

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

April 24, 1980

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The Honorable Warren G. Magnuson, Chairman  
Committee on Appropriations  
United States Senate  
Washington, D.C. 20510

Dear Mr. Chairman:

This letter provides a summary of action taken by the Nuclear Regulatory Commission (NRC) in response to recommendations concerning NRC's responsibilities included in reports issued by the Comptroller General on the Nuclear Regulatory Commission. This summary is required in Section 236 of the Public Law 91-510 entitled, "Legislative Reorganization Act of 1970."

Sincerely,

John F. Ahearne  
Chairman

Enclosure:  
Summary of Action

cc: Senator Milton Young

SUMMARY OF GAO REPORTS

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A. NRC ACTIONS TAKEN IN CALENDAR YEAR 1979  
IN RESPONSE TO COMPTROLLER GENERAL RECOMMENDATIONS

Report - December 18, 1978

(A) Nuclear Diversion in the U.S.? 13 Years of Contradiction and Confusion  
(Secret/NSI)

Recommendations

The GAO report, "Nuclear Diversion in the U.S.? 13 Years of Contradiction and Confusion," recommended that "the heads of DOE, NRC, the Department of Justice, and the CIA... establish a coordinated interagency action plan which focuses on a nuclear safeguards system that adequately detects, investigates, and reports... on thefts or diversions of nuclear materials." The report further recommended that "the Attorney General, working with the FBI, take the lead in establishing the interagency plan..."

NRC Response

We believe this to be a reasonable recommendation and are ready to cooperate fully in establishing an interagency action plan.

Report - January 23, 1979

(B) Automated Systems Security - Federal Agencies Should Strengthen Safeguards Over Personal and Other Sensitive Data

NRC General Discussion on the NRC Computer Security Program

The Office of Administration of the Nuclear Regulatory Commission (NRC) was assigned, in November 1976, the responsibility for agency-wide planning, coordination, control and support services for automatic data processing (ADP) in order to strengthen the NRC organization for compliance with OMB Circular A-71.

Until recently, the NRC, as a relatively new agency, had no in-house computer capability and relied almost exclusively on the use of computers, via remote terminals, at other government agencies to perform its ADP operations in accordance with procedures for the storage and handling of source documents and data were developed for the protection of personal, proprietary and other sensitive data. For example, NRC Manual Chapter 0204, "Privacy Act," was issued to implement the provisions of the Privacy Act of 1974 (5. U.S.C. 552a) to control the dissemination of personal information about individuals.

At the same time, a secure ADP system using remote job entry techniques was developed and installed at one of the NRC Headquarters facilities to permit the transmission and receipt by cryptographic means of National Security Information (NSI) to and from a secure ADP facility at the Department of Energy, Oak Ridge, Tennessee. The secure facility has been used both for the protection of NSI as well as other sensitive data. Policies and procedures

related to the protection of NSI in an ADP system have been issued and are contained in NRC Manual Chapter 2101, "NRC Security Program," primarily Part XII, "Security of Automatic Data Processing Systems."

A variety of factors led to the initiation in January 1979 of an Information Technology Management Plan Task Force. The factors prompting the initiation of the Task Force include: the receipt of OMB Circular A-71, Transmittal Memorandum No. 1, and the proposed revision to Circular A-71; the recent acquisition of four Data General C-330 minicomputers; the intention that the acquired minicomputers will process personal, proprietary or other sensitive data; and the desire of NRC management to assure that a comprehensive approach is taken within NRC on all aspects of information technology management including resources and applications.

Although the NRC has a computer security program for classified information, we recognize the need for a more comprehensive computer security program for personal, proprietary and other sensitive data and have taken actions to develop and implement such a program.

A response to each of the GAO recommendations follows:

GAO Recommendation #1

Establish an automated systems security administration organization with independence from computer operations. This organization should report directly to or through a principal official who reports directly to the agency head, and it should have authority to discharge the enumerated responsibilities of agency heads as outlined in OMB Circular A-71, TM-1.

NRC Response

The Director of the Division of Security, who is independent from computer operations, is responsible for the overall NRC security program, including that relating to automated systems. The Director of Security reports to the Director of Administration who, in turn, reports directly to the Executive Director for Operations.

GAO Recommendation #2

Develop comprehensive computer data security programs in compliance with OMB Circular A-71 from the total systems perspective--ensure that they provide for security of data in all media and in all stages of the data life-cycle--and consider the need for controls from the perspective of all possible security threats at all locations involved with the agency's data.

NRC Response

The Division of Security, in coordination with affected NRC Offices and Divisions, has developed an NRC Bulletin entitled "Automated Information Systems Security Program for Sensitive Data" which is currently in the process

of being published. This Bulletin is the initial agency implementation of OMB Circular A-71, Transmittal Memorandum Number 1. Additionally, NRC Manual Chapter 0204, entitled "Privacy Act," and dated December 30, 1977, already contains provisions under Part V, B. "Computer Security Safeguards" for the establishment of ADP safeguards sufficient to prevent careless, accidental or unintentional disclosure, modification or destruction of identifiable personal data.

#### GAO Recommendation #3

Assign to a specific group in the agency the task of ensuring that comprehensive computer data security plans and programs as developed will be documented, written, and disseminated to all activities and locations involved with the subject data, and that responsibilities for all provisions be clearly delineated. This definition of responsibility should encompass provision for implementing plans and programs further required of subordinate activities.

#### NRC Response

The Director, Division of Security, was assigned the task of ensuring that comprehensive computer data security plans and programs, as they are developed, will be documented, written and disseminated to all activities and locations involved. This will be accomplished, in part by the development of an NRC Bulletin entitled "Automated Systems Security Program for Sensitive Data." As the program develops and more experience is gained, the Bulletin will be superseded by an appendix to NRC Manual Chapter 2101, "NRC Security Program." A comprehensive automated information systems security plan is currently being developed to implement the requirement of OMB Circular A-71, TM-1.

#### GAO Recommendation #4

Require that security programs include a provision for monitoring and reporting to top management on the status and adequacy of the program, and evaluate its implementation and the effectiveness of safeguards, procedures, and other instruments of the program.

#### NRC Response

With respect to NRC classified information security, provisions already exist to monitor and report to top management on the status and adequacy of these programs. The soon to-be-published NRC Bulletin, "Automated Information Systems Security Program for Sensitive Data," establishes a parallel program for certain unclassified sensitive data.

#### GAO Recommendation #5

Anticipate training and indoctrination needs for raising expertise to the level required to implement requirements of their programs and of OMB.

### NRC Response

The NRC has a comprehensive security training program that currently involves primarily classified information. Division of Security personnel have already attended the Department of Defense Computer Institute (DODCI) and have participated in conferences, such as the Fifth Annual Computer Security Conference and Exhibition in 1978, the American Society for Industrial Security Computer Security Conference in 1979, and the Federal Computer Conference of 1979, to enhance their knowledge of computer security. However, additional training (e.g., in risk assessment and computer security) is planned for NRC personnel, with the cooperation of the Management Development and Training Staff.

The security training and indoctrination needs of NRC are being broadened to raise the knowledge of all personnel to the level required to implement the requirements of Circular A-71, TM-1. Some specific steps being taken are to address computer security in agency security educational media and to address computer security in a security education refresher briefing being developed for all NRC employees. The Division of Security will also be responsible for implementing the security training and indoctrination program to satisfy those requirements identified in the NRC Information Technology Management Plan.

### GAO Recommendation #6

We recommend that heads of departments and agencies ensure that (1) periodic risk analysis be conducted for the selection of cost effective safeguards, from the total systems perspective, and (2) this effort in their organizations be directed and monitored by an independent computer data security administration reporting directly to the agency head.

Additionally, agencies' security plans should anticipate their increasing training needs, particularly for risk analysis, and make these needs known to the organizational level responsible for training.

### NRC Response

The NRC has recognized the need for risk assessment to be done on a more consistent and formal basis, particularly with the acquisition of an inhouse computer capability. As a consequence, an individual is being recruited to help perform that function. The Division of Security will monitor NRC's risk analysis activities. In addition, as noted earlier, members of the NRC organization have attended or will attend courses on risk assessment and on the security of ADP systems at such organizations as the DODCI.

The increased training needs, particularly for risk analysis for computerized security systems and programs, have been made known to the Management Development and Training Staff. The NRC is in the process of identifying the resources that may be required to implement the additional security training programs.

GAO Recommendation #7

We recommend that department and agency heads assign priority to developing expertise in independent internal audit organizations which would allow internal audit to assume broader responsibilities for assisting management in control of computer and data resources. Also, we recommend that heads of departments and agencies make sure that internal audit plays a continuing role in assessing computer security programs and in participating in the design of information system controls over data confidentiality and integrity.

NRC Response

In order to develop expertise in the internal audit function which would allow NRC's internal audit organization, the Office of Inspector and Auditor (OIA), to assist management in the control of computer and data resources, some members of OIA have attended several courses involving computer security. In addition, OIA has joined the Audit Managers Subcommittee, Federal Audit Executive Council, which will be conducting monthly seminars on the various phases of auditing ADP in which OIA will participate. OIA has also identified other ADP training in which they will participate in the near future and will continue, on a priority basis, to develop their internal auditor's ADP expertise.

OIA has included computer security reviews as part of their ongoing audit in their work plan of NRC's ADP resources and requirements for the current and future years. These reviews will include computer operations as well as developed information systems. For new or contemplated information systems, OIA will participate on a continuing basis in security reviews during various stages of the development process. The purpose will be to ensure that the developers are considering data confidentiality and integrity during the design of the information systems. OIA will also, on a continuing basis, review and evaluate the adequacy of any feasibility studies which may be used for the new information systems or the procurement of new equipment.

Report - January 26, 1979

(c) Reporting Unscheduled Events at Commercial Nuclear Facilities: Opportunities to Improve Nuclear Regulatory Commission Oversight

NRC General Response

The NRC agreed that substantial improvements were warranted in programs diverted to the systematic assessment and feedback of operating experience. In Mid-April 1979, an agency-wide task force was formed to review and make recommendations on operational data analysis and evaluation. The task force reported to the Commission in early June 1979 recommending the creation of a full-time agency-wide group to perform these functions in coordination with dedicated individual groups within program offices. In late July 1979, an independent Office for Analysis and Evaluation of Operational Data reporting to the EDO was established to perform operational data analyses and to coordinate the efforts of other program offices in the review of operational data. An interim director was appointed in late-September and additional



interim technical staffing was detailed between mid-October and early November. A permanent director has now been selected and hiring of a permanent staff is now underway. The development of objectives and procedures has received priority attention. In addition, the NRC has required improvement in the review and feedback of operating experience by NRC licensees. Industry groups, such as the Nuclear Safety Analysis Center and the Institute for Nuclear Power Operations, have been formed and will also be involved in the systematic assessment and feedback of operational data. Our specific response to each of GAO's recommendations follows:

GAO Recommendation #1

"To provide NRC with reasonable assurance that it promptly identifies all safety-related problems from licensee event and/or incident reports, the Chairman, NRC, should

- define the scope and frequency of required analyses, and documentation and disposition procedures, for staff use in assessing licensee event reports; and
- establish a system for controlling and evaluating incident reports with clearly defined objectives, responsibilities, requirements for analyses, and administrative procedures."

