



POLICY ISSUE **(Information)**

October 25, 1988

SECY-88-302

For: The Commissioners

From: Victor Stello, Jr.
Executive Director for Operations

Subject: AIR TRANSPORT OF PLUTONIUM UNDER THE MURKOWSKI AMENDMENT
(PUBLIC LAW NO. 100-203)

Purpose: To inform the Commission of the staff's conclusions about the Murkowski Amendment requirements, related discussions with the Japanese, and initial steps in implementing the Amendment.

Background: On December 22, 1987, the Omnibus Budget Reconciliation Act of 1987, Public Law No. 100-203, was signed into law. Section 5062 in Title V of the Act contains a provision affecting plutonium air shipments, known as the Murkowski Amendment (Enclosure 1). Basically, the Amendment applies to transportation of plutonium by aircraft through U.S. air space from one foreign nation to another, and requires:

- (1) U.S. Nuclear Regulatory Commission (NRC) certification to Congress that the container used is safe;
- (2) actual drop test of the container from maximum cruise altitude;
- (3) actual crash test of a cargo aircraft fully loaded with containers, to actual worst case transportation conditions to the maximum extent practicable, unless the Commission determines, after consultation with an independent scientific review panel, that the stresses produced on the container by other tests used in developing the container exceed the stresses which would occur during a worst case plutonium air shipment accident; and
- (4) Commission evaluation of the container certification under the National Environmental Policy Act (NEPA), and compliance with other applicