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# NRC Views and Analysis of the Recommendations of the President's Commission on the Accident at Three Mile Island

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U.S. Nuclear Regulatory  
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# **NRC Views And Analysis of the Recommendations of the President's Commission on the Accident at Three Mile Island**

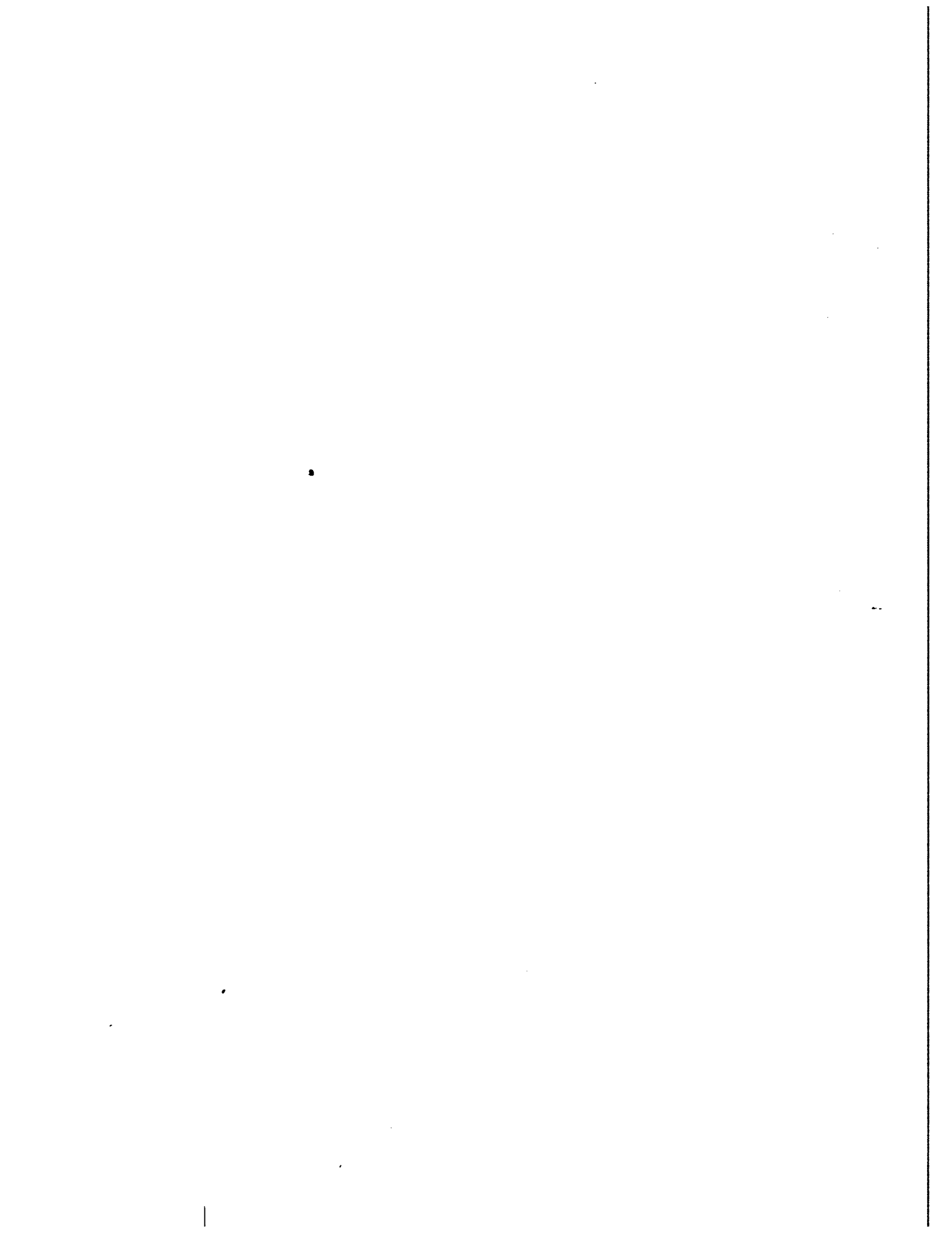
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**Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555**







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

November 20, 1979

MEMORANDUM FOR: ALL NRC EMPLOYEES

FROM: Lee V. Gossick  
Executive Director for Operations

SUBJECT: NRC VIEWS AND ANALYSIS OF THE RECOMMENDATIONS OF  
THE PRESIDENT'S COMMISSION ON THE ACCIDENT AT  
THREE MILE ISLAND

Attached is a copy of the NRC's response to the recommendations of the President's Commission on the Accident at Three Mile Island which was requested by Dr. Frank Press, Director, Office of Science and Technology Policy, Executive Office of the President. Dr. Press is the Chairman of a nine-man interagency panel assigned by President Carter to review the report by the Kemeny Commission. Also on the interagency panel are: Energy Undersecretary John Deutch; Chairman of the Council on Environmental Quality, Gus Speth; Director of the Office of Management and Budget, James McIntyre; White House Counsel, Lloyd Cutler; White House Energy Policy Coordinator, Elliot Cutler; Domestic Policy Advisor, Stuart Eizenstat; National Security Advisor, Zbigniew Brzezinski and Director of the Federal Emergency Management Agency, John Macy. Copies of the NRC letter were also provided to the NRC's Congressional Oversight Committees.

A handwritten signature in cursive script, appearing to read "Lee V. Gossick, Jr.", written in dark ink.

Lee V. Gossick  
Executive Director for Operations

Attachment:  
NUREG-0632

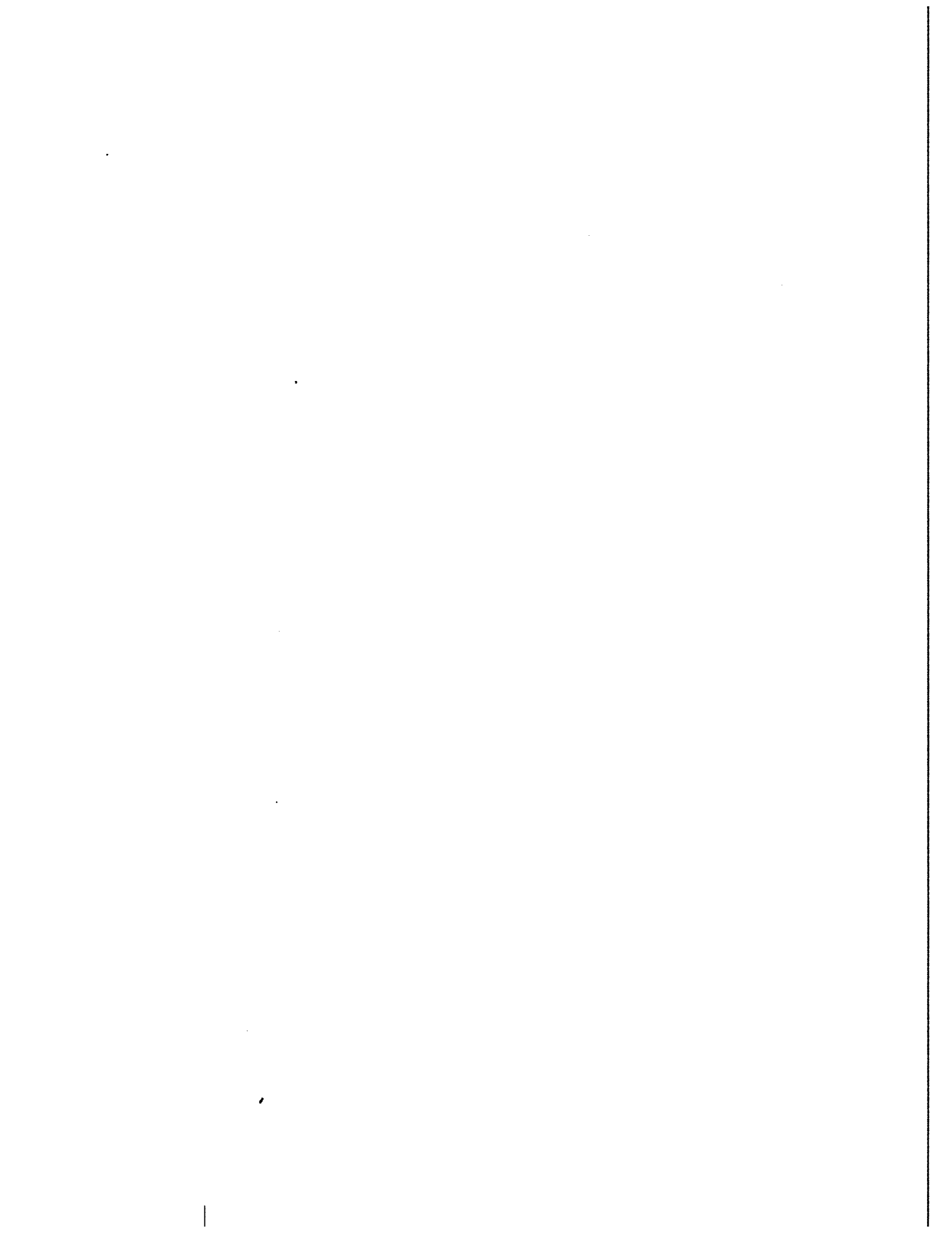
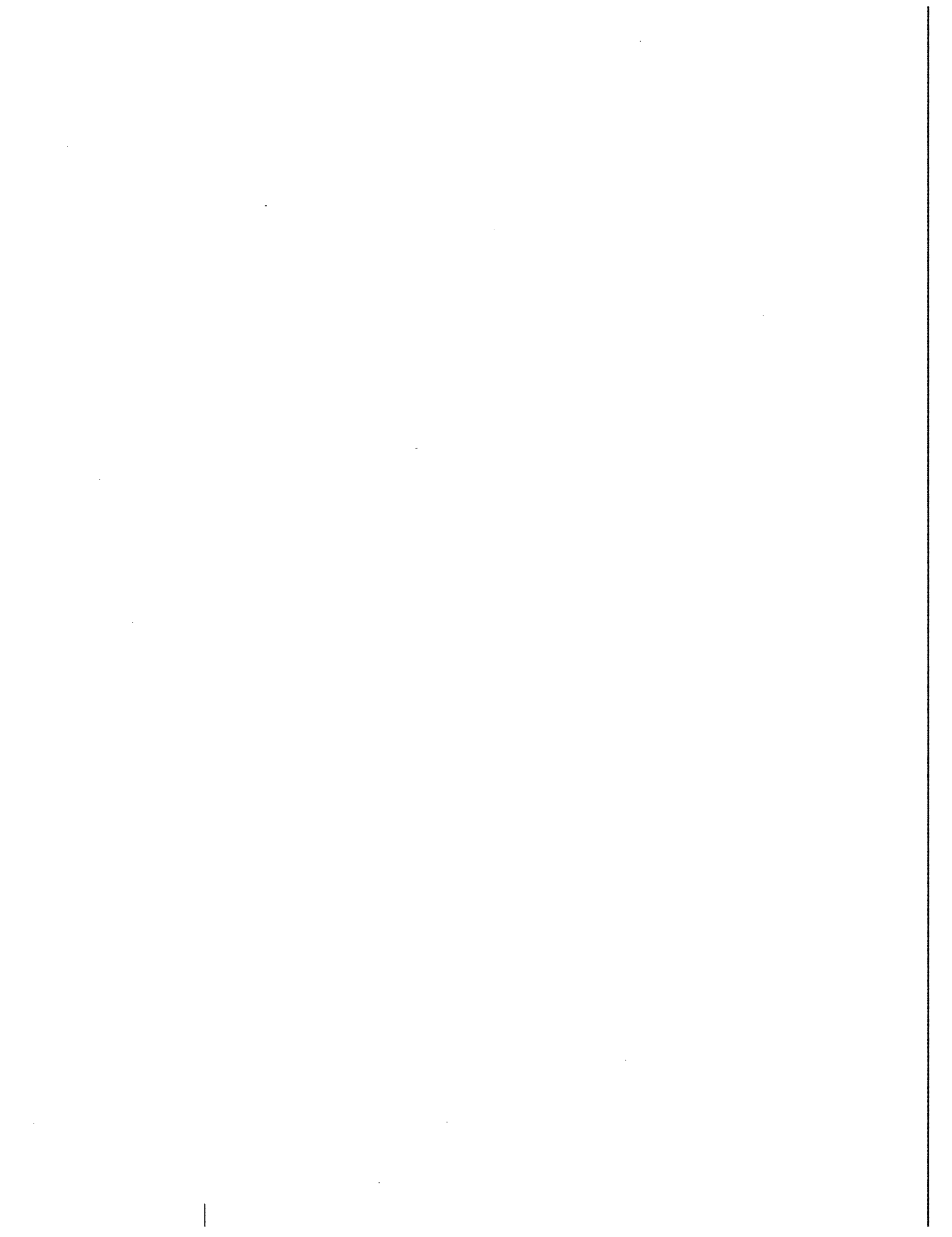


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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

November 9, 1979

CHAIRMAN

Dr. Frank Press, Director  
Office of Science and Technology Policy  
Executive Office of the President  
Washington, D. C. 20600

Dear Dr. Press:

Thank you for the opportunity afforded by your letter of November 6, 1979 to offer you and the President our views and analysis of the recommendations of the President's Commission on the Accident at Three Mile Island. Because of the time constraint, these are necessarily our preliminary views, subject to refinement based on further consideration of the Report of the President's Commission and any new insights provided by ongoing congressional investigations, and by our own Special Inquiry scheduled to be completed in approximately two months. By copy of this letter, we are also informing our congressional oversight committees of these preliminary views. Individual Commissioners are providing supplemental views.

The Nuclear Regulatory Commission agrees with the President's Commission that a number of fundamental changes are necessary. Based on the results so far of our own internal reviews of the accident, we have generally found that the actions recommended by the President's Commission in the areas of human factors, operational safety, emergency planning, nuclear power plant design and siting, health effects, and public information are necessary and feasible. We intend to implement changes in our own organization, practices and procedures and in our regulatory requirements for operating plants and new plants so as to conform with the recommendations of the President's Commission as soon as possible.

Actions we have already taken with respect to operating reactors are fully compatible with most of the applicable technical recommendations of the President's Commission. Also, we are presently considering a number of specific approaches to accomplish changes that would, in most areas, fully accomplish what we perceive to be the safety objectives of the recommendations. We are also considering some changes that go beyond the recommendations of the President's Commission.

Our review of the Report of the President's Commission has revealed one important area which deserves more urgent attention than our previous activities reflected. Although the President's Commission did not investigate utilities other than Metropolitan Edison, we have concluded from our review of the report that it is of considerable importance to have prompt and positive assurance that the technical and management competence of all licensees is sufficient to operate nuclear power plants safely and to respond effectively to emergencies. We are planning to expand and expedite our activities in this area.

Dr. Press

With respect to the recommendation of the President's Commission to abandon the commission form of regulation in favor of a single administrator, four of the five Nuclear Regulatory Commissioners do not agree. Rather, the four Commissioners believe that effective reform can and should be accomplished within the existing agency. Commissioner Ahearne believes that, although effective reform should be done, and can be done in the existing agency, greater improvement is possible in an administrative agency and, moreover, the probability of such reform being successful is larger in an administrative agency. I should also note that the effectiveness of the agency would be considerably enhanced if the NRC were housed in a single building.

In another area, we disagree with the overall thrust of the President's Commission recommendations to lessen the role of NRC in responding to emergencies and providing emergency information to the public. Based on our TMI experience, we are convinced that the NRC's role in nuclear emergencies is bound to be essential and central, and governmental planning should reflect that assessment. We ourselves are acting to improve our capability to carry out such a role.

Enclosure 1 summarizes the current status of NRC activities in each of the major topical areas (A through G) of the recommendations of the President's Commission. The format followed in Enclosure 1 is to summarize the areas treated by each recommendation, to describe relevant NRC actions already taken, in progress, or under consideration, and where these actions are insufficient, to indicate what additional actions are required. In a few instances, we have recommended actions of a different character than those recommended by the President's Commission. In those instances, we agree with the intended objective, but differ on the approach to be taken. Unless specifically noted to the contrary, it is our judgment that legislation is not required to accomplish the actions indicated. Enclosure 2 provides some important examples of actions undertaken or under consideration by the NRC that were not addressed by the President's Commission.