NRC Response

The two items in the GAO recommendation address power plant licensee event reports (LERs) and material licensee incident reports, respectively. Our response also treats each item separately.

a. Power Plant Licensee Event Reports

As GAO acknowledges, NRC response to events of immediate safety significance at nuclear power plants precedes any written notification and is governed by established procedures. Quoting from the GAO report:

"Immediate or 24-hour reports are required (by Technical Specifications) for important events.... Utilities must report those events by telephone or other means of rapid communication to the nearest of NRC's five regional inspection and enforcement offices. Based on these notifications, NRC regional offices take action on a case-by-case basis in accordance with established response procedures."

Thus, NRC is aware of these safety-related events prior to and independent of the written follow-up report which must be submitted within 14 days. The procedures cited include provisions for coordinating with NRC headquarters offices. The NRC amended its regulations, effective February 29, 1980, to require timely and accurate information from licensees following significant events at operating nuclear power plants. Twelve types of significant events have been determined to be reported immediately (within one hour).

Written licensee event reports (LERs) consist of the 14-day follow-up reports mentioned above and reports which are required by Technical Specifications within 30 days for certain events. These written reports are reviewed when first received by NRC Regional Offices, again in accordance with written procedures. As the GAO report states:

"At NRC regional offices, inspectors are required to assess each licensee event report for (1) the appropriateness of licensee corrective action and the need for follow-up inspection effort; (2) the event's generic importance to other components, systems, or activities within the power plant or at other power plants in the region; and (3) possible reporting to the Congress as an abnormal occurrence."

An organizational element entitled the Operational Event Analysis Branch has been established in the Division of Operations Inspection, IEHQ dedicated to support the Regional Offices' review of operating events thru direct communications jointly with the Region and the licensee for immediately reportable events. The actions performed by this added organizational element includes preparing documented evaluations for continued operation or resumption of operation for significant operating events and by a systematic evaluation of all licensee written reports and IE inspection reports. The purpose of these evaluations and reviews is to provide a nationwide perspective to facilitate problem identification and generic action. The added level of review is from the perspective of each nuclear steam system supplier across all regional offices. The direct involvement upon immediate notification provides added assurance that appropriate NRC resources are applied to each event based upon its significance.

GAO further states that:

"Staffs of the three NRC headquarters offices assess each report for its safety importance at the power plant, its applicability to all other power plants and its potential for reporting as an abnormal occurrence."

GAO's findings concerning this review effort essentially are that:

- 1) It is "fragmented"; objectives and methods are not established at the Commission level: "...it (NRC) has left to each of the three headquarters offices and five regional offices the discretion of deciding on the scope and frequency of analyses..."
- 2) It is not auditable: "...neither NRC as a whole nor its respective staff offices has established decision documentation and disposition procedures."
- 3) It does not provide for the systematic review of the LER files to identify those problems which derive their safety significance from frequency of occurrence: "By querying NRC's computerized file of event reports, NRC staff were...able to determine that these (safety-related) problems were widespread and significant enough to warrant additional investigation. We believe a more systematic

assessment process...would give NRC better assurance that it is promptly identifying all safety-related problems."

GAO's recommendation, then, primarily aims at establishment of Commission-wide procedures to assure completeness and coordination of licensee event report reviews. NRC concurs in the need to provide this central coordination to enhance the evaluative efforts residing in the various offices of the Commission, and this is an important function of the newly established office for Analysis and Evaluation of Operational Data (AEOD).

While NRC also agrees with GAO on the desirability of complete review audit trails, there is a tradeoff between the use of technical staff for actual review and problem follow-up and use of the same staff for disposition documentation. NRC will, therefore, define the minimum requirements for disposition documentation.

The analysis of collections of events occurring over time and/or at different locations is more complex than the review of individual events. Although programs<sup>1</sup> to identify safety-significant trends from event reports have been underway, NRC concurs in the need to more clearly define the analysis required to identify issues which derive their safety significance from repetition. AEOD has, as a specific responsibility, the performance of systematic analysis to identify trends or patterns in the occurrence of operating events which may have safety significance.

b. Materials Licensee Incident Reports

Current NRC procedures for responding to materials incident reports are similar to those for operating reactors. However, the program for processing material incident reports has been less structured than that for power plant licensee event reports. Distribution of and accounting for those reports needs significant improvement.

NRC agrees with GAO that a better system for controlling and evaluating incident reports should be established. Such a system should have more clearly defined objectives, responsibilities, requirements for analyses, and administrative procedures.

While the GAO report implied that material incident reports might not be leading to regulatory changes. NRC notes that some safety problems, have

<sup>1</sup>For example, Licensee Event Reports (LER's) have been used in a plant-by-plant chronological analysis which seeks to identify patterns in plant management performance. As another example, the Office of Nuclear Regulatory Research has an on-going contract study, being performed at INEL, to estimate component failure rates from LER's. The ACRS has also established a Subcommittee on LER's to review the information from 1976 through 1978 and reported to the Commission on its findings in September 1979. Periodic reviews of LER data and possible trends are published within NRC.

been identified from a number of materials licensee incident reports and appropriate licensing requirement changes are underway.<sup>2</sup>

c. NRC Actions

For both power plant licensee event reports and materials licensee incident reports, the NRC staff will develop improvements to existing practices.

The NRC has established procedures to assure that the information from significant materials licensee incidents are disseminated to all its Headquarters and Regional Offices by Preliminary Notifications (PNs) and daily reports systems. The NRC recognizes that more information is available in the LER's than is currently used and intends to develop procedures to better utilize this information.

GAO Recommendation #2

"We recommend that the Chairman, NRC, extend its event and incident reporting requirements to require

-- uniform surveillance and reporting requirements on safety systems and components common to all nuclear power plants..."

NRC Response

Since 1972 staff efforts have been directed at establishing uniform reporting requirements for all nuclear power plants. Common requirements have been developed as documented in Regulatory Guide 1.16.<sup>3</sup> With few exceptions, all power reactor licensees had technical specifications that required similar events to be reported by early 1976.

The reporting requirements have been designed primarily to gather information about events which may have safety significance. Should there be a loss of function of a safety system all licensees are required to submit a report. However, the degree to which safety systems or components are identified in

<sup>2</sup>An incident at Isomedix, which resulted in overexposure of an irradiator operator, led to a rule change which required interlock systems for irradiators. As another example, changes in licensing requirements in nuclear industrial radiography have recently been proposed. These proposals resulted from overexposure incidents which occurred because of both failure by licensees to perform proper surveys and certain equipment problems. A third example is the rule change to require calibration of teletherapy units used for radiation therapy. This change is a result of improper dosage to patients undergoing radiation therapy.

<sup>3</sup>For example, all licensees are required to report an event which involves operation (unit or system) when any parameter is less conservative than the limiting condition established in the Technical Specifications.

the limiting conditions for plant operation (LCO's) and the associated surveillance section of the technical specifications varies; thus there are variations in the number of reports that relate to such failures. Furthermore, reports relating to a particular component failure do not have the same safety significance due to the differences in plant design.

Some of the variation in reporting among plants stems from the relatively short time the uniform reporting requirements have been in use. As experience with interpretation of requirements grows and the NRC augments the guidance for interpretation more consistent reporting should develop. The NRC staff plans to perform analyses of power plant event reports to assess reporting patterns and determine the need for additional guidance.

The subject of uniform surveillance requirements<sup>4</sup> for old and new plants has been previously addressed within the Commission in the context of the implementation of Standard Technical Specifications. The decision at that time was not to arbitrarily backfit standardized surveillance format and content since the benefits of standardization might not be significant in comparison with the effort required. This policy has not changed. However, this has not precluded the immediate imposition of standard surveillance for particular systems on all plants when justified by the associated increase in safety.

The Commission requires that all new Operating Licenses be issued technical specifications that are consistent with the content and format of the Standard Technical Specifications. In addition to this requirement for new Operating Licenses, the Commission has a program for converting existing custom technical specifications of old plants to Standard Technical Specifications content and format when the licensee agrees with this conversion. This conversion program results in additional specific surveillance requirements to the technical specifications for these old plants. To date 16 new Operating Licenses have been issued with Standard Technical Specifications; 3 old Operating licenses have had their previously issued custom technical specifications converted to Standard Technical Specifications; and several other conversions are currently under consideration.

Older plants are currently receiving a detailed safety review under the Systematic Evaluation Program being conducted by the Office of Nuclear Reactor Regulation. Needed changes in surveillance requirements will be identified through this program in the context of each plant design.

#### GAO Recommendation #3

"We recommend that the Chairman, NRC, extend its event and incident reporting requirements to require...

<sup>4</sup>Surveillance requirements specify the acceptance criteria and the frequency with which the proper operation or the ability to operate of a particular system or component must be verified.

- nuclear materials licensees using equipment containing hazardous radioactive materials to report equipment design deficiencies and malfunctions..."

#### NRC Response

Existing regulations require nuclear materials licensees to report equipment design deficiencies and malfunctions. Licensees and suppliers of facilities or components to licensees are subject to 10 CFR Part 21 which requires reporting of defects and noncompliance where a substantial safety hazard is involved. All licensees they are also subject to 10 CFR Part 20.403 which requires a report of any incident involving licensed material which has caused or threatens to cause: (1) overexposures to radiation in excess of the annual allowable limits, (2) potentially significant releases of radioactivity, (3) a loss of one day or more of operation, or (4) property damage in excess of \$2,000. (It should be noted that the Medical Device Amendments of 1976 (P L. 94-295) give the Food and Drug Administration (FDA) regulatory authority over medical devices, such as teletherapy units. FDA is the proper agency to receive reports of failure or malfunction of medical devices when no radiation hazard is involved.)

The receipt of information in accordance with the intent of NRC requirements is dependent upon licensee awareness and understanding of the rules. In September 1979, the NRC sent a letter to materials licensees reinforcing them of the reporting requirements in 10 CFR Parts 20 and 21. The NRC staff will examine further ways to enhance licensee awareness and understanding of existing reporting requirements.

#### GAO Recommendation #4

"We recommend that the Chairman, NRC, extend its event and incident reporting requirements to require medical licensees to report all misadministrations of patient radiation treatments and radioactive drugs."

#### NRC Response

The NRC staff has reviewed the GAO comments and recommendations regarding NRC's policies, practices, and the proposed rule changes regarding the reporting of misadministrations of nuclear medicines or radiation treatments to patients. In addition, the NRC staff has reviewed over 150 public comments received on a proposed misadministration rule published in mid 1978. The NRC staff has considered the GAO concerns and recommendations along with the public comments and has formulated a recommended rule for consideration by the Commission in early 1980.

The two GAO recommendations involved (1) reports of all misadministrations to NRC and (2) a delay in deciding the issue of patient notification in the interests of achieving the first provision in a rulemaking promptly.

The NRC staff proposals to the Commission address these GAO concerns and the many public comments and include the following provisions:

- (1) A requirement that all misadministrations be reported to NRC, and
- (i) that the Commission address the problem of patient notification at this time since it is believed that the issue has had a full airing and that the matter can be decided now.

GAO Recommendation #5

"We also recommend that the Chairman, NRC, resolve the issue of NRC mandating full nuclear industry participation in the reliability report system by using rulemaking procedures."

NRC Response

An NRC consensus on whether or not to make the Nuclear Plant Reliability Data System (NPRDS) reporting mandatory does not exist. NRC accepts the GAO recommendation of utilizing the rulemaking process to fully explore and resolve the issue in a timely manner. The Commission issued an advance notice of proposed rulemaking on January 30, 1980, to obtain industry and public comments to help NRC in formulating a definitive response.

Report - February 16, 1979

(D) Higher Penalties Could Deter Violations of Nuclear Regulations

GAO Recommendation #1

Treat each occurrence of a violation of the same requirement as a separate violation.

NRC Response

Generally, NRC's current policy concerning this subject is to treat more than one situation, event or occurrence as a single item of noncompliance when:

- All involve the same basic requirement;
- Only a single functional organization is involved; and
- All occur in the same inspection period.

NRC believes it is unnecessary to cite the licensee for each and every example of a violation of a regulatory requirement to achieve the desired level of compliance. However, in appropriate circumstances continuing items of noncompliance and each example are cited as separate items of noncompliance. We believe that this policy focuses the licensee's attention on the matters of concern and has proven generally sound and effective in producing the desired deterrent effect. We shall, however, monitor closely its implementation to ensure that it continues to be applied uniformly and fairly.

GAO Recommendation #2

Treat each occurrence of a continuing violation as a separate violation for the purpose of computing a civil penalty.

NRC Response

Chapter 18, Section 234 of the Atomic Energy Act of 1954 as amended, provides for treating a continuing violation as separate violations each day the violation runs. Section 234 goes on to give the Commission discretionary authority in compromising, mitigating, or remitting such penalties. The imposition of civil penalties requires the exercise of sound judgment based on the facts of each case and consideration of the purpose of the enforcement action rather than the mechanical application of sanctions.

GAO Recommendation #3

Establish procedures to ensure that NRC promptly clarifies regulatory requirements which are being misinterpreted by licensees.

NRC Response

NRC agrees that timely clarification of misinterpreted regulatory requirements is necessary and that procedures to assure such timely clarifications are appropriate. All affected Office Directors will be directed to establish appropriate procedures.

GAO Recommendation #4

Notify appropriate state utility commissions when NRC imposes civil penalties on utilities operating nuclear power plants.

NRC Response

A staff paper (SECY-79-485) dated August 10, 1979, with the subject "Informing State Public Utility Regulatory Groups of Major Enforcement Actions," recommended to the Commission that copies of escalated enforcement orders be sent to State Public Utility Groups for their information. The Commission approved the recommendations and requested that the staff ensure that such notifications be made promptly to both the state's utility regulatory group and attorney general's office, and that the staff inform all utility licensees that such notifications would be made in the future. Letters were sent on November 26, 1979, by the NRC Regional Offices to all power reactor facilities in their respective regions holding operating licenses and construction permits, informing them of the notifications that were to be made to the appropriate state offices. This notification procedure is now in effect.

GAO Recommendation #5

Assign a higher priority to processing proposed civil penalties, including eliminating the present 5-day advance notice to Commissioners.



NRC Response

NRC has renewed its emphasis on streamlining the processing of civil penalties. Both the Region's timeliness in initially proposing the action and the headquarters review and coordination of cases, are being examined for methods of improving timeliness on a continuing basis. Our recent experience has shown some improvement in the timeliness of these actions, but more improvement is needed.

It should be noted that the advance notice to the Commission is now three days. Elevated enforcement cases have, on occasion, caused interest by the media or the affected parties. This prior notification is solely for the purpose of informing the Commissioners of elevated actions in the event these actions cause concern or comment.

GAO Recommendation #6

Establish enforcement criteria, policies and procedures by rulemaking.

NRC Response

NRC is giving serious consideration to the desirability and feasibility of placing the enforcement policies in formal rules. Recommendations concerning revisions to the criteria were made to the Commissioners during March 1980.

Report - March 8, 1979

(E) Letter Report on NRC's use of the Department of Energy's Laboratories and of Outside Contractors and Consultants

GAO Recommendation #1

"Require the various NRC program offices to justify their placement of work with DOE laboratories instead of private contractors. This justification should contain the reasons and circumstances surrounding the placement. Where other entities capable of performing independent work have been indentified, it should also contain a comparison showing the related cost impact when practicable. Each justification should be reviewed by NRC's Division of Contracts to ensure conformity with sound acquisition principles."

NRC Response

The NRC obtains research and technical assistance services through two principal means: (1) private contractual arrangements (under the authority of the Atomic Energy Act of 1954 and the Federal Procurement Regulations); and (2) interagency tasking of other Federal agencies (under the authority of the Energy Reorganization Act of 1974). Section 205 of the Energy Reorganization Act mandates that the Department of Energy and other Federal agencies cooperate with the Commission by performing research services for the Commission in their own facilities or by obtaining such services for it

through contract.<sup>1</sup> Recognizing that safety research was to be a major function of the NRC, the statute requires such cooperation by other Federal agencies so that the Commission would not find it necessary to build its own research laboratories.<sup>2</sup>

Program decisions to fulfill research requirements through private contract or the cooperation of other Federal agencies have been based upon several general criteria. As the GAO report points out, NRC has often utilized the DOE National Laboratories because they provide: (1) access to outstanding and often unique scientific expertise or research capabilities; (2) independent and technical advice free from conflicts of interest; or (3) a less

<sup>1</sup>Section 205 of the Energy Reorganization Act of 1974 provides:

- (c) the Administrator of the Administration and the head of every other Federal agency shall--
    - (1) cooperate with respect to the establishment of priorities for the furnishing of such research services as requested by the Commission for the conduct of its functions;
    - (2) furnish to the Commission, on a reimbursable basis, through their own facilities or by contract or other arrangement, such research services as the Commission deems necessary and request for the performance of its functions; and
    - (3) consult and cooperate with the Commission on research and development matters of mutual interest and provide such information and physical access to its facilities as will assist the Commission in acquiring the expertise necessary to perform its licensing and related regulatory functions.
- \* \* \*
- (e) Each Federal agency, subject to the provisions of existing law, shall cooperate with the Commission and provide such information and research services, on a reimbursable basis, as it may have or be reasonable able to acquire.

<sup>2</sup>"In providing for an Office of Nuclear regulatory Research, the conferees wish to make it clear that this Office will be responsible for such research as is necessary for the effective performance of the Commission's licensing and related regulatory functions. The research aspect of such functions, and materials subject to regulations, licensing, and inspection by the Commission. This means that the Commission would have 'an independent capability for developing and analyzing technical information related to reactor safety, safeguards and environmental protection in support of the licensing and regulatory process.'

"In keeping with the concept of confirmatory assessment, it is not intended that the Commission build its own laboratories and facilities for research and development responsibilities of ERDA. The Commission will draw upon ERDA and other Federal agencies for research findings and such assistance as may be needed in developing capabilities for confirmatory assessment, and as may be needed otherwise in performing its functions." S. Rep. No. 93-1252, 93d Cong. 2d Sess. (1974) (Conference Report)

complex method of obtaining assistance when mission time constraints are severe.

The report, while not expressing disagreement with the validity of these criteria, finds that the application of the criteria to particular situations was not always correct. The main thrust of the report, however, is that the NRC has not documented its rationale on a case-by-case basis for choosing to obtain assistance through other Federal agencies rather than through private sources. We agree with its observation that documents placing work with DOE should contain full justification for such placement. Earlier GAO and internal NRC investigations questioned whether a proper business-like relationship had been established between NRC and DOE. NRC efforts for the past two years have been devoted to formalizing this relationship. The results of this effort have been: (1) the execution of a Memorandum of Understanding between the two agencies; (2) the establishment of an active DOE-NRC Coordination Committee; and (3) approval of NRC Bulletin 1102 which sets forth specific, standardized procedures for placing work with the DOE National Laboratories.

We recognize that NRC must now concentrate on evolving internal procedures for assuring that choices between private and government sources are made on the basis of sound technical, fiscal, and management judgments. Several major actions are currently underway. First, the charter of the existing NRC Safeguards Technical Assistance Research Coordination Group ("STAR Group"), which reviews all program request for contracting assistance in the safeguards area, has been revised to require it to examine whether the proper contracting source has been identified and the choice properly justified and documented. Another project review group is being established to review all waste management projects in a similar manner as the STAR Group. In addition, we are considering a revision of the charter of the Contract Review Board which now reviews contracts for duplication and user need.

We agree that sound acquisition principles should be followed in the decisions on proper placement of NRC's work and we agree with GAO's recommendation that justification for placing work in laboratories should be strengthened. The recommendation that such justifications should be reviewed by the Division of Contracts will be considered along with a number of other alternatives designed to ensure conformity with sound acquisition principles. To ensure the GAO recommendations are implemented, a list of review criteria has been prepared which will be used to gauge the propriety of source selections. These criteria are described below:

1. Internal Governmental Function:

Where the project by its inherent nature must be performed by the Federal government, commercial contracting is precluded. Certain projects in the licensing and inspection functional areas fall within this category.

2. Objectivity:

- a. Conflict-of-Interest: This factor applies when objectivity demands that we use another government agency to avoid real or apparent conflict-of-interest with commercial sources, or vice versa.
- b. Intentional Duplication: Some projects are intentionally duplicated to draw upon independent, impartial expertise to check on the work.

3. Available Facility:

When a unique facility is needed and already exists, appropriate action should be undertaken to make full use of the existing resource.

4. Unique Technical Background:

- a. This factor may be cited where the desired technical background or knowledge exists in only one place. It means that to the best of our knowledge, no one else possesses the requisite skills to get the job done in a reasonable manner or time frame.
- b. Where a combination of professional skills must be placed on a task, the existence of such a combination may warrant the selection of a particular source.
- c. A legitimate rationale for source selection may be provided where earlier, closely associated efforts in a subject area have been performed which yield a necessary, unique background, or prior, closely related work exist from which the present task is a logical extension.

5. Joint Effort:

A rationale for interagency tasking is created when two or more government agencies jointly sponsor and fund a project which will be performed inhouse by one of the agencies.

6. Timing:

This factor may be critical if the project results are needed within a time frame which would not permit the solicitation and award of a contract. This supposes that another agency can meet the need date through interagency tasking. When practical, planning for research and technical assistance should be accomplished sufficiently in advance to overcome the time lags associated with the competitive bidding process.

7. Another Agency/Subcontract Involvement:

Where there is need for the involvement of both another agency and a commercial firm, interagency tasking coupled with subcontracting by the other agency may be used. However, "pass through contracting" to avoid competition must be meticulously avoided.

The Division of Contracts will assist in the review of these determinations.

#### GAO Recommendation #2

Instruct the Director, Division of Contracts, and heads of program offices to seek greater competition in contract awards for unsolicited proposals and, when this is not feasible, to fully document the noncompetitive justification. Particular attention needs to be given to awards resulting from unsolicited proposals to ensure that the justifications for each awards are in accordance with applicable Federal criteria.

#### NRC Response

The NRC believes that the primary concern of the GAO Report is with award of sole-source contracts based on unsolicited proposals. These awards formed the basis for its conclusion that certain contracts "were awarded on a noncompetitive basis without adequate justification."<sup>1</sup>

In accordance with the policy of the Federal government, NRC has been using unsolicited proposals since formation of the agency.<sup>2</sup>

In 1977 the Federal Procurement Regulations were amended to furnish agencies guidance in the review and award of contracts based on unsolicited proposals.<sup>3</sup> These guidelines are general in nature and leave much discretion to agencies in determining whether to award contracts to the proposer without going through the competitive process. Indeed, the GAO notes in this report that the judgment required in justifying a noncompetitive procurement depends upon the agency's perspective and cannot be made in an absolute sense.

