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SECY-75-336

July 2, 1975

COMMISSIONER ACTION

For: The Commissioners

Thru: Executive Director for Operations

Subject: ERDA's ANNUAL REPORT "STATUS OF DOMESTIC SAFEGUARDS"

Purpose: To obtain Commission concurrence in a letter from Dr. R. Seamans to Dr. H. Kissinger transmitting the subject report.

Discussion: At Policy Session 75-33, on June 19, 1975, the Commission was briefed on ERDA's Annual Report to the National Security Council on the "Status of Domestic Safeguards" (SECY-75-276). All of the NRC staff recommendations, as summarized in SECY-75-276, and concurred in by the Commission have been accepted by ERDA. The resulting corrections have been incorporated in the attached draft (Enclosure 1).

Recommendation: That the Commission concur in the proposed letter from Dr. Seamans to Dr. Kissinger transmitting ERDA's "Status of Domestic Safeguards" and approve the enclosed letter to Dr. Seamans confirming Commission concurrence (Enclosure 2).

Coordination: The response has been coordinated with the Office of the Executive Legal Director.

Kenneth R. Chapman, Director
Office of Nuclear Material Safety and Safeguards

Enclosures:
1. ERDA Letter dtd 6/25/75
   Prop. Ltr. Seamans/Kissinger
   Annual Rpt. on Domestic Safeguards, w/encls. (Appendices 1 and 2)
   CONF/NSI
2. Anders to Seamans Ltr.

200051

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(Insert proper classification)

NOTE: Commissioner comments should be provided to the Office of the Secretary by close of business Friday, July 11, 1975.

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Document Transmitted Herewith [redacted] NATIONAL SECURITY INFORMATION

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SECY-75-336

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UNITED STATES
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
WASHINGTON, D.C. 20545

JUN 25 1975

L. V. Gossick, NRC, Wash., D.C.
Dixy Lee Ray, St. Dept., Wash., D.C.
Donald R. Cotter, Dept. of Defense, Wash., D.C.
Fred C. Ikle, ACDA, Wash., D.C.

FINAL DRAFT ANNUAL REPORT ON DOMESTIC NUCLEAR SAFEGUARDS

References: Memorandum HELyon/Multiple Addressees, dtd. 6/10/75, and referenced correspondence on this subject.

The enclosed final draft Annual Report on Domestic Nuclear Safeguards, prepared at the request of the National Security Council, reflects comments received at previous meetings with representatives of other interested parts of the executive branch. We now propose to transmit this report to the National Security Council. We would appreciate your concurrence in the attached final version. The National Security Council has been informed that present plans are for transmittal by June 30, 1975.

When separated from enclosures, handle this document as UNCLASSIFIED
(Insert proper classification)

Alfred D. Starbird
Assistant Administrator
for National Security

Enclosure:
Dft. ltr. Seamans/Kissinger,
dtd. 6/17/75, w/enclosure:
Final dft. Annual Report on
Domestic Safeguards, dtd.
6/17/75 (C/NSI).

Document Transmitted Herewith Contains NATIONAL SECURITY INFORMATION

cc: w/enclosure
[redacted]
CMKelley, FBI, Wash., D.C. ATTN: W. Raymond Wannall
Asst. Dir., Intelligence
TJohnson, OGC/ERDA, Wash., D.C.

[redacted]

[redacted]

Final Draft
6/17/75 (Revised)

Honorable Henry A. Kissinger
Assistant to the President
for National Security Affairs

Dear Dr. Kissinger:

Enclosed is an annual report on the Status of Domestic Safeguards (Exhibit 1), forwarded in response to the request in NSDM-254, Domestic Safeguards, April 27, 1974. Effectiveness of the safeguards systems, program developments, and related recommendations are reported. The coverage of this report includes the licensed and license-exempt sectors and the report has been coordinated with the Federal Bureau of Investigation, the Nuclear Regulatory Commission, Department of Defense, Department of State, Arms Control and Disarmament Agency, and Central Intelligence Agency.

In 1972 when the White House asked whether the AEC could protect SNM and nuclear facilities from terrorism, the answer was that the system was adequate for the nature of the program in the environment of the then current threats but in need of upgrading for the foreseeable future program in the projected threat environment. A review in 1973 and again in 1974 confirmed this need.

Improvements have been made in the level of protection for nuclear materials in transit and at fixed sites, as well as in capability to respond to

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certain adversary actions. Work has been initiated on a well protected transportation system for ERDA nuclear materials. It will be fully operational in October 1976. Fencing and hardened guard posts are now being added at certain nuclear weapon locations. Armored cars are being procured. Plans have been developed for correcting physical protection and materials control deficiencies at ERDA facilities (Appendix 1 to the Report). Directives for safeguards in ERDA facilities have been and are being rewritten with requirements for more effective measures. Comprehensive amendments have strengthened regulations for protective measures required at licensed nuclear plants and the measures now required by these amendments were implemented at the required licensee sites during 1974; additional regulations have been published for comment. Improvements have been made in communication and training links with the Federal Bureau of Investigation and in ERDA capability to assist in responding to safeguards incidents involving unauthorized use or threats to use nuclear materials. A deliberate cycle of overall improvement is in progress and additional refinement is anticipated in the coming year.

The recommendations of the report are (1) to provide resources to remedy identified deficiencies in safeguards at ERDA facilities; (2) to endorse the policy of direct ERDA research and development support to enable licensees to satisfy safeguards regulations.

The program to continually assess and balance the safeguards system is given high priority. There is under development a systems approach which includes development of implementation procedures, equipment and facilities. Activities being initiated are expected to lead to future evaluations of the safeguards system in terms related to risk to the public.

Sincerely,

Robert C. Seamans, Jr.
Administrator

Enclosures:
Exhibit - Status of Domestic Safeguards

cc: w/encl.
W. A. Anders, Chairman, NRC
D. R. Cotter, Assist. to the Sec'y of Defense (Atomic Energy)
C. M. Kelley, Dir., FBI
Attn: W. Raymond Wannall, Assist. Dir., Intelligence Div.

Concurrences:
Bartels/Schleter McDowell Brenner Tharp Lyon Giller Starbird
Romatowski Seamans Anders FBI

Controls SS 2848 & Administration 05017535

Exhibit

STATUS OF DOMESTIC SAFEGUARDS

CONTENTS

hazard which could result from willful misuse of that particular type material. All classified materials are additionally protected from the viewpoint of their information content.