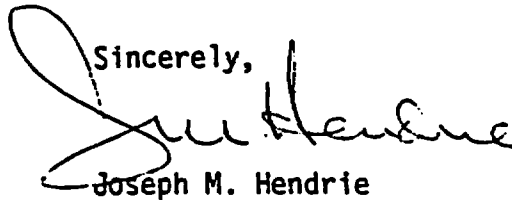
The summaries provided in Enclosure 1 and 2 are necessarily general; in many cases they do not specify the precise actions to be taken or the regulatory criteria to be implemented. We estimate that it will take several months to develop the new or improved safety objectives, the detailed criteria for their implementation, and the various implementation deadlines. We have decided that new plants will not be licensed until we have developed the required criteria. This approach assures that the NRC staff can give the necessary attention to implementation of the changes on operating plants. We have also concluded that the statutorily defined Unresolved Safety Issues must continue to receive attention and resources at approximately the same priority as the TMI issues, even if the startup of some units is delayed.

Dr. Press

We recognize that there will be a significant effect on the availability of power generating capacity if those plants now in the final stages of construction do not receive operating licenses by the dates previously anticipated. Hence, we will make every effort to avoid unnecessary delays. In addition, we recognize that a large fraction of the qualified nuclear engineering talent in government and industry is now fully dedicated to the implementation of short-term changes required by the NRC since the accident. We estimate that by early Spring 1980 the manpower requirements for those efforts will have significantly diminished. The development of the longer term regulatory requirements for full conformance with the recommendations of the President's Commission should be completed and their implementation initiated at about the same time. We have not yet determined the long-term resource implications for the NRC in the implementation of the recommendations. We anticipate that in some areas additional resources will be required.

In conclusion, we appreciate the need for change, including the need for changes in approach to safety, and we share the urgency attached to these matters by the President's Commission. Significant change has already occurred. We are committed to protect the public health and safety and to continue our self-examination of all aspects of our responsibility to assure adequate safety.

Sincerely,

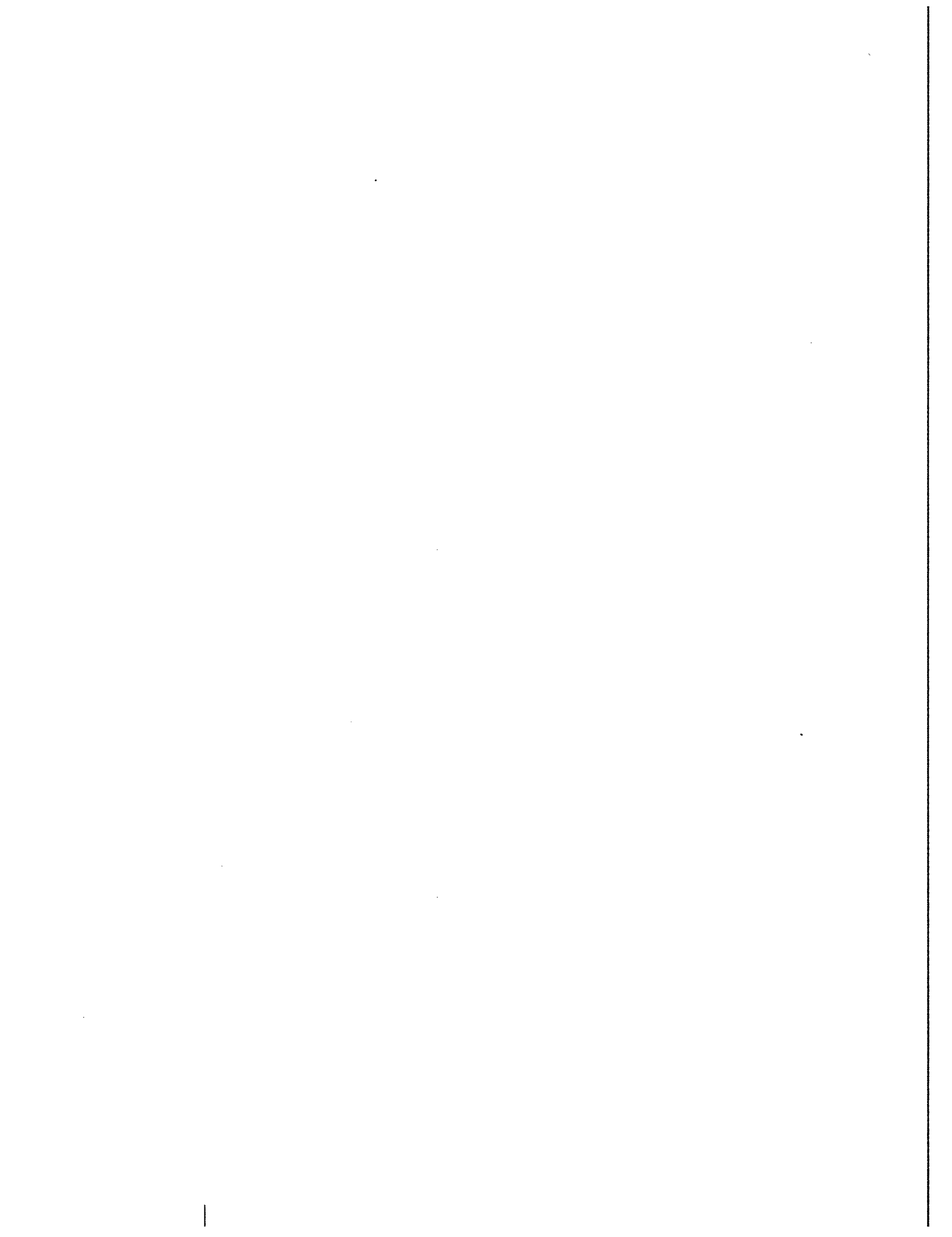
A handwritten signature in cursive script, appearing to read "Joe Hendrie".

Joseph M. Hendrie

Enclosures:

As stated

cc: John Deutch



## Enclosure 1: ANALYSIS AND RESPONSES TO RECOMMENDATIONS

### A. THE NUCLEAR REGULATORY COMMISSION

#### Agency Organization and Management

##### A.1 Reorganize NRC into the Executive Branch with a Single Administrator

The President's Commission, having concluded that, as presently constituted, NRC does not possess the organizational and management capabilities necessary for the effective pursuit of safety goals, recommended that it be abolished. In its stead, the President's Commission called for the establishment of a new executive branch agency, headed by a single administrator, who would be appointed by and serve at the pleasure of the President. The administrator would have substantial discretionary authority over the internal organization and management of the new agency and over personnel transfers from the present NRC, and would assure the coordination of the research, operating experience, and inspection and enforcement activities of the new agency.

The proposal to restructure NRC into a single-headed executive branch agency is obviously a major issue that must ultimately be decided by the Congress. Four of the five NRC Commissioners believe, however, that the principal objectives of the President's Commission, which underpin this recommendation, can be achieved by a blend of modest legislative action and modification of internal practices and procedures, which could be accomplished within the present organizational structure. In this regard, NRC will predicate its near-term decisions on the assumption that its present structure will remain intact. However, NRC believes it would be highly desirable to have the option and the requisite statutory authority to delegate management responsibility to a single Commissioner in the event of an emergency.

Some NRC Commissioners believe that legislative action is needed to remove the ambiguity that currently surrounds the authority of the Chairman in his capacity as principal executive officer. Legislative action would also be helpful to clarify the position of Executive Director for Operations (EDO) so as to permit the exercise of true supervisory authority over the staff. Other Commissioners, however, see no need for such new legislation, believing that existing statutes provide the needed management flexibility. For their part, the NRC Commissioners intend to examine closely what steps may be taken, within existing statutory authority, to clarify and make more precise the roles of the Chairman and the EDO.

On other matters that affect policy guidance, NRC has underway a thorough review of its ex parte rules, which is expected to deal with the President's Commission finding that they are being too stringently applied. To the extent the present rules are loosened, this would permit greater NRC Commissioner involvement and leadership in the development of policy on key safety matters. One of the issues that will merit close scrutiny in this connection is what the adjudicatory role of the NRC Commissioners should be.

To improve its internal procedures, the NRC has under active consideration specific proposals dealing with clarifying and revising the delegations of authority to the staff; it has adopted a new policy-planning-program-guide

mechanism; and it has endorsed a management study by outside consultants to examine and make recommendations on current practices and procedures.

## A.2 Establish an Oversight Committee

Recommendation A.2 proposes the establishment of an oversight committee on nuclear reactor safety appointed by the President from a wide variety of backgrounds to report annually on the performance of the new agency and the nuclear industry in addressing and resolving safety issues and in exploring the overall risks of nuclear power.

Although the President's Commission call for an oversight committee relates to its recommendation for a new executive branch agency, the NRC believes this proposal should be examined on its own merits. Such an oversight or public advisory committee might contribute to the interaction among the Federal Government, States, utilities, public interest groups, and the general public on the controversial issues related to nuclear power.

## A.3 Strengthen the Role of the ACRS

Recommendation A.3 proposes strengthening the role of the present Advisory Committee on Reactor Safeguards (ACRS) to continue providing an independent technical check on safety matters. The ACRS staff would have enhanced capabilities in independent analysis and public health. Unlike its present mandate to review each application, the ACRS would choose when it wishes to intercede and would do so as a party to the proceedings. It would have similar rights in rulemaking proceedings, including the right to initiate such proceedings.

NRC also endorses a strengthened role for the ACRS. The recently initiated ACRS Fellows Program should assist in augmenting the analytical capability of the Committee. It should be noted, however, that the strength and high value of independent ACRS reviews lie in the members and in their collegial interaction, and the addition of staff beyond some reasonable supporting level will not contribute much to that strength. Concerning the President's Commission recommendation that the ACRS not be required to review each license application, NRC has fully supported the proposal in pending licensing reform legislation that would obviate this requirement.

The desirability of conferring on the ACRS the statutory right to intervene in hearings, as recommended by the President's Commission, is much less clear. While doubt exists as to whether such ACRS interventions are permitted under present legislation, the more important question is whether such authority is appropriate for a part-time, advisory body that would then need a legal staff of its own, given the fact that active participation in hearings would likely detract from the present independence and objectivity of the Committee and severely compromise the collegial nature of its advice and recommendations.

With respect to the President's Commission recommendation that would allow the ACRS the right to initiate rulemaking, it should be stated that the ACRS can now recommend rulemaking to the NRC. The issue is whether and to what extent such an ACRS recommendation should be "compelling" in nature; for example, whether it should be treated as a mandate to the NRC staff to proceed unless otherwise directed by the Commission. NRC intends to address this issue in connection with its consideration of proposals which would delegate substantial

rulemaking authority to the staff. As a general proposition, NRC fully concurs in the implicit thrust of the President's Commission regarding the ACRS; namely, that the views and recommendations of the ACRS be addressed promptly and substantively by the NRC staff.

Time did not permit consultation with the ACRS on the foregoing preliminary views. Before taking final positions, NRC will wish to consider the comments of the ACRS, which have been requested.

#### THE AGENCY'S SUBSTANTIVE MANDATE

Recommendations A.4 through A.8 deal with the primary mission of the NRC in assuring safety of nuclear power reactors. All these recommendations, except that of divesting NRC of non-safety responsibilities, can be implemented by NRC, as a matter of policy, without additional legislative authorization. Legislation would, of course, be advisable to give statutory force to the recommendations, even if NRC as a matter of policy incorporates them into its rules, regulatory policies and practices.

#### A.4 Safety-Cost Tradeoffs and Non-Safety Review Responsibilities

First, recommendation A.4 urges that NRC be required to establish and explain safety-cost tradeoffs and to adopt a presumption in favor of increased safety in the course of doing such tradeoffs. NRC has not, in the past, clearly articulated policy regarding the role of costs in safety decisions. The present scope of NRC authority includes the use of some safety-cost tradeoffs in making safety-related decisions. For example, value-impact analyses are performed for proposed regulatory requirements and have been used in development of research planning. However, better articulation of NRC policy on safety-cost tradeoffs is needed. While important safety decisions may not be based totally on a quantified cost/benefit balance, nevertheless it is believed that the benefits of increased protection or the drawbacks of less protection, can be sufficiently quantified to aid decisionmaking in many areas. It is agreed that, as a general matter, some kind of safety-cost tradeoffs are at least implicit in any regulatory system that aims at something short of zero risk, and that open government requires that where possible implicit tradeoffs be made explicit. Also, NRC is in complete accord with the proposition that there should be a presumption in such tradeoffs in favor of safety. NRC is prepared to move forward with an explicit policy statement on safety philosophy and the role of safety-cost tradeoffs in NRC safety decisions. The views of the Congress, Government agencies and the public would be helpful before making any such statement final. Legislation that would give statutory force to a policy on safety-cost tradeoffs might also be desirable, but NRC would prefer to postpone a final decision on legislation until the details of the approach are clearer and there has been the benefit of discussions on safety philosophy with interested persons.

Second, recommendation A.4 calls for a review of NRC statutes to relieve NRC of any "unnecessary responsibilities that are not germane to safety." Divesting NRC of non-safety responsibilities (it is assumed that domestic safeguards responsibilities would be retained) would, of course, require legislation. Such legislation would present some serious problems. In enacting the Nuclear Non-proliferation Act of 1978, the Congress expressed the firm belief that nuclear exports should be subjected to a thorough review by an independent agency. The

majority of the NRC Commissioners would not recommend that Congress reconsider this approach to nuclear exports. Commissioner Kennedy believes that the Commission's role in the export process should be reexamined because it is a role which inevitably involves the Commission and its staff in the foreign policy process for which it is not particularly adapted either by virtue of competence or specific relation to its primary responsibilities. Commissioner Ahearne believes that it would be appropriate to remove NRC from the export licensing area. Relieving NRC of its antitrust review responsibilities under the Atomic Energy Act and its environmental obligations under the National Environmental Policy Act and other Federal laws for environmental protection could leave serious gaps in regulation at the Federal level, and there would need to be a careful study to determine how such gaps would be filled by corresponding increases in the regulatory responsibilities of other Federal and State agencies. Thus, NRC is not now prepared to endorse legislation to divest NRC of non-safety antitrust and environmental protection duties.

#### A.4.a Operator and Supervisor Licensing

Recommendation A.4.a relates to upgrading reactor operator and supervisor licensing requirements. NRC agrees with this recommendation. NRC is contracting for a study of the long-term options for NRC involvement in the development of training programs. Some months ago the Commission directed the staff to upgrade operator and supervisor licensing requirements. A range of specific requirements has been proposed and is under consideration. (See Section C.1 for discussion of accredited training institutions.)

#### A.4.b Safety vs Non-Safety Systems

Recommendation A.4.b urges that a broader definition of matters relating to safety be adopted. NRC agrees with this recommendation and interprets the word "matters" to mean both equipment and human factors. Insofar as equipment is concerned, NRC has a specific recommendation from its Lessons Learned Task Force that would significantly extend the definition of safety-related equipment and would require the assessment of interactions between safety and non-safety grade equipment. NRC has initiated the review and upgrading of equipment on operating reactors that was previously considered to be non-safety related (e.g., auxiliary feedwater systems, pressurizer heaters, and pilot-operated relief valves on PWRs). Insofar as human factors are concerned, through revised regulatory criteria and guidance and through a substantially increased organizational emphasis, the safety-related character of human factors will be given the priority attention that is now realized to be necessary.

#### A.4.c Reevaluation of Control Room and Overall Plant Design and Safety Research

Recommendation A.4.c deals with a systems engineering examination of overall plant design and performance, improvements in control room design, and increased safety research capacity. NRC agrees with these recommendations. Several recommendations for integrated systems reevaluation of operating plants are under consideration, including recent recommendations by the Advisory Committee on Reactor Safeguards. Some reevaluation of systems interaction and control room design will also need to be conducted for pending applications. (See Section D below for additional details on control room and overall plant design reviews.) A need for increased emphasis on exploratory, long-term and innovative safety research has been recognized. Revisions in internal procedures for initiating research are being considered that will provide increased flexibility in assuring maximum application of scientific knowledge in the nuclear power industry.



## A.5 Licensee's Responsibility and Accountability for Safety

The objective of recommendation A.5 is for NRC to assure that the licensee is competent to fulfill its responsibilities for operating the plant safely and responding to accidents.

NRC fully agrees with this recommendation and has already initiated actions to upgrade organizational and management standards and requirements for technical competency of licensees. The goal of these standards will be to minimize accident occurrence and maximize proper response to accidents. More frequent periodic reviews of licensee performance will be conducted by the Office of Inspection and Enforcement with each licensee's top management. Because of the urgency and importance attached to this area by the President's Commission, NRC is considering the need for more decisive, early action to require prompt upgrading of the capabilities of licensees (see Section B.2 below).

## A.6 Remote Siting of New Power Plants

Recommendation A.6 proposed that, to the maximum extent feasible, new power plants be located remote from population centers and that siting determinations be based on technical assessment of various classes of accidents that can take place.

The report of the NRC Siting Policy Task Force, now being considered by the NRC Commissioners, identifies issues in NRC siting policy and recommend changes which parallel, and in some areas go beyond, those of the President's Commission. The President's Commission recommendation for consideration of radiation releases from small accidents (smaller design basis accidents) in siting was not considered by the NRC Task Force, but it can and will be evaluated in the implementation of the Task Force recommendations to determine whether such consideration would improve siting. The staff is developing plans for implementing the NRC Siting Policy Task Force recommendations on the assumption that they will be endorsed by the NRC Commissioners. This implementation will involve modification of the existing siting regulations. It should be noted that for the past five years, the requirements in Standard Review Plan 2.1.3 have excluded nuclear power plants from sites with high population densities.

The President's Commission and the NRC Siting Policy Task Force recommendations only addressed remote siting of new reactors. For operating plants sited in more populated areas, the staff is considering the effectiveness and need for additional protective actions or additional design features. If indicated, design changes to extend the time available for protective action will be required or, in the extreme, plant shutdown or power reduction may be required.

## A.7 Planning for Post-Accident Clean-Up and Recovery

Recommendation A.7 discusses planning and design features for post-accident cleanup and recovery, including backfit of requirements to operating reactors.

No direct consideration of post-accident clean-up and recovery had been implemented in the licensing process prior to the accident at TMI-2. The NRC Lessons Learned Task Force has recommended actions in this area which include, but go beyond, the planning recommendation of the President's Commission. Specifically,

the staff has already implemented new requirements for system leakage and shielding and has recommended operator training in core-melt accident mitigation and NRC rulemaking to establish requirements for design features to mitigate consequences of degraded-core and core-melt accidents. NRC is actively participating in the planning for the post-accident examination of TMI-2 with DOE, the Electric Power Research Institute and General Public Utilities to assure the accident recovery experience at TMI is recorded and applied.

#### A.8 Safety Improvements; Licensee and Operator Qualifications; and Emergency Planning Prerequisites for New Licenses

Recommendation A.8 proposes that NRC review, on a case-by-case basis, the necessity of implementation of safety improvements, upgraded operator training, improved licensee management and emergency planning prior to issuing any new operating licenses or construction permits.

NRC has decided that new plants will not be licensed until the required criteria have been developed. This approach assures that the NRC staff can give the necessary attention to implementation of the changes on operating plants.

NRC plans to proceed systematically in the following manner: (1) review and correlate the recommendations of the President's Commission, those of internal lessons learned groups, those of the Advisory Committee on Reactor Safeguards, the findings of NRC Special Inquiry (when available), the findings of ongoing Congressional investigations (when available), and other inputs; (2) transform the recommendations in each subject area into a statement of goals (i.e., define the new or improved safety objectives to be accomplished in each area); (3) develop task action plans to transform the goals into organizational or procedural changes as they apply to NRC, or into regulatory requirements as they apply to licensees; (4) initiate implementation of the new regulatory requirements on operating plants; and (5) initiate implementation of the new regulatory requirements on plants under construction.

The detailed regulatory requirements for operating plants will specify implementation deadlines. In setting the deadlines, NRC believes that consideration should be given to the relative safety importance of the recommendations, any unique features of individual designs or sites, and the practicalities of implementation. This approach is consistent with the recognition by the President's Commission of a need for case-by-case considerations. The same considerations will apply to our decisions on which requirements should be fully implemented before allowing a new plant to go into operation.

NRC will substantially upgrade the training of plant operators as described elsewhere in this enclosure. Finally, NRC has a proposed rule under consideration that would require approval of State and local emergency plans prior to operation of a nuclear power plant. Taken together, these actions conform with the recommendation.

#### AGENCY PROCEDURES

In Recommendations A.9, A.10, and A.11, the President's Commission recommends improvement in agency procedures concerning rulemaking to resolve generic

safety issues; adjudication of case-specific safety issues; and systematically evaluating operating plants while upgrading inspection and enforcement functions.

#### A.9 Rulemaking and Generic Safety Issues

Recommendation A.9 discusses procedures for rulemaking, including public involvement, timeliness, periodic reevaluation, backfitting new rules to existing plants and the need to set deadlines for resolving generic safety issues.

##### A.9.a Publish a Rulemaking Agenda

This recommendation concerns the need for public agenda. NRC is moving toward full compliance with Executive Order 12044 (March 23, 1978). A rulemaking agenda is one requirement of this order. Several interim steps already taken are discussed in Section A.9.d, below.

##### A.9.b Deadlines for Safety Issue Resolution

The Office of Nuclear Reactor Regulation has established a division level organization dedicated to the solution of Unresolved Safety Issues. Progress on both solution and implementation of Unresolved Safety Issues is required to be reported annually to Congress. This effort is limited, however, to the Unresolved Safety Issues identified prior to the TMI-2 accident. New Unresolved Safety Issues may be identified in development of task action plans for TMI issues.

More than a year ago, NRC established deadlines for solution of the Unresolved Safety Issues and will establish deadlines for implementation on a plant-by-plant basis. The setting of deadlines that must be met is an essential element of assuring dedication of the staff and industry to these important tasks. Unresolved Safety Issues are by definition the most significant sub-set of generic licensing issues. The larger group of generic licensing issues was, prior to the TMI-2 accident, prioritized according to relative safety significance and other factors. Each issue was evaluated for its safety impact on operating reactors, and, as resources permit, the list will be addressed in priority order.

##### A.9.c Periodic and Systematic Reevaluation of Existing Rules

NRC does not have an internal requirement to conduct a periodic and systematic reevaluation of existing rules. Usually, NRC has reviewed its regulations only in response to some specific event (e.g., research results, a petition for rulemaking, new technology). Notable exceptions were the systematic reviews and revisions of regulations in the transportation and safeguards areas. NRC intends to change its approach to the review of regulations. It plans initially to broadly review its regulations for content and subsequently for structure. The initial review will concentrate on rules broadly impacted by the TMI accident, such as operator training, emergency planning, environmental monitoring, and consistent treatment of fission product release caused by fuel failure. The project will be carried out on the following schedule, subject to available resources: completion of initial review by June 1980, completion of relevant rule changes by 1982, and completion of systematic review of all safety regulations by 1984. The Commission expects the review cycle to be repeated thereafter every five to seven years.

#### A.9.d Improved Rulemaking Procedures

This recommendation addresses the need to provide a meaningful opportunity for participation by interested persons, ensure careful consideration and explanation of rules adopted, and include appropriate provision for application of new rules to existing plants.

NRC has in place many procedures which in their totality provide a meaningful opportunity for participation by interested persons. NRC publishes an agenda of rulemaking petitions, a summary status report listing regulations under development, advance notices of proposed rulemaking in major actions, and proposed rules for comments. Analyses of comments on proposed rules and discussion of their resolution are made public. Public hearings or meetings are held on rulemaking actions of particular interest and importance and all important rulemaking actions are discussed in open NRC meetings. A means for the public to petition NRC to issue, revise or withdraw a rule is provided. When an Environmental Impact Statement is required for a rule, the public has a further opportunity to participate. Careful consideration and explanation of rules adopted by the NRC are assured by providing that proposed and final rules sent to the NRC Commissioners for consideration are accompanied by a staff paper which identifies and addresses the concerns, presents alternatives to the proposed action, discusses the value and impact of each alternative, and summarizes comments received and their resolution (final rules). NRC plans, however, to reevaluate the rulemaking process to ensure that it is properly focused on resolving important safety issues and that the procedures are clear, understandable, efficient and well published. In practice, all new rules include consideration of backfitting to existing plants. NRC has under consideration a proposal to codify this present practice in the regulations.

#### A.10 Revision of Licensing Procedures to Emphasize Early and Effective Resolution of Safety Issues

Recommendation A.10, which addresses the consideration of specific safety issues in adjudication, would have NRC adopt licensing procedures that foster early and meaningful resolution of safety issues before major financial commitments by a utility. This recommendation can be implemented without legislation. While NRC agrees with the underlying objective, it cannot offer the specifics of its position on this recommendation at this time. A special advisory committee is to report shortly to NRC on its study of an NRC rule which permits plant construction during adjudication. Its conclusions may also bear on the NRC practice of permitting discrete, specific issues to remain open during construction, until the operating-license stage, and even in some cases after the plant is built. Such practices would apparently be suspect under a literal interpretation of the recommendation. However, to discard them at this time would not automatically serve the objective of the recommendation. In some cases, a safety issue cannot be technically settled without additional information, but that information can be obtained by research while construction proceeds. NRC needs to and will examine its practices after it receives the study of its special advisory committee. As an interim measure, the NRC on November 2, 1979, suspended the rule by which reactor licenses become immediately effective after a favorable initial decision by a licensing board. No license will become effective until the Commission itself has had an opportunity to determine the relevance of TMI-related issues to the proposed construction or operation.

#### A.10.a, A.10.b, and A.10.c More Effective Issue Resolution

Recommendations A.10.a, A.10.b, and A.10.c are each directed at duplicative consideration of specific issues -- both safety and other issues. Recommendation A.10.a would reduce, whenever possible, the consideration of the same issue at several stages in one plant's licensing; A.10.b would channel issues that arise in licensing many plants to generic resolution by rulemaking; A.10.c would authorize combined construction permit-operating license hearings whenever plans and designs are sufficiently complete at the construction permit stage. Recommendation A.10.c would require additional statutory authority. Authority for A.10.a is unclear. If A.10.a is read together with the recommendation for early resolution of safety issues, it apparently seeks to direct as many issues as possible into the construction permit proceeding for resolution, with the most advanced case of this being the combined construction permit-operating license proceeding contemplated by recommendation A.10.c.

Even though the combination of construction permit and operating license is possible and has been recommended by NRC, there must be a vehicle to assure verification of design details, and such verification must necessarily be done late in construction when the engineering of the design is complete. Proposed statutory amendments that endeavored to foreclose the relitigation of issues have, in the past, stumbled on the legitimate case for relitigation when new information arises that bears upon the continuing justification for the earlier decision. The unresolved problem is how to avoid duplication, or delay, in the second proceeding. Recommendation A.10.b, which would not require legislation, generally reflects current practice; it is standing policy for the staff to make a concerted effort to develop "candidates" for generic resolution.

#### A.10.d Eliminate Further Appeal of Appeal Board Decisions

This recommendation would, in effect, make Appeal Board decisions not subject to further appeal to the NRC Commissioners. This recommendation loses its basis if divorced from the single-administrator proposal because it would wholly remove NRC from one dimension of nuclear regulation. Recommendation A.10.d also would give Licensing and Appeal Boards a clear mandate to pursue safety issues, whether or not they are raised by a party. Currently, the boards have independent authority to pursue "serious matters." The Commission has decided to eliminate language in the regulation governing operating license proceedings which indicates that such authority should be exercised "sparingly" and only in "extraordinary circumstances."

#### A.10.e Establish an Office of Hearing Counsel

Recommendation A.10.e would create a new Office of Hearing Counsel to participate as a party in construction permit proceedings. In order to implement this proposal, legislation is probably desirable and may be a prerequisite in light of prohibitions on the funding of intervenors contained in the conference report of NRC's FY 1980 appropriations legislation. What the President's Commission has in mind is not entirely clear, but the new office could be viewed as a representative of the public interest in nuclear safety and, so viewed, as an alternative to other devices for broadening public participation, such as intervenor funding. NRC will consider this proposal further. In addition, NRC is considering a pilot program for intervenor funding.

#### A.10.f Establish Deadlines for Resolution of Safety Issues

Recommendation A.10.f would require the resolution of specific safety issues left open at licensing by a deadline. Plant-specific safety issues left open at the time of licensing are now carried forward with clear deadlines as conditions on each operating license, but generally not the so-called generic issues. The broader question of resolution of generic issues is addressed in recommendation A.9 above. NRC will consider whether each operating license should also be conditioned with deadlines for resolution and implementation of the Unresolved Safety Issues applicable to each particular design.

#### A.11 Increased Emphasis on Systematic Evaluation of Operating Plants and on Inspection and Enforcement

##### A.11.a Systematic Safety Evaluation of Currently Operating Plants

This recommendation calls for an improved program for the systematic safety evaluation of currently operating plants.

In 1977 NRC established a Systematic Evaluation Program (SEP). Eleven older plants are being evaluated in the first phase. NRC is considering an extension of this program to all operating plants and requiring safety assessments from licensees. The Integrated Reliability Evaluation Program now under development by the staff (discussed in Section D.4) will also need to be considered in relation to the decisions made on systematic re-evaluations of operating plants.

##### A.11.b Program for Systematic Assessment of Experience in Operating Reactors

This recommendation calls for a program for the systematic assessment of experience in operating reactors.

An NRC Office for Analysis and Evaluation of Operational Data was established in July 1979 to initiate a broad, coordinated program within major NRC program offices to assess operating experience. Licensees have also been required to establish operating experience evaluation groups and are required to assess input beyond their own facilities. The industry has also established groups to evaluate operating experience as discussed in Section B.1. These matters are still in the developmental or initial stages, and the need for coordination of the sort recommended by the President's Commission has been one of the considerations. NRC believes these activities represent a sound approach which will be subject to further revision as experience is gained in data management and dissemination.

Staffing of the Office of Inspection and Enforcement is being augmented with plant systems analysts to conduct prompt and independent technical evaluations and followup of licensee events, transients and inspection findings. Potential generic problems and significant operating experiences will be conveyed promptly to licensees through the existing system of Bulletins, Circulars, and Information Notices.

##### A.11.c and A.11.f Authorization to Assess Substantial Civil Penalties and Direction to Adopt Enforcement Criteria

These recommendations deal with civil penalties and enforcement criteria.

Legislation to increase civil penalties is now pending before Congress. Enforcement policy and criteria are under review and consideration is being given to use of probation status. NRC supports the President's Commission approach and intends to move forward in this area.

A.11.d and A.11.e      Perform Improved Inspection and Auditing of Licensees and Conduct Major and Unannounced Inspections and Periodic and Intensive Review of Operating Plants

These recommendations deal with inspection.

In addition to steps described in A.11.a above, the Office of Inspection and Enforcement has underway programs to significantly upgrade its inspection performance.

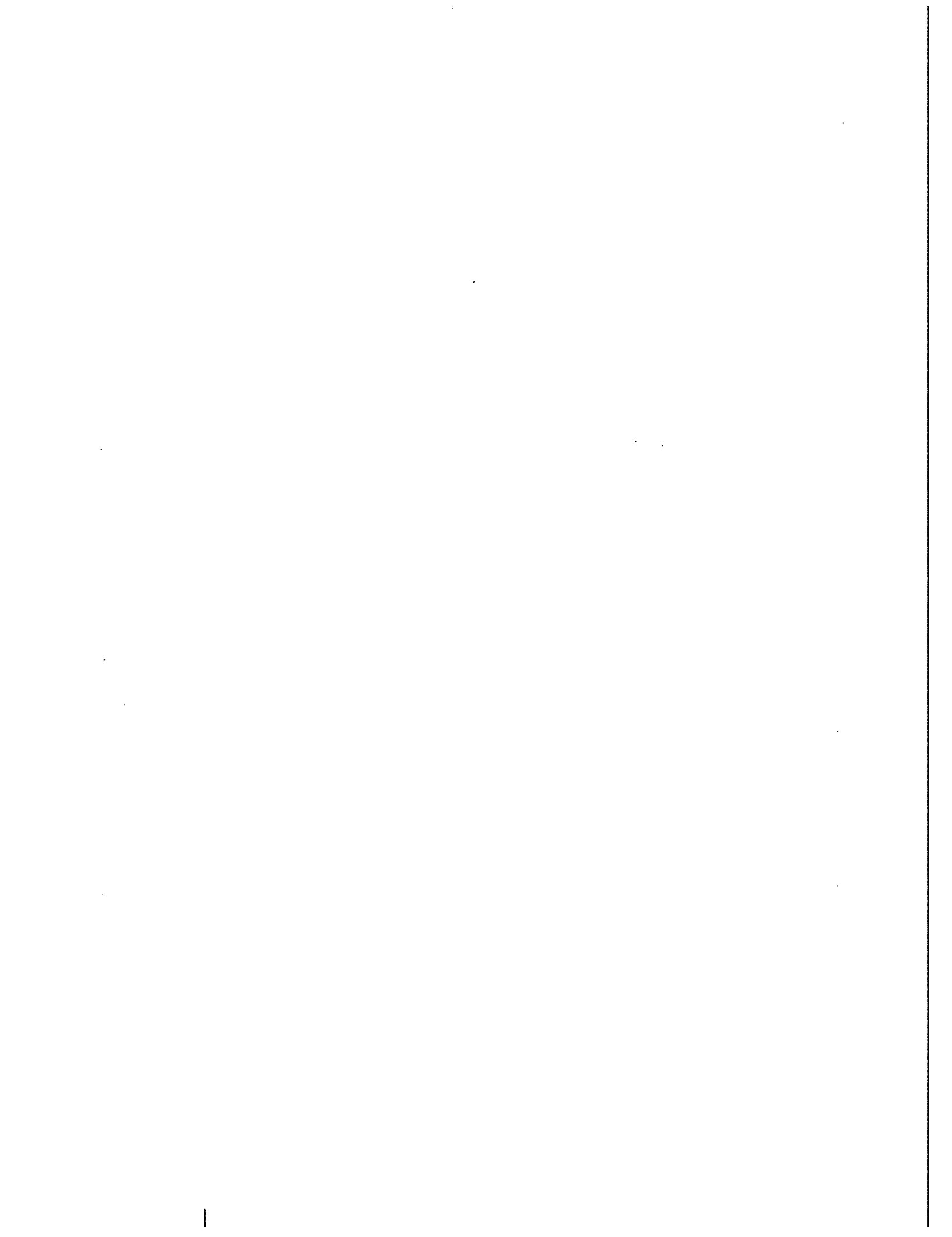
First, the resident inspector program, started in 1977, has recently been expanded and accelerated to include placing at least two resident inspectors at each site in FY 1981. This will increase independent verification of the safety and compliance of operations, assure more timely resolution of identified problems, and provide prompt feedback during incidents.