It is for this reason that the NRC accepts that aspect of GAO's recommendation which advises the agency to pay particular attention to this method of non-competitive contracting. As part of its review of contracting procedures, close scrutiny will be given to this area. The intra-agency project review groups discussed in the response to the preceding recommendations will also

<sup>1</sup>GAO reviewed 33 contracts above \$50,000 in value which NRC awarded on a noncompetitive basis during fiscal year 1978. Of these 33 contracts, 28 resulted from unsolicited proposals and five resulted from solicited proposals. GAO criticized the noncompetitive justification for 13 of the unsolicited proposals and found only one solicited proposal insufficiently justified.

<sup>2</sup>In 1972 the Commission on Government Procurement, noting a disturbing reduction in the use of unsolicited proposals in Research and Development procurement, recommended the elimination of "restraints which discourage the generation and acceptance of innovative ideas through unsolicited proposals."  
2 Report of the Commission on Government Procurement, 25, 26 (1972)

<sup>3</sup>FPR K 1-4.9. In the regulation, the Government states as its policy the encouragement of the submission of unsolicited proposals.

consider the adequacy of documentation and justification in award of all non-competitive contracts will particular concern for those proposed as the result of acceptance of unsolicited proposals. This review will provide a basis for recommendations to the Contracting Officer who will then exercise his normal procurement judgment with respect to the necessity to make a noncompetitive award.

In summary, the NRC agrees that greater use of competition should be sought and has taken steps to do so. A Pre-Procurement Plan program which allows for earlier development of contract requirements and involvement of procurement personnel is being implemented. In addition, we have developed a new, expanded Bidder's Mailing List system so that a greatly increased number of firms are given the opportunity to respond to NRC's contract requirements. This system, along with our systematic use of the Commerce Business Daily for advertising proposed procurements, should assure the widest possible circulation of NRC projects, thereby generating greater competition. Finally, NRC will review its program management procedures to strengthen internal management of projects tasked or contracted to outside sources.

#### GAO Recommendation #3

Monitor Division of Contracts' implementation of proposed procedures regarding the approval of contractor cost vouchers and the Division's actions to alleviate the contract close-out backlog, to ensure that efforts are done in a timely manner.

#### NRC Response

The NRC has instituted new procedures for internal review of contractor invoices. The procedures assure that the contracting staff play a central role in the administration of contracts while continuing to place appropriate reliance upon a technical staff to make judgments regarding the contractors' technical performance. Payments are made only after both the technical staff and the Division of Contracts agree that the voucher charges are proper.

The Division of Contracts has submitted a plan to the Commission which provides for elimination of the close-out backlog during FY 80 and to remain current with close-out actions thereafter. The executive Director of Operations will monitor the Division of Contracts' implementation of both of these administration activities.

#### GAO Recommendation #4

"Instruct the Division of Organization and Personnel to ensure that consultant appointments are fully justified and the corresponding work descriptions are sufficiently specific."

#### NRC Response

This recommendation is accepted and is now being implemented by a revision of the governing NRC manual (NRC Chapter and Appendix 4139, "Employment of

Consultants and Members"). The revisions to the manual were issued June 15, 1979 and include:

1. The document which requests and justifies the appointment of a consultant will be approved by the cognizant Office Director. This approval will be subject to delegation and will focus responsibility for such appointments exclusively on Office Directors.
2. The revision includes explicit instructions requiring a full description of services to be performed and an explanation of the need for the services sufficient to enable a reviewing official to determine the importance of the services in terms of program priorities and the availability of current, full-time staff.
3. The revision provides for a quarterly review by the Executive Director for Operations of consultant utilization throughout the Agency. The GAO Report also finds that 28 of 71 justifications for selection of consultants did not adequately demonstrate that these contracts should have been awarded noncompetitively. The NRC accepts this finding. We believe the improved procedures discussed in the previous question, for obtaining greater competition generally in NRC contracting activities, will result in more competition for work to be performed by consultants.

#### GAO Recommendation #5

"Direct the various NRC divisions and offices to tighten their controls over payments for consultant's services. This can be accomplished through adoption of a standard time and attendance system in use by other Federal agencies, or a system similar to it."

#### NRC Response

The proposed revision of Chapter and Appendix 4139 provides more explicit guidance for both consultants and for operating officials regarding the submission of vouchers. This includes the requirement that vouchers shall be submitted no less frequently than once a month. However, the NRC believes that a time and attendance system similar to that used on a daily basis by regular NRC employees is necessary in view of the revision of our existing vouchering system. This new system requires consultants to record days and hours worked on a voucher, to sign each voucher and to submit the voucher for certification by requiring that these employees submit vouchers on a regular basis so that certifying officials may better relate time reported with tasks accomplished.

Report - March 30, 1979

Areas Around Nuclear Facilities Should be Better Prepared for Radiological Emergencies

GAO Recommendation #1

"The Chairman, Nuclear Regulatory Commission, should allow nuclear power plants to begin operation only where State and local emergency response plans contain all the Commission's essential planning elements. In addition, the Commission should require license applicants to make agreements with State and local agencies assuring their full participation in annual emergency drills over the life of the facility."

NRC Response

In June 1979, the Nuclear Regulatory Commission began a formal reconsideration of the subject of radiological emergency planning. On July 31, 1979, the Commission requested that the NRC staff undertake expedited rulemaking on the subject of State, local, and licensee emergency response plans.

A proposed rule for emergency planning was published in the Federal Register on December 19, 1979. The proposed rule: (1) requires NRC concurrence in the appropriate State and local government emergency response plans prior to operating license issuance and to avoid shut-down of an operating plant; (2) extends emergency planning considerations to "Emergency Planning Zones," ten miles for the plume exposure pathway and 50 miles for ingestion pathway; (3) calls for "emergency action levels" to be used as criteria for determining the need for notification and participation of Federal, State, and local agencies (the "emergency action levels" coupled with meteorological information will be used in determining when protective measures should be considered); (4) requires that the responsible State and local officials can decide what protective action, if any, is required within 15 minutes of being notified by the licensee that a radiological emergency exists at the plant and a demonstrated capability for alerting the public within the 10-mile plume exposure pathway Emergency Planning Zone within 15 minutes of a State/local decision to do so; and (5) requires the licensee to provide an onsite technical support center and a near-site emergency operations center from which effective direction can be given and effective control can be exercised during an emergency. The proposed rule requires offsite plans of the appropriate State and local governments as well as onsite plans to assure that there is an adequate overall state of emergency preparedness. These plans would be compared against upgraded criteria. Where State and local governments' plans meet these criteria, the NRC would concur in their plans. Exceptions to meeting the criteria could be made only where: (1) the deficiency is not significant for the plant in question; (2) there are other compensatory measures that can and will be taken; and (3) there are other compelling reasons for allowing the plant to operate.

The public comment period on the proposed rule expired on February 19, 1980. The proposed rule is expected to be published as final in late spring/early summer. The rule is expected to be immediately effective upon publication in its final form. However, the provision that the existence of approved State and local emergency response plans are a condition for continued operation of a presently operating plant would not become effective until six months after publication of the final rule or January 1, 1981, whichever is sooner.



In preparing the final rule, the NRC will take into account the comments received as well as the statement by the President of December 7, 1979, in which he assigned FEMA lead responsibility for offsite emergency preparedness around nuclear facilities.

The rule will be made compatible with the description of the roles of NRC and FEMA contained in the Memorandum of Understanding negotiated by the two agencies. It is recognized that the MOU which became effective January 14, 1980, supersedes some aspects of previous agreements. According to the MOU, the FEMA responsibilities with respect to emergency preparedness, as they relate to NRC are:

- "1. To take the lead in offsite emergency planning and review and assess State and local emergency plans for adequacy.
2. To complete by June 1980, the review of State and local emergency plans in those States affected by operating reactors.
3. To complete, as soon as possible, the review of State and local emergency plans in those States affected by plants scheduled for operation in the near future.
4. To make findings and determinations as to whether State and local emergency plans are adequate and capable of implementation (e.g., adequacy and maintenance of procedures, training, resources, staffing levels and qualifications and equipment adequacy).
5. To assume responsibility for emergency preparedness training of State and local officials.
6. To develop and issue an updated series of interagency assignments which would delineate respective agency capabilities and responsibilities and define procedures for coordination and direction for emergency planning and response."

The NRC responsibilities for emergency preparedness are, according to the MOU:

- "1. To assess licensee emergency plans for adequacy.
2. To verify that licensee emergency plans are adequately implemented (e.g., adequacy and maintenance of procedures, training, resources, staffing levels and qualifications and equipment adequacy).
3. To review the FEMA findings and determinations on the adequacy and capability of implementation of State and local plans.

4. To make decisions with regard to the overall state of emergency preparedness (i.e., integration of emergency preparedness onsite as determined by the NRC and offsite as determined by FEMA and reviewed by NRC) and issuance of operating licenses or shutdown of operating reactors."

Pursuant to the provisions of the MOU, NRC and FEMA jointly developed criteria for the approval and acceptance of emergency response plans around nuclear power plants. The NRC and FEMA signed a joint Federal Register notice on February 6, 1980, advertising the availability of the joint criteria.

Both the proposed rule and the joint criteria for emergency preparedness would require that the licensees and Federal, State and local government representatives participate in joint exercises. The frequency of exercises and drills by the licensee will be on an annual basis, but the frequency of joint Federal, State and local exercises with each licensee is likely to be on a less frequent basis.

#### GAO Recommendation #2

"The Chairman, Nuclear Regulatory Commission, should establish an emergency planning zone of about 10 miles around all nuclear power plants as recommended by the Environmental Protection Agency/Nuclear Regulatory Commission Task Force, and require licensees to modify their emergency plans accordingly."

#### NRC Response

The EPA/NRC Task Force report entitled, "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants," NUREG-0396/EPA-520/1-78-016, recommended the establishment of about a 10-mile emergency planning zone for the plume exposure pathway and another zone of about 50 miles for the ingestion exposure pathway. The report was published for comment and the public comment period extended from March 30 to May 15, 1979. The Commission has given careful consideration to the recommendations of the Task Force, the public commenters, the NRC staff, other Federal agencies, and the GAO on the matter of establishing emergency planning zones around nuclear power plants.

The Nuclear Regulatory Commission officially endorsed the NRC/EPA Task Force report on October 23, 1979. The EPA also officially endorsed the NRC/EPA Task Force report on January 15, 1980. The concept of Emergency Planning Zones is incorporated in the proposed NRC rule published December 19, 1979.

GAO Recommendation #3

"The Chairman, Nuclear Regulatory Commission, and the Secretaries of Defense and Energy should, to the extent that national security is not jeopardized, require that people living near facilities be periodically provided with information about the potential hazard, emergency actions planned, and what to do in the event of an accidental radiological release."

NRC Response

The experience of TMI shows that the present procedures for informing the potentially affected population near nuclear power plants should be reexamined. Consequently, we are evaluating all our procedures in the communications area. We have to determine what information-- general and site-specific -- should be given to the public prior to an emergency to assure effective response if a radiological emergency occurs. In addition, by the President's December 7 statement, FEMA has very significant role in educating and informing the public. The NRC and FEMA must work together to clarify procedures for communicating with the public during a radiological emergency: who should provide the information; what information should be provided; and what models of communications should be used. The Commission will work with FEMA to take the necessary actions to implement the GAO recommendation in connection with its ongoing assessment of regulatory requirements and the adequacy of State and local plans in emergency planning and preparedness.

