scope of NRC's nuclear wastes activities" which states that the Commission has not approved plans for the NRC waste regulatory program is inaccurate. The Commissioners have approved HLW, LLW, and Mill Tailings program plans and those programs are being implemented.
8. Page 19. The comment that "NRC staff has deliberately not made any efforts to keep itself informed about DOE's programs ..." is inaccurate. The NRC was represented on the IRG and has had extensive and continuing communication with DOE.
9. Page 20. The comment that the Commission has not decided "to what extent it should rely on DOE's high-level waste environmental statement in discharging NRC's own environmental responsibilities" is inaccurate. When the Commission authorized issuance of its "Policy Statement on Licensing Procedures for High-Level Geologic Repositories," it explicitly decided that NRC would prepare its own EIS for a proposed repository.

10. Page 24. The discussion on the authority of guard forces to use firearms should reflect the Commission's position that its Guard Force Response to an Alarm Rule effectively addresses this issue.

11. Page 31 & Page 32. The discussion related to NRC staff's decision not to revise its regulations for ECCS, based on experimental results obtained to date, should recognize that these experimental results only deal with parts of a complex, integrated system and effects on that system must be evaluated before revisions can be implemented.

C. Chapter 3

1. Page 47. The Siting Policy Task Force's recommendations were submitted in August 1979, well before the May 1980 target date noted here.

D. Chapter 4

1. Page 61. The statement that "NRC did not undertake any serious reexamination of the direction and structure of nuclear regulation ..." doesn't consider actions such as the following:

- a. The Systematic Evaluation Program of older plant ;
- b. The Recommendations of the Denton Task Force (NUREG-0292, "Nuclear Power Plant Licensing: Opportunities for Improvement");
- c. The Plan for Research to Improve the Safety of LWR Nuclear Power Plants (NUREG-0438);
- d. The establishment and report of the NRC's Siting Policy Task Force;
- e. The creation of an Office of Nuclear Materials Safety and Safeguards and an entire regulatory program for safeguarding nuclear material throughout the nuclear fuel cycle;
- f. Introduction in 1975 of Value/Impact Analysis as an integral part of NRC regulatory decisionmaking;
- g. Increased emphasis on cooperative arrangements with States and Foreign Governments engaged in nuclear regulation through creation of Offices of State Programs and International Programs; and
- h. Creation of a Resident Inspector Program.