Second, licensee regulatory performance is being evaluated. These evaluations, combined with periodic independent inspections of licensee management control systems by the Performance Appraisal Team, will result in the identification of marginal utility performance and will provide for prompt corrective actions. These efforts are in addition to visits by regional inspectors.

NRC conducts unannounced inspections. However, the future need for this type of inspection is being examined in light of the significant expansion of the resident inspector program.

These programs if supported with substantially increased enforcement sanctions and penalties (legislation is presently before Congress) will strengthen the inspection and enforcement functions.

Relatedly, the Office of Nuclear Regulatory Research is planning a program to develop requirements for testing important plant components to demonstrate their ability to remain operational in accident environments. Moreover, NRC is presently considering alternative approaches for expanding its past instances of conducting independent verification testing of safety components.





## B. THE UTILITY AND ITS SUPPLIERS

Section B of the President's Commission Report recommends ways to improve the design, construction, and operation of nuclear power plants. These three ingredients -- design, construction, and operation -- of necessity involve the human element. The recommendations focus on setting standards for doing things correctly, for detecting problem areas and for correcting problems when they occur. Specifically, the recommendations include items on shifting attitudes, setting clear safety goals and standards, sharing operating experience, maintaining technical competence, assuring quality, emphasizing operator qualification, and upgrading plant procedures.

### B.1 Industry Attitudes Toward Safety and Regulations

Recommendation B.1 urges the nuclear industry to dramatically change its attitudes toward safety and regulations as well as set and police its own standards of excellence to ensure the effective management and safe operation of nuclear power plants. It discusses the formation of the Institute of Nuclear Power Operations (INPO) and the systematic review of operating experience.

NRC agrees that the improvement and maintenance of operational safety is a fundamental responsibility of licensees. The NRC role should be one that provides acceptance criteria, detailed guidance where necessary, and any additional incentives necessary to attain the goals for operational safety.

NRC agrees with the President's Commission that the industry should establish or upgrade a program to specify appropriate safety standards including those for management, quality assurance, and operating procedures and practices, and to conduct independent evaluations. The recently created Institute of Nuclear Power Operations may well be an appropriate vehicle for establishing and implementing this program, especially with regard to important human factors and other operational aspects. In this regard, a statement of understanding between the Institute of Nuclear Power Operations and the NRC should be established at an early date (within six months) so that both groups can decide on actions to be taken and to what extent each should proceed independently. NRC plans to initiate many actions that could coincide with the activities of INPO. These actions include upgrading the requirements for licensee technical and management support capabilities, upgrading the requirements for operator qualification and training, reviewing the need to license additional operating personnel, and requiring a more effective system of operational quality assurance.

With regard to the recommendation concerning evaluation and feedback of operating experience, specific actions have been initiated by NRC over the past several months. As set forth under recommendation A.11.b above, NRC acted in July 1979 to establish an agency-wide Operational Data Analysis and Evaluation Office reporting directly to the EDO and directed that the individual program offices also establish operational data analysis capability. In addition, NRC has required each licensee to establish an engineering staff capability to assess and feed back pertinent operating experience. It is our intent that the assessment programs of NRC, industry groups, and vendors will be complemented and integrated with each licensee's program to assure that operating experience is available, analyzed, documented, and understood by the reactor operators and plant technical support staff.

Industry has also initiated responsive action. A Nuclear Safety Analysis Center has been established to systematically review available plant event reports and data; identify possible precursor events, trends, and problem areas; perform failure analyses; and follow up with utilities on identified problem areas. The electric utility industry has established an Institute of Nuclear Power Operations, as mentioned above, whose charter includes review of nuclear power operating experiences for analysis and feedback to utilities; incorporation of lessons learned from such reviews into training programs; and coordination of reporting and analysis with other organizations. Each reactor manufacturer is also examining its existing programs for review and feedback of operating experience to improve operational safety and plant availability and to integrate their programs with those of other organizations.

The NRC Lessons Learned Task Force has proposed rulemaking to require plant shutdown by a licensee upon discovery of human or operational errors that cause important safety systems to be inoperative. The objective of this proposal is to increase the incentives for high standards of operational excellence and to assure high availability of important safety systems. NRC will consider various options, including those of the ACRS and other elements of the NRC staff, to achieve this important goal.

### B.2 Independent Review of Plant Operational Activities

This recommendation concerns an independent safety review group for each utility that would assess plant operational activities to assure that they are conducted in accordance with requirements for safety.

NRC's review of the President's Commission report has highlighted a major shortcoming in NRC actions to date. Although NRC acted several months ago to augment the licensee's onsite technical support capability by the short-term requirement for shift technical advisors and operating experience evaluators at each plant, more needs to be done. NRC is considering a requirement that would augment onsite technical staff for operational safety surveillance by all licensees. An onsite group of technical specialists would be required, who would have no direct operating responsibilities to detract from their responsibilities to provide day-to-day attention to safety. Such a group would be required to report to higher management independently of the power production staff and would provide an independent safety overview of station operations. Some licensees already have in place some elements of this proposal.

The NRC Lessons Learned Task Force has also recommended a requirement for licensees to improve their systems for independent verification of correct performance of operating activities including the provision of automatic system status monitoring and increased human verification of operating activities.

### B.3 Management and Technical Qualifications

This recommendation deals with the qualifications of a utility to assume responsibility for the design, construction, operation, and emergency response capability of a nuclear power plant. It describes the need for a technically qualified organization under unified management authority to exercise its responsibilities. In cases where a utility "farms out" significant portions of design and construction activities, it is recommended that a strong technical and management organization be established to implement its responsibilities and

carry the technical knowledge gained during the design activities into the operational and operational support organization.

NRC has recently surveyed and is now studying the technical resources available to each power reactor licensee. It is developing new criteria by which to judge the competence of licensees to operate a nuclear power plant and expects to have them in place by April 1980. These criteria will be applied to all operating power reactor licenses and to new licenses, and appropriate corrective actions will be required.

NRC agrees emphatically with the President's Commission recommendation concerning the need for clearly defined roles and responsibilities. With respect to operating plants, licensees are required by January 1, 1980 to review and revise their practices to provide for definitive and clearly articulated operations command responsibilities and improved administrative procedures and controls (to support the command function) for both normal and emergency conditions.

NRC has no ongoing activity to upgrade the qualification of utilities to conduct the design and construction of nuclear power plants. NRC needs to develop new criteria for determining acceptable technical qualifications to design and construct nuclear power plants. These new acceptance criteria would not only establish technical resources, but also include methods of management control.

#### B.4 Operator Qualifications

The President's Commission recommends that it is important to attract highly qualified candidates for the positions of senior operator and operator supervisor and that pay scales should be high enough to attract such candidates.

NRC has taken actions and is considering others that substantially increase the qualifications of operating plant personnel (see Section C below). NRC believes that in order to attract individuals with these qualifications, utilities will necessarily have to increase their pay scales.

#### B.5 Improved Operating and Emergency Procedures

The recommendation identifies the need for a more disciplined approach to the preparation, review, and maintenance of procedures used by control room operators following off-normal events. Human factors and the engineering requirements for unanticipated events are addressed.

NRC believes that in the development and maintenance of procedures licensees must evaluate and incorporate operating experience.

In the case of the TMI experience, NRC ordered more detailed analyses of small-break loss-of-coolant accidents for all B&W-designed operating reactors. From this information, definitive guidelines were prepared for a range of small break loss-of-coolant accidents based on additional equipment failure and possible operator error. From these guidelines, detailed emergency procedures were prepared by the licensees to describe operator actions to be taken. Special emphasis was placed on operator verification to confirm adequacy of recovery actions. These requirements have been extended to all operating reactors.

NRC has also required that all operating reactor licensees perform new analyses and develop new procedures for responding to off-normal events which may be subsequently worsened by inappropriate operator action. In concert with these studies, analyses and procedures have also been required by NRC to assist the operator in recognizing conditions for which inadequate core cooling may exist and actions which should be taken to recover from these situations.

New types of symptom-oriented procedures for operator action in the event of off-normal and emergency conditions are being studied by the NRC staff. This approach would direct the operator to respond to an event by actions aimed at establishing and maintaining certain system parameters to assure adequate core cooling independent of the initiating event or details of the event sequence.

The need for a realistic appraisal of operator actions in high stress conditions was recognized by the NRC Lessons Learned Task Force. As a result, it was recommended that the NRC staff review emergency operating procedures using an interdisciplinary group made up from a variety of engineering, operator training, and human factors backgrounds. The ACRS has made similar recommendations for improved emergency procedures and for their review by NRC. The NRC licensing staff will be reorganized to give emergency procedures, human factors and other operational safety considerations a prominence in system safety evaluation equivalent to that afforded to the equipment aspects of reactor safety.

#### B.6 Safety Implications of Rate-Making

This recommendation deals with the potential adverse impact that utility rate-making agencies may have on the implementation of new safety measures. This adverse impact may result from failure of State agencies to include the costs of such measures in the utility rate base. The President's Commission recommended that State rate-making agencies give explicit attention to the safety implications of rate making.

NRC agrees with this recommendation and will consider further its role in resolution of this matter. Relatedly, as part of its investigation of the accident, the NRC is examining whether other financial considerations, such as deadlines for rate-making purposes or tax exemptions, affect the safety of a nuclear power plant.

## C. TRAINING OF OPERATING PERSONNEL

This section treats several aspects of the overall subject of training. There are several recommendations relating to the accrediting of training institutions for reactor operators and their supervisors. There are recommendations relating to the role of the licensee, and the regulatory agency in assuring adequately trained operators. The recommendations reflect that operator training is an ongoing proposition and that research needs to be conducted to bring added understanding and realism to the dynamic simulation of nuclear power plant operations.

### C.1 Training Institutions

The President's Commission recommends establishing agency-accredited training institutions for operators and their immediate supervisors. These institutions should have highly qualified instructors, who would maintain high standards, stress understanding of the fundamentals of nuclear power plants and the possible health effects of nuclear power, and train operators to respond to emergencies.

Although the purpose of this recommendation is the same as the purpose of NRC actions and planning to date (i.e., to have highly qualified instructors and competent training in the fundamentals of nuclear engineering and the potential hazards of nuclear power for appropriately qualified candidates for operator and senior operator licenses), it had not been decided that NRC accreditation was the way to proceed. Over the long term, NRC does not object to the approach that has been recommended (i.e., conducting training of operators in a few high-quality, accredited institutions, separate from the utilities and closely controlled by NRC to maintain a uniform, high standard of achievement).

NRC's approach to date has been based on the belief that the required upgrading of training can be achieved by upgrading the requirements but leaving the choice of where to train up to the utility. Action is being taken to increase the requirements for instructors and the content of training and to increase the NRC auditing and licensing functions. NRC is cognizant of the fact that the Institute for Nuclear Plant Operations recently established by the industry intends to provide training for utility management and for instructors involved in operator training programs. The charter of the Institute specifically excludes training of operators. If the Institute accredits training programs and instructors for reactor operator training, does a good job of it, and has wide participation by NRC licensees, it might be efficient for NRC to endorse accreditation by the Institute. Accreditation of training institutions in general, whether by the Institute or others, has many positive aspects, and NRC is continuing to consider the role of accreditation in further developing its regulatory requirements in this area.

NRC is taking action to establish more stringent personnel selection criteria, to increase the emphasis on the technical fundamentals in training, to make simulator training mandatory, and to require higher passing grades on operator licensing examinations. NRC will also become more involved in auditing and monitoring the administration of the training programs.

NRC is also considering (1) conducting a one-week course in reactor safety regulation for all operators to emphasize safety-related subjects, (2) requiring certification of operator license applicants by utility corporate managers instead of the plant superintendent, and (3) periodic oral examination of supervisory personnel by an interdisciplinary group of NRC staff. A contract is being let by NRC for a study of the operator licensing program that will include recommendations regarding NRC involvement in the development of training programs. This study will form the basis for decisions regarding further increases in training requirements.

## C.2 Training and Examining of Licensed Personnel

The President's Commission recommended that individual utilities be responsible for training operators who are graduates of accredited institutions in the specifics of operating a particular plant. The recommendation also treated operator examination and licensing by NRC, both at the initial licensing and at the relicensing stage. It was also recommended that in order to be licensed, operators would have to pass every portion of the examination and supervisors of operators should have the same training as operators, at a minimum.

Utilities are now responsible for training operators in the specifics of a particular plant, as recommended by the President's Commission. Operators are now only initially examined and licensed by NRC. Licenses are renewed every two years without an NRC examination.

NRC is taking action to administer examinations to all licensees at license renewal time. It is also taking action to increase the overall passing grade and to require a passing grade in each portion of the examination. The increased passing grade on the examination is effective immediately. NRC examination of license renewal applicants will be started as soon as possible.

NRC has for some time required supervisors to have at least the same training as operators. The operator's immediate supervisor must also be licensed as a senior operator under current requirements. In the immediate future, managers, such as the station superintendent or unit manager, may also be required to be licensed as senior operators.

NRC has recommendations under consideration that will further upgrade the qualification of immediate supervisors and increase training to include specific training in abnormal transient and accident response.

## C.3 Operator Retraining

The President's Commission recommended that comprehensive ongoing training must be given on a regular basis to maintain the operators' level of knowledge. Emphasis must be placed on diagnosing and controlling complex transients and on the fundamental understanding of reactor safety. Such training must be continuously integrated with operating experience and include training on a simulator.

Training is required by NRC to be ongoing, and licensed operator requalification programs with annual examinations conducted by the utility are also required. Requalification programs are being revised to place more emphasis on diagnosing and controlling complex transients, improving the fundamental understanding of

reactor safety and incorporating timely review of operating experiences. In the future, NRC will administer the annual requalification examination.

NRC is taking action to require that simulators be used in operator training and retraining programs and that operators be recertified on simulators. Mandatory simulator training on currently available simulators can be implemented within a year.

NRC has under consideration a recommendation that would require utilities to review and upgrade, as necessary, training programs for all plant personnel. This step will exceed the recommendations of the President's Commission.