The Commission makes no comment on the GAO recommendation to DOD and DOE. However, we will provide appropriate support in those States and local areas where joint planning is necessary for emergencies from both licensed and government nuclear facilities.

Section IV.D of the proposed revision to Appendix E would require that the public within the plume exposure pathway be given basic emergency planning information yearly.

GAO Recommendation #4

The report recommends that the Director, Federal Emergency Management Agency (FEMA) assume the responsibility for making policy and coordinating radiological emergency response planning around nuclear facilities.

NRC Response

As mentioned in the response to Recommendation #1 above, the NRC and FEMA have entered into a memorandum of understanding (MOU) to implement the President's statement transferring to FEMA the lead responsibility for

offsite emergency preparedness around nuclear power plants. Under that MOU, the NRC has detailed 12 professionals to FEMA to concentrate the efforts of both agencies on upgrading the state of radiological emergency preparedness around nuclear power plants. The NRC and FEMA have agreed to coordinate with each other on any future guidance provided by either agency. The NRC and FEMA will cooperate in determining exercise requirements for joint licensee, State, local, and Federal exercises, and will jointly observe and evaluate such exercises. The NRC will support FEMA in training State and local officials.

Report - May 7, 1979

Federal Actions Are Needed to Improve Safety and Security of Nuclear Materials Transportation

NRC General Response

The Commission recognizes that the safety and security of nuclear materials transportation is an important component of its overall responsibility in the regulation of nuclear materials. Both the safety and security aspects of transport are under continuing review. In many instances, we find that we are in general agreement with the recommendations of the report. As a result, regulatory solutions to carry out several of the recommendations of the report are either complete or well underway.

Before addressing the specific recommendations, we would like to describe some recent actions taken to strengthen requirements for the safe transport of low-level radioactive waste destined for burial. This subject is of particular concern in the States of Nevada, South Carolina, and Washington, the States where the burial facilities are located.

A bulletin entitled "Packaging of Low-Level Waste for Transport and Burial" has been issued to power and research reactors with operating licenses, fuel facilities except uranium mills, and about 4,500 materials licensees who generate or are likely to generate low-level waste. This bulletin requires licensees who generate waste to (a) maintain a current set of DOT and NRC regulations for the packaging and transport of radioactive material; (e) provide training and periodic retraining for all personnel involved in the transfer, packaging and shipment of low-level radioactive material; (f) provide training and retraining to employees who generate waste to assure that the volume is minimized and that such waste is processed into acceptable chemical and physical form for transfer and shipment to a waste burial facility; (g) establish and implement an audit function for all transfer, packaging and transport activities to ensure safety and compliance; (h) perform an audit within 60 days of August 10; and (i) report to the Regional Office within 45 days of their plan of action and schedule for the above items. Licensees were also required to provide information on the volume of waste generated in 1978 and 1979 and on their liquid solidification process. Licensees who do not generate waste for commercial burial must so notify the NRC. A second bulletin, entitled "Packaging, Transport and Burial of Low-Level Radioactive Waste," was issued to all uranium mill licensees and about 4,000 materials licensees who did not receive the above bulletin and are not likely to generate waste. If these licensees generate waste, they are required to take actions required by the first bulletin. Copies of both bulletins were made available to Agreement State licensees.

A three month trial program to inspect packages and carriers at the waste burial facilities has been initiated. This effort is being coordinated with the Agreement States, with the burial licensees, and with DOT.

An NRC rule change made effective December 3, 1979 (44 FR 63083) require all shipments of radioactive material to be in accordance with DOT requirements for radiation safety has been effected/ Procedures have been revised to incorporate DOT requirements. An Information Notice providing additional information on radioactive waste form for commercial burial and on DOT requirements for shipping radioactive material has been issued to all NRC licensees.

We turn now to the NRC response to each of the specific recommendations contained in the GAO report.

#### GAO Recommendation #1

The Commission and the Secretary of Energy should:

- perform periodic, independent physical inspection and testing of nuclear materials packages on a random basis during fabrication and after repeated use. Such inspection and testing should either be done by independent contractors or by the agencies themselves.

#### NRC Response

The NRC staff conducts periodic, unannounced inspections of licensees who ship packages containing Type B quantities of radioactive material. Because the inspections are unannounced, it is not possible to inspect all aspects of transport activity which are subject to NRC jurisdiction. However, when the transport activity is ongoing, the NRC inspection program requires the NRC inspector to verify by observation that the physical aspects of the package, including maintenance and refurbishing aspects, are in accordance with the NRC Certificate of Compliance. The inspection program also requires the NRC inspector to verify that the radioactive contents in the package and the closure of the package are as authorized by the NRC certificate. The NRC inspector reviews the records generated by these processes, both for the observed processes and for the processes which occurred when the NRC inspector was not present. All of this inspection effort is performed on a sampling basis.

To the extent possible, direct observations of physical characteristics of the packagings are made during inspections. Although independent tests are not made by NRC inspectors on packages which are to be reused, NRC inspectors observe such tests by the user if they occur during the course of the unannounced inspection. Based on the results of tests conducted by shippers and by the lack of reports of packaging failure from shippers, consignees, carriers, and State and DOT officials, the NRC staff has not deemed it necessary to conduct independent tests.

The NRC staff also conducts periodic inspections during the fabrication of casks for high-level waste (spent fuel). These inspections include observations of (a) implementation of the quality assurance program, (b) the materials of construction, (c) fabrication techniques and processes, and (d) design verification testing. This inspection effort has not been extended

to other types of packagings because most of these other packagings are less complex in design and are amenable to inspection for physical properties in the users' facilities.

The program of NRC regulation, including inspection, has been established in a manner designed to provide reasonable assurance that the health and safety of the public is not subject to undue risk from the shipment of radioactive material. This risk is subject to frequent review by the NRC staff, most recently reported in NUREG-0170, "Final Environmental Statement on the Transportation of Radioactive Material by Air and Other Modes," December 1977. Other assessments of the risk are now in progress. As these assessments are completed, the NRC program will be reevaluated and modified as appropriate, including the reevaluation of the need for additional independent verification and testing of packagings.

#### GAO Recommendation #2

The Commission and the Secretary of Energy should:

- jointly develop a graduated scale of security measures for the transportation of special nuclear materials, rather than the present all-or-nothing strategic cut-off level. In establishing these levels, the dispersal hazard of plutonium should be considered. In addition, the criteria should take into account the enrichment level of uranium since smaller amounts of highly enriched uranium are needed to make a weapon.

#### NRC Response

We agree that there is a need to extend graduated security measures to shipments of less-than-strategic quantities of licensed, weapons-grade material. A program is in progress to amend NRC regulations to require licensees to provide the needed measures. On May 24, 1978, we issued for public comment proposed amendments that set forth the needed requirements. These amendments are comparable to the physical protection guidelines in IAEA publication INFCIRC 225. Public comments on the proposed amendments have been considered, and the amendments have been coordinated with DOE. The proposed amendments were approved on June 21, 1979, and were published in the Federal Register as a final rule on July 24, 1979, to be effective on November 21, 1979.

A study of the risks associated with the deliberate dispersal of plutonium has been carried out, and the results of the study were taken into account when the new proposed amendments were being drafted. On the basis of the information developed in the study, we determined that additional protection measures against plutonium dispersal (beyond those proposed in the regulations issued for public comment) were not needed for licensed shipments. We plan to undertake, in coordination with DOE, a reexamination of this area and to determine and to apply modifications, if deemed necessary, to NRC regulations.

The rule published on July 24, 1979, takes into account the decreasing amounts of uranium needed to make a weapon as enriched level increases. The

regulations specify three security levels, three enrichment levels, and five weight (quantity) ranges. A shipment will be assigned one of the three different security levels, depending on both the quality of materials in the shipment and the enrichment level.

#### GAO Recommendation #3

The Commission and the Department of Energy should:

- take immediate action to preclude enroute consolidation of two or more special nuclear materials shipments that together exceed the strategic levels.

#### NRC Response

We agree that the situation described in the recommendation is unacceptable and have taken steps to correct it. Although such a situation did exist in the past for shipments of licensed materials, we believe that currently there is little risk of its reoccurrence. Since July 15, 1976, license conditions have been in effect that limit the risk of shipment consolidation at transport terminals by the following means: Practically all shipments that would likely be of interest to an adversary -- for example, shipments in the range of 1,000 to 5,000 formula grams -- are made by licensees who are licensed to process more than 5,000 formula grams. Under current license conditions, each of these licensees is prohibited from having more than one unprotected shipment of 200 formula grams or more enroute to any one consignee at any one time. Thus, even under current conditions, the risk of chance consolidation of shipments by two or more licensees is small. The small remaining risk will soon be reduced even further. The rule published on July 24, 1979, requires all licensees who contemplate making a shipment of 1,000 formula grams or more to provide advance notification to the NRC. The NRC will use this information to determine and control the risk of collection of two or more shipments during transport. DOE shipments of more than 350 grams of U-235 (220 grams for plutonium) are accompanied by an escort, and, therefore, there is no opportunity for chance consolidation.

#### GAO Recommendation #4

The Commission and the Department of Energy should:

- determine if there is a need to safeguard spent fuel shipments from sabotage by developing experimental data on the amount of radioactive material that could be released in a sabotage attack on spent fuel cask using high explosives.

#### NRC Response

We agree with the recommendation that experimental data need to be developed. In May 1978 we began to formulate the requirements for the development of the needed experimental data, and a contract for the program has been issued. The program probably will not yield useful results before FY80. Accordingly, even



though we believe that the likelihood of a sabotage attack on a spent fuel shipment is low and that the difficulty of breaching a cask is high, we have issued an amendment to NRC regulations requiring interim protective measures for spent fuel movements pending the completion of the research program. In the amendments, the focus of concern is on possible successful acts of sabotage in densely populated urban areas. Because of the possibility that spent fuel shipments could be hijacked and moved from low population areas to high population areas, the interim requirements apply to all shipments even though the planned shipment route may not pass through densely populated urban areas.

#### GAO Recommendation #5

The Commission and the Department of Energy should:

- if experimental data shows safeguards are warranted, develop a security system considering communication requirements, armed escort personnel, the least vulnerable transportation mode, and vehicle disabling features.

#### NRC Response

We agree with the recommendation. Our interim regulations for the protection of the spent fuel shipments, referred to above, require for all shipments that arrangements be made with local law enforcement agencies along the route to respond to an emergency or a call for assistance, that escorts be trained as outlined in the rule, that shippers develop procedures for coping with threats and safeguards emergencies, and, if a shipment must pass through heavily populated urban areas, that an armed escort be provided in those areas. Further, for truck and rail shipments, the interim regulations require that radio communications reporting the status of the shipment be made every two hours with a designated location. Trucks must also be equipped so that they can be immobilized. These interim requirements and the GAO recommendations will be carefully reviewed when the research program is completed, and permanent physical protection measures for spent fuel shipments will be adopted to the extent the research shows they are needed.

#### GAO Recommendation #6

The Commission should:

- amend its regulations to require receivers of radioactive materials to also monitor Type A packages for radiation to make sure they comply with Federal regulations and to report any violations to the Commission.