NRC is responsible for promulgation and enforcement of regulations for licensed facilities and materials. These facilities are:

- o privately owned facilities containing either government-owned or privately-owned material;
- o certain DOD-owned facilities and material (other than that covered by paragraph 91.b. of the Atomic Energy Act of 1954, as amended);
- o certain ERDA facilities (as noted above);
- o certain other government-owned facilities containing government-owned or privately-owned material; and
- o state-owned facilities.

DOD is responsible for promulgation and enforcement of requirements and funding of protective measures for all material covered under paragraph 91.b. of the Atomic Energy Act of 1954, as amended in its possession. This material is principally in the form of weapons, and military reactor fuels.

Parity in Application

ERDA and NRC consult and coordinate (Energy Reorganization Act of 1974)

on aspects of nuclear materials safeguards. Their intent is to assure parity in the effectiveness of the protection afforded similar nuclear material under their respective jurisdictions. Lacking parity, an adversary might preferentially choose the weaker system to assault.

Objective of Safeguards

The general objective of nuclear materials safeguards is to prevent successful malevolent acts involving nuclear materials and facilities. The degree to which the general safeguards objective is met is measured in terms of protection of the public against risk of death, injury and property damage potentially arising from these acts. This objective is being met through an in-depth approach consisting of reducing the frequency of attempts to produce these societal consequences, reducing the likelihood of adversary success when an attempt is made, and reducing the consequences of a successful act.

Acceptable Level of Protection

The question of acceptable level of protection, is related to the preservation of the basic freedoms of our society and the allocation of resources.

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This relationship is illustrated by the serious and complex difficulties in strengthening the protective capabilities of security systems and guard forces. The allocation of resources on nuclear safeguards precludes their use for some other benefit to society. Thus, the reduction of risk arising from malevolent acts involving nuclear materials should be balanced, in the largest context, in terms of the benefits provided against all other benefits which could potentially be obtained from these resources.

PROGRAM DEVELOPMENTS

Overview

The safeguards systems will continue to evolve with the changing technological, social, and political environment. There are changes in nuclear activities, for example, that introduce changes in safeguards. Growth is anticipated in uranium enrichment; fuel fabrication and reprocessing including plutonium recycle; high temperature gas-cooled and breeder reactors; radioactive storage areas and transportation of nuclear materials. Major efforts are underway to develop and implement improved safeguards systems for nuclear activities.

In most instances the current domestic safeguards requirements, regulations and practices are deemed effective for present conditions, where deficiencies have been identified, corrective measures are planned and underway.

Assessments of systems effectiveness are continually being made and measures to further strengthen safeguards are under continuing development where deemed necessary to ensure future effectiveness.

An iterative procedure for evaluation and improvement of safeguards as described under Program Structure is being refined and used by ERDA in approaching the safeguards problem and its solution. In addition, results of preliminary evaluations of the current system have already led to some implementation actions. A major upgrading has begun on safeguards operations including material control and accounting systems and physical protection. Protection for material in transit, and capabilities for threat evaluation and response to attack are each being upgraded. Improvements identified as needed in ERDA operations are discussed in Appendix 1; additional resources have been requested. [3]

Regulations governing licensed facilities have been strengthened. Additional information on significant events in the NRC safeguards program for the year 1974 is presented in Appendix 2.

Program Structure

There are four major areas of safeguards operations:

1. Evaluation of safeguards systems leading to formulation and promulgation of policies and requirements.

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2. Approval and inspection of operations involving materials and facilities subject to safeguards.

3. Implementation of safeguards measures within operations involving materials and facilities subject to safeguards.

4. Interagency and international activities related to development and implementation of safeguards.

The environment of safeguards is continually changing. Changes occur in perceived threats, political climate, available resources, technical capabilities of potential adversaries, and in the distribution of target materials in government and private industry. A changing environment makes it imperative that there be a periodic review of the current and potential status of the safeguards system accompanied by identification of any necessary modifications. The modifications may range from implementation of new measurement procedures to redirection of resources to reflect perceived changes in the likelihood of attempt.

Systematic Approach

The objective of safeguards was stated in terms of maintaining an acceptable level of risk to the public. A systematic approach is being implemented to assure that this objective will be met. This includes knowing that enough has been done for certain specific problems, such as facility perimeter systems or transportation safeguards, and also knowing that resources have been allocated to provide a system balanced in terms of

overall risk to the public. Risk to the public, or societal risk, is a function of the frequency with which willful acts against the public involving nuclear materials will be attempted; the likelihood that an adversary will succeed in completing his act in the presence of the safeguards system; and the consequences to the public if his act is successful.

The approach to assessing societal risk commences with an examination of all different possible events an adversary could perpetrate using nuclear material or nuclear facilities to produce harmful societal consequences. The sequence of adversary actions which must be completed to perpetrate an event is used to determine a structure of preventive measures within the safeguards system which protect against these events. These preventive measures are directed toward: the interruption of the sequence of actions undertaken by a possible adversary; or reducing the frequency of adversary attempt, or reducing the possible consequences of adversary actions. The sequence of adversary actions and the intent of protective measures are presented in Table 1. The improvements and status of the safeguards system are organized below according to the comprehensive structure of protective measures listed in Table 1.

Improvements in Safeguards

- o Reduce Likelihood of Attempt

  Public statements have been made in the news media and at public hearings which communicate the existence and strengths of safeguards efforts and penal sanctions, thereby deterring potential adversary actions. Recently amended Reward Statutes provide additional deterrence.

- o Reduce Probability of Completing Adversary Preparation Activities

  The principal agencies involved in detection of an adversary preparation activity are the FBI, for domestic threats, and the CIA, for foreign threats. In the past year improved communcation links have been established between ERDA and FBI to permit more rapid emergency exchange of messages, drawings, and other written information. Training courses on nuclear matters have been presented to the FBI by ERDA to familiarize FBI agents with nuclear terminology, technology, instrumentation, and other information which will assist them in identification of adversary preparation activities. Continuing communication is being maintained with the CIA to insure that Agency's awareness of ERDA's intelligence needs in the area of nuclear threats. Liaison between the NRC and both the FBI and the CIA is intended to be implemented in the future. Particular attention is to be given to the topic of response to communicated threats.

Adversary Action	Mode of Action	Intent of Protective Measure
Decision to Attempt an Attack		Reduce Likelihood of Attempt
Preparation Activities		Reduce Probability of Sequence Completion
Unauthorized Access - Fixed Site	Force	" "
" "	Stealth	" "
" "	Deceit	" "
Diversion		" "
Unauthorized Removal - Fixed Site	Force	" "
" "	Stealth	" "
" "	Deceit	" "
Unauthorized Access - In Transit		" "
Unauthorized Removal - In Transit		" "
Smuggling or Black Market Operations		" "
Adversary Use of Nuclear Materials		
Delivery to Event Location		Reduce Consequences

Table 1 Sequence of Adversary Actions and Related Protective Measures of Safeguards.

o Guard Against Unauthorized Access to Fixed Sites By Force or By Stealth

ERDA:

Most of the installations are twenty years old or older, and originally relied on strong guard forces to control unauthorized access. Subsequently ERDA guard forces were reduced and weakened by a series of prior economy and policy measures; fencing and lighting have deteriorated with age. Security technology which has made rapid strides in recent years, did not receive any broad ERDA application.

