

May 21, 1979

SECY-79-345

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## COMMISSIONER ACTION

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For: The Commissioners

From: William J. Dircks, Director  
Office of Nuclear Material Safety and Safeguards

Thru: Executive Director for Operations *[Signature]*

Subject: CONCLUSIONS CONCERNING PAST EVENTS OF THEFT OR  
DIVERSION OF SIGNIFICANT QUANTITIES OF STRATEGIC  
SPECIAL NUCLEAR MATERIAL (SSNM)\*

Purpose: To provide a proposed general statement describing  
the Commission's present position on the question  
of whether or not any theft or diversion of signi-  
ficant amounts of SSNM has occurred in the past.

Background: SECY-78-632 developed a set of general statements to  
be used in describing staff conclusions on theft and  
diversion. These statements were generally forward-  
looking in that the judgments and conclusions  
therein are based upon today's safeguards program  
involving the licensing review, inspection, and  
evaluation of physical security systems and material  
control and accounting programs for licensed activities  
as well as a general program of intelligence/threat  
information assessment. By SECY memorandum of  
February 9, 1979, the staff was requested to develop  
a general statement about past events which reflects  
a Commission position based upon information presently  
available.

In addition, the SECY memo of February 9 indicated that  
the proposed statements contained in SECY-78-632  
should be reworded to avoid a "no loss" statement  
(which the proposed Case #1 statement seemed to allow)

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\*A significant quantity of SSNM is defined for safeguards  
purposes as 5 Kg or more of U-235 contained in highly  
enriched uranium (HEU), or 2 Kg or more of either  
plutonium or U-233.

Background:  
(con't.)

even if NRC does not know how the loss occurred. The staff has reviewed this statement and recommends that it not be changed. The point of this statement is that NRC can reach an overall judgment of "no (real) loss", notwithstanding the presence of an Inventory Difference (be it an accounting loss or gain).

Discussion:

The staff proposes the use of the following general statements about past SSNM theft or diversion. As in the case of the forward-looking statements in SECY-78-632, statements concerning any specific facility would also include any summary information which is pertinent to that particular case. As an example, the following statement makes specific reference to the matter of NUMEC in the mid-1960s:

"The Atomic Energy Act of 1954 allowed and encouraged civilian peaceful uses of Special Nuclear Materials (SNM) although private ownership of such material was not permitted until 1964. From 1954 through 1967, private facilities operated almost exclusively with government-owned materials under government contract and operating license for health, safety, and radiological protection with the AEC.

During this early period of possession of SNM in privately-owned facilities, the AEC did not impose its own safeguards procedures on private contractors. Instead, the AEC had concluded that the physical protection and accountability controls which licensees, as prudent businessmen, would maintain over SNM because of the financial consequences of its loss or damage, and the severe criminal penalties for unlawful diversion, were adequate to protect the national interest.

In 1968, as more privately-owned materials began to accumulate, responsibility for licensing and inspecting private facilities was reassigned within the AEC from the General Manager to the Director of Regulation. The AEC issued rules for improved material control and accounting in 1967 and rules for the physical protection of strategic special nuclear material in-transit and at fixed sites in 1969 and 1970, respectively.

Additional requirements aimed at improving the quality and accuracy of SSNM accountability were promulgated in 1971, 1973 and 1975. Physical security systems were further improved by license conditions in 1972, and expanded by new rules in 1973. Site-specific license conditions were

Discussion:

imposed to correct deficiencies identified during facility assessments made by NRC teams in 1976. Beginning in mid-1977, a systematic, comprehensive evaluation of the entire safeguards program at licensed SSNM facilities was initiated. These assessments, which are nearing completion, have resulted in still further safeguards improvements.

The rules for improved SSNM accountability and physical security which were issued in 1973 and implemented during 1974 contained key elements in the program to protect against an insider threat. New requirements for personnel and material searches, surveillance of material handling areas, two-man work rules, increased frequency of SSNM inventory measurements, and limits on accounting uncertainty are examples of elements introduced to counter a covert attempt at theft or diversion.