#### NRC Response

We agree that the question of monitoring Type A packages should be reconsidered, and this will be done. However, our principal reason for restudying this matter is limited to the protection of persons receiving the packages. A

recent judgment by the NRC legal staff indicates to us that the current radiation survey provisions (10 CFR 20.201 "Surveys") cannot be relied upon for the purpose.

Our reasons for believing that the other aspects of our current regulation are satisfactory can be understood from a brief review of the provisions of the current regulation and its background. The present specific requirements to monitor packages on receipt is limited to Type B and large quantity packages. These requirements were developed for protecting workers and the general public in the transportation system. They require much more than monitoring for protection of the recipient. Included in the requirement are provisions for receiving the package quickly from the transportation system, for quickly monitoring the package on receipt, and for quickly notifying appropriate persons of any problems for which remedial actions would be appropriate for protection of persons involved in the transportation system. It was recognized that monitoring of the Type B and large quantity packages on receipt would not prevent incidents in transportation but, where there are potentially serious consequences, would allow detection of incidents and subsequent remedial actions. Consideration was given at the time the regulation was developed to extending its provisions to Type A packages, where the potential for serious consequences is very small. Such an extension was even proposed for public comment. Information received on the burden of such a requirement, when considered with the limited benefits of extending the rule to Type A packages, resulted in a judgment that the requirements should be applied only to Type B packages. Incidentally, our judgment on this matter coincided with that of the National Transportation Safety Board when it recommended the requirement to monitor radioactive material shipments on receipt (NTSB-AAS-72-4 "Special Study of the Carriage of Radioactive Materials by Air").

In related actions since the requirement to monitor Type B and large quantity radioactive material packages on receipt was imposed in 1974, NRC has emphasized quality assurance in the fabrication and use of packages to reduce even further the very small risk of serious consequences from transportation incidents.

The GAO recommendation states that one purpose for monitoring packages on receipt is to assure that shippers are complying with regulatory requirements. To monitor packages on receipt for this purpose would require a more complete survey (e.g., to determine the exact radiation level at three feet from the package surface to verify the transport index assigned) which results in more radiation exposure to the surveyor. This additional radiation exposure to the recipient in monitoring all packages on receipt merely for the purpose of assuring regulatory compliance after the shipment is completed, probably cannot be justified.

We note the GAO recognition, in its evaluations on pages 41 and 43, that certain types of the Type A packages could be exempted from monitoring requirements. We agree with that recognition, but note that the recommendation does not reflect it.

GAO Recommendation #7

The Commission and the Secretary of Transportation should:

- reduce permissible contamination levels for packages and vehicles to levels compatible with that industry can reasonably achieve.

NRC Response

We agree that reconsideration of allowable contamination levels is prudent and we have contracted with Battelle Northwest Laboratories for assistance in carrying it out. Allowable contamination levels permitted by U.S. regulations are currently consistent with those in the regulations of the International Atomic Energy Agency. As a practical matter, virtually all of the 2.5 million packages per year in the U.S. transportation system have no detectable external contamination levels. The allowable levels referred to are included in recognition of the difficulty of decontaminating external surfaces of spent fuel casks and those few other packages which are loaded under contaminated water or in contaminated hot cells. There is a balance to be drawn between additional decontamination of such packages and the additional radiation exposure to the persons involved in that decontamination. The present balance was determined a number of years ago and has been scheduled for reconsideration.

GAO Recommendation #8

The Commission and the Secretary of Transportation should:

- expand their use of existing State resources to assure that shippers and carriers comply with Federal radioactive materials transportation regulations.

NRC Response

We agree with this recommendation. Since 1975, the NRC and DOT have been jointly involved in a contract program with States for the surveillance of radioactive materials in transport. To date, 17 States have been involved. (Six States, Illinois, South Carolina, Kentucky, Michigan, Georgia, and Washington are currently involved.)

State participation in the program has not been limited to the Agreement States only. The recent activities with the Agreement States relate only to waste shipments originating in their own borders. The State Surveillance Program is broader and includes all shipments of radioactive materials by any mode. The program will be expanded if the funding is granted.

Six States, Illinois, South Carolina, Florida, Michigan, Georgia, and Washington are currently involved. In addition, we are negotiating with four other States (Maryland, Nevada and Connecticut).

GAO Recommendation #9

The Commission and the Secretary of Transportation should:

- continue their efforts to develop consistent regulations for packaging low specific activity radioactive materials.

NRC Response

We agree that NRC and DOT regulations should be aligned on this issue. Both NRC and DOT requirements are being consolidated in the DOT regulations.

GAO Recommendation #10

The Acting Administrator of the Federal Emergency Management Agency (FEMA) should:

- assume the responsibility for making policy and coordinating radiological emergency response planning for nuclear transportation accidents. The Agency should work with the State and local agencies to develop and test plans for responding to accidents involving nuclear materials and should expedite the development of Federal guidelines for State and local planning for nuclear agencies to develop and test plans for responding to accidents involving nuclear materials and should expedite the development of Federal guidelines for State and local planning for nuclear transportation accidents. These plans should include emergency response actions to be taken by all responsible parties, including shippers and carriers, in the event of an accident.

NRC Response

The NRC supports the notion that FEMA should have an active policy and coordinating role in this area. It will be necessary for the technical agencies such as NRC, EPA, DOE, and HEW to continue providing assistance to State and local governments in emergency planning and preparedness. In this regard, the NRC is prepared to work with FEMA in developing guidelines for Federal, State and local planning and preparedness to improve protection of the public in the event of a radiological transportation emergency. We have established a joint NRC-DOT-EPA Task Force to update existing guidance for response to transportation accidents involving radioactive materials.

Report - October 2, 1979

(H) Emergency Preparedness Around the Rancho Seco Nuclear Powerplant:  
A Case Study

NRC General Response

Although NRC does not agree with all statements in the body of the report, we do agree with the thrust of the report's recommendations. Each of the recommendations directed to the NRC is addressed in the enclosure.

The report indicates, correctly as of the date of the report, that the Commission had not acted on the recommendations of the NRC/EPA task force report. The Commission, on October 18, 1979, endorsed this report in a policy statement. This action, in conjunction with current rulemaking activity, is also responsive to the GAO recommendation, contained in their March 30, 1979, report that an emergency planning zone of about 10 miles be established about each nuclear power plant.

Two factors in addition to those mentioned in the GAO report are being emphasized by the NRC staff in their current efforts to upgrade emergency preparedness capabilities at all nuclear power plants. These important factors are (1) prompt notification of the public of an emergency and (2) assessment by the licensee of the course of the accident.

#### GAO Recommendation #1

Establish criteria for exercising emergency-response plans which realistically test their effectiveness. This might include requiring longer exercise with involvement from all emergency-response agencies and stipulating that periodic exercise be held at night and on weekends. In developing this criteria, the Chairman should also consider the most appropriate method to defray increased costs incurred by State and local governments.

#### NRC Response

NRC guidance for States and local governments (Supplement No. 1 to NUREG 75/111) indicates that annual exercises are required to maintain concurrence. This exercise must include mobilization of State and local personnel and resources adequate to verify the capability to respond to a given accident scenario. We are developing scenarios which can be used for this purpose. These scenarios will be complete by about June 1980.

Current exercises are critiqued by a Regional Advisory Committee composed of six federal agencies and cochaired by FEMA and the NRC. Standard forms have been developed for observers of these exercises. We, nevertheless, agree that more specific criteria are desirable and have initiated efforts to develop these. Contractor assistance has been obtained and a preliminary work scope written. The effort will include specifying the characteristics of an appropriate scenario and exercise evaluation criteria and is scheduled for completion by June 1980.

With respect to funding, the NRC staff has recently published a report "Beyond Defense-in-Depth" (NUREG-0553) which addresses the subject of funding State and local government radiological emergency response plans. The report was published for public comment on November 9, 1979 and following this comment period, which expired December 31, 1979, we will be considering the recommendations made in it.

GAO Recommendation #2

Require that at least one member of the utility emergency-response team be assigned the sole responsibility of communicating with State and local emergency officials.

NRC Response

The NRC staff has recently published for interim use and comment "Action Level Guidelines," NUREG-0610. Four Classes of action levels are defined. The two most serious classes specify that the licensee provide a dedicated individual for plant status updates to offsite authorities. Other actions include requirements for establishment of a near-site Emergency Operations Center at which State and local officials would have designated representatives.

GAO Recommendation #3

Require the installation of the Atmospheric Release Advisory Capability computer modeling system at Rancho Seco to enhance emergency planning and preparedness around that power plant and test the system for possible use nationwide.

NRC Response

The NRC staff has been evaluating the ARAC system for some time and has recently had discussions with the Department of Energy (DOE) for installing it as a pilot project at a commercial nuclear power facility. Our Office of State Programs has proposed a phased, pilot installation of ARAC which would include equipment in two or three State emergency operations centers, replicate equipment at a reactor site and local government emergency operations centers in those States, and an installation at the NRC Operations Center. This action would allow a greater understanding and evaluation of the technology and methodology associated with ARAC and would highlight any institutional or technological problems involved in the use of such a system. The staff intends that the first installation should be in New York State (Indian Point) followed closely by installations in Illinois (Zion) and California (Rancho Seco). We have requested funds in the FY-80 Supplement budget for this purpose.

GAO Recommendation #4

Determine the feasibility and desirability of requiring installation of atmospheric release computer modeling system at nuclear power plants nationwide.

NRC Response

The pilot studies described in the response of item 3 above would be done for the purpose of determining the feasibility and desirability of the ARAC system. Some atmospheric release computer modeling capability now exists at certain facilities, although not as complex as the ARAC system. Whether ARAC

or some simpler system is ultimately chosen is, at this point, open but a requirements for some such system is likely. We favor moving ahead with a pilot study on ARAC because it is readily available from a National Laboratory.

In closing, we note that the GAO found that, in the case of Rancho Seco "emergency officials from each county appear well informed concerning their responsibilities during an accident, despite the absence of a formal plan in some cases." This conclusion reinforces our belief that the basic capability to take protective measures in the event of a nuclear power plant accident does, in most cases, already exist at the local or State level and that this can be most effectively utilized if means for prompt notification of the public are provided and protective actions are based on accurate assessments of the seriousness of an emergency.

Report - October 10, 1979

I Nuclear Construction Times for the Second and Subsequent Plants at a Multi-Plant Site Are Overstated

GAO Recommendation

We believe that NUREG should present the construction duration in a format that corrects the overstatement. To this end, we recommend that the NUREG presentation of construction times be reviewed and corrected to reflect more accurately the construction durations of second and subsequent plants at multi-plant sites. We have suggested one way to accomplish this. This will provide analysts in industry and Government with more accurate information on which to base decisions which are influenced by nuclear plant construction times.

NRC Response

The drawbacks of displaying average nuclear power plant construction times for first and subsequent units by using a single curve in NUREG-0030, Construction Status Report, May 1979, have been recognized by the NRC staff for some time. The staff pointed out these drawbacks to the GAO analyst studying construction durations and, at that time, indicated that alternative methods of presenting this data were being considered. Accordingly, the January issue of NUREG-0030 will contain what we believe to be a technique that will yield more precise answers to questions on construction times and will be less subject to misunderstanding.