Extensive analysis of physical protection safeguards was performed relative to proposed stronger physical protection requirements. Deficiencies which have been explicitly identified were documented in a task force report for seventeen major ERDA facilities.[3] Corrections which are now being made with existing resources include fencing and hardened guard posts at certain nuclear weapon locations. Armored cars are being procured. Testing is underway on perimeter alarm systems. Funding in the FY 1976 Budget presently before Congress, if approved, will complete this upgrading for all Naval Reactor facilities and some Reactor Research and Development facilities. Funds to correct the remaining deficiencies for prevention of access by force or stealth were reflected in the Safeguards FY 1976 Budget Amendment presently under consideration by Office of Management and Budget.

NRC:

In November 1973 the Atomic Energy Commission published comprehensive amendments to its regulations to strengthen the protection of nuclear plants against industrial sabotage and to strengthen the protection of SNM against theft. During 1974 the protection measures called for by these requirements were implemented at the 23 licensee sites which are authorized to possess more than two kilograms of Pu or U-233 or five kilograms of U-235 contained in uranium enriched to 20% or more in the U-235 isotope. In addition, the protection plans for all 52 nuclear reactor units were reviewed and approved.

In November 1974, the Commission published new proposed amendments for physical security at nuclear power reactors.

o Guard Against Unauthorized Access to Fixed Sites By Deceit

ERDA:

The control of unauthorized access by deceit at ERDA facilities is achieved by a clearance procedure, by security guard verification of badge access for cleared employees and by random package search authorization.

NRC:

The November 1973 regulation amendment provided for badge

access control to licensee sites. All individuals and hand-carried packages are searched for concealed unauthorized weapons or sabotage devices before entry into a protected area. All individuals, packages and vehicles leaving material access areas are searched for unauthorized nuclear material.

o Protection Against Diversion of Material within Fixed Sites

ERDA:

Diversion of material is prevented in large part by limiting access to material by potential adversaries through the application of a clearance procedure and further through administrative limitations on access to sensitive areas such as storage vaults. In addition, materials control and accountancy techniques are also used. Recent studies provide information concerning deficiencies in this latter area (Appendix 1 and Reference 3). Funds for correction of deficiencies at fixed sites were included in the request for a supplemental increase in the FY 1975 Budget but were not allocated; these funds not allocated have been included in a Safeguards Amendment proposed for the FY 1976 Budget, an Amendment now under consideration by the Office of Management and Budget.[3]

NRC:

Commission requirements for the control and accounting of special nuclear material at licensed plants were revised in November 1973

to provide greater sensitivity and timeliness for detecting the theft or diversion of material. Quality specifications were prescribed for performing plant material balances on the basis of measurements. These upgraded requirements were implemented during 1974 at the 30 facilities which were authorized to possess more than one effective kilogram of SNM in unsealed form. In October 1974 the Commission issued amendments to further strengthen its regulations for control and accounting of SNM.

o Protection Against Unauthorized Removal of Material from Fixed Sites

a. By Force

The protective measures which were discussed in Section 3 above and which are intended to deny forced access also protect against forced removal. Such measures include intrusion alarms, guards and barriers.

ERDA:

Each FBI office has prepared contingency plans, in coordination with the local ERDA facility, to be used in responding to any emergency involving a nuclear threat. The plans provide for a coordinated response by Federal, State, and local agencies in the particular area. In some cases these contingency plans have been field tested.

NRC:

NRC regulations which became effective in 1974 require that licensees establish liaison with local law enforcement authorities. In developing security plans, licensees must take into account the probable size and response time of the local law enforcement assistance. The NRC is commencing a concerted effort to develop stronger liaison with the FBI and other appropriate agencies in an attempt to develop pertinent contingency plans.

b. By Stealth

ERDA:

Vulnerability to removal by stealth from ERDA facilities due to the lack of SNM doorway monitors has been identified and documented. Research and development has been completed to the point that specifications have been prepared and potential vendors have been identified and their products tested. A requirement that they be installed is being established. FY 1975 funds have been allocated for some needed doorway monitors.

NRC:

Regulations and accompanying guides have been issued on detection of SNM removal by stealth. Individuals within a material access area must be observed to assure that SNM is not being diverted. All individuals, packages, or vehicles are to be searched for concealed SNM before exiting from a material access area.

c. By Deceit

ERDA:

Employee clearances and access controls reduce the risk of deceit. Materials custodians monitor plant operations. Duplicate record systems, local and central, and shipper-receiver measurements also reduce the risk of deceit. ERDA has begun research and plans to demonstrate major improvements in the timeliness and completeness of accountability measures for nuclear materials while they are in materials processing operations.

NRC:

Legal authority has been obtained for requiring that access to SNM be limited to employees with clearances (PL 93-377). Methods of implementation are under study. Requirements for control and accounting of SNM were revised to provide greater sensitivity and timeliness for detecting theft or diversion.

o Protection Against Unauthorized Access to Material in Transit

ERDA:

The FY 1975 Budget Supplement which was approved for Safeguards provided additional protection for material in transit. As a result, by October 1976 there will be major improvement in protection given to all ERDA highway shipments of strategic quantities and types of SNM. They

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will be made in vehicles specially designed to impede forced access to the cargo or movement of the vehicle. Weapons assembly shipments are transported by such vehicles at the present time. Additional funds to include other ERDA shipments have been requested. Further, all shipments of strategic quantities and types of SNM now must be accompanied by a minimum of two armed ERDA couriers. Improvements to the existing SECOM radio communication system between the transit vehicles and a central control are also being implemented.

NRC:

During 1974 new rules for protection of SNM in transit were applied to all licensees and transportation companies which are authorized to protect transport shipments of more than 2000 grams of Pu or U-233 or more than 5000 grams of U-235 contained in uranium enriched to 20% or more in the U-235 isotope. These rules provide for: improved control of material in transit; two armed escorts to accompany land shipments; and use of specially designed motor vehicles (if such are not available, a separate escort vehicle with at least two armed guards must be used).

o Protection Against Removal of Material in Transit

ERDA:

The improved control of access to material in transit is coordinated

with the improved communication facilities and the FBI contingency plans in cooperation with local and state law enforcement authorities. The design response time is two hours against an armed attack.

