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REPORT TO THE SENATE COMMITTEE ON GOVERNMENT OPERATIONS

BY THE COMPTROLLER GENERAL OF THE UNITED STATES



Development Of Interagency Relationships In The Regulation Of Nuclear Materials And Facilities

Nuclear Regulatory Commission
Energy Research and Development Administration

The Nuclear Regulatory Commission has developed working relationships with other Federal agencies, chiefly the Energy Research and Development Administration.

The report shows the need to develop or modify existing or proposed relationships in the Commission's:

- Use of the Energy Research and Development Administration's research facilities.
- Review of physical protection systems in its export license program.

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

B-92288

The Honorable Abraham A. Ribicoff
Chairman, Committee on Government Operations
United States Senate

Dear Mr. Chairman:

JAN 01580

This report discusses the relationships between the Nuclear Regulatory Commission, the Energy Research and Development Administration, and other executive agencies in the conduct of the regulatory programs for research, reactor safety, and domestic and international safeguards. We made the review in accordance with your request of January 20, 1975, as modified by subsequent discussions with your office.

As your office requested, we have not obtained formal agency comments. However, we discussed the matters presented in the report with agency officials and have considered their comments in the report.

We invite your attention to the fact that this report contains recommendations to the Chairman of the Nuclear Regulatory Commission and the Administrator of the Energy Research and Development Administration which are set forth on pages 7 and 13. As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the House and Senate Committees on Government Operations not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

As agreed with your office, we will send copies of this report to the Director, Office of Management and Budget; the Chairmen of the House Committee on Government Operations,

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the House and Senate Committees on Appropriations, and the Joint Committee on Atomic Energy; the Chairman, Nuclear Regulatory Commission; and the Administrator, Energy Research and Development Administration.

Sincerely yours,

A handwritten signature in black ink, appearing to read "James A. Stacks". The signature is written in a cursive, slightly slanted style.

Comptroller General
of the United States

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ABBREVIATIONS

ERDA	Energy Research and Development Administration
GAO	General Accounting Office
INEL	Idaho National Engineering Laboratory
LOFT	loss-of-fluid test facility
NRC	Nuclear Regulatory Commission

COMPTROLLER GENERAL'S
REPORT TO THE COMMITTEE
ON GOVERNMENT OPERATIONS
UNITED STATES SENATE

DEVELOPMENT OF INTERAGENCY
RELATIONSHIPS IN THE
REGULATION OF NUCLEAR
MATERIALS AND FACILITIES
Nuclear Regulatory Commission
Energy Research and Develop-
ment Administration

D I G E S T

GAO was asked to review the development of interagency agreements and other understandings between the Nuclear Regulatory Commission and the Energy Research and Development Administration under the Commission's programs for

- regulatory research,
- international and domestic safeguards, and
- reactor safety.

[The interagency memorandums for regulatory research involve the Commission's use of the Energy Research and Development Administration's light water reactor safety research facilities and use of national laboratories for general research and technical assistance. The first memorandum, which is to be the model for all others, gives the Commission control over the design and management of its research; however, the Energy Research and Development Administration's responsibilities under the memorandum could affect the Commission's research.] (See p. 4.)

Hand
Although the first memorandum specifies broad principles and general working relationships, the agencies have not formally agreed to detailed operating procedures for conducting the Commission's research nor have they agreed on procedures for promptly resolving disagreements between them. Until such procedures have been formally agreed to, there could be an adverse impact on the Commission's regulatory research program. (See p. 5.)

GAO recommends that the agencies, in all negotiations on the Commission's use of the Energy Research and Development Administration's facilities and technical expertise, agree to

--detailed procedures for conducting the research or technical assistance project and

--detailed procedures for promptly resolving disagreements between the agencies. (See p. 7.)

The interagency agreements and procedures for domestic and international safeguards involve the Commission's (1) issuance of export licenses for nuclear materials, facilities, and equipment, (2) safeguards responsibilities at licensed facilities which also do work under an Energy Research and Development Administration contract (mixed facilities), and (3) use of an Energy Research and Development Administration's laboratory for special nuclear material analytical services. (See p. 8.)

Under arrangements between the Commission and executive branch agencies for reviewing export license applications, the Commission is limited in its ability to make an independent regulatory evaluation of whether an export would be harmful to the common defense and security of the United States. (See p. 11.)

GAO recommends that the Commission and the Energy Research and Development Administration develop an interagency agreement under which Commission personnel will regularly participate in inspections of the physical security measures to be applied to U.S.-supplied nuclear materials, equipment, and facilities in importing countries. (See p. 13.)