#### C.4 Simulator Research and Development

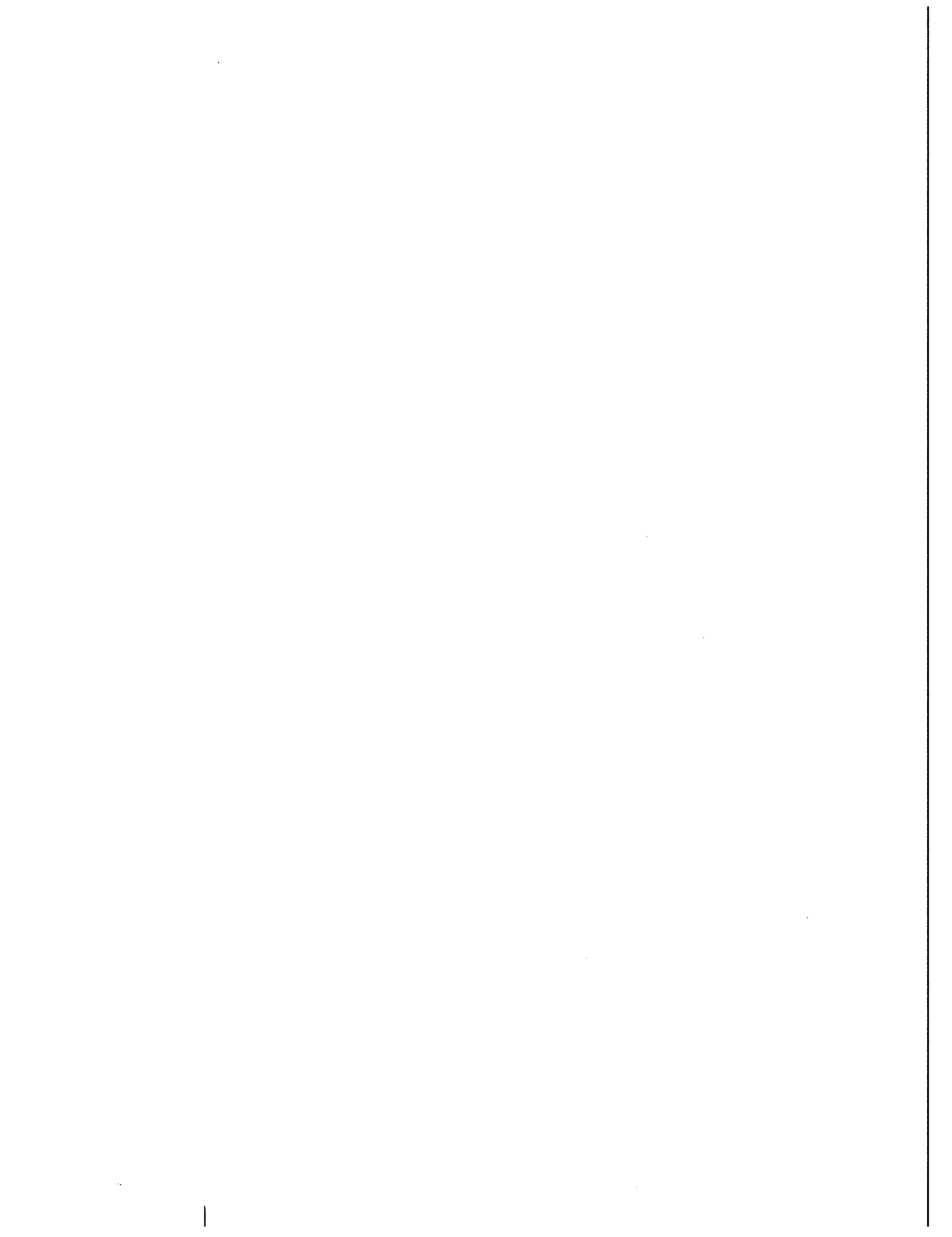
The President's Commission recommended that research and development should be carried out on improving simulation and simulation systems: (1) to establish and sustain a higher level of realism in the training of operators, including dealing with transients, and (2) to improve the diagnostics and general knowledge of nuclear power plant systems.

Research and development work can and should be done to improve simulation systems for training and diagnostic purposes. NRC believes that different types of simulators are needed for each purpose. On a shorter term basis, simulators are being reprogrammed to provide effective simulation of sequences like the TMI accident and other situations involving multiple equipment failures and operator errors.

NRC has taken action to develop explicit requirements regarding exercises to be included in simulator training. These cover a broad spectrum of normal and abnormal operations and response to transients involving multiple failures and compound abnormalities. NRC is also developing a Regulatory Guide that will address simulator capabilities.

The Office of Nuclear Regulatory Research is initiating research to improve simulation and simulation systems, including a study that will explore the possible use by NRC of a hybrid engineering simulator system. This system could be used as a training aid for NRC personnel, a tool for diagnostics and exploratory calculations, and for checking the adequacy of emergency operating procedures. Some aspects of this work may lead to improvements in training simulators used by industry.

Expanded risk assessment tasks to define accident sequences covering severe core damage will also provide the guidelines for the experimental and analytical research programs needed to improve reactor response diagnostic aids and general knowledge of dynamic response to complex transients. These programs will assist the development and testing of fast-running computer codes used to predict realistic system behavior for multitudinous accident studies. Such codes are also required to improve the capabilities of training simulators.





## D. TECHNICAL ASSESSMENT

This set of recommendations treats the type, arrangement and display of the information in the control room for improving the ability of the plant operators to prevent and cope with accidents. Another recommendation treats the inadequacies in specific instruments used to cope with the TMI accident. It is also recommended that studies of many types of accidents, including those that might result in melting of the core, be continued. A related recommendation is that to the extent possible data be obtained from the severely damaged TMI core for use in safety studies. The results of these studies are to be used to identify desirable changes to the design of plants. Some possible changes based on specific equipment deficiencies or events that occurred during the TMI accident were identified by the President's Commission.

The President's Commission recognized the continuing hazard to the public health and safety that remains at TMI and recommended continued close monitoring of the cleanup and recovery.

The President's Commission also recommended systematic evaluation of operating experience. Discussion of this recommendation is combined with the discussion of the similar recommendation in Part B.

### D.1 Control Room Design

NRC agrees with all the President's Commission recommendations on improved control room designs and believes that the need for improved design is one of the most important lessons of the TMI accident. On the basis of NRC review of the accident, we have already taken some actions to improve the ability of operators to prevent or cope with accidents by improving the information provided to them. In addition, revised procedures and training in recognizing inadequate core cooling using existing instruments are required to be in place for operating reactors by the end of this year. Additional instruments to monitor reactor water level and to monitor the pressure, water level, radiation and hydrogen concentration in the containment are required by the end of next year. A requirement for control room backfitting to provide a concise display of critical process and safety parameters in each plant is being developed for implementation in one year. Comprehensive guidance on backfitting of new instruments to follow the course of an accident is being developed by NRC on an accelerated schedule. The most important new requirement being developed in this area is a comprehensive year-long review of control rooms using human factors and engineering expertise. Modifications will be required of existing control rooms to improve the information provided to the operators according to criteria now being developed by the staff.

In the longer term, NRC is encouraging the completion of an industry standard on the design of control rooms. The responsibility for developing and implementing an overall program plan regarding control room design improvements will be assigned to a specific organizational element in NRC. NRC will conduct research directed toward better defining the man-machine interface and improving display and diagnostics of plant process data and status. In total, these actions would constitute conformance with the recommendations of the President's Commission.

## D.2 Specific Design Inadequacies

This recommendation addresses the need to correct design and maintenance inadequacies in specific components related to the TMI accident. The staff has already required all licensees to fix six of the seven types of components addressed by the President's Commission by January 1, 1981. The only remaining area, iodine filtration, is the subject of ongoing study and criteria development. Our work in this area is much broader than just iodine filtration and takes longer; it includes other post-accident radiation control and treatment matters. Other specific equipment and maintenance deficiencies not identified by the President's Commission have been identified by the staff and requirements for design changes have already been issued.

## D.3 Recording of Critical Plant Parameters

NRC is in complete accord with the recommendation for monitoring and recording equipment for critical plant parameters. The need and general criteria for such a requirement were developed by the NRC Lessons Learned Task Force in the form of a plant safety-state vector (a set of instrument readings which characterizes the safety status of the plant). The preliminary content of the safety-state vector and requirements for its display in the control room, display and recording in the onsite technical support center, and transmission by the nuclear data link to NRC have been under development by the staff and its contractor for several months. NRC has already required that the recording equipment and instrumentation be present in the new onsite technical support centers by January 1, 1981.

## D.4 Accident Studies

The President's Commission recommended continuing studies of accidents including such things as multiple failures, human errors and the melting of the reactor core. Possible changes to plant designs based on these studies should be considered.

NRC agrees with this recommendation and had increased and redirected its current program in this area some months ago. As a result of the TMI accident, licensees were required to analyze additional small-break loss-of-coolant accidents assuming multiple equipment failures.

These analyses have been completed and have resulted in revisions of operating procedures and operator training. As part of a continuing Integrated Reliability Evaluation Program (IREP), the risk assessment techniques used in the Reactor Safety Study (WASH-1400) are being utilized on Crystal River 3, an operating B&W plant. Other operating plants will be included in the Integrated Reliability Evaluation Program, and consideration is being given to expand this effort to new operating licensees.

The NRC is also redirecting its research program toward the more probable transients and small break accidents. This program includes both experiments and analyses. Complementing this program is an analysis program to investigate core-melt phenomena. NRC is also participating in a joint program with DOE, the Electrical Power Research Institute, and General Public Utilities to acquire, record, and study the data from TMI-2 that relates to core-melt accident studies. The results from these last two areas of ongoing study will be used to help plan for recovery and cleanup following a major accident.

As part of a continuing program, the risk assessment techniques in the Reactor Safety Study (WASH-1400) have been applied to four additional plants of different design and a B&W plant is now under study. NRC is developing a program (the Integrated Reliability Evaluation Program) to expand this study to include all operating plants.

Since the TMI accident, NRC has completed a study, using Reactor Safety Study techniques, of the reliability of one system (the auxiliary feedwater system) in all operating PWRs designed by Westinghouse and Combustion Engineering. It included various accidents. Changes in many plants have been required as a result of that study.

Some of the specific equipment deficiencies revealed during the TMI accident and present in other plants have been required to be corrected before the end of next year as recommended by the President's Commission. NRC believes, however, that this may not be sufficient, since the deficiencies were the result of the fact that the type of accident that occurred was not specifically included in the design and evaluation of the plant. NRC is now considering a staff recommendation to issue requirements for design features for mitigation of the consequences of accidents involving severe core damage and accidents in which substantial core melting occurs (see Enclosure 2).

#### D.5 Chemical Behavior of Radioactive Iodine in Water

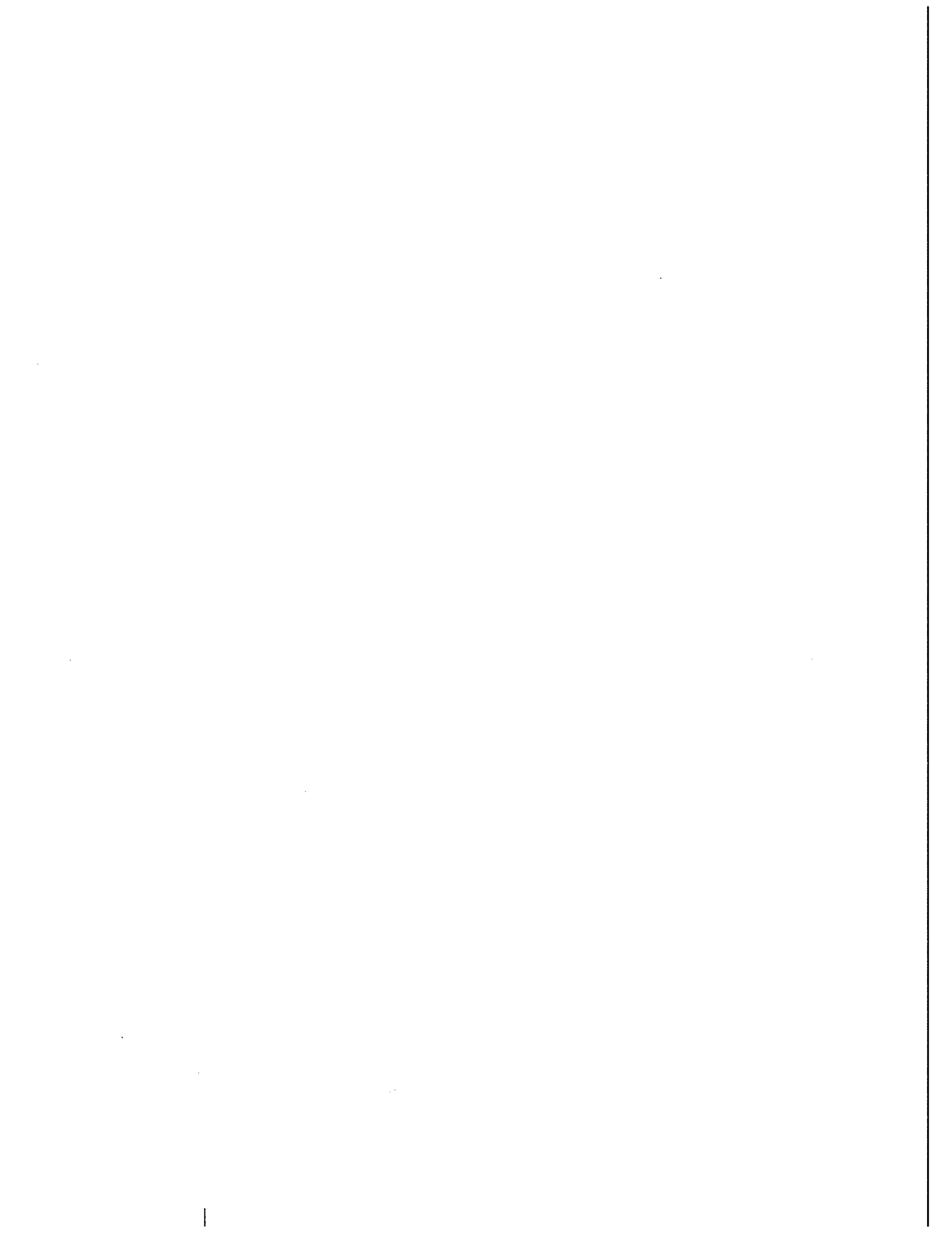
The recommendation treats the need for additional research in this area. We agree that more information is needed on the realistic behavior of iodine, other radioisotopes and chemicals in the primary coolant systems of severely damaged reactors. We are planning to conduct the necessary research.

#### D.6 TMI-2 Recovery

The President's Commission recommended that the cleanup and recovery of TMI be closely monitored. NRC agrees with this recommendation and has had a continuing presence at the site, now numbering approximately two dozen professionals to monitor, audit and review the cleanup and recovery that is now underway. As much of the important data as possible will be preserved and recorded about the conditions in the containment building for use in future safety analyses. As a further step, NRC has decided to prepare a programmatic environmental impact statement on the decontamination and disposal of wastes resulting from the TMI accident. The scope of the EIS is under consideration.

#### D.7 Accident and Abnormal Event Review

This recommendation treats the need for thorough investigation of accidents and abnormal events and the kinds of implications that need to be determined in such investigations. NRC agrees with the recommendation and believes that the new initiatives on operating experience evaluation, in close coordination with inspection and enforcement activities for the especially significant events, will meet the intent of this recommendation (see A.11 and B.1, above).



## E. WORKER AND PUBLIC HEALTH AND SAFETY

This section reflects the concerns of the President's Commission regarding uncertainties in present scientific understanding of the health effects of ionizing radiation, the need for public health agency overview of NRC activities, and the shortcomings in State, local, and utility emergency preparedness.

### E.1 Expanded and Better Coordinated Federal Radiation Effects Research

This recommendation emphasizes the need for better understanding of the health effects of ionizing radiation. It calls for expanded and better coordinated research. It also recommends that this Federal effort be coordinated under the National Institutes of Health.

NRC agrees with this recommendation. During 1978-79, the NRC staff worked with and supported an interagency effort chaired by the Department of Health, Education and Welfare that, among other things, arrived at the same conclusion. As a result, an interagency committee on radiation research, chaired by the National Institutes of Health, was established in early 1979. NRC is represented on this committee. NRC plans to introduce the research topics identified by the President's Commission as agenda items for action by this committee.

NRC has a modest research budget devoted to health effects and will, in addition, be striving through the interagency committee to orient research by other agencies to be responsive to this recommendation.

### E.2 Department of Health and Human Services Oversight of NRC Activities

This recommendation deals with the need for mandatory review and comment by the Secretary of Health and Human Services of health-related NRC activities, including reactor siting issues.

We agree with the value of a Federal oversight function of NRC activities that affect public health. NRC believes, however, that a more effective and balanced result would be achieved through the oversight role envisioned for the Federal Radiation Policy Council that the President has decided to establish.

### E.3 Educating State and Local Health Professionals and Emergency Response Personnel

This recommendation deals with the need for better education of State and local emergency response personnel.

NRC agrees with this recommendation and, although the President's Commission identified this as a State and local responsibility, NRC intends to provide guidance and assistance in fulfilling the recommendation. In particular, NRC plans to supplement the NRC/EPA guidance already available to States on the preparation of emergency response plans to provide more detailed guidance on the education and training necessary for personnel who will respond to emergencies at nuclear power plants. In addition, NRC has offered and will continue to offer technical assistance to the States in the preparation or upgrading of emergency response plans.

#### E.4 Advance Preparation for Emergencies

This recommendation deals with radiation monitoring and control facilities and equipment to cope with emergency situations.