NRC:

All land vehicles (highway and rail) are required to be equipped with radiotelephone. Calls must be made at predetermined intervals normally not to exceed two hours; and if calls are not received when planned, the licensee or his agent must immediately notify an appropriate law enforcement authority and the NRC. These plans have been reviewed and approved by the NRC.

o Protection Against Black Market or Smuggling Operations

Liaison is to be established between ERDA and the Treasury Department and thereby to Interpol in order to acquire another intelligence source, in addition to the FBI and CIA, relating to possible black market operations or smuggling operations. The NRC plans to establish similar liaison.

o Protection Against Adversary Use of Nuclear Materials

Safeguards activities relating to adversary utilization activities are those related to recovery or degradation of material given that the

adversary has gained control of the material. Portable detection instruments have been developed for hand-carried use in search on foot and for use in search efforts with instruments mounted in trucks or helicopters. This development has largely been completed and some detection capability now exists within ERDA. Resources have been requested to achieve a modest quick response search capability. This effort is a part of the Nuclear Emergency Search Team (NEST) Program which has demonstrated capability for departure to the site of the emergency within two hours of an alert. Staff and equipment are located at Las Vegas, Nevada; Los Alamos, New Mexico; and Livermore, California.

Support has been provided to the FBI recovery activities in the form of four briefcase detectors capable of detecting the presence of SNM in certain situations. An agent from each FBI office where the detectors have been deployed has been given detailed operating instructions at the Los Alamos Scientific Laboratory.

The contingency plans of each FBI office include consideration of potential situations where control of the SNM may have passed to the adversary and recovery is required. The problem of recovery when stolen material has passed beyond the national boundaries is addressed through international police cooperation (Interpol) and diplomatic

channels. Pertinent ERDA capabilities are being coordinated for assessment of nuclear explosive devices information contained in communicated threats. These capabilities include the technical assessment of design feasibility by experts and aggregation of information relating to possibility of diversion from the SNM internal control systems.

Consequence Reduction

Studies and plans for coordination with the Office of Preparedness have been initiated.

RECOMMENDATIONS

The National Security Council may wish to support the ERDA recommendation to the Office of Management and Budget that funds be allocated to implement corrective actions for a number of deficiencies in the government-facility sector which would accomplish a high degree of improvement as revealed to be necessary by recent intensive reexamination of our capability.[3] Funds for such actions were the subject of an AEC request for a Supplement to the FY 1975 Budget but were granted only to the extent that they applied to correction of transportation deficiencies. Deficiencies remain

in areas other than transportation and funds for correction are being requested in a proposal by ERDA that the FY 1976 Congressional Budget be amended; this proposed Amendment is presently under consideration by the Office of Management and Budget. These corrections do not require any additional R&D; all requisite technical capability has been developed. Only funds for implementation are lacking. A copy of the program proposed to OMB is enclosed as Appendix 1.

There are analogous needs in ongoing fuel cycle operations now licensed by the Nuclear Regulatory Commission. In some cases nuclear fuel cycle licensees experience a need for research and development assistance of a generic nature in order to comply with requirements related to safeguards as established by the Nuclear Regulatory Commission and published in the Code of Federal Regulations. ERDA has in the past performed such research and development both to facilitate compliance and to improve safeguards effectiveness generally. Since such effort by ERDA could be deemed an indirect subsidy to the nuclear power industry (ERDA developing solutions required by licensees so that they can comply with NRC safeguards regulations), it is considered desirable to have the endorsement of the President in order for such ERDA research and development work to continue. Accordingly, it is recommended

that the President be made aware that ERDA intends to conduct research and development effort, primarily to assist licensees and license applicants in satisfying future safeguards requirements.

REFERENCES:

1. NSSM-120 Domestic Safeguards, DSS, AEC submitted February 15, 1974.

2. NSDM-254 Domestic Safeguards, NSC to Chairman, AEC, April 27, 1974.

3. Letter to OMB from ERDA with Exhibits, April 4, 1975

Exhibit 1

APPENDIX 1

ASSESSMENT OF SAFEGUARDS IN ERDA OPERATIONS

The Energy Research and Development Administration has a statutory obligation to guard against the diversion of special nuclear material. In recent years this obligation has taken on new dimensions. In the 1960's it was a domestic radical element, but in the 1970's a world-wide terrorist threat developed.

In 1972 when the White House asked whether the AEC could protect SNM and nuclear facilities from such terrorism, the answer was qualified. The system was adequate for the nature of the program in the environment of the then current threats but seriously in need of upgrading for the foreseeable future program in the new threat environment. A review in 1973 and again in 1974 confirmed this need.

The facilities of ERDA are operating under physical protection systems which were implemented in the late 1940's and which have undergone severe attrition in the intervening years. Guard forces have been reduced in a series of economy measures; fencing and lighting, although given normal maintenance, have deteriorated with age.

Security technology, which has made rapid strides in recent years, has not seen extensive application at nuclear facilities because of a lack of funds. Perimeter alarm systems which would permit more effective and economical use of guards have not been installed. A testing program has identified satisfactory systems but a lack of funding exists for installation.

PHYSICAL PROTECTION

Physical protection upgrading measures urgently needed at ERDA facilities as identified in the Task Force Report are described below:

Weapons Facilities

The Pantex Plant is the most critical ERDA facility because of the large concentration of complete nuclear weapons located there. It requires additional perimeter fencing, perimeter alarm systems, hardened guard stations, armored escort vehicles and a new security command center. Additional guards are also needed. The total amount required for upgrading Pantex is $4,383,000.

The second most critical location, the Nevada Test Site, also contains nuclear weapons or devices, although not in the quantities encountered at Pantex. Because of the isolated location of a number of its guard stations, the Nevada Test Site has an immediate requirement for the

hardening of a number of guard stations. Other badly needed improvements are the armoring of escort vehicles, a special enclosure for transporting weapons, night vision devices and special guard support equipment. Total upgrading costs, including those for additional guards, is $1,090,000.

The Los Alamos Scientific Laboratory assembles complete nuclear weapons or test devices for operations at the Nevada Test Site. Consequently, LASL has a high priority requirement for the installation of perimeter alarm systems, additional fencing, hardened guard stations, central station monitoring equipment, the alarming of a number of remote points, additional lighting, space alarms in vaults, various vault modifications, the hardening of guard headquarters and communications centers, and the armoring of escort and patrol vehicles. Total cost, including additional guard force positions, would be $4,124,000.