Senate bill 1439, "The Export Reorganization Act of 1976," would increase the Commission's ability to make independent regulatory judgments. The legislation designates the State Department as the lead agency for negotiating and entering into all agreements for cooperation with other nations and requires that the State Department consider the Commission's recommendation and policies for licensing nuclear exports before entering into agreements for cooperation. Furthermore the bill requires the State Department to furnish the Commission with all executive branch data and recommendations that the Commission requires to make export license decisions. The bill also authorizes the Commission to receive directly from the Arms Control and Disarmament

Agency a nuclear proliferation assessment statement on all agreements for cooperation and for strategically important nuclear export applications and approvals. In addition the bill provides for congressional approval for a nuclear export that raises major foreign policy questions that NRC cannot resolve.

Under a proposed interagency agreement on safeguards responsibilities at mixed facilities, the Energy Research and Development Administration wanted to assume responsibility for establishing requirements and inspecting against them for personnel security clearance and protection of classified information. The Commission objected to the Energy Research and Development Administration's proposal because it could be interpreted as reinstating an exemption from the Commission's physical security requirements for the Energy Research and Development Administration's classified contract work at mixed facilities. The staffs of the Energy Research and Development Administration and the Commission have reached a formal understanding under which the Commission will carry out all of its safeguards and security responsibilities for mixed facilities and the Energy Research and Development Administration will exercise its contractual responsibilities for safeguards and security provisions at mixed facilities. Therefore the Commission has not agreed to any changes in its responsibility for establishing and evaluating domestic safeguards for mixed facilities. (See p. 14.)

Under a proposed interagency agreement for the Commission's use of the Energy Research and Development Administration's New Brunswick Laboratory for analyzing samples of licensees' special nuclear materials, the Commission would plan its sample workload and exercise technical oversight in defining the details of each project and in reviewing and accepting the results. However, the Commission would continue to support the laboratory with considerably more funds than needed to support the sample analysis program. The Commission has agreed to determine its fair share of support for the laboratory beginning with fiscal year 1977. (See p. 16.)

The Commission has proposed an interagency agreement related to the safety review of the Energy Research and Development Administration's reactors exempt from licensing. This agreement would continue an arrangement with the former Atomic Energy Commission under which the regulatory staff provided advisory safety reviews on certain Commission projects, including reactor projects which were exempt from licensing. The proposed agreement would make optional with the Commission certain safety reviews that had previously been mandatory. This would eliminate the regulatory staff's input to the safety of those nuclear research and development projects which the Commission elects not to review. (See p. 18.)

CHAPTER 1

INTRODUCTION

Under the Energy Reorganization Act of 1974 (42 U.S.C. 5801), certain functions of the Federal Government related to the development of various energy sources and the regulation of atomic energy and other uses of radioactive materials were assigned to the Energy Research and Development Administration (ERDA) and the Nuclear Regulatory Commission (NRC).

The Chairman, Senate Committee on Government Operations, asked us to review certain matters involving NRC's relationships with ERDA and NRC's establishment of its organizational structure. We previously reported to the Chairman on NRC's organization (B-92288, July 18, 1975). As agreed with the Chairman's office, we are providing information on NRC's relationships with ERDA under NRC's program for regulatory research, international and domestic safeguards, and reactor safety. These relationships are being developed into inter-agency agreements or other understandings which describe arrangements for continuing previous or establishing new working relationships since each agency was assigned its part of the atomic energy development and regulatory functions which were the responsibility of the former Atomic Energy Commission.

As of January 1976 there were five areas in which inter-agency agreements and memorandums were being negotiated, as follows:

1. Administrative and other support functions.
2. Emergency preparedness.
3. Research and technical assistance.
4. International and domestic safeguards.
5. Reactor safety.

The first two listed agreements are not directly related to the development of NRC-ERDA relationships under programs for regulatory research, safeguards, and reactor safety.

Under the agreement for administrative and other support, ERDA will provide support and assistance to NRC in such areas as

--use of ERDA computers and technical information services and

--use of ERDA staff or ERDA contractors as consultants to the Advisory Committee on Reactor Safeguards.¹

The agreement on emergency preparedness coordinates ERDA and NRC efforts for developing contingency plans dealing with threats against thefts and sabotage of licensed nuclear material and facilities.

The agreements and memorandums on research and technical assistance, international and domestic safeguards, and safety reviews of ERDA's reactors are directly related to NRC's principal functions and responsibilities for research, safeguards, and reactor safety.

¹The Advisory Committee on Reactor Safeguards reviews safety studies and license applications and reports to NRC on the hazards of licensed production and utilization facilities and the adequacy of the facilities' safety and safeguards.