The recommendation by the NRC Task Force on Emergency Preparedness to expand coverage and improve offsite monitoring capability for accidents is being implemented by all operating plant licensees. NRC has also increased its offsite monitoring capability. The several short-term requirements in the area of onsite monitoring for accident diagnostics and health physics purposes recommended by the NRC Lessons Learned Task Force are now being implemented on operating plants. NRC is upgrading requirements for emergency health physics control centers (so they will be available when needed) and health physics equipment (so that there are sufficient numbers of reliable instruments available at all times).

NRC acknowledges that in the past insufficient emphasis has been placed on the necessary preparations to measure and provide health physics controls on the radiological effects of emergencies. The actions taken and planned will result in more stringent regulatory requirements and significantly improved utility capabilities in this area.

#### E.5 Availability of Potassium Iodide as a Thyroid Blocking Radiation Protection Agent

The President's Commission recommends that an adequate supply of potassium iodide be available for both workers and the general public.

NRC agrees and is planning to require licensees to have adequate supplies of this agent available for nuclear power plant workers. For the general population, NRC expects to include the availability of potassium iodide as a necessary part of an acceptable State emergency response plan. Plans have not yet been finalized as to exactly how and to what extent the agent should be stockpiled and distributed, but studies are underway to resolve this matter at an early date.

## F. EMERGENCY PLANNING AND RESPONSE

This section treats the review and approval of State emergency response plans, assessment of the basis for evaluating State and local government plans, coordination between utility and local officials, the upgrading of State plans and the role of the Federal Emergency Management Agency. It also treats the use of accident scenarios in developing and activating emergency response plans, protection of the public at radiation levels lower than called for in current plans, and the availability of funds for emergency response planning at the local level. Education of the public and the need for study of the benefits and impacts of mass evacuation are also addressed.

### F.1 The Role of the Federal Emergency Management Agency and State and Local Governments

This recommendation treats the role of the Federal Emergency Management Agency in approval, criteria setting and coordination of State and local emergency response plans, including the need for upgrading of plans in States with operating plants.

NRC agrees with the substance of these recommendations and has efforts now underway to upgrade plans in States with operating plants. These efforts include rulemaking to upgrade emergency preparedness standards and efforts to promptly upgrade emergency preparedness capabilities around operating nuclear power plants through an integrated team review of all facets of the required response capabilities.

NRC agrees with the recommendation that the Federal Emergency Management Agency (FEMA) should have the lead role at the Federal level for emergency planning. A joint letter has been issued by FEMA and NRC to this effect. NRC and FEMA have agreed to a joint responsibility for concurring in State emergency response plans prior to NRC issuance of operating licenses. The Commission has under consideration a rule that would condition the issuance of operating licenses and the continued operation of existing plants upon approval of State plans with fixed time periods.

### F.2 Content of Emergency Plans

The recommendation treats the kind of accidents that should be considered in emergency planning.

The basis for emergency response planning has been under examination at NRC for some time. An NRC/EPA task force published the results of an extensive study of this subject in December 1978 with conclusions consistent with recommendation F.2. Taking into account public comment, the NRC Commissioners endorsed in October 1979 this concept of a flexible planning base, including emergency planning over much larger areas than before. It requires that specific scenarios be used to test the adequacy of the plans and that the activation of emergency response be keyed to various plant conditions according to revised emergency action guidelines published in September 1979.

NRC currently uses the EPA protective action guides. Greater emphasis will be placed on the potential for receiving exposure as opposed to actual exposure levels by the actions called for in the new action level guidance.

An NRC staff study on funding problems of State and local governments was recently published and is under consideration by NRC, including the need for and possible sources of such funding.

### F.3 Expanded Research on Protection Against Radiation

The President's Commission recommends expanded research on medical means for protecting the public against radiation.

NRC agrees that such research is needed and will encourage the Department of Health and Human Services to take steps in this area.

### F.4 Informing the Public

The recommendation concerns a program to assure that the public is adequately informed about nuclear power, radiation and its effects, and protective actions against radiation.

NRC agrees with this recommendation but believes that a broad public information program would be more appropriately handled by other agencies. Improved public information on radiation risks in general is an area to be addressed by the planned Federal Radiation Policy Council. NRC efforts underway to promptly upgrade emergency preparedness capabilities will, however, include a requirement for licensees to keep the public informed on a continuing basis of the nature of hazards in a radiological emergency and of the actions they might be required to take in such an emergency. The performance of periodic response drills by local and State organizations should contribute to this awareness.

### F.5 Impacts of Mass Evacuations

The President's Commission recommends further study of the impacts of mass evacuations.

NRC agrees that further study should be done on this and other protective actions.

### F.6 Delineation of Responsibilities Among Support Organizations

The President's Commission recommends improved delineation of responsibilities among support agencies and reexamination of coordination agreements.

NRC agrees that improvements are needed. NRC has efforts underway to reexamine and revise Federal interagency agreements on emergency assistance.



## G. THE PUBLIC'S RIGHT TO INFORMATION

In this section the President's Commission stressed the need for Federal and State agencies and utilities operating nuclear power plants to make adequate preparation for a systematic public information program so that timely and accurate information is made available to the news media and the public in an emergency situation. The President's Commission also stressed that the information must be presented in a form that is understandable. NRC agrees that the advance planning of information dissemination by Government agencies and the utility before the Three Mile Island accident was inadequate. NRC also agrees in general with all the President's Commission recommendations for change in the public information area.

### G.1.a Utility Responsibility for Informing News Media G.1.b A Single Agency as the State Spokesman

The President's Commission recommends that the utility, with support from NRC, be responsible for informing the news media on the status of the plant. It also recommends that a single agency act as the State spokesman.

The procedure used before the Three Mile Island accident was that NRC public affairs staff were sent to an accident site to support NRC personnel in dealing with the news media, but not to take charge of information activities. At TMI, however, NRC in fact took over public information responsibilities on March 31. Although the President's Commission recommends essentially a background role for NRC, it is more realistic to expect that the Federal regulator must be in a position to talk about an emergency situation, since NRC would expect the State and the public to look to the NRC for authoritative information on the situation. NRC believes it would be more effective to have Federal, State and utility personnel operate out of a single press center so that, where the facts warrant, a unified view of the situation could be presented.

## G.2 Logistics of Information Dissemination

The President's Commission recommendations on the logistics of information dissemination include access of media to informed sources and the designation of technical staff as liaison with the media. It also recommended that predesignated press centers be established.

NRC agrees with the recommendations and will consider in the course of expedited rulemaking on emergency planning the need for requirements to assure that licensee plans will achieve these ends. Licensees are now required to identify offsite emergency control centers where the utility and Federal, State, and local officials can gather. A press center would be established either at the offsite emergency control center or nearby. The establishment of the offsite center is intended to facilitate the carrying out of State functions described in recommendation G.1.b.

## G.3 Greater Responsibility of News Media in Providing Timely, Accurate Information

This recommendation relates to the need for news media personnel to have increased knowledge of reactor safety and risk of exposure to radiation, the need for the

capability to present information in understandable terminology, and the need for properly characterizing information dealing with the probability of an event occurring.

NRC agrees with this recommendation and its subparts relating to the responsibilities of the news media. NRC will urge that professional societies, such as the American Nuclear Society and the Health Physics Society, sponsor seminars for the news media where reporters can learn how nuclear power plants operate and about radiation effects.

NRC will consider in ongoing rulemaking whether the training program required to be developed by the licensee for local officials should be extended to include local news media personnel.

#### G.4 Emergency Broadcast Network

The President's Commission recommends that State emergency plans provide for creation of local broadcast networks for emergencies that will supply timely and accurate information.

NRC agrees that this proposal has merit and will incorporate recommendations to this effect in guidance to States. It will also consider in the ongoing rulemaking on emergency preparedness whether there is a need to include requirements for licensee planning and coordination to disseminate information to the public on these local broadcast networks (i.e., radio stations) and to provide input to such networks in the event of an accident.

#### G.5 Public Notice of Abnormal Radiation Measurements

The President's Commission recommends that the public be given notice of abnormal radiation measurements.

NRC agrees with this recommendation, which is consistent with current practice in which public announcements are made on any releases to the environment from licensed facilities that appreciably exceed NRC limits (which are small in comparison with normal background, but are in addition to normal background). Most licensees also issue such announcements. These announcements are and should be made promptly and provide context on the severity of the release.

## ENCLOSURE 2

### EXAMPLES OF NRC CONSIDERATIONS RELATED TO TMI THAT ARE OUTSIDE THE RECOMMENDATIONS OF THE PRESIDENT'S COMMISSION

#### 1. Generic Requirements for Design Features for Core Melt Consequence Mitigation

Accidents that result in substantial damage, including substantial melting, of the reactor core are the most significant in terms of public risk due to release of large quantities of fission products from the fuel. Current requirements and the recommendations of the President's Commission are, in general, directed toward preventing these types of accidents. Severe core damage did occur at TMI. However, significant exposure of the public was prevented by the ability of the plant equipment and operators to contain the radioactivity within the reactor building. There is substantial evidence that the residual risks of such accidents, and core-melt accidents in particular, can be significantly reduced if some of the potential modes of failure of the containment can be prevented or controlled. The NRC Lessons Learned Task Force has recommended that this issue, whether to require additional design features and training for core-melt type accidents, be determined through rulemaking.

#### 2. Expanded Reactor Safety Goals, Including Quantification of Reliability

The President's Commission endorsed the conservative use of safety-cost tradeoffs, but did not address a fundamental question that was underscored by the accident as to what level of safety is desired. Although the NRC staff deals in concepts of safety and risk every day and has, within a broad range, a working consensus of an acceptable level of safety, the public, the Congress, and the media generally react to their perception of risk whether or not it comports with the technical assessment of risk. Lacking a national consensus on the approach to making safety judgments, the Advisory Committee on Reactor Safeguards and the Lessons Learned Task Force have recommended that there is need within NRC for policy guidance on what is an acceptable safety goal of reactor regulation. Such guidance should reflect a synthesis of views and priorities and should provide a clear objective for the staff to aim for in its day-to-day decisionmaking. A safety goal of nuclear power plant regulation, in terms of clear subjective criteria, is needed and should be supplemented where possible by quantified reliability criteria. This goal would be used by the staff in the development of any new regulatory requirements and as a threshold for backfitting of these or current requirements to existing plants.

#### 3. NRC Emergency Response Capabilities

One subject not addressed by the recommendations of the President's Commission is the need for improvements in the emergency response capabilities of NRC. Although, as the President's Commission recognized, the responsibility for

safe operation, including the management of a plant during an accident, should be placed on the licensee, the events at TMI demonstrate that NRC necessarily has an important role in auditing and monitoring the licensee's actions. NRC is strengthening the crisis management and technical capabilities of its emergency management staff. In addition, the capabilities of the previously established emergency response teams in the Inspection and Enforcement regional offices are being tested by performing drills in which the teams actually travel to the various sites. The Lessons Learned Task Force has recommended that mobile teams of multi-disciplinary NRC reactor experts also be established. NRC is also specifying the content and transmission requirements for a nuclear data link from all operating plants to its Emergency Response Center.

#### 4. Compensating Features for Plants with High Population Density Sites

The President's Commission recommendation on locating nuclear power plants remote from population centers is limited to new plants. The NRC staff is considering the effectiveness and need for additional protective action, such as shutdown, reduced power or additional design features for currently operating plants that are located in densely populated areas to increase the present levels of protection under accident conditions.

#### 5. Licensing of Operations Personnel in Addition to Reactor Operators and Their Supervisors

The NRC is considering adoption of requirements for licensing of plant personnel, other than reactor operators and senior reactor operators. This is an issue not directly addressed by the President's Commission. NRC review of the training and qualifications of nonlicensed personnel has been very limited in the past, based on the assumption that it is the licensed operators who have the most important influence on plant safety. A number of examples from the TMI-2 accident indicate the degree to which plant safety can be greatly influenced by persons in many positions, including managers, engineers, auxiliary operators, maintenance personnel and technicians. All these previously non-licensed personnel may affect plant operation, and their roles should receive greater attention from a safety perspective. Answering the questions of how much independent examination of their qualifications and training is necessary and whether NRC licensing is appropriate is a significant undertaking.

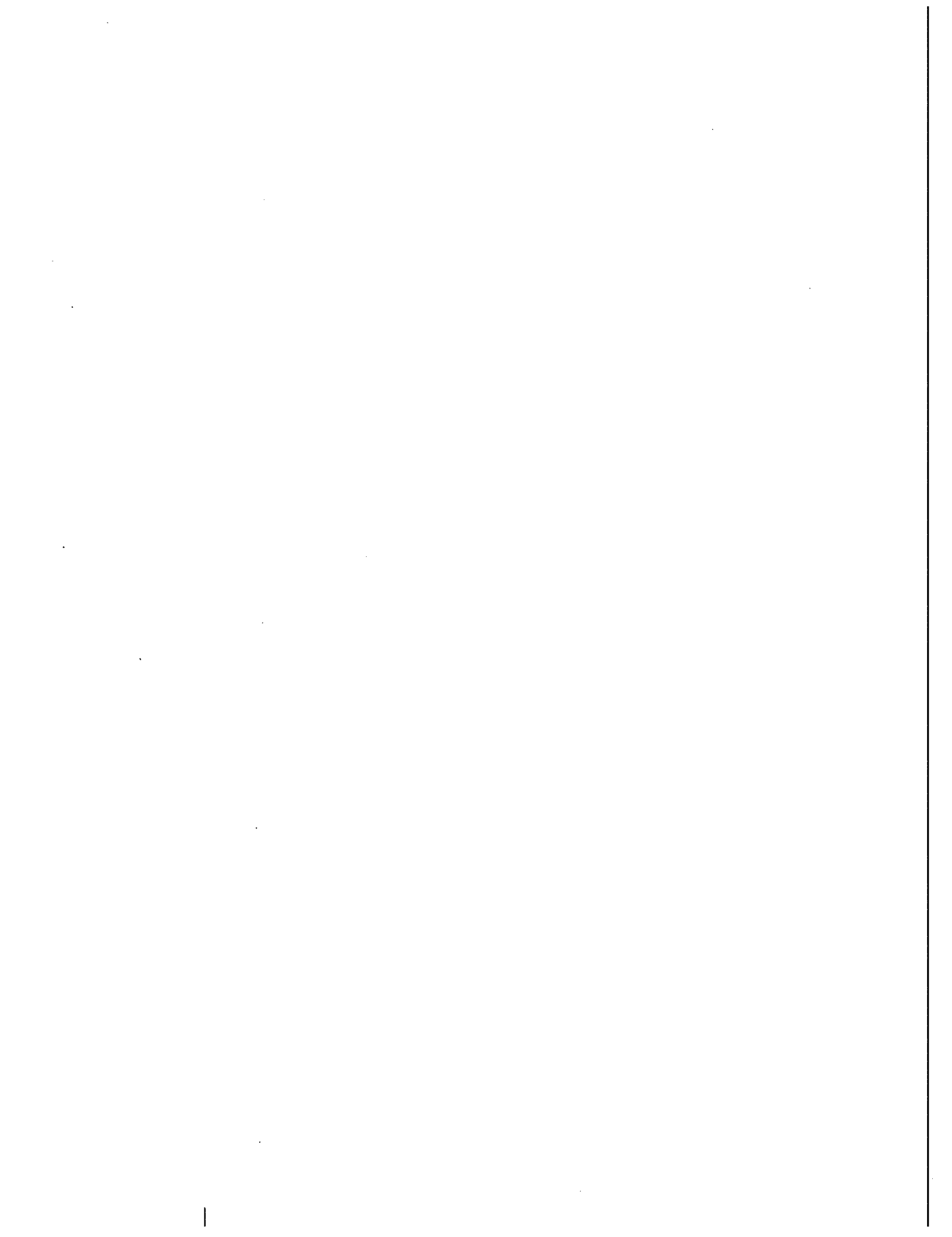
The newly formed Institute of Nuclear Power Operations intends to develop standardized training requirements for technicians and nonlicensed operators and to provide certification for the training of these personnel. This program, if properly implemented in a timely way, could substitute for detailed guidance from NRC and could, under the right conditions, be endorsed by NRC as meeting its independent licensing requirements for additional operating personnel.

