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

OFFICE OF THE
CHAIRMAN

April 17, 1987

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

Enclosed is the Twelfth Annual Report on Domestic Safeguards in response to NSDM-254, Domestic Safeguards, April 27, 1974. This report discusses safeguards systems at commercial nuclear facilities which are under the regulatory purview of the Nuclear Regulatory Commission.

Respectfully,

Lando W. Zech, Jr.

Lando W. Zech, Jr.
Chairman

Enclosure:
Twelfth Annual Rpt on
Domestic Safeguards

NUCLEAR REGULATORY COMMISSION
TWELFTH ANNUAL REPORT
ON DOMESTIC SAFEGUARDS
DURING THE PERIOD FROM
OCTOBER 1, 1985 THROUGH SEPTEMBER 30, 1986

TWELFTH ANNUAL REPORT ON DOMESTIC SAFEGUARDS

Introduction

This report advises the President, in accordance with requirements of the National Security Decision Memorandum 254, on the effectiveness of domestic nuclear safeguards in the commercial licensed sector under the jurisdiction of the Nuclear Regulatory Commission in FY-1986.

Background

Under the provisions of the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, the Nuclear Regulatory Commission regulates safeguards in licensed nuclear facilities and activities to assure protection of the public health and safety and the national defense and security. To accomplish this, the Nuclear Regulatory Commission ensures that appropriate measures are taken to prevent the unauthorized possession or use of significant quantities of special nuclear material through theft or diversion, and to protect against radiological sabotage. In general, safeguards for nuclear fuel fabrication facilities and nonpower reactors emphasize protection against theft or diversion of special nuclear material while those for power reactors stress protection against radiological sabotage.

During FY-1986, the Nuclear Regulatory Commission's safeguards requirements were applied to 101 power reactors, 68 nonpower reactors, and 28 fuel cycle facilities. They were also applied to 178 shipments of spent fuel, 26 shipments of special nuclear material involving more than one but less than five kilograms of high enriched uranium, and four shipments of special nuclear material involving five or more kilograms of high enriched uranium.

The following information summarizes the status of domestic safeguards for licensed nuclear reactors, fuel facilities and transportation. The status of contingency planning, threat assessment, and comparability for protection of weapons useable material is also discussed.

Reactor Safeguards Status

o Power Reactors

In May 1986, a study re-evaluating the bases and guidelines used to determine what equipment and areas need to be protected as "vital" in nuclear power reactors was completed. The study was aimed at ensuring consistency and coordination from both the safeguards and safety perspectives. The recommendations of the study regarding vital areas and

related assumptions are currently undergoing detailed regulatory analysis for possible processing as a generic backfit requirement.

Under the Regulatory Effectiveness Review program, evaluation continued of the effectiveness of safeguards and the validity of identification of vital equipment. These reviews are conducted independently of the Nuclear Regulatory Commission's regular inspection and enforcement activities and are intended to assure that safeguards programs, as implemented by licensees, are effective against the design basis threats defined in 10 CFR 73.1. During FY-1986, reviews were conducted at 18 power reactors. The reviews identified both strengths and weaknesses in licensees' programs. Commonly noted strengths include effective routine access control features and good rapport and coordination with local law enforcement agencies. The most common problem areas concern vital area barriers and intrusion detection and alarm assessment systems. If deficiencies are identified which are judged to constitute an undue risk to the public health and safety, prompt compensatory actions are taken during or at the completion of the Regulatory Effectiveness Review. Other concerns and issues raised in Regulatory Effectiveness Review reports are resolved through voluntary actions of licensees or through licensing, inspection, enforcement, or rulemaking, as appropriate.

The Nuclear Regulatory Commission's inspection program is designed to assure licensee compliance with regulatory requirements and to provide appropriate feedback so that corrective action can be considered. In FY-1986, during 315 safeguards inspection visits to operating power reactors, 249 violations of safeguards requirements were identified. Initiatives were also taken by some Region inspectors to observe licensee exercises or drills, and to review the quality of guard force training and the ability of the force to respond to contingencies.

In power reactor rulemaking, the Insider Safeguards Rules package was developed to assure continuing adequacy of protection against the "insider" threat at nuclear power reactors. Two of the three related rules comprising the Insider Safeguards Rules were published in final form on August 4, 1986. The two published rules clarify and refine requirements for access to, and protection of, vital equipment within the plant, and requirements for contraband searches of employees and visitors prior to entry to the protected area of the plant. The Nuclear Regulatory Commission plans to withdraw the third rule of the package, the Access Authorization Program, in favor of a nuclear industry initiative to commit voluntarily to an industry-developed guideline on access authorization. The industry guideline, which is similar to the provisions of the proposed rule, calls for the screening of individuals granted unescorted access to a nuclear power plant through background investigations, psychological assessment, and continual behavioral observation. A policy statement

endorsing the industry guidelines on access authorization is being developed.