CHAPTER 2

REGULATORY RESEARCH

Section 205 of the Energy Reorganization Act of 1974 established the Office of Nuclear Regulatory Research in NRC and made its director responsible for research to support NRC's regulatory functions. NRC was to have an independent capability for developing and analyzing technical information related to reactor safety, safeguards, and environmental protection supporting the licensing and regulatory processes. However, NRC was not to build its own laboratories and facilities nor to duplicate ERDA's research and development. NRC's research was to be solely confirmatory, by establishing the validity of safety principles that support the regulated technologies; ERDA was to be responsible for developmental or promotional research. NRC was to use the facilities and expertise available through ERDA, other Federal agencies, and private contractors to carry out its analytical and experimental research program.

The act requires ERDA and other Federal agencies to (1) cooperate in establishing priorities for the research services NRC requests, (2) consult and cooperate with NRC on research and development matters of mutual interest, and (3) provide information and access to their facilities which will help NRC acquire the expertise it needs to support its regulatory functions.

To carry out this requirement, NRC and ERDA have been developing memorandums for NRC's use of:

- Light water reactor safety research facilities located at ERDA reservations.
- National laboratories ERDA administers as Government-owned, contractor-operated facilities.

AGREEMENTS FOR RESEARCH AND TECHNICAL ASSISTANCE

Memorandums of Understanding are being or have been negotiated for each major light water reactor safety research facility: (1) the loss-of-fluid test facility (LOFT), (2) power burst facility, and (3) the plenum fill experiment. A general memorandum covering general research and technical assistance is being negotiated to cover all other NRC work.

LOFT is being built at the Idaho National Engineering Laboratory (INEL), Idaho Falls, Idaho. LOFT is to study

the nuclear, thermal, hydraulic, and structural processes during postulated loss-of-coolant accidents in pressurized-water reactors. The LOFT program's principal objective is to provide the experimental data for evaluating the adequacy of analytical methods and computer codes used in studying postulated accidents. NRC estimates that nonnuclear tests will begin in February 1976 and that nuclear tests will begin about September 1977. LOFT was under the direction of the former Atomic Energy Commission's Division of Reactor Safety Research before the division was transferred to NRC. NRC believes LOFT is central to its research program.

The power burst facility, also located at INEL, provides experimental data on the behavior of power reactor fuel rods under various postulated accident or abnormal operating conditions.

The plenum fill experiment at Richland, Washington, now in the early stages of construction, is under program review. It is being designed to confirm postulated coolant flow rates and paths into the lower part of a pressurized-water reactor vessel during a loss-of-coolant accident.

NRC and ERDA signed the memorandum on LOFT principles and general working relationships on August 8, 1975. NRC officials told us that all other memorandums for NRC's use of light water reactor safety research facilities and for general research and technical assistance will be patterned after the LOFT memorandum.

NRC's control of its LOFT research

The LOFT memorandum provides NRC control over its research program at the facility. For example, NRC:

- Will provide experimental requirements and guidance to ERDA on the completion of LOFT construction and will certify the facility's acceptability for NRC program requirements.
- Will design, directly with the ERDA contractor, the experimental and analytical projects (scope, schedule, and funding), including the quantitative and qualitative resources required to carry them out.
- Will have technical control over its experimental and analytical projects.

An NRC official told us that NRC would be responsible for establishing the priority of its LOFT work and that its technical personnel would be located at INEL to direct NRC's LOFT program. NRC has received ERDA assurances that LOFT is presently dedicated to the NRC program and that NRC has complete technical program direction responsibility over their experimental and analytical program at LOFT. However, the LOFT memorandum was also designed to assure ERDA that operation of LOFT will not hamper ERDA's research effort at INEL and that ERDA can satisfactorily carry out its overall responsibilities for managing the ERDA prime contract.

Because LOFT is an ERDA facility operated by an ERDA contractor, ERDA will remain responsible for some functions that, in our opinion, possibly could have an impact on NRC's ability to design or modify its LOFT research projects. Specifically, ERDA will

- insure that work for NRC at LOFT does not hamper requirements for ERDA's research at other INEL facilities by determining whether the resources NRC and the contractor agreed to are adequate to carry out the program within the defined scope and

- review the safety of LOFT's activities.

The LOFT memorandum provides for these ERDA reviews because ERDA has overall management responsibility for contractor operations at INEL and ERDA wanted assurance that additional ERDA contractor personnel would not have to be diverted from ERDA research to NRC work and because safety review responsibility is specifically reserved to ERDA by the act.

NRC's negotiator for LOFT believes that the memorandum is the best that NRC could have expected. He said that, in all negotiations with ERDA in research and technical assistance areas, ERDA had the advantage because ERDA was responsible for managing the facilities or administering the technical assistance contract.

Need to agree on detailed procedures
for conducting LOFT and
for resolving disputes

Although the LOFT memorandum contains broad principles and general working relationships on the operation of NRC's LOFT program, the agencies have not formally agreed to

detailed operating procedures for conducting LOFT nor have they agreed to procedures for resolving disagreements among NRC and INEL personnel on the LOFT program.

Certain principles and general working relationships specified in the memorandum have been interpreted differently by both agencies. Some of the major differences concerned the modifications to the facility and the operational responsibilities of both agencies at the facility. Because of these differing interpretations and the complex LOFT arrangement, attempts to develop one detailed LOFT agreement were discarded in December 1975. NRC and ERDA officials told us that these differing interpretations had been resolved and that the next step in the negotiation process would be developing detailed operating procedures. NRC's negotiator told us that such procedures had been finalized in several administrative areas, such as budget and accounting, and that definitions on modifications to LOFT and detailed management procedures would have to be negotiated. He added that specific procedures involving coordinating NRC and ERDA staffs at the field level would be developed when NRC established its field-level operations at INEL, probably before the end of fiscal year 1976.

Where ERDA disagrees with NRC's LOFT program, the memorandum notes only that such differences between ERDA and NRC will be resolved. The memorandum, except for requiring that unresolved matters be referred promptly to NRC and ERDA headquarters, does not specify the procedures for resolving differences on the LOFT program among NRC and INEL personnel. The memorandum is silent on what constitutes prompt referral, who is responsible for resolving differences and the time frame within which they must be resolved, and how differences unresolvable by NRC and ERDA headquarters are to be settled.

Because many procedures still have to be negotiated between NRC and ERDA, a considerable amount of time could elapse before both agencies have a detailed set of operating procedures to guide them in conducting LOFT. If disagreements arise in developing detailed LOFT procedures and in developing procedures for resolving disputes, the discussions and negotiations to resolve them could have an impact on the cost, schedule, and objectives of NRC's LOFT research.

NRC officials told us that ERDA's Assistant Administrator for Environment and Safety and NRC's Director, Office of Nuclear Regulatory Research, would be responsible for resolving technical and program management disputes and that ERDA's Assistant Administrator for Administration and NRC's Executive Director for Operations probably would be responsible for resolving administrative disputes.

An NRC official told us that, if disagreements could not be resolved at the NRC-ERDA headquarters level, the Office of Management and Budget could be asked to help resolve the disputes; however, NRC has never sought such help. Another arbiter of any unresolved dispute could be the Congress.

Conclusions

The interagency memorandum of NRC's use of LOFT gives NRC control over the design and management of its research efforts at LOFT. However, ERDA's authority to insure that its research work will not be hampered by NRC's LOFT program and to carry out its safety review responsibilities could affect the cost, schedule, and objectives of NRC's LOFT program. Because the LOFT memorandum will be a model for all other research memorandums, the potential problems affecting the cost, schedule, and objectives of NRC research could recur.

The LOFT memorandum contains broad principles and general working relationships on the operations of NRC's LOFT program. Until detailed operating procedures have been formally agreed to, for conducting LOFT and for resolving disputes, delays in the LOFT program could be experienced because of the dual need to develop and carry out such procedures.

Such detailed procedures should also be developed between NRC and ERDA for the other light water reactor safety research facilities and for the general research and technical assistance projects NRC needs to carry out its research function.

Recommendations to the Chairman, NRC, and the Administrator, ERDA

NRC and ERDA should, in all negotiations on NRC's use of ERDA's facilities and technical expertise, agree to

- detailed procedures for conducting the research or technical assistance project and
- detailed procedures for promptly resolving disagreements between the agencies.

CHAPTER 3

INTERNATIONAL AND DOMESTIC SAFEGUARDS

Under section 204 of the Energy Reorganization Act of 1974, the Director of NRC's Office of Nuclear Material Safety and Safeguards was given responsibility and authority for reviewing the safety and safeguards of licensed nuclear facilities and materials. NRC's safeguards responsibilities extend to domestic licensees and to licenses issued to domestic licensees and commercial businesses to export nuclear material, facilities, and equipment. NRC does not license Government-to-Government exports. The term "safeguards" in the international context refers to nuclear material accountability but does not include physical security measures designed to protect nuclear material and equipment from subnational or terrorist theft, diversion, or sabotage. Domestically the term refers to both material accountability and physical security.

NRC and executive branch agencies have established procedures for reviewing international safeguards and physical security information before issuing export licenses. Also NRC and ERDA have been negotiating two safeguards agreements related to NRC's

- domestic safeguards responsibilities at licensed facilities that also do work under ERDA contract and

- use of an ERDA laboratory for special nuclear material analytical services.