In order to present this more precise picture of construction durations, construction times listed in future issues of NUREG-0030 will be plotted by using three curves depicting (1) the average construction times of all units finished in a given year (the single curve that was displayed in previous issues of NUREG-0030), (2) the average construction times of first units or of subsequent units with independent construction start dates, and (3) the average construction times of subsequent units that had construction start dates that were the same as a previous unit on the site. This method should

eliminate possible misunderstanding inherent in the previous presentation using only one curve. In addition, construction times of each plant are plotted to show their variability in any year. This new version will first be used in the January issue of NUREG-0030.

The GAO suggested adjusting construction times for second plants by subtracting the initial utility estimate of the interval between fuel load dates for multi-plant sites from the indicated construction durations. While this method shortens the apparent construction times of second or subsequent plants, it does not adequately account for the actual changes occurring during the construction process that may affect the duration of construction. To explain further, while a utility may initially plan for a one year interval between fuel load dates for multi-plant sites, time dependent factors such as design changes, differing regulatory requirements, construction slippages, delays in need for power, etc., may affect construction times of later plants such that actual fuel load date intervals of greater than the one year estimate can result.

Any study of nuclear power plant construction times must consider actual delays and the reasons for them on a plant by plant basis. NUREG-0030 present a historical record of the delays for each plant and, where known, the reasons for the delays. Consequently, we believe the information needed to do detailed analyses of plant-specific construction times is available in the report. We believe that the above-mentioned changes to our method of displaying average nuclear power plant construction times are responsive to the GAO recommendation.

Report - November 15, 1979

⑤ Placing Resident Inspectors at Nuclear Power Plants: Is It Working?

1. Recommendation - Require that resident inspectors perform more direct observations than review of records and provide inspectors with more administrative support.

NRC Action

A restructuring of the expanded NRC inspection program for operating and preoperational reactors is underway. This reworking will require more direct observation and independent measurement of licensee activities than review of records. As a result, the Senior Resident Inspector at each site will be devoting a substantial portion of his inspecting activities to direct observation or to independent measurement. The other resident inspector or inspectors at each site will be performing essentially all of their inspections by direct observation or independent measurement.



The program for resident inspection at reactor construction sites is being modified to similarly emphasize direct observation and independent measurement.

Part-time clerical positions are being assigned to each resident office. These clerical personnel will assist the resident inspector(s), relieving them of some administrative burdens and providing services previously available only from their Regional Offices.

2. Recommendation - "Define the role of the resident inspectors and establish what qualifications and training they need, specifically requiring them to have plant-specific training, and a level of training comparable with a reactor operator."

#### NRC Action

The scope of duties, responsibilities and authority for resident inspectors has been conveyed to these inspectors, primarily through the Fundamentals of Inspection Course in the NRC training program. A formal statement on the resident inspector's role in performing an integrated, regional- and resident-based inspection program was prepared in February, 1980. A similar statement on the resident's role in responding to incidents was also prepared in February, 1980.

The training and qualifications needed to become a senior resident inspector were defined in 1978. Other than for some minor modifications these criteria continue to be followed today and for the foreseeable future. We provide up to two years of training and inspection experience to new inspectors who already possess solid qualifications in reactor operations or reactor construction but who have little or no direct experience with the NRC regulatory program.

The training programs and qualifications needed by the additional resident inspectors at a site are different because of their more limited duties and responsibilities. These inspectors must receive training in regulatory matters and inspection techniques. We expect to provide one year of training and NRC work experience to these new inspectors when they already possess experience in nuclear operations. If they do not have this experience a longer training program will be necessary. The Resident Inspector Operations Training Program will be expanded from 8 weeks to 11 weeks. Included in the additional training is more time on the reactor simulator, detailed discussion of the safety importance of plant auxiliary systems, and increased emphasis on reactor transients. Additional courses will also be provided to improve understanding of the safety analysis of the plant from an engineer's point of view.

All resident inspectors are provided plant-specific training. Much of this is obtained in their study of plant FSAR's, technical specifications and other written documents and in their repeated observation of plant activities. Only upon completion of such training, are they fully qualified to perform the duties as resident inspectors for that unit. It is not our present intent to require that resident inspectors be licensed reactor operators; but they will receive training that will achieve substantial comparability to the knowledge level of the average senior reactor operator.

3. Recommendation - "Assign resident inspectors to those reactor sites that are most in need of regulatory attention."

#### NRC Action

In consonance with the President's December 7 message on the Kemeny Commission Report, we are accelerating implementation of the Resident Inspector Program. By June, 1980 each site with an operating or preoperational reactor will have the equivalent of at least one resident inspector. All such sites will have a full complement of at least 2 resident inspectors by September 30, 1980. The number of resident inspectors will increase from 46 at 34 sites as of December, 1979 to about 130 for 60 sites as of September, 1980. Subsequently, resident inspectors will be assigned to reactors as they reach the preoperational stage. Since we plan to have resident inspectors at all operational and preoperational sites by September 30, 1980, we do not believe there is a need to prioritize such sites. However, if it becomes apparent that we cannot meet this goal, the sites will be manned in priority order.

By June, 1980 NRC resident inspectors will be assigned to the 16 sites where construction activities are in the crucial final period. NRC resident inspectors will also be assigned to sites in earlier stages of construction where problems are evident. There are four positions budgeted for such assignments. Additional construction sites will be manned as qualified resident inspectors become available. We are hoping to man three or four such additional sites by September, 1980.

4. Recommendation - "Coordinate the interface between the existing Regional inspection approach and the evolving inspection approach."

#### NRC Action

An NRC task force is developing an integrated, routine inspection program for preoperational and operating reactors. They are incorporating recommendations from current Regional and resident inspectors, inspector supervisors, and the various studies of the Three Mile Island accident. The first step, temporary instructions controlling and integrating these efforts, was issued February 7. The final product is to be issued by October, 1980.

5. Recommendation - "Reevaluate and restructure the performance appraisal team and develop appropriate goals and measures of effectiveness for its (NRC's) nuclear power plant inspection program."

#### NRC Action

We have recently concluded an evaluation of the performance appraisal team, one that included both an in-house review and an independent contractor's assessment. We are considering alternatives relating to the location of the staff organizationally and physically. In addition, emphasis is being placed on staffing and policy development. The performance appraisal function has been given high priority relative to the other programs of the Office of Inspection and Enforcement.

The NRC Special Inquiry Group ("Rogovin") recommended "a team or blitz approach, in which a number of inspectors make unannounced visits from Regional headquarters to conduct in-depth inspections of the overall operation of a plant for at least a week or more, perhaps accompanied by their supervisor or by project management personnel." The performance appraisal team provides a limited version of such blitz inspections with emphasis on quality control management at the plant and at licensee corporate headquarters. Consideration is being given to expanding this currently limited approach to provide a comprehensive inspection of overall plant operation.

Attempts have been made in the past to develop appropriate goals for the nuclear power plant inspection program, and also to develop assessment procedures to measure the effectiveness of the inspection program towards achievement of those goals. The attempts were unsuccessful. The difficulties of defining goals more specific than the overall regulatory goal of assuring public health and safety, and of specifying means to measure progress towards those goals, are well known and have been cited as a major reason for the lack of past progress in this area. While we appreciate the difficulties of the task we do not view them as insurmountable and believe that with concerted effort and the revised attitudes that have resulted from the experiences of the past year, appropriate goals and assessment measures can be developed. We plan to have an organizational element within the Office of Inspection and Enforcement, whose principal responsibility will be overall inspection program development and the auditing of its implementation, address this problem on a priority basis. We believe a successful program can be established if the proper resources are assigned to the effort.

Report - December 4, 1979

K Radiation Control Programs Provide Limited Protection

1. GAO Recommendation

"The NRC and its Agreement States establish follow-up procedures to verify that serious violations identified during inspections of licensees are corrected."

NRC Action

While follow-up inspections are an integral part of NRC's licensee inspection and enforcement programs, NRC does not currently have explicit procedures for detailing the time frame of follow-up inspections. The timing of follow-ups is based in part on an assessment of the seriousness of a violation relative to other outstanding licensee violations in the context of available manpower.

It is standard NRC practice to conduct timely follow-up inspections in those cases where serious violations concerning health and safety have occurred. Other violations of a less serious nature are normally left for follow-up during the next scheduled routine inspection.

Agreement States are also expected to follow the same practice, and comments are made to States when it is not clear this is always being done. We are unaware of any Agreement States which, by policy or by approved practice, deliberately omit follow-up action on violations. In cases where documentation is lacking, we will continue to comment on this to the States. We have brought this matter to the attention

of the Agreement States by a letter transmitting the GAO report to the States. It should be additionally noted that NRC routinely distributes Information Notices, Bulletins, and Circulars to Agreement States discussing recent licensee events which indicate potentially serious generic problems requiring attention by Agreement State licensees.

Although the NRC and the Agreement States currently follow up violations, the NRC believes that there are benefits to having the procedures explicitly stated. Therefore, we will develop written procedures in the near future.

## 2. GAO Recommendation

"Copies of NRC evaluation reports be provided to NRC-Agreement States."

### NRC Action

Such reports have not routinely been furnished to the States, but we have made available all or portions of evaluation reports to States upon request, notably the appendices on license and compliance file reviews which can be useful to State programs for training and retraining personnel in these areas. We believe that for the most part, evaluation reports contain information already known to the States or which was made known to them during the review by NRC reviewers and in subsequent correspondence to the State. Certain portions of the reports may be sensitive in that comments by reviewers can reflect on the performance of a State employee, and our evaluations are structured to evaluate the overall performance of the States rather than any one individual.

Although Agreement States are routinely advised of NRC's determination of adequacy and compatibility with NRC's program and given general recommendations on how to improve their programs, we agree that the evaluation reports provide a supportive frame of reference for any needed improvements. In this regard, we plan to implement GAO's recommendation that the evaluation reports, minus any sensitive portions, be provided routinely to the Agreement States.

## 3. GAO Recommendation

"NRC evaluators determine whether licensing and inspection deficiencies identified in previous State evaluations have been corrected."

### NRC Action

NRC does determine whether generic licensing and inspection deficiencies identified in previous State evaluations have been corrected. An important part of our license and compliance file reviews and field evaluations of inspectors, in fact, is to assure that previously noted problems have been corrected. First-time deficiencies are discussed with cognizant State personnel during the NRC review visit and formalized in correspondence following the review. The State's responses to our comments are reviewed in the next routine review meeting. Our file reviews focus heavily on actions taken during the period since our previous review and determine whether previously noted generic deficiencies are still a problem. Additionally, it should be noted that, beginning in late 1979, we began to specifically examine and follow-up license and compliance actions for selected, major Agreement State licensees, such as manufacturers, distributors and licensees having a potential for significant releases of radioactivity to the environment and which have been noted to be deficient in the past.

We do not believe that significant benefit would be derived from specific follow-up actions for minor details which have no major impact on protecting the public health and safety. Our file reviews are a sampling (albeit planned and selected) and not all-inclusive. When we find that comments resulting from individual file reviews become repetitive, they are included in our discussions and correspondence and, as noted before, followed-up. When a major comment or series of significant comments are developed for specific files, we have identified such files in our discussions and correspondence, and the comments are followed-up.

NRC is undertaking or planning several additional activities which will improve Agreement State programs.

Currently, NRC is undertaking to revise the present criteria for evaluating the adequacy and compatibility of Agreement State programs. The Agreement States have reacted favorably to one aspect of this revision, which categorizes the criteria according to their relative public health and safety import. This will streamline the evaluation process and help ensure the identification and resolution of important program deficiencies. The Commission is requesting public comment on these staff proposals.