Regulations were developed to implement Public Law 99-399, the Omnibus Diplomatic Security and Antiterrorism Act of 1986. The Act requires that each individual granted access to Safeguards Information or unescorted access to a nuclear power plant be fingerprinted and a criminal history records check be made by the Attorney General. The Commission's rule provides for control of the data to prevent misuse, to limit re-dissemination, and to restrict use of certain arrest information.

o Nonpower Reactors

During FY-1986, the Commission issued a final rule requiring nonpower reactor licensees using high enriched uranium fuel to convert to low enriched uranium fuel, contingent upon government funding availability. In a related matter, nonpower reactor licensees removed excess unirradiated high enriched uranium fuel from their facilities, retaining the amount necessary to continue normal operation. Based on the reduction in high enriched uranium at nonpower reactors resulting from these two actions, the nature and type of any proposed regulatory amendment for improved physical security will be examined during FY 1987.

In FY-1986, 14 violations of safeguards requirements were identified during 31 inspection visits to nonpower reactors.

Fuel Cycle Facility Safeguards Status

The number of licensed fuel facilities subject to Nuclear Regulatory Commission safeguards requirements in FY-1986 remained the same as in FY-1985. Specifically, there were 28 such facilities, 20 of which maintained both physical security and material control and accounting systems and eight of which maintained a moderate level of physical security, but were not required to implement detailed material control and accounting systems. Four of the facilities had actual holdings of formula quantities of strategic special nuclear material, requiring the implementation of extensive physical security and material accountability measures. The activities at these 28 fuel facilities include full-scale production, pilot plant operations, decommissioning efforts and the storage of sealed items. The Nuclear Regulatory Commission received and completed action on approximately 120 licensing matters associated with these facilities in FY-1986.

The Commission has developed a rule that would revise material control and accounting requirements for certain fuel cycle facilities authorized to possess formula quantities of strategic special nuclear material. The rule refocuses the emphasis away from periodic physical inventories and toward the use of process monitoring information for safeguards. Timely detection of possible

material losses and improved loss localization and resolution capabilities are the projected benefits.

During FY-1986, 37 violations of safeguards requirements were identified during 94 inspection visits to fuel cycle facilities.

Transportation Status

During FY-1986, the Nuclear Regulatory Commission approved 31 routes for transportation of nuclear materials. One hundred seventy-eight spent fuel shipments went over these routes. To keep the public informed about spent fuel shipment routes, the Commission publishes a document entitled, "Public Information Circular for Shipments of Irradiated Reactor Fuel" containing approved routes.

The Nuclear Regulatory Commission continued to inspect selected domestic shipments and the domestic segments of import and export shipments of strategic special nuclear material. These shipments were inspected at points of origin, in transit, during intermodal transfer and temporary storage, and at destinations. No items of noncompliance were noted in the shipments of strategic special nuclear material.

The United States is a signatory of the Convention on Physical Security which provides for the establishment and maintenance of adequate physical security for international shipment of source or special nuclear material. A final rule to bring Commission regulations into accord with the Convention was issued for information only in March 1985, to become effective when 21 countries ratify the Convention, which occurred in January 1987.

Contingency Planning and Threat Assessment

Safeguards contingency plans deal with threats, thefts, and radiological sabotage related to licensed material and facilities. The Commission reviewed and revised its Headquarters' contingency plan and completed training in both response plan procedures and incident response center procedures in dealing with an incident involving a nuclear power facility. In August 1986, an incident response exercise was conducted that involved Headquarters, Region, and licensee personnel. Representatives of the Federal Bureau of Investigation observed and participated in that exercise.

The Nuclear Regulatory Commission continued to review the domestic and foreign threat environments and their relationship to the Commission's domestic safeguards regulations. Continuing liaison with other federal agencies was maintained throughout 1986. Special attention was given to foreign terrorist group activities and to possible trends in their behavior. No significant change in the domestic threat environment was identified as a result of the staff's review and interaction with other agencies.

Interagency Comparability for Protection of Weapons Useable Material

The Nuclear Regulatory Commission continued to work closely with the Department of Energy to assure a coordinated approach to safeguards. A joint Nuclear Regulatory Commission/Department of Energy comparability review (classified report) of physical security at selected Nuclear Regulatory Commission licensees and Department of Energy facilities possessing weapons useable material was completed in October 1986. The Commission is examining the findings of the review to determine if any modifications to the Nuclear Regulatory Commission's safeguards requirements are appropriate.