EXPORT LICENSE PROGRAM

NRC's responsibility for issuing export licenses for nuclear facilities, material, and equipment stems from several provisions of the Atomic Energy Act of 1954, as amended. These include sections 53 and 57 (special nuclear material), sections 62 and 69 (source material), section 82 (byproduct material), section 103 (commercial production and utilization facilities), section 104 (medical therapy and research facilities), and section 109 (component parts of facilities). These provisions require NRC to determine, among other things, whether issuance of an export license would be harmful to the common defense and security of the United States and whether in some cases the export would be under the terms of an agreement for cooperation.

Responsibility for developing agreements for cooperation rests with the Executive Branch; such agreements are subject to congressional review. An agreement for cooperation with a foreign country sets forth:

- The nature, scope, and other terms and conditions of the cooperation.
- A guaranty that safeguards requirements in the agreement will be met.
- A guaranty that any material transferred pursuant to the agreement will not be used for any military purpose.
- A guaranty that any material or restricted data transferred will not be available to unauthorized persons nor transferred beyond the jurisdiction of the cooperating party.

The primary purpose of safeguards requirements in such agreements is inventory accountability of nuclear materials to insure that materials and equipment supplied will not be diverted to unauthorized use. Agreements do not specifically grant the United States authority to verify the adequacy of physical security systems. Developing and implementing such systems is the responsibility of the importing countries. However, the United States recently adopted a policy that no license or authorization be granted for export or transfer of certain quantities of special nuclear materials unless the recipient country has a physical security system acceptable to the United States.

Before the Energy Reorganization Act of 1974 was enacted, an export license application was submitted to the Director of Regulation of the former Atomic Energy Commission and then forwarded to the Commission's General Manager for review. The review included confirmation with the foreign country involved that (1) the ultimate consignee was authorized to receive and possess the material and (2) the transaction was covered by an agreement for cooperation. On the basis of this confirmation, the General Manager determined whether issuing the license would be harmful to the interests of the United States. If the General Manager's determination was favorable, he instructed the Director of Regulation's staff to issue the license.

The statutory responsibilities for issuing export licenses and entering into and approving agreements for cooperation are now divided between NRC and executive branch

agencies. Therefore procedures were needed to guide the agencies in carrying out their responsibilities.

NRC and executive branch agencies procedures for issuing export licenses have been in effect since May 1975. An NRC official told us that these procedures were to be set out in an Executive order, which had not been issued as of January 1976.

Under the new procedures, NRC receives the export license application and forwards it to the Department of State which consults other agencies, such as ERDA, the Department of Defense, and the Arms Control and Disarmament Agency, in developing the information and assessments necessary for determining whether an export will be used exclusively for peaceful purposes and will meet the common defense and security requirements of the Atomic Energy Act.

The Department of State provides information and statements to NRC on (1) the purpose of the export, (2) whether the export is covered by an agreement for cooperation, (3) whether the importing country has accepted and implemented acceptable international safeguards, (4) the adequacy of the importing country's accounting and inspection procedures and physical security arrangements to deal with threats of diversion of significant quantities of nuclear weapons materials, (5) the importing country's position on nonproliferation of nuclear weapons, and (6) the importing country's understanding with the United States regarding the prohibition of using U.S.-supplied material in developing nuclear explosives.

The information and statements support a coordinated executive branch view of whether the license should be issued. Any additional questions NRC may have after its review of the executive branch's input have to be satisfactorily answered by the executive branch before the license can be issued.

NRC officials have said that there probably would be few cases where NRC's judgment, in issuing an export license, would differ from that of the executive branch. NRC officials believe that, should there be a difference at the end of the export license review process after all exchanges between NRC and the executive branch, they have the responsibility of deciding whether to issue the license. However, NRC believes that, because most export license transactions fall within the framework of agreements for cooperation developed by the executive branch with congressional review and because the President is responsible for conducting foreign policy, NRC should give his views on

national security and foreign policy great weight in making its export license decisions.

From the inception of the export license procedures in May 1975 through January 2, 1976, NRC has asked the Department of State for information and coordinated executive branch views on 231 applications, 90 of which NRC considered major cases involving substantial quantities of certain nuclear materials or nuclear reactors or cases of special interest or sensitivity. As of January 2, 1976, NRC had received executive branch views on 49 of the 231 applications and had issued 40 licenses. According to the chief of NRC's agreements and exports branch, NRC is still considering the 9 remaining cases. He added that NRC had never disapproved licenses under these procedures.

We reviewed several export licenses issued under the new procedures. The information provided to NRC is much more detailed than that provided to the Director of Regulation before the reorganization.

NRC's independent review of export license applications is limited

In establishing export license procedures with the executive branch, NRC felt that, although it had the statutory responsibility for determining whether issuing an export license would be harmful to the common defense and security of the United States, most of the information needed to make its decision would come from executive branch agencies. The national security and foreign relations agencies have the capability to make integrated national policy evaluations considering foreign relations and national defense information. NRC officials believe it is impractical to attempt to develop an independent capability to collect and validate similar information related to nuclear exports. NRC officials said that NRC needed such information before it issued a license.

When safeguards needs were being considered in developing international agreements for cooperation, the principal concern was for insuring that the nuclear activity would involve only what was agreed to between the parties and that the importing country would not be able to undertake unauthorized activities without detection. Developing and carrying out physical security measures was the importing country's responsibility. Typically, international agreements do not specifically provide for formally inspecting and determining the adequacy of the importing country's physical security system. However, export of certain

quantities of special nuclear materials is subject to the new U.S. policy mentioned previously.

An NRC official has noted that, before most export license applications involving significant quantities of highly enriched uranium and plutonium are approved, physical security reviews abroad are needed. ERDA makes these reviews and, based on anticipated exports and quantities previously exported, it visits importing countries to discuss and observe their physical security systems. ERDA officials told us they used NRC regulations related to domestic physical security and international guidelines for physical security developed by the International Atomic Energy Agency as guides in making their reviews. The Agency, an autonomous intergovernmental organization responsible for international safeguards activities concerning the peaceful uses of atomic energy, has no regulatory authority over physical security and limits its activities to recommending standards and advising and assisting member nations. Since December 1974 ERDA teams have visited 18 foreign countries and are planning to visit or revisit 24 foreign countries within the next 15 months.

Under the new export license procedures, NRC verifies some of, but not all, the information or statements supporting applications for export licenses. For example, an NRC official told us that NRC examined agreements for cooperation to verify commitments for safeguarding nuclear materials. He added that NRC did not normally verify physical security measures applied to exported materials but could and had asked for clarification of the information provided and for additional information.

The deputy director of NRC's Division of Safeguards told us that his division participated actively in physical security discussions with foreign delegations visiting the United States. In addition, he participated as an observer during two ERDA staff visits to three countries to obtain information on the physical security measures for nuclear materials. He noted these countries had no formal physical security requirements, and the ERDA staff visited selected sites to observe the physical security system in practice. NRC officials indicated that NRC might want to make its own visits, because it would enable a degree of independent validation of physical security systems.

Conclusions

By their nature foreign policy matters involve political considerations that transcend NRC's regulatory

judgment on whether an export will be harmful to the common defense and security of the United States.

When NRC issues a license, it is saying that the common defense and security of the United States will not be harmed by the export. However, NRC does not independently verify all the information or statements supporting nuclear exports to importing countries, nor does it normally verify the physical security measures for exported materials. NRC could improve its capability to independently judge the adequacy of importing countries' physical security systems, if the NRC staff would regularly participate in physical security visits to foreign countries.

Recommendation to the Chairman, NRC,
and the Administrator, ERDA

We recommend that NRC and ERDA develop an interagency agreement under which NRC personnel will regularly participate in inspections of the physical security measures to be applied to U.S.-supplied nuclear materials, equipment, and facilities in importing countries.

Pending legislation

Senate bill 1439, "The Export Reorganization Act of 1976," submitted in the 94th Congress, would increase NRC's ability to make independent regulatory judgments. As of January 1976, the Senate Committee on Government Operations was considering the bill. Specifically section 5 designates the State Department as the lead agency for negotiating and entering into all agreements for cooperation with other nations and requires that the State Department consider NRC's recommendation and policies for licensing nuclear exports before entering into agreements for cooperation. Furthermore this section requires the State Department to furnish NRC with all executive branch data and recommendations that NRC requires to make export license decisions. Section 8 authorizes NRC to receive directly from the Arms Control and Disarmament Agency a nuclear proliferation assessment statement on all agreements for cooperation and for strategically important nuclear export applications and approvals. Section 7 provides in part, for congressional approval for a nuclear export that raises major foreign policy questions that NRC cannot resolve.

SAFEGUARDS AT MIXED FACILITIES

In April 1975 ERDA's Division of Safeguards and Safety initiated a proposed agreement with NRC related to safeguards responsibilities for mixed facilities. Mixed facilities are licensed facilities where classified and/or unclassified special nuclear material contract work is also being done for ERDA. There are 12 mixed facilities, including 5 doing classified contract work for ERDA's naval reactors program.

An ERDA official told us that an agreement was needed because NRC had continued in force a Memorandum of Understanding, signed in April 1974 by the Director of Regulatory Operations and the Director of the Division of Security of the former Atomic Energy Commission, under which the regulatory organization was given the lead responsibility for inspecting mixed facilities for compliance with special nuclear material physical security requirements imposed by license, regulation, or contract. This responsibility was given to the regulatory organization when the regulations on physical protection of special nuclear material were amended in November 1973 to, among other things, eliminate an exemption from the regulations for ERDA classified special nuclear material work at mixed facilities.