The Rocky Flats Plant contains a high concentration of plutonium in weapons part configurations. The strengthening of physical protection at that location would require the installation of perimeter alarm systems, the hardening of guard stations, various modifications to an existing alarm system, the armoring of patrol vehicles and the procurement of night vision devices. The total cost, including positions needed to strengthen the guard force, would be $5,370,000.

Improvements at the Lawrence Livermore Laboratory will cost $1,745,000. The improvements would include hardened guard stations, night vision devices, portal monitors, duress alarms, perimeter fencing, armored vehicles, and additional lighting. The relatively high priority given improvements at this site is based upon the presence of nuclear weapons components in sufficient quantities to materially aid in construction of a clandestine explosive.

Because of its importance to the weapons program, Y-12 is in a critical status insofar as the upgrading of physical protection measures is concerned. Needed corrections include the installation of key card controls for better internal segregation, remote monitors, portal monitors, intrusion alarms and new lighting. In addition, modification of a guard changehouse would be required. Total cost would be $9,980,000. Costs for more guards are included in this figure.

Requirements at other weapon facilities would total $2,456,000, bringing the total for all weapons facilities to $29,148,000.

Production and Research Facilities

The Savannah River Plant has large quantities of plutonium in weapons-grade form in storage and in process; consequently, it is an attractive target for theft or sabotage. To bring this site to reasonable physical protection standards, it requires the installation of perimeter alarm systems, perimeter

fences, vault-type alarms, portal monitors and electronic door controls. It is also necessary to harden a number of guard stations. Also required are night vision devices, new weapons, and communications equipment. Total costs, including those involved with the supplementing of the guard force, are $1,925,000.

The importance of the Portsmouth Plant lies in the presence of large quantities of uranium in weapons-grade form. If the physical protection system is to be adequately upgraded, Portsmouth requires the installation of perimeter alarm systems, as well as perimeter fencing and lighting. Also required are certain building modifications, the construction of vaults and the installation of key card controls. Closed circuit television and portal monitors are also considered essential. The total cost for upgrading Portsmouth facilities and hiring additional guards, would be $11,661,000 including $5,134,000 for seriously needed vaults and storage facilities for highly enriched uranium.

The production facilities at the Idaho National Engineering Laboratory have large quantities of special nuclear material in potential usable form. To upgrade this facility to the desired standard, closed circuit television should be installed at a material access area, portal monitors are required and night vision devices are needed. The upgrading costs for this facility total $370,000, net including guard costs which are included elsewhere for the total INEL site.

The Richland program, under the Division of Production budget requirements, contains large quantities of weapons grade special nuclear material. At this Richland facility the installation of perimeter alarm systems and fencing as well as perimeter lights are required to improve the capability of the site guards to detect intruders. Hardened guard stations, night vision devices, guard vehicles, closed circuit television and portal monitors are also badly needed. Total cost would be $2,445,000, including additional guards.

Other facilities not described above include the Argonne National Laboratory, ORNL, the LBR-II and TREAT reactors, the Brookhaven Laboratory and Battelle, West Jefferson, as well as the Reactor Safety Research facility located in Idaho. Total funds required to upgrade these locations would be in the order of $10,922,000. The major physical protection measures needed at these facilities include fencing and alarms, lights, CCTV, monitors, and guards.

MATERIALS ACCOUNTANCY

Examination of the overall role of materials accountancy has led to identification of adversary action sequences in which accountancy is necessary for safeguards and complementary to physical protection. However, the existing accountancy system and the materials measurement capability it employs must be made more rapid, comprehensive, and precise in detecting changes in amounts of material on hand. These needs relate

directly to performance objectives for the safeguards system; the detection capability of an accountability system also adds deterrence against diversion from within. Not only would an upgraded materials accountancy system strengthen detection and deterrence capabilities, but the data from such a system could prove to be an essential element of any investigatory activity.

Major needs for upgrading accountancy operations were identified at Los Alamos Scientific Laboratory ($1.2 million); Rocky Flats Plant ($1.4 million); Savannah River Plant ($2.4 million); and the Z-Plant for processing and storing plutonium scrap and products at Richland ($1.0 million). Other needs ($1.9 million) were identified at six other sites. All the above sites need staff to measure materials on hand and in shipments and to operate accountability systems using the measurements. Los Alamos Scientific Laboratory has available most of the equipment needed for measurements and accountability but requires staff, $1.0 million out of the above $1.2 million total, to operate the equipment for materials accountability purposes. Needs at Rocky Flats are primarily for safeguards instruments for materials measurements and input-output computer terminals for using the measured data in accountancy operations. The Savannah River Plant has the largest single need for equipment funds for measurement equipment, $1.2 million out of the above $2.4 million. This includes additional laboratory, chemical, and non-destructive assay equipment and additional measurement equipment for materials which are in process, storage, or shipment. The Z-Plant, at Richland, needs the construction of an assay facility for making non-destructive measurements. The present rate of making measurements is too low for periodic physical inventories. Existing instruments will be moved to a more central location and shielding will isolate the instruments from radiation background. Additionally, measurement tanks will be installed at the Z-Plant to eliminate uncertainties in plant throughput and thereby reduce differences between book and physical inventories.

RESEARCH AND DEVELOPMENT

To assure the optimization of safeguards assurance in return for resources expended, management has determined that research and development of a comprehensive system design must be accomplished for nuclear weapons and materials as soon as possible. In this way, a design balance can be achieved which will identify the proper mix of barriers, alarms, guards, weapons, monitors, measurements, accountancy balance areas, and surveillance. The system design must also identify the specific hardware development needs. Funding to accelerate the research and development effort is $9.9 million.

Exhibit 1

DETECTION AND RESPONSE CAPABILITY

The capability to find stolen nuclear materials by search and detection techniques is not adequate. Needed capabilities include pre-defined and pre-positioned equipment for use in providing law enforcement with technical assistance within two hours; airborne and ground search equipment adequate for completing an area search within two or three days; diagnostic services for assessment of a possible detected device; advisory services on safing and disposal of possible nuclear explosives; and a minimal array of detection equipment for monitoring vehicles at roadblocks. Needed funding for both equipment, procurement, and training of personnel to operate the equipment is $3.5 million.

APPENDIX 2

Status of Safeguards for Licensed SNM and Related Facilities

SIGNIFICANT ORGANIZATIONAL CHANGES

The Energy Reorganization Act of 1974 (Public Law 93-438), which established the Nuclear Regulatory Commission, also established in the Commission an Office of Nuclear Material Safety and Safeguards under the direction of a Director of Nuclear Material Safety and Safeguards.