The GAO report noted that NRC has no statutory authority to regulate naturally occurring and accelerator-produced radioactive materials (NARM), and can only encourage Agreement States to include NARM in their programs. The report also noted the recent NRC task force study of NARM regulation which concluded that the current regulatory configuration is fragmented, non-uniform, and incomplete at both the Federal and State levels. The Commission concurs that improvements in the regulation of NARM are needed. While NRC could logically regulate NARM if it were given the requisite legislative authority, the Commission is not currently pursuing that authority because we believe that such efforts should be integrated into the larger effort to properly allocate Federal responsibilities for radiation protection. As you are aware, the President has recently established an Interagency Federal Radiation Policy Council which would be assigned numerous functions, including considerations of basic Federal radiation policy. As we believe that many of the key issues related to NARM could best be addressed by the Council, we intend to bring this matter before the Council when it begins to operate.

Finally, we have received a January 23, 1980 letter from Mr. Charles F. Tedford, Chairman of an Ad Hoc Committee of the Agreement States, which was established during the October 1979, NRC Agreement States meeting. The purpose of the Committee was to develop an affirmative position paper on the future of the NRC/State Agreements Program. This position paper, entitled "A Need To Reaffirm The Agreement State Program," is supportive of NRC's Agreement States Program and concludes that the program has proven to be a valued resource to the States' radiation safety program. The paper also notes the need for improvements in specific areas of the Agreement States Program. We plan to incorporate our consideration of these suggestions into the larger effort described above.

## B. Update on Reports Issued in Prior Years

Report - March 8, 1977

(L) Issues Related to the Closing of Nuclear Fuel Services, Inc. (NFS)  
Reprocessing Plant at West Valley, New York

GAO Recommendation #1

Responsibility and Federal Assistance

- Develop in conjunction with the DOE a policy on Federal assistance to New York State for the West Valley site.

GAO Recommendation #2

Decommissioning the West Valley Site

- Require New York State, since it has basic responsibility for the site, to report its plans on the future use of the West Valley site.
- Require NFS and New York State to submit a decommissioning plan which meets NRC's guidelines and establishes long-term care requirements for the site.

NRC Responses

In 1976, the New York State Energy Research and Development Authority (NYSERDA) requested that ownership of the West Valley site and responsibility for its contents be transferred to the Federal Government. As a result of this request, the DOE undertook a study of the available options for the Federal Government at West Valley.

A final report of this study by DOE was released for public comment on November 24, 1978 and presented to the Congress on February 23, 1979.

Final decisions on the future disposition of the West Valley site, expected to result from the DOE study, are not yet complete. In the FY 80 DOE Appropriations Bill, the Congress directed DOE to begin preparations necessary to immobilize the West Valley wastes. However, additional authority necessary to permit further federal responsibility or assistance for other portions of the site has not yet been granted. Decommissioning of any or all portions of the site must follow decisions that are made on the future disposition of the various portions of the site.

Concurrently, NRC has requested NFS and NYSERDA to cooperate in the preparation of a decommissioning plan for the West Valley site. Such a plan will be valuable, regardless of any future use for the site. NFS, because of their unique familiarity with the site, has been requested to take the lead in developing these plans. Their initial reaction was unresponsive; but after followup discussions, NFS agreed to provide NRC with the technical information and analyses that would provide a basis for any future decontamination or decommissioning of the facility. We have been meeting with NFS and NYSERDA on a periodic basis during their development of this information.

GAC Recommendation #3

Prepare for NFS and New York State guidelines for decommissioning the reprocessing plant and site in line with any planned future use.

NRC Action

On October 17, 1977, we provided information to NFS on allowable residual contamination limits following decommissioning. This information and other information concerning various aspects of decommissioning the separations plant is presented in the NRC report, "Technology, Safety and Costs of Decommissioning a Reference Nuclear Fuel Reprocessing Plant," (NUREG-0278). This generic study is part of a task undertaken by Battelle Pacific Northwest Laboratory on the general topic of decommissioning all nuclear facilities. The NRC staff recognizes that additional assistance may be necessary on its part to provide NFS with additional perspective and criteria for preparation of a decommissioning plan.

GAC Recommendation #4

Condition of the West Valley Waste Tanks

- Proceed on a priority basis in the current analyses to assess seismic integrity of the waste tanks.
- In its plans to determine tank life, include a review of the stress relieving data for assurance that the proper techniques were used.
- Assess on a priority basis the present condition of the vault system and the soil characteristics such as ion exchange capability and impermeability of the soil surrounding the system.

NRC Action:

The Lawrence Livermore Laboratory (LLL) has conducted a seismic analysis of the West Valley carbon steel waste tanks and their surrounding reinforced concrete vaults and of the stainless steel waste tanks and their reinforced concrete vault. The results of the seismic analyses indicate that the risk to the public from the effects of a major earthquake on the high-level waste storage system is very small.

At the request of the NRC staff, Dupont-Savannah River Plant (SRP), a DOE contractor, reviewed the safety-related information available for the high-level liquid waste storage systems at the West Valley site. Stress relieving data was one of the numerous types of available information examined by SRP. A report documenting the results of their review was issued by the NRC on June 2, 1978. The report contained several recommendations for conducting additional investigations which could give increased understanding and confidence in the NFS waste storage systems.



As a result of an NRC request to implement one of the recommendations contained in the SRP report, NFS initiated a series of special tests of the high-level waste tank storage system. One of these tests disclosed the presence of a defect in the carbon steel pan that sits under the carbon steel high-level waste tank. The cause of this defect has not been determined but is under active investigation. The tests have proven that the tank itself is intact and that there have been no leaks of radioactivity from the tank.

The NFS high-level liquid waste storage system consists of: (1) the waste tank; (2) a steel pan which surrounds the bottom of the tank and projects upward a portion of the height of the waste tank; and (3) a concrete vault. The underground vault is embedded in a silty till soil of low permeability and high ion exchange capacity. The facility was constructed with two of these vault-pan-tank systems for the primary liquid high-level waste while the other tank is maintained as a spare.

The safety basis for the storage of the high-level liquid wastes has always been the multiple lines of defense, i.e., the tank, pan, vault, transfer capability to an available spare tank, and the very low permeability of the surrounding silty till. The effect of this capability for leakage from the pan to the vault is a reduced safety margin. However, an intact pan is only a partial barrier since its available volume can hold only a fraction of the wastes. The pan was designed to serve as a collection chamber for small leaks from the tank. The tank itself, the concrete vault and the silty till soil each serve as complete barriers for the waste.

In order to implement the other recommendations made by Dupont with respect to assessing the condition of the West Valley waste storage system, the staff contracted with Rockwell Hanford Operations to conduct a program to implement Dupont's recommendations. Rockwell's program to inspect and evaluate the high-level waste storage system at West Valley will include:

1. An inspection and evaluation of the carbon steel tanks and vaults using remote photography, television and ultrasonic sensors.
2. Sampling and analysis of the neutralized waste supernatant and sludge and acid waste. The laboratory analyses will include both radionuclides and major nonradioactive constituents.
3. Using tank construction and corrosion data along with appropriate laboratory testing, an assessment of corrosion conditions within the tanks will be made.
4. Waste soil interaction studies will be conducted to predict the extent and rates of migration of any wastes from the tank in the event of any tank and vault leakage.
5. An evaluation of the heat transfer characteristics of the waste storage system will be made.

The planning phase of Rockwell's program began in March 1979 with physical work on the West Valley site expected to begin in mid-1980. The entire program should be completed in FY 83.

For the past several years, the New York State Geological Survey (NYSGS) has been conducting investigations of soil conditions surrounding the state licensed low-level burial ground at the West Valley site. The NRC staff has recently contracted with NYGS to extend their studies to soils surrounding the high-level waste tanks. This work will help determine the long term waste retention capabilities of the region surrounding the high-level waste tanks.

#### GAO Recommendations #5

##### Waste Management Technology and Waste Characterization

- Develop waste form and waste system performance criteria for NFS waste;
- Develop criteria for decommissioning of waste storage facilities so that the impact of residual sludge in the NFS tank can be evaluated; and
- On a priority basis, characterized the physical chemical properties of the NFS waste sludge.

#### NRC Action

The staff is placing primary emphasis on the question of alternate disposal techniques for the waste since this is a controlling factor in the decision-making process. The specific criteria for performance and residual levels will evolve as more definitive information is developed for the disposal technique ultimately selected. The lack of these criteria at this time does not, in the opinion of the staff, impede the consideration of alternate disposal methods. The staff has provided the Department of Energy (DOE) with its views as to the realistic options for disposing of the high-level waste at West Valley. We requested that DOE, as the organization with the requisite technical capabilities, undertake the detailed, specific engineering and development work necessary to achieve retrieval, immobilization and disposal of the NFS high-level liquid wastes.

On December 12, 1979, DOE published a notice in the Federal Register announcing its intent to prepare a Draft Environmental Impact Statement (DEIS) for a processing facility to immobilize the high-level liquid waste at West Valley. The DEIS will consider alternatives for immobilization of the waste.

The NRC staff has developed a new proposed regulation for the disposal of high-level radioactive wastes in geological repositories (10 CFR 60). The regulation contains a proposed Procedural Aspects Rule which was published for public comment in the Federal Register on December 6, 1979. The staff expects to publish a companion rule covering the technical criteria in mid-1980 and to finalize the entire rule by the end of 1981.

As discussed in the previous section, the NRC staff has contracted with Rockwell Hanford Operations, a DOE contractor, to undertake a program to inspect and evaluate the high-level waste storage system at West Valley. One part of this program includes a characterization of the chemical and physical properties of waste including the sludge. It is expected that the control and funding of this part of the program with Rockwell will be taken over by DOE as an input to their development of the waste immobilization facility.

GAO Recommendation #6

Require New York State to submit a plan for correction problems at the low-level burial site.

NRC Action:

As an Agreement State, New York is responsible for conducting a regulatory program adequate to protect the public health and safety which includes correction problems. The assumption authority by Agreement States under Section 274 of the Atomic Energy Act currently includes regulation of commercial waste burial sites. New York also has additional, but separate, responsibilities as land owner and long-term custodian. The site was closed by the operator in March 1975, and the operator corrected the immediate problem of trenches overflowing in the north-end burial area by removing liquids from the trenches.

During 1978, the operator performed additional burial site maintenance by adding an extra layer of soil cover to the north-end trench caps. More recently, the south-end trenches, which has not previously exhibited rising trench water levels and which have not had additional trench cap maintenance, began to exhibit rising water levels. The New York State Department of Environmental Conservation is continuing to monitor the situation at the burial grounds and to oversee the necessary care and maintenance.

Report - September 9, 1977

(M)

Nuclear Energy's Dilemma: Disposing of Hazardous Radioactive Waste Safely

GAO Recommendation

The Chairman of the Nuclear Regulatory Commission should:

- Proceed on a priority basis to complete its waste repository licensing procedures.
- Proceed on a priority basis to include in its waste performance criteria, criteria for the storage or disposal of spent fuel.

NRC Response

On December 6, 1979, the Commission published for public comment in the Federal Register the procedural portion of its regulation on waste

repositories for high-level waste (19 CFR 60). The staff anticipates publishing in early 1980 as an advance notice of rulemaking, its proposed technical portion of the regulation for high-level waste repositories (10 CFR 60); and its proposed regulation for low-level waste disposal (10 CFR 61).