Under the terms of the memorandum, representatives from the General Manager's organization of the former Atomic Energy Commission participated with regulatory inspectors in inspecting the physical security system for the protection of special nuclear material. The regulatory inspectors inspected for compliance with regulations and license conditions, and General Manager's representatives inspected for compliance with contract provisions. The regulatory organization prepared a report on the joint inspection. A separate inspection for compliance with contract requirements to protect classified information remained the responsibility of the General Manager's organization.

ERDA believed that, since there were two separate agencies, ERDA was solely responsible for inspecting mixed facilities for compliance with its requirements for personnel security clearance and for protection of classified information. An ERDA official explained that the proposed agreement recognized that NRC had complete responsibility for establishing physical security requirements over classified and unclassified special nuclear material for its safeguards and security responsibilities at mixed facilities. He said that ERDA still was responsible for

establishing requirements for protecting classified information, because NRC regulations and license conditions did not address such requirements.

NRC officials believed that ERDA's proposed interagency agreement could be interpreted as going further than simply setting forth inspection responsibilities and requirements over classified information at mixed facilities. NRC officials explained that the proposal would have made ERDA, rather than NRC, responsible for establishing physical security requirements for classified special nuclear materials at mixed facilities and opposed the agreement because it could be interpreted as reinstating the exemption from NRC physical security requirements for mixed facilities that had been rescinded in November 1973.

NRC officials believe that their rejection of ERDA's proposal does not limit ERDA's ability to establish physical security and classified information requirements for ERDA's classified contract work at mixed facilities. NRC regulations state that compliance with the physical security requirements does not relieve any licensee from protecting classified special nuclear material as prescribed by any other Government agency. An NRC official told us that the regulations act as minimum security requirements and that ERDA, if it wanted to add more stringent requirements, might do so under its contract provisions with the licensee. Furthermore, NRC officials recognized that ERDA had the authority to inspect mixed facilities to insure compliance with ERDA classified information protection requirements and any supplementary physical security requirements ERDA might place on such facilities.

ERDA and NRC staffs have reached a formal understanding which eliminates any need for an interagency agreement. NRC will carry out all of its safeguards and security responsibilities for mixed facilities, and ERDA will exercise its contractual responsibilities for safeguards and security provisions at mixed facilities.

Conclusion

NRC has not agreed to any changes in its responsibility for establishing and evaluating domestic safeguards for mixed facilities.

NRC'S USE OF ERDA'S NEW BRUNSWICK LABORATORY

As part of its safeguards responsibilities, NRC analyzes samples of licensees' special nuclear material, to independently verify their materials accountability programs. NRC

and ERDA have been negotiating an interagency agreement for ERDA's New Brunswick Laboratory to continue these analytical and associated measurement services for NRC.

The proposed interagency agreement would allow NRC to plan its sample analyses workload at the laboratory and to exercise technical oversight in defining the details of each project and in reviewing and accepting the results. The proposed agreement, however, would continue a questionable arrangement for providing NRC funds to support the laboratory's programs.

NRC needs to determine its fair share of support for the laboratory

The laboratory, located in New Brunswick, New Jersey, is managed and staffed by about 60 ERDA personnel. In addition to providing NRC with analytical services for licensee samples, the laboratory analyzes special nuclear material samples of ERDA contractors. Other programs include research on new instrumentation and measurement methods, an interlaboratory measurements comparison program, a quality assurance program for special nuclear materials analysis, and development of calibration and test reference materials for licensee use.

Beginning with fiscal year 1973, the funding of the laboratory was shared by the regulatory (now NRC) and the General Manager (now part of ERDA) organizations of the former Atomic Energy Commission. The funding was based on an arbitrary allocation by the controller of the former Atomic Energy Commission of the laboratory's manpower to be supported by each organization.

In negotiating the proposed agreement, NRC and ERDA staffs decided that NRC would continue to support the laboratory in line with past levels--about 40 percent of the total cost of the laboratory's programs. NRC's estimated share of the total cost for fiscal years 1975 and 1976 is \$659,000 and \$736,000, respectively.

NRC officials told us that continuing past support levels through fiscal year 1977 was agreed to so as to minimize disruption of the laboratory's programs in view of the laboratory's planned relocation to the national laboratory site at Argonne, Illinois. In 1972 and 1974 the laboratory's director suggested to the General Manager's Chicago operations staff that the Director of Regulation's

(NRC's) laboratory support level be based on the manpower ratio needed to analyze licensee samples and the manpower applied to all the laboratory's major programs. The ratio averaged 26 percent for fiscal years 1971 through 1974; when this percentage is applied to the laboratory's fiscal year 1975 total cost, NRC's share would be about \$415,000.

NRC does not know the cost of analyzing samples at the laboratory; however, NRC officials agree that they were providing the laboratory with considerably more funds than were needed to support the sample analysis program.