The Director of Nuclear Material Safety and Safeguards is to perform such functions as the Commission shall delegate including:

(1) Principal licensing and regulation involving all facilities and materials, licensed under the Atomic Energy Act of 1954, as amended, associated with the processing, transport, and handling of nuclear materials, including the provision and maintenance of safeguards against threats, thefts, and sabotage of such licensed facilities, and materials.

(2) Review safety and safeguards of all such facilities and materials licensed under the Atomic Energy Act of 1954, as amended, and such review shall include, but not be limited to:

(A) monitoring, testing, and recommending upgrading of internal accounting systems for special nuclear and other nuclear materials licensed under the Atomic Energy Act of 1954, as amended;

(B) developing, in consultation and coordination with the Administration, contingency plans for dealing with threats, thefts, and sabotage relating to special nuclear materials, high-level radioactive wastes and nuclear facilities resulting from all activities licensed under the Atomic Energy Act of 1954, as amended;

(C) assessing the need for, and the feasibility of, establishing a security agency within the office for the performance of the safeguards functions, and a report with recommendations on this matter shall be prepared within one year of the effective date of this Act and promptly transmitted to the Congress by the Commission.

(3) Recommending research to enable the Commission to more effectively perform its functions.

UPGRADING OF PROTECTION AT FIXED SITES

In November, 1973, the Commission published comprehensive amendments to its regulations to strengthen the protection of nuclear plants against industrial sabotage and to strengthen the protection of SNM against theft. During 1974, the protection measures called for by these requirements were implemented at 23 licensee sites.

Under the requirements, each person who is licensed to possess or who applies for a license to possess 5,000 grams or more of SNM as computed by the formula:

grams = grams (U-235) + 2.5 [grams (Pu) + grams (U-233)]

where grams (U-235) means grams of U-235 contained in uranium enriched to 20% or more in the U-235 isotope

is required to comply with detailed physical protection requirements as discussed below and to prepare and submit a physical protection plan to the NRC for approval. The protection plan must contain two parts. Part I must address vital equipment, vital areas, and isolation zones and must demonstrate how the licensee will meet applicable requirements. Part II must list the tests, inspections, and other means for demonstrating compliance with the requirements. The licensee is not permitted to make any change which would decrease the effectiveness of his physical protection plan without prior approval of the NRC.

A physical protection plan must clearly demonstrate that the applicant will be able to comply with the following requirements:

- The licensee must maintain a physical security organization, including armed guards to protect his facility against sabotage and the SNM in his possession against theft and diversion. At least one supervisor of the security organization must be onsite at all times. The licensee must establish, maintain, and follow written security procedures which document the structure of the security organization and which detail the duties of guards, watchmen, and other individuals responsible for security. All guards and watchmen must be properly trained, equipped and qualified.

- Any equipment, system, device or material whose failure, destruction or release directly or indirectly endanger public health and safety must be located within a separate structure or barrier designated as a vital area. In addition, SNM must be stored and processed within a controlled area designated as a material access area. All vital areas and material access areas must be located within a larger protected area which is surrounded by a physical barrier. An isolation zone is required on both sides of the outer physical barrier, and it must be kept clear of obstructions, illuminated, and monitored to detect the presence of individuals or vehicles attempting to gain entry

to the protected area so as to allow response by the licensee's security force at the time of penetration into the protected area.

- Personnel and vehicle access into a protected area, material access area or vital area must be controlled. A picture badge identification system must be used for employees. Visitors must be registered and escorted, except that an individual who requires frequent and extended access to a protected or vital area need not be escorted if he is provided with a picture badge which designates the area to which access is authorized. Individuals and packages entering the protected area are required to be searched. Admittance to a vital area and material access area must be controlled, and access must be limited to those persons who require such access to perform their duties. Methods to observe individuals within a material access area to assure that SNM is not being diverted must be provided and used on a continuing basis. All individuals, packages, or vehicles are searched for concealed SNM before exiting from a material access area. Keys, locks, combinations and related equipment are required to be controlled to minimize the possibility of compromise.

- All emergency exits in the protected area, vital areas, and material access areas must be alarmed against intrusion. Each unoccupied material access area must be locked and alarmed. All alarms must annunciate in a continuously manned central alarm station located within the protected area and in at least one other continuously manned station. All alarms must be selfchecking and tamper-indicating and tested for operability and required functional performance at specified intervals not to exceed seven days.

- Each guard or watchman on duty must be capable of maintaining continuous communications with an individual in a continuously manned central alarm station within the protected area, who is capable of calling for assistance from other guards and from local law enforcement authorities. To provide the capability of continuous communication with local law enforcement authorities, two-way radio voice communications must be established in addition to conventional telephone service. All communications equipment must remain operable by means of independent power sources in the event of loss of primary power, and must be tested for operability and performance not less frequently than once at the beginning of each security personnel work shift.

- Licensees must establish liaison with local law enforcement authorities. In developing security plans, licensees must take into account the probable size and response time of the local law enforcement assistance. The security force must be prepared to take immediate action to neutralize threats to the facility by appropriate direct action and by calling for assistance from local law enforcement authorities.

To aid licensees in carrying out the new protection requirements, the Commission issued a number of new Regulatory Guides which set forth acceptable ways for complying with selected requirements. These are listed in Appendix A.

Also during 1974, persons operating nuclear power reactors were required to submit physical security plans to protect against industrial shortage. Protection plans for 52 nuclear power reactor units were reviewed and approved. Guidance as to the physical protection criteria generally acceptable for the protection of nuclear power reactors against an act of industrial sabotage is provided by Regulatory Guide 1.17 "Protection of Nuclear Power Plants Against Sabotage" which references ANSI Standard N18.17 "Industrial Security of Nuclear Power Plants." The level of security provided is similar to that discussed above for the protection of SNM.

In November, 1974, the Commission published new proposed amendments which would establish new specific requirements for nuclear power reactor licensees to establish a physical security organization to provide access control to and within the nuclear power reactor using qualified and trained guards, and to establish other physical security measures including communications, liaison with local law enforcement authority, and visitor restrictions for non-employees.

UPGRADING OF MATERIAL CONTROL AND ACCOUNTING MEASURES

Commission requirements for the control and accounting of special nuclear material at licensed plants were revised in November, 1973, to provide greater sensitivity and timliness for detecting the theft or diversion of material. Quality specifications were prescribed for performing plant material balances on the basis of measurements.