## 6. Plant Security during an Emergency

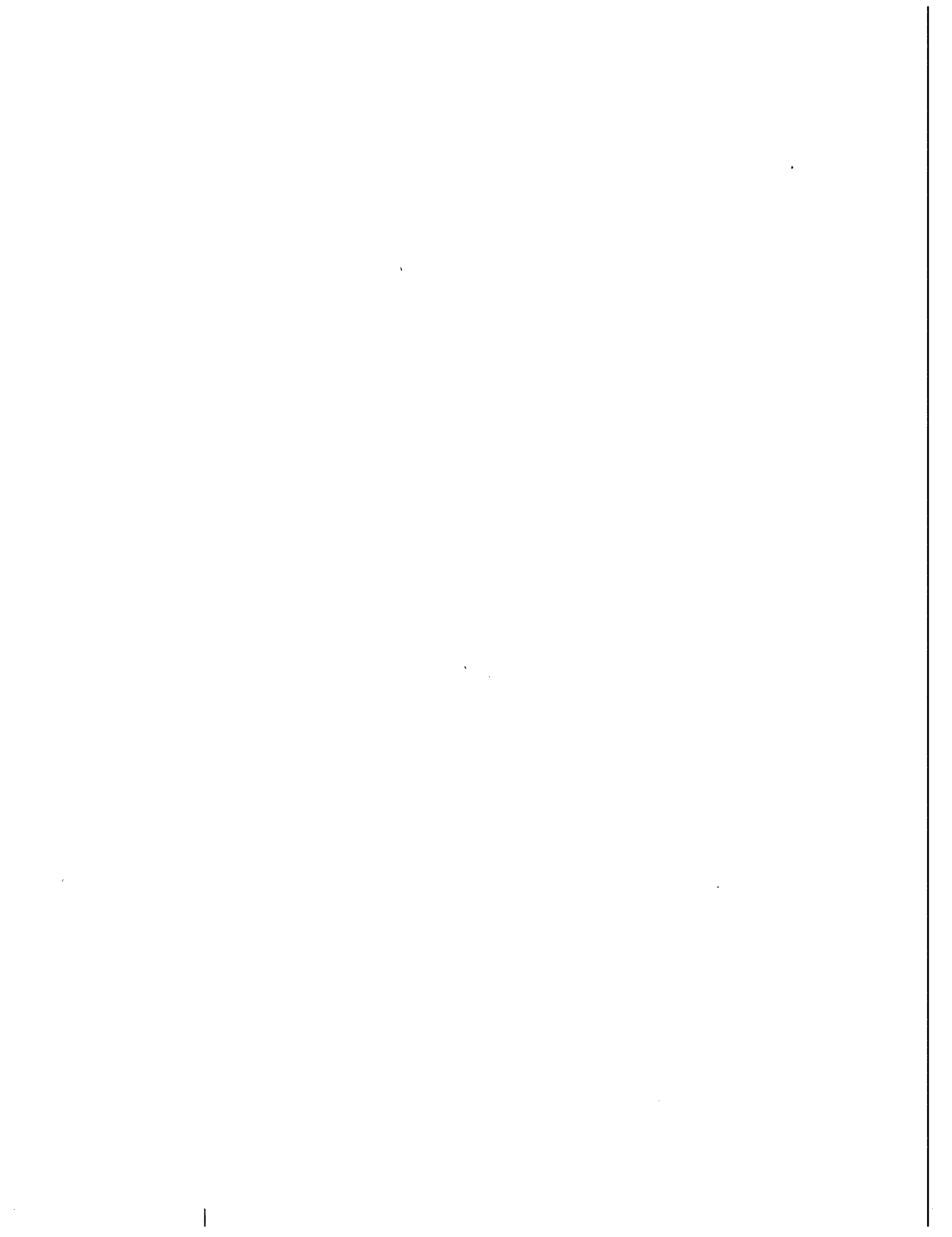
One of the lessons learned from TMI-2, but not addressed by the President's Commission, is that there needs to be clear instructions for the plant security personnel as to how to react during a nuclear emergency. Of particular importance are criteria to ensure that access control measures remain effective but do not hamper accident recovery operations. NRC is developing criteria to cover these situations.

## 7. Worker Protection

Both the NRC staff and the President's Commission Task Group on Health Physics and Dosimetry have noted significant deficiencies in the health physics worker protection program at TMI-2. We are developing new generic requirements in this area because of our concern that the problem is widespread throughout the industry.



**VIEWS FROM  
COMMISSIONERS BRADFORD AND GILINSKY**







OFFICE OF THE  
COMMISSIONER

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

November 9, 1979

Dr. Frank Press, Director  
Office of Science and Technology Policy  
Executive Office of the President  
Washington, D.C. 20600

Dear Dr. Press:

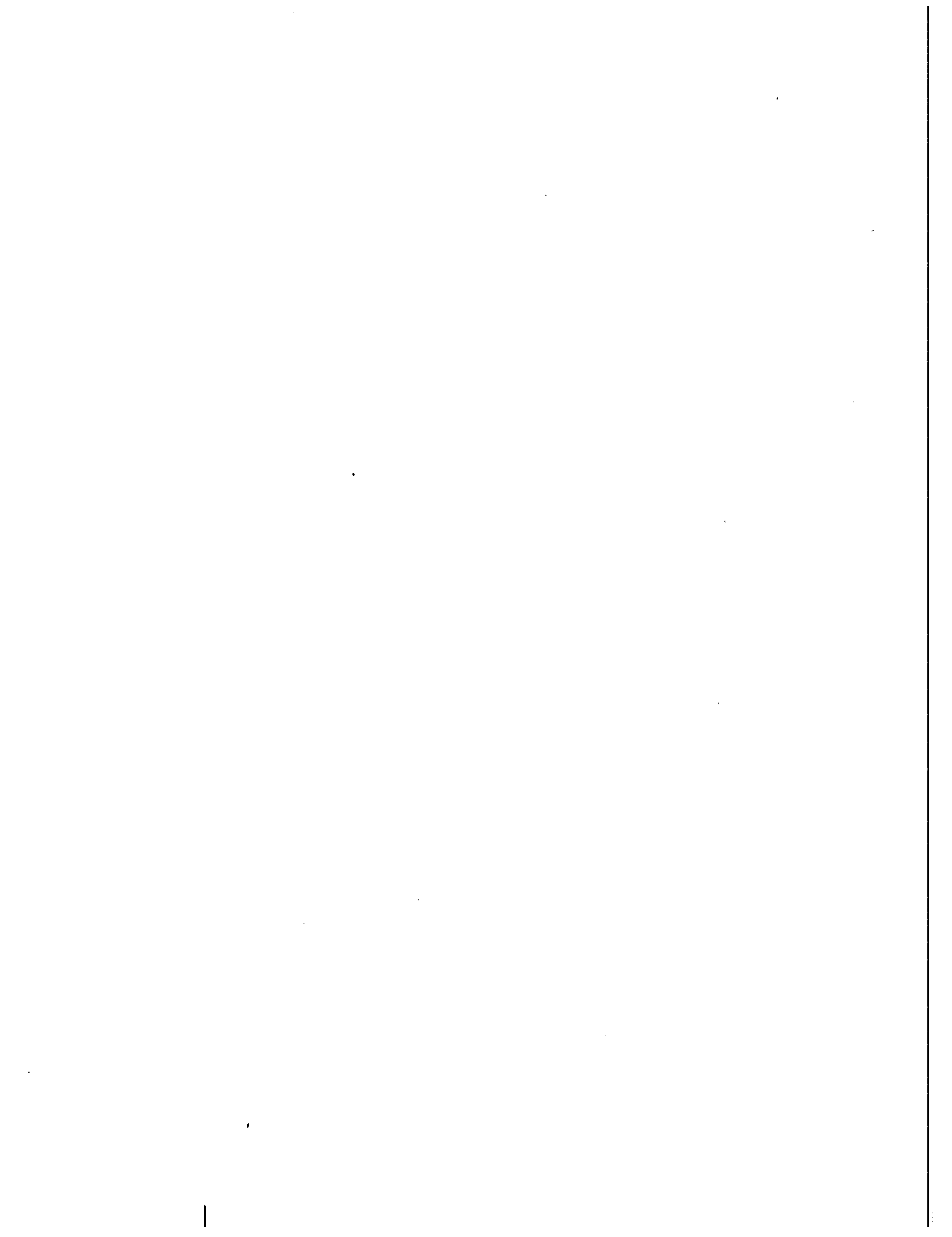
I concur in the Commission response to your letter of November 6. In addition, I have prepared the attached separate views. I hope that you find them helpful.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter Bradford", written in a cursive style.

Peter A. Bradford  
Commissioner

Attachment:  
As stated



VIEWS OF COMMISSIONER BRADFORD IN RESPONSE TO LETTER

FROM DR. FRANK PRESS OF NOVEMBER 6, 1979

The Report of the Kemeny Commission is helpful and insightful in a number of specific areas. These include many of the recommendations regarding the Nuclear Regulatory Commission (Section A), the training of operating personnel (Section C), technical assessment (Section D), and emergency planning and response (Section F). The Report is also important because twelve diverse and intelligent citizens (one of whom had licensed ten nuclear power plants including Diablo Canyon II, Fermi I, and Indian Point 3) found the system to be fundamentally deficient. Furthermore, the public focus on the question of whether or not the group recommended a moratorium is an unfortunate non-issue. As a practical matter, the Nuclear Regulatory Commission imposed a licensing moratorium immediately after the accident and will not be lifting it for some months to come. However, despite its strong points the Commission Report is a flawed document.

The flaws are of three sorts. First, its major recommendation regarding restructuring the nuclear regulatory process simply does not make good sense. Second, there are a number of areas to which it seems to me the TMI Commission should have spoken, but on which the Report is silent. Third, there is no clear relationship between the narrative, the findings, and the recommendations with the result that some important findings do not result in recommendations while some of the recommendations find little support elsewhere in the Report. This third difficulty is not of great concern in the present context and will not be discussed further.

A. THE SINGLE ADMINISTRATOR CONCEPT WILL NOT SOLVE THE PROBLEMS THAT THE REPORT CONFIRMS AT THE NUCLEAR REGULATORY COMMISSION

To clear some underbrush away, it should be stated at the outset

that a proposal for an independent agency headed by a "single administrator appointed by the President... to serve at the pleasure of the President to allow removal when the President deems it necessary" is a contradiction in terms. The agency simply cannot be independent if its head is removable at the pleasure of the President. The Report is silent on such other criteria for independence as whether the other major officers in the agency are to be Presidential appointees and whether the administrator's actions are reviewable by the President, but real independence is in any case impossible as long as the administrator is removable whenever a particular President or his successor wishes. The issue is not a frivolous one, for the more this point is corrected by the granting of true independence to the agency the more undesirable it will be to vest what will become quite sweeping powers in a single individual.

However, the real flaw in this recommendation is far more fundamental. It seems absolutely to misunderstand the nature of the current problems at the Nuclear Regulatory Commission. These can be divided into two areas. The first is attitudinal and shows in the agency's failure through the years to ask or to effectively pursue the questions that would have led it to discover the now-apparent shortcomings in such areas as control room design, operator licensing, emergency planning, reactor instrumentation, small break loss-of-coolant accident analysis, and inadequate inspection and enforcement. The second lies in the division of views among the current commissioners which may make it difficult for the agency to correct itself. While the second of these problems is curable by a conversion to a single administrator, it is also curable through changes within the current Commission structure. The latter course seems to me potentially faster and certainly wiser.

Regarding the historical point, not much need be said here. . It seems clear in the Kemeny Commission Report, and to be beyond serious dispute in any case, that the Atomic Energy Commission did not stress vigorous safety regulation to the extent that it should have. The operating premise seems to have been that an adequate level of safety was reached very early in the game. The fundamental imperatives then became getting nuclear power commercialized and then setting up a licensing process able to cope with an anticipated 25-30 new reactors every year until the end of the century along with development of plutonium recycle and the breeder reactor. These goals were pursued with all the single-mindedness and efficiency that a single administrator could possibly bring to nuclear matters, and that structure yielded the current shambles. It would be self-defeating to return to it as a cure for the very problems that it created simply because a particular Administration was confident that its first administrator would be to nuclear safety what David Lilienthal was to the Atomic Energy Commission.

The only real attractiveness of the single administrator proposal is that it provides a shortcut away from the perceived stalemate at the current Commission. The same may be said of other proposals going in the same direction such as efforts to increase the power of the Chairman or the Executive Director for Operations. These proposals all ignore the fact that collegial agencies are perfectly capable of moving rapidly and innovatively in new directions as long as they have a coherent and predictable majority that includes the Chairman and that supports the chief operational officers.

The current situation at the NRC is analogous to the results that one would expect from hitching five horses to different points around a

sled. The fact that the sled does not move steadily forward does not tell you very much about the relative strength of the horses. It does raise questions about the intentions of the teamster. In the summer of 1977, the agency was reduced for a time to two members. Then for a full year, it had four members who were sometimes evenly divided, and finally it became a group of five who seemed evenly divided for some important purposes. Contrasting current examples would include the Civil Aeronautics Board, the Federal Trade Commission, and the Tennessee Valley Authority. TVA, the Atomic Energy Commission, and, I suppose, the Energy Mobilization Board, all refute the contention that operational responsibilities cannot be entrusted to a collegial enterprise.

Furthermore, the tendency of the single administrator to make safety concerns secondary to administration energy policy cannot be effectively corrected by the proposed oversight body. For one thing, a President and a single administrator who were inclined to push hard for nuclear power would not be likely to appoint effective skeptics to such a committee. For another, the members would be part-time and their information flow would inevitably be controlled in substantial part by the single administrator. This body would be useful under a regime that was determined to make good use of it, but under the type of regime one is really concerned about avoiding, the oversight body would be easily reduced to ineffectuality.

**B. THE REPORT IS SILENT ON SOME IMPORTANT TOPICS**

The following list is not exhaustive, but it includes the major items that have occurred to me thus far on which I think the Kemeny Commission could usefully have taken a position had time permitted.

1. Much is said, and validly, about the inadequacy of the process

for appraising and conveying the need for evacuation. Nevertheless, the TMI Commission said nothing about the validity of the actual recommendation that was made. This seems to me to be an oversight of some magnitude, for such decisions are often likely to involve the allocation of unquantifiable uncertainties. It would be very useful to know whether these twelve citizens, having spent six months in detailed study of the accident and its implications, feel that a greater or lesser set of evacuation advisories were in order at different times during the accident. Whatever governmental criteria are ultimately developed on this subject, they would have been better for being informed by a clearcut statement of whether these twelve people, had they all lived within five miles of the plant, would now feel that they should either clearly have been evacuated or clearly have stayed where they were.

2. The Report does not discuss the pros and cons of intervenor funding, which seems to me to be an essential tool to enable the proposed Public Counsel to guarantee effective outside skeptical participation in the licensing process.

3. The Report is blurred as to what the fundamental standard for the safety of nuclear power should be. While this group could not have articulated a definitive standard, the considered views of twelve laymen on this subject would have been extremely valuable. Instead, one finds statements to the effect that "accidents as serious as TMI should not be allowed to occur in the future." If that statement is in fact the Kemeny Commission's basic standard, then shutdown of all operating reactors and a reassessment, redesign, and modification effort spanning several years are unavoidable. An accident "as serious as TMI" has a low probability, and it may not be low enough, but it is not the "one in a

million" occurrence or the absolute impossibility that the Report seems at times to seek.

In any case, some statement as to how this group regarded the acceptability of risks from nuclear power plants in the context of other technologically imposed risks would have been a helpful guidance. I think that the Nuclear Regulatory Commission is going to have to move to fill the void with a rulemaking, complete with intervenor funding, toward the goal of arriving at comprehensive guidance to the staff and to the industry and to the general public as to what our real standard in this area is.

4. No acknowledgement is made of the strides already achieved since Three Mile Island by the Nuclear Regulatory Commission, incomplete though they admittedly are. This oversight would be easier to understand if it were explicitly acknowledged and explained. It would also be easier to understand if the TMI Commission had not gone out of its way to pat the nuclear industry on the back for having recently created the Institute of Nuclear Power Operations.

5. The Report repeatedly states that examples of AEC attitudes and practices that tend toward the promotional still abound within the Nuclear Regulatory Commission. However, such statements are not accompanied by specific examples. As a result, the statements tend to tar everyone with the same brush, and they are not helpful in setting a clear course for corrective action.

6. The Report criticizes the NRC's "single failure criterion," but does not make a specific recommendation on this subject. If, in fact, the Kemeny Commission feels that the single failure criterion should be abandoned, it must be acknowledged that the implications for



the nuclear licensing process are considerable and would almost certainly result in extensive redesigning and backfitting to plants already under construction or in operation. If this is a Kemeny Commission recommendation, it should have been made explicit.

7.\* The Report, at recommendation B6, lays a gentle and indecipherable hand on the state ratesetting process. If it was going to get into the relationship between financing and safety at all, there are at least two areas of much greater significance. These are the timing of state decisions that create an incentive to rush a plant into service (this allegation was specifically made in regard to TMI) and the Internal Revenue Service's practice of assuming for tax purposes that the plant was in service for the full calendar year if it is in commercial operation by midnight on December 31. Both of these questions are being examined by the NRC's Special TMI Inquiry, and it might be well to ask the Internal Revenue Service and the National Association of Regulatory Utility Commissioners to have a look at them as well.