In retrospect, the safeguards program at licensed facilities between 1954 and 1974, although considerably improved during the latter part of this period, was not sufficient to adequately protect against the possibility of theft or diversion of significant quantities of SSNM by a knowledgeable insider. Although the NRC is not aware of any facts establishing such acts during this period, the absence of a complete and comprehensive physical security system to prevent theft or diversion, coupled with the presence of some large Inventory Differences (which of themselves are indeterminate as conclusive evidence of accountability)\* reported during that period result in the conclusion that a covert theft or diversion could have been successful. Although the NRC and AEC/Regulatory had no responsibility for safeguards at the NUMEC facility, the matter of SSNM accountability at the NUMEC facility in the mid-1960s is, in the NRC's view, consistent with this general conclusion regarding SSNM safeguards at licensed facilities prior to 1974. Based upon all information available to the Commission at the present time, there is no conclusive evidence that a theft or diversion of a significant amount of SSNM either did or did not take place at the NUMEC facility.

\*For additional information on Inventory Difference, see "Report on Strategic Special Nuclear Material Inventory Differences", NUREG-0350, August 1977.

Discussion:  
(con't.)

As a result of the significant program improvements which were initiated at licensed facilities in 1974, the NRC has, since its formation in early 1975, become increasingly confident in the adequacy of safeguards at licensed SSNM facilities. Since 1974, an upgrade in designing safeguards requirements, inspecting and evaluating facilities for compliance and effectiveness, and the establishment of a structure for threat information assessment has also contributed to an increased confidence in the Commission's ability to evaluate safeguards adequacy and make judgments concerning SSNM accountability.

Despite these improvements, the reporting of some large Inventory Differences since 1974, when taken together with the inherent measurement uncertainties associated with nuclear materials accounting, precludes any absolute statement concerning the capability of the safeguards system to account for all SSNM based upon confirming evidence from the accounting system. The possible successful theft or diversion of SSNM, therefore, cannot be conclusively ruled out. Nevertheless, AEC/NRC investigations or evaluations of all large Inventory Differences occurring since 1974 have not identified any facts establishing (other than the Inventory Differences which of themselves are inconclusive) that any significant quantity of SSNM has been stolen or diverted. These investigations and evaluations have examined the physical security systems and the material control systems as well as Inventory Differences occurring within the material accounting system. Notwithstanding the lack of confirming evidence through absolute accountability, and based upon information presently available, it is the NRC's judgment that the overall safeguards programs which have been established at licensed facilities since 1974 have been effective in preventing the theft or diversion of any significant quantity of SSNM.

In summary, based upon (1) all information supplied to NRC concerning safeguards and accounting at licensed facilities for activities prior to 1968, and (2) all information presently available to the NRC for safeguards and accounting since the AEC/Regulatory (now NRC) assumed that responsibility in 1968, the NRC has not identified any fact establishing that any significant quantity of SSNM has ever been stolen or diverted from a licensed facility. However, the absence of comprehensive physical security systems to protect against theft or diversion prior to 1974, together with the presence of some large

Discussion:  
(con't.)

Inventory Differences reported prior to that time, result in the conclusion that a covert theft or diversion attempt could have been successful. During 1974, greatly improved safeguards systems were implemented to protect against and detect acts of theft or diversion. Although the NRC is not aware of any facts establishing the occurrence of such acts since 1974, the continued presence of some large Inventory Differences indicates that the possibility of theft or diversion cannot be conclusively ruled out. Nevertheless, it is the NRC's judgment that the overall safeguards programs which have been established at licensed facilities since 1974 have been effective in preventing the theft or diversion of any significant quantity of SSNM."

Recommendation:

That the Commission approve this paper as representing the present NRC position on the question of whether or not any theft or diversion of significant amounts of SSNM has occurred in the past.

Coordination:

IE and MPA have concurred in this paper. ELD has no legal objection.



William J. Dircks, Director  
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Commissioners' comments should be provided directly to the Office of the Secretary by c.o.b. Monday, June 4, 1979.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT May 29, 1979, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional time for analytical review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

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