ERDA officials told us that costs for programs other than the sample analysis program were not accounted for on an agency basis. Although NRC knows of these programs, it has no control over them and does not know to what extent it supports each program or how much each program may be contributing to accomplishing NRC's regulatory objectives.

We brought these matters to the attention of NRC's Executive Director for Operations in April 1975. He agreed that arbitrary support levels through fiscal year 1977 should be discontinued. He added that, beginning with fiscal year 1977, NRC would support only those individual laboratory programs which contribute to its regulatory objectives.

Conclusions

The proposed interagency agreement with ERDA on use of the New Brunswick Laboratory gives NRC control over analyses of its special nuclear material samples. However, the arbitrary funding arrangements for the laboratory do not assure NRC that the laboratory's programs are of sufficient priority in the context of NRC's regulatory objectives to warrant the present level of support. NRC has agreed to determine its fair share of support for the laboratory, and--beginning with fiscal year 1977--NRC will help fund only those programs which contribute to NRC's regulatory objectives.

CHAPTER 4

REACTOR SAFETY

Section 203 of the Energy Reorganization Act of 1974 established NRC's Office of Nuclear Reactor Regulation, and its Director was assigned responsibility and authority for reviewing the safety and safeguards of all facilities and materials licensed under the Atomic Energy Act of 1954, as amended, associated with the construction and operation of nuclear power reactors. Under the act ERDA reactors, which develop or test reactor concepts or the safety and workability of reactor systems or components, are exempt from NRC licensing. Such facilities include the LOFT and the power burst and fast flux test facilities. In addition to specifically exempting these facilities, the act prohibits the Director of NRC's Office of Nuclear Reactor Regulation from in any way limiting ERDA's functions relating to the safe operation of its facilities.

NRC'S SAFETY REVIEW OF ERDA REACTORS EXEMPT FROM LICENSING

NRC retained all the reactor safety responsibility it had before the reorganization, Except for an advisory safety review of ERDA reactors exempt from licensing. The Director of Regulation of the former Atomic Energy Commission advised the General Manager's organization on the safety of Commission-owned reactors exempt from licensing. This responsibility was given to the Director of Regulation because his organization had safety expertise developed from its licensing functions.

The Director of Regulation was required to give advice on the safety of new reactors, major modifications to existing reactors, and unreviewed safety questions, as requested by the General Manager's divisions having program responsibility. In addition, the Director of Regulation was to submit special cases to the Advisory Committee on Reactor Safeguards for review and to coordinate safety matters with the General Manager's Division of Operational Safety.

NRC has proposed to ERDA an interagency agreement to continue NRC's advisory safety review on reactors exempt from licensing. Such reactors are owned by ERDA, are generally located on ERDA installations, and are not to be operated as part of a power generation facility. NRC is also planning to develop agreements with the Departments of Defense and the Navy for safety review of their reactor projects exempt from licensing.

According to the NRC official who prepared the initial draft of the proposed agreement, NRC wants to continue its safety review of reactors exempt from licensing, because NRC's reactor safety expertise would make NRC advice valuable to ERDA from the standpoint of safety and future licenseability. He also said that ERDA had the ultimate responsibility for judging the safety of ERDA facilities and that the proposed agreement would not require ERDA to have an NRC advisory safety review or to take NRC's advice on those reactors ERDA chooses for advisory safety reviews.

The proposed agreement is more specific and detailed than the former Atomic Energy Commission's advisory safety review requirement. The proposed agreement goes beyond the continuation of advisory safety reviews and in some cases changes the previous basis for such reviews. Specifically under the proposed agreement:

- Advisory safety reviews previously mandatory for major modifications to existing reactors would be at NRC's option.
- ERDA could submit proposed criteria and procedures for qualifying reactor operators and proposed nuclear safety policies, standards, and principles. This review also would be at NRC's option.
- Various reports on both licensed and exempt reactors would be exchanged between NRC and ERDA, and visitation rights would be established for NRC at ERDA's exempt reactors, to observe operating conditions and equipment.

Under the previous advisory safety review requirement, the Director of Regulation could submit any unresolved disagreements with his recommendations to the General Manager for action. The proposed agreement contains no similar provision for higher management resolution of disagreements arising from the advisory safety review and does not address what, if any, consideration ERDA must give to NRC's safety review recommendations.

Conclusions

The Congress intended no regulatory role for NRC on reactors exempt from licensing. NRC wants to continue its advisory role in safety reviews of ERDA's exempt reactors; however, the proposed agreement would in certain areas allow NRC the option of reviewing ERDA projects; such reviews previously were mandatory. The election of an

optional review would eliminate the previous regulatory staff input to the safety of nuclear research and development projects.

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