During 1974, the following material control and accounting requirements were generally applied to 30 facilities which were authorized to possess more than one effective kilogram* of special nuclear material in unsealed form:

*Effective kilogram of special nuclear material means: (1) For plutonium and uranium -233 their weight in kilograms; (2) For uranium with an enrichment in the isotope U-235 of 0.01 (1%) or above, its element weight in kilograms multiplied by the square of its enrichment expressed as a decimal weight fraction; and (3) For uranium with an enrichment in the isotope U-235 below 0.01 (1%), by its element weight in kilograms multiplied by 0.0001.

- The licensee must maintain and follow written material control and accounting procedures.

- Records must be kept showing the receipt, inventory (including location), disposal, acquisition, import, export, and transfer of all special nuclear material in each licensee's possession, including records of the quantities of material added to or removed from process. Physical inventory and material balance records must be maintained for a period of five years.

- All transfers of special nuclear material between material balance areas must be documented to show the identity and quantity of material. Means must be provided for the control and accounting of internal transfer documents and for obtaining authorized signatures on each document.

- The licensee must uniquely identify items or containers containing special nuclear material in process.

- The licensee must tamper-safe containers or vaults containing special nuclear material not in process and control access to the devices and records associated with their application. Tamper-safing may be utilized to assure the validity of material measurements performed prior to the time of physical inventory.

- Provisions must be made for accurate cutoff procedures, verification of the integrity of the tamper-safing devices used for securing previously measured material, verification by remeasurement of the quantities of material previously measured but not tamper-safed, and for the accurate listing of the inventory. In addition to the general inventory procedures, specific inventory instructions must be prepared for each inventory.

- All quantities of material on inventory must be based on measurements.

- The licensee must conduct physical inventories bimonthly for plutonium and uranium 233, and uranium enriched 20 percent or more in U-235, except for plutonium containing 80 percent or more by weight of the isotope Pu-238 and plutonium and uranium held in the inaccessible portion of an irradiated fuel reprocessing plant. The licensee must conduct physical inventories for uranium enriched less than 20 percent in the

isotope U-235, and those materials exempted from the bimonthly inventories at least every six months.

- Within 30 days after the start of each physical inventory, the licensee must calculate the material unaccounted for (MUF) and its associated limit of error, reconcile and adjust the accounting records to the results of the physical inventory, and complete the material balance records for each material balance.

- The licensee must maintain a system of control and accounting such that the limits of error for any MUF do not exceed threshhold quantities of 200 grams for plutonium or uranium -233, 300 grams for uranium or the isotope uranium -235 contained in high enriched uranium, or 9,000 grams for uranium -235 contained in low enriched uranium, or 0.5 percent of additions to or removals from material in process, whichever is greater, except for a reprocessing plant where the uncertainty for plutonium and uranium may be 1.0 percent and 0.7 percent, respectively. In accordance with the provisions of the regulations, two plants have been allowed higher limits. Each of these has initiated programs to achieve improvements in his material control system.

In October, 1974, the Commission issued amendments to its regulations which specify fundamental nuclear material controls required to be established, maintained, and followed by licensees authorized to possess at any one time and location more than one effective kilogram of special nuclear material in unsealed form.

These amendments provide the basic criteria for detailed licensee material control and accounting systems. The criteria, in turn, provide the basis for the eventual development of material control and accounting systems utilizing advanced technology such as nondestructive analysis and automatic data processing to provide real-time accurate control of and accounting for special nuclear material.

Also in October, 1974, the Commission published proposed regulations to strengthen the materials control and accounting requirements for special nuclear material in the interest of the common defense and security. Such amendments would provide greater assurance that material balances are based upon current, high quality measurement data, so that a loss of material may be distinguished from measurement uncertainty.

Under the proposed amendments each licensee who is authorized to possess, at any one time and place, a quantity of certain special nuclear material exceeding one effective kilogram in unsealed form would be required to establish and maintain a measurement control program covering all of the

components of measurements used for materials control and accounting purposes. The program would include organizational controls for the management of measurement quality, training and performance qualification requirements, a standards and calibration system, a quality testing system for the determination and the control of systematic and random errors, a records evaluation system for the collection and statistical analysis of the data, and a system of management audits and reviews. If adopted by the Commission the proposed amendments would give licensees three months to submit plans for the measurement control programs. The licensees would be required to follow the plans submitted six months after the deadline date for submission or thirty days after Commission approval whichever is later.

To aid licensees in carrying out the new material control and accounting requirements, the Commission issued a number of new Regulatory Guides in 1974 which set forth acceptable ways for complying with selected requirements. These are listed in Appendix B.

UPGRADING OF PROTECTION OF SNM DURING TRANSPORT

Durir - the following new rules for the protection of SNM in transit were to 10 licensees and 5 transportation companies.

Each pe - who is licensed or who applies for a license to possess more than 5000 - ms of special nuclear material as computed by the formula given above, except SNM contained in irradiated fuel, must submit a plan to the NRC for review and approval outlining the methods to be used for the protection of the SNM while in transit. The licensee is not permitted to make any change which would decrease the effectiveness of his transportation security plan without prior approval of the NRC. The plan must demonstrate the means to be used in meeting the following requirements:

- If a common or contract carrier is used, the SNM must be transported under the established procedures of the carrier which provide a system for the physical protection of valuable material in transit and require a hand-to-hand receipt at origin and destination and at all points in route where there is a transfer of custody. Transit times of all shipments must be minimized, and routes must be selected to avoid areas of natural disaster or civil disorders. SNM must be shipped in containers which are sealed by tamper-indicating type seals. The outer container or vehicle is required to be locked and sealed. No container weighing 500 pounds or less may be shipped on open vehicles, such as open trucks or railway flatcars.

- All shipments by road must be made without any scheduled intermediate stops to transfer SNM or other cargo between the point of origin and destination. All motor vehicles are required to be equipped with a radiotelephone. Calls must be made at predetermined intervals normally not to exceed two hours; and if calls are not received when planned, the licensee or his agent must immediately notify an appropriate law enforcement authority and the NRC. Shipments by road must be accompanied by at least two people in the transport vehicle. If the transport vehicle is not specially designed with penetration-resistant and immobilization features, the vehicle is required to be protected by an armed escort consisting of at least two guards in a separate escort vehicle. In addition, transport vehicles are required to be marked on top, sides, and rear with identifying letters or numbers.

  Large shipments of SNM are prohibited on passenger aircraft. Shipments on cargo aircraft are required to be arranged so as to minimize the number of scheduled transfers; guards must be present during transfer and at all scheduled stops.

  Rail shipments must be escorted by two armed guards in the shipment car or in an escort car. Continuous onboard radiotelephone communications capability must be provided with conventional telephone backup. Periodic calls are required to the licensee or his agent.