8.\* The section on worker and public health and safety (Section E of the recommendations) contains nothing on the vital subject of making sure that workers are adequately informed and trained with regard to radiation and its hazards. It also says nothing about the need to assure that workers who raise safety or radiation-related concerns are adequately protected against reprisals by their management.

9. The Report does not discuss the fact that the Atomic Energy Act currently preempts the states from setting most radiological health and safety standards involving nuclear power plants. This preemption is

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\* Items 7 and 8 are discussed in backup studies that are not endorsed by the TMI Commission.

a significant departure from the basic federal approach to stationary sources of pollution, under which federal standards are treated as minimum requirements which the states may go beyond if they feel that the public health and safety requires it. While dual systems of inspection and enforcement and some aspects of licensing would be unworkable, the same cannot be said for siting and emergency planning criteria that could be a condition for power plant operation. If the states had a role in this area, they would no longer find themselves excluded from nuclear power plant radiation regulatory matters until the moment at which something really goes wrong and they are expected to step in and cope effectively with the off-site consequences. I think that the result of modifying the preemptive provisions of the Atomic Energy Act in this area would be better state preparation and better criteria for both siting and emergency response planning.

10. The Report says nothing about the effect of the attitudes of the Congressional Oversight Committees on the quality of the nuclear regulatory process. This is a point of fundamental importance. Much that we now criticize in the approaches of the Atomic Energy Commission to safety regulation was shaped by the demands that were laid on the AEC by the Joint Committee on Atomic Energy. Anyone trying to understand where nuclear regulation went astray must realize that the AEC was responding not solely to its own or to Executive Branch notions of desirable Atomic Energy policy, but also to the continuing pressure for results from the one congressional committee to which it was answerable. The relationship as I understand it was a mutually reinforcing one, but the continuing role of the Congress setting the tone for nuclear regulation should not be overlooked.



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

OFFICE OF THE  
COMMISSIONER

November 9, 1979

Dr. Frank Press  
Director  
Office of Science and Technology Policy  
Executive Office of the President  
Washington, D. C. 20600

Dear Frank:

I am responding to your request for the Commission's reaction on the Kemeny report. I thought you might also be interested in a brief personal view in addition to the Commission's detailed comments:

The significance of the report lies in the fact that a dozen thoughtful, intelligent and fairly representative Americans, after spending six months examining the circumstances of the Three Mile Island accident, came away appalled at the system for assuring public safety. If we are to live with nuclear power, they say, then fundamental changes in approach are essential. I agree.

The public and government attention that comes with the report's publication -- and here the President's attention is especially important -- strengthens the hand of those concerned with improving nuclear safety and further shifts the burden of proof to those who would do less rather than more. This is very much to the good and long overdue.

I agree with almost all of the findings and recommendations. At the same time I feel compelled to add that when we get below the general level, down to the nitty-gritty of reactor regulation, the report is less helpful.

The report's list of what needs fixing is familiar: operator training, emergency planning, improved use of operating information, and so on. Almost all are the subjects of major NRC actions which were initiated before the report's publication. The more difficult questions in each case are, What precisely needs to be done? Are NRC actions sufficient? The Kemeny report finds that presently, "NRC is

unable to fulfill its responsibility for providing an acceptable level of safety..." but the report is silent on what an acceptable level is. This points up the need for the NRC to get more specific about overall standards for nuclear safety -- on what is safe enough.

The report cites utility management deficiencies but makes no attempt to judge whether these deficiencies are characteristic of the industry. Without such a determination it is impossible to judge the overall system for public protection. As Governor Babbitt points out in his supplemental views, the report does not deal with the institutional problems of the industry, a subject which requires a great deal more attention, but which the Kemeny group did not consider within its mandate.

As he also points out, the report fails to deal with the adequacy of Met Ed's communication to government authorities of plant conditions -- high core temperatures and containment hydrogen explosion -- on the first day. I regard this as a vital question. Given the dangers inherent in nuclear plants we have to be confident that the utilities will report promptly any conditions that require public protection.

On the NRC Commissioners' emergency response deficiencies: the report never comes to grips with the question of whether an evacuation should or should not have been ordered. This is critical to forming a judgment on the Commission's response and to planning further response.

Among the deficiencies in the licensing process that are listed is the isolation of Commissioners from the process. Yet if the Kemeny proposal were followed the single administrator would be even more removed from the licensing proceedings: in their proposal the appeal board decisions would not be reviewable by the administrator. The experience of the NRC is that leaving all appeals to the Appeal Board leads to loss of policy control over the licensing process. The Commissioners need to be more involved in the adjudicatory reviews rather than less.

After seemingly streamlining the NRC for emergencies by shifting to a single administrator, the Kemeny report recommends in effect that the NRC stay out of dealing with emergencies altogether. Planning would be the responsibility of FEMA. Accidents should be handled by the utility. Public information would be handled by the utility (with NRC technical support). I do not think it is wise or realistic to downplay the NRC role to this extent.

In emphasizing the human failures, and thereby vindicating the equipment, the report does not stress enough that the equipment could have been designed to avoid this kind of trouble.

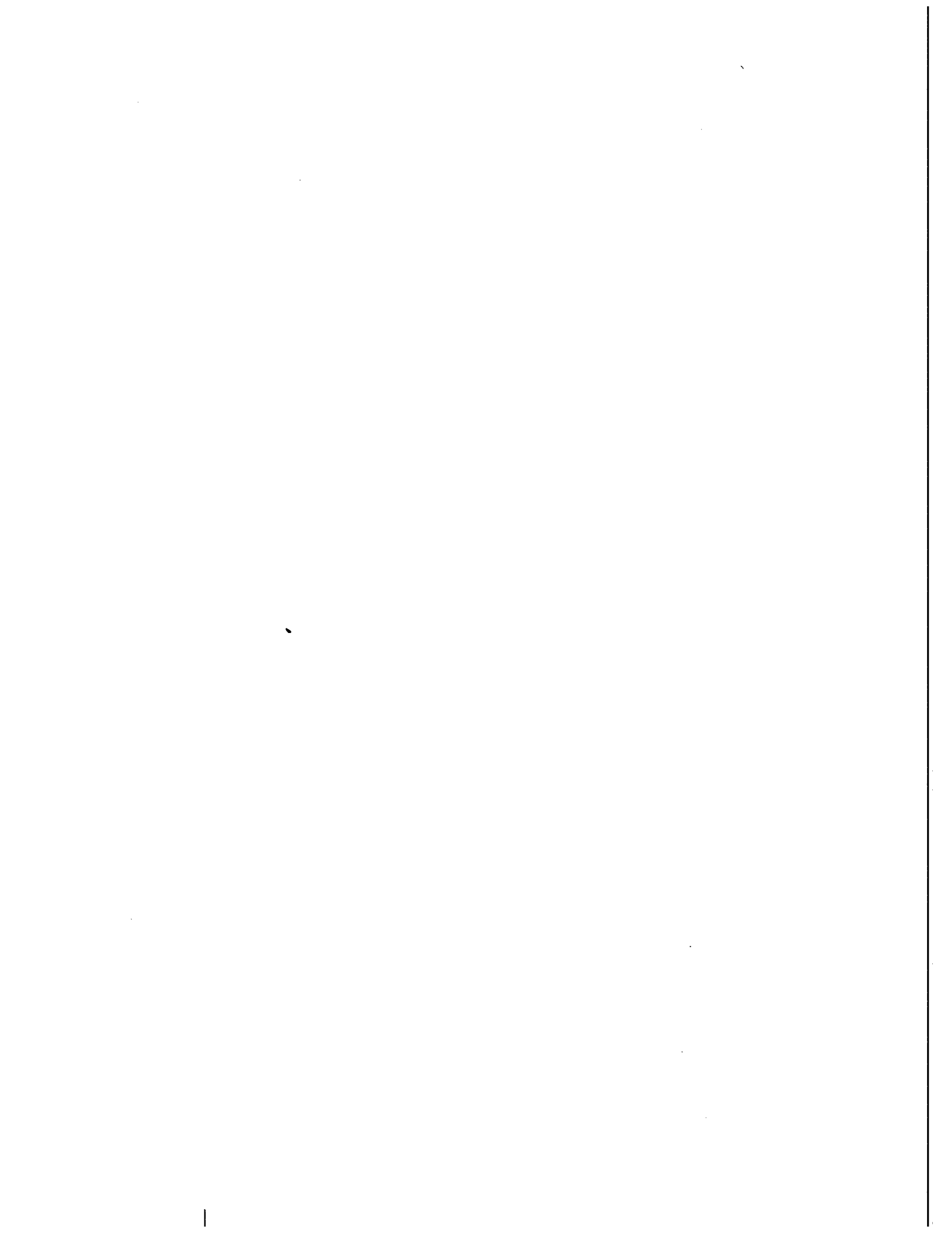
Finally, the single building which Kemeny recommends for the "restructured NRC" would do wonders for the existing NRC.

Sincerely,

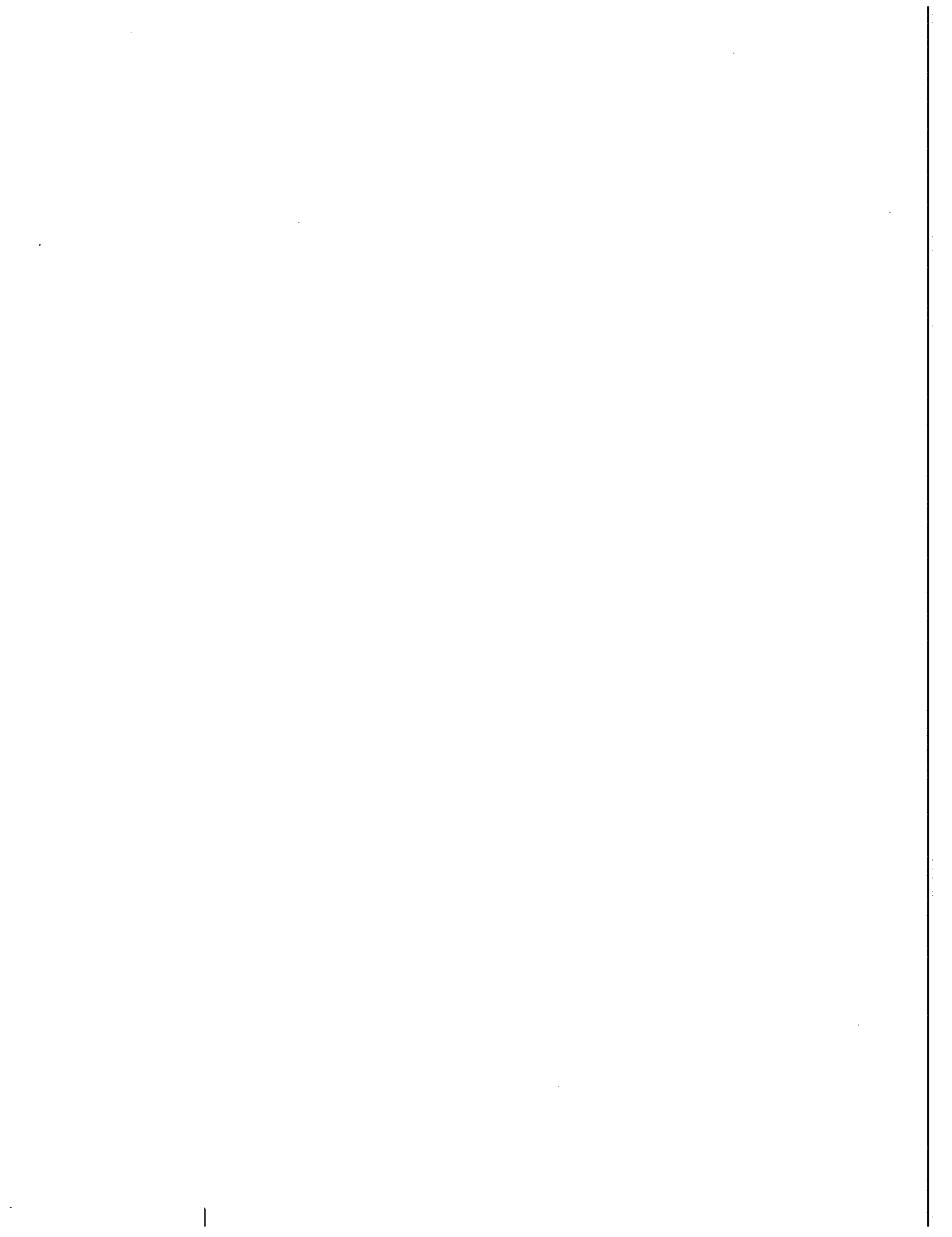
A handwritten signature in cursive script, appearing to read "V. Gilinsky".

Victor Gilinsky  
Commissioner

cc: John Deutch

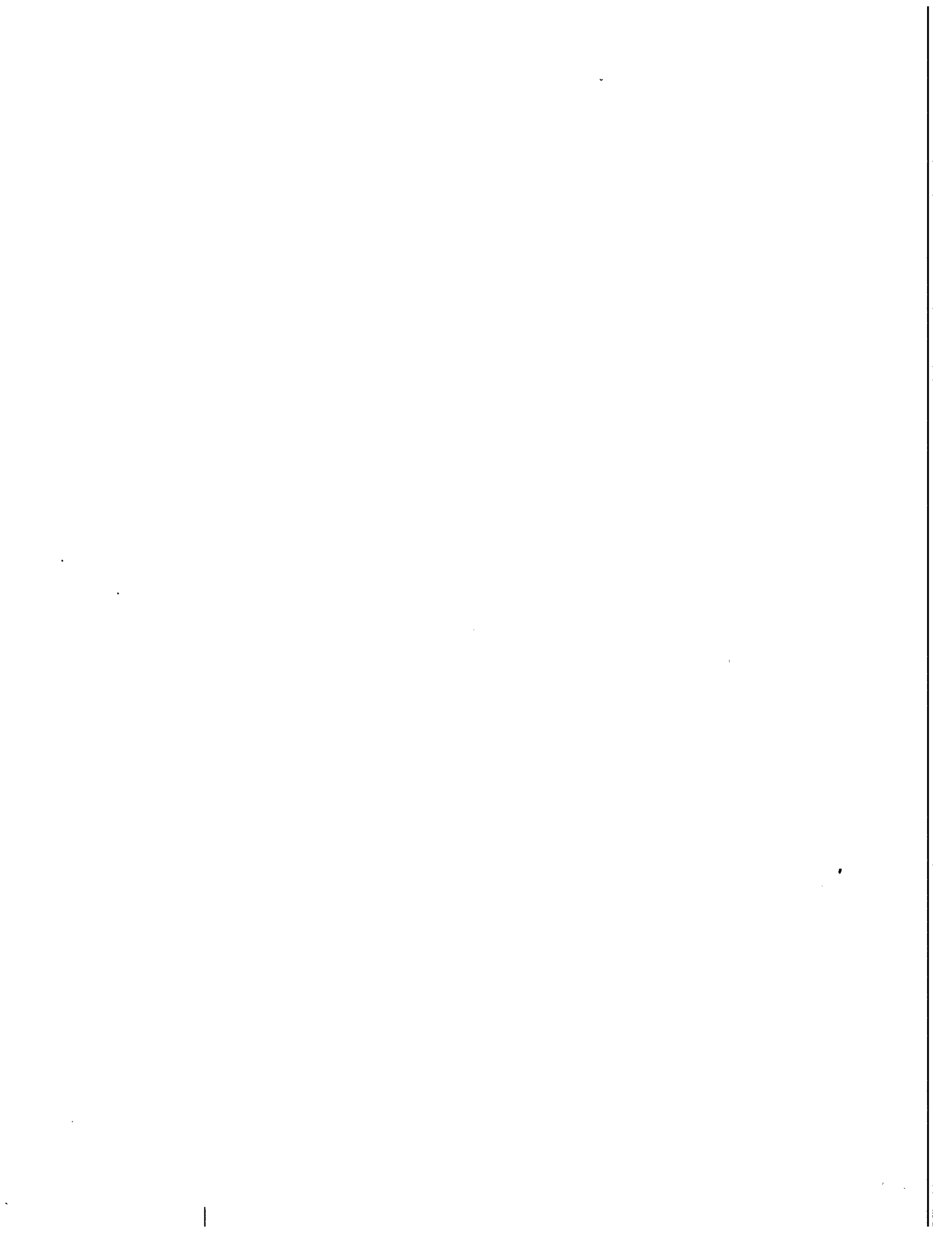


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