- Shipments by sea must be made on vessels making the minimum ports of call. Transfer at domestic ports from other modes of transportation must be monitored by a guard. Shipments must be placed in a secure compartment which is locked and sealed. Export shipments must be escorted by an authorized individual, who may be a crew member from the last port in the U. S., until it is unloaded in a foreign port. Ship-to-shore communications must be made every 24 hours to relay position information and the status of the shipment as determined by daily inspections.

- A licensee who makes a shipment must notify the consignee of the shipment schedule and details, including the estimated time of arrival of the shipment. A licensee who receives a shipment must immediately notify the shipper. Shipments which fail to arrive at the destination on time must be traced, and the NRC must be notified.

To aid licensees in carrying out the new requirements for the protection of SNM in transit, the Commission issued a number of new Regulatory Guides which set forth acceptable ways for complying with selected requirements. These are listed in Appendix C.

In November, 1974, the Commission published new proposed regulations to further strengthen the protection of nuclear material in transit. The regulations propose, among other things, a significant strengthening of the armed escort which accompanies the shipments.

INSPECTION AND ENFORCEMENT

As in previous years, the Regulatory materials and plant protection inspection program assured through inspections that licensees have established and are maintaining an effective program to protect the health and safety of the public against the release of radioactive materials that could result from industrial sabotage and to protect against the diversion of SNM which could be used to manufacture nuclear weapons. During 1974, 219 safeguards related inspections were conducted, of which 86 were reactor inspections and 133 were fuel cycle facility inspections. There were 9 incidents of serious safeguards violations, for which a total of approximately $70,000 in civil penalties was imposed.

EFFECTIVENESS OF SAFEGUARDS--ADEQUACY OF COVERAGE

The upgraded physical security and material control and accounting systems implemented during 1974 have been effective in protecting nuclear facilities and special nuclear material at licensee sites in that no incidents of sabotage or theft have been recorded. Nonetheless, protection systems must be reviewed and upgraded periodically to protect against new threats and against new technology which becomes available to adversary forces.

Accordingly, the AEC had initiated a planned further upgrading actions relating to safeguards. The plans will be reevaluated by NRC as to adequacy and scheduling. These include such actions as:

1. Automated processing, material handling and inventory data aquisition and analysis.

2. Design basis incident analysis to identify and analyze the safeguarding of SNM.

3. Vulnerability analysis to identify weaknesses in safeguards systems and to develop mechanisms for overcoming such weaknesses.

4. Threat analysis and level of protection studies to provide a continuing analysis of possible terrorist activities that might affect the nuclear industry.

5. Design criteria studies to evaluate concepts of facility design for safeguarding SNM.

6. Response mechanism studies to identify the roles to be per by various groups and agencies in response to safeguards inci .

7. Diversion path analysis studies to identify process changes which serve as indicators of possible or attempted diversion of SNM.

In addition to the actions listed above, NRC is conducting a study as called for in the Energy Reorganization Act of 1974, to assess the need for, and the feasibility of, establishing a Federal security agency to maintain safeguards against threats, thefts and sabotage of licensed materials and facilities. This study will be prepared and transmitted to the Congress by the Commission within approximately one year.

ANNEX A

Regulatory Guides Issued in 1974 which Relate to Protection of Fixed Sites.

5.15 Security Seals for the Protection and Control of Special Nuclear Material. 1/74

5.20 Training, Equipping, and Qualifying of Guards and Watchmen. 1/74

5.27 Special Nuclear Material Doorway Monitors. 6/74

5.30 Materials Protection Contingency Measures for Uranium and Plutonium Fuel Manufacturing Plant. 6/74

Regulatory Guides Issued in 1974 which Relate to Materials Accounting.

5.16 Standard Methods for Chemical, Mass Sectrometric, Spectrochemical Nuclear, and Radiochemical Analysis of Nuclear-Grade Plutonium Nitrate Solutions and Plutonium Metal. 1/74

5.18 Limit of Error Concepts and Principles of Calculation in Nuclear Materials Control. 1/74

5.19 Methods for the Accountability of Plutonium Nitrate Solutions. 1/74

5.21 Nondestructive Uranium -235 Enrichment Assay by Gamma-Ray Spectrometry. 4/74

5.22 Assessment of the Assumption of Normality (Employing Individual Observed Values). 4/74

5.23 In Situ Assay of Plutonium Residual Holdup. 5/74

5.24 Analysis and Use of Process Data for the Protection of Special Nuclear Material. 6/74

5.25 Design Considerations for Minimizing Residual Holdup of Special Nuclear Material in Equipment for Wet Process Operations. 6/74

5.26 Selection of Material Balance Areas and Item Control Areas. 6/74

5.28 Evaluation of Shipper-Receiver Differences in the Transfer of Special Nuclear Materials. 6/74

5.29 Nuclear Material Control Systems for Nuclear Power Plants. 6/74

5.33 Statistical Evaluation of Material Unaccounted For. 6/74

5.34 Nondestructive Assay for Plutonium in Scrap Material by Spontaneous Fission Detection. 6/74

5.35 Calorimetric Assay of Plutonium. 6/74

5.36 Recommended Practice for Dealing with Outlying Observations. 6/74

5.37 In Situ Assay of Enriched Uranium Residual Holdup. 8/74

5.38 Nondestructive Assay of High-Enrichment Uranium Fuel Plates by Gamma Ray Spectrometry. 9/74

5.39 General Methods for the Analysis of Uranyl Nitrate Solutions for Assay, Isotopic Distribution, and Impurity Determinations. 12/74

ANNEX B (Continued)

5.40 Methods for the Accountability of Plutonium Dioxide Powder

5.45 Standard Format and Content for the Special Nuclear Material Control and Accounting Section of a Special Nuclear Material License Application. 12/74

Regulatory Guides Issued in 1974 which Relate to Protection of SNM During Transportation.

5.15 Security Seals for the Protection and Control of Special Nuclear Material. 1/74

5.17 Truck Identification Markings. 1/74

5.31 Specially Designed Vehicle with Armed Guards for Road Shipment of Special Nuclear Material. 6/74

5.32 Communication with Transport Vehicles. 6/74

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

Honorable Robert C. Seamans, Jr.
Administrator
Energy Research and Development Administration
Washington, D.C. 20545

Dear Dr. Seamans:

The Nuclear Regulatory Commission concurs with your proposed letter to Dr. Henry A. Kissinger transmitting ERDA's Annual Report on the Status of Domestic Safeguards. We appreciated the opportunity to comment upon draft versions of the report and your staff's consideration of our comments in their preparation of the final report.

Sincerely,

William A. Anders
Chairman

Enclosure 2

[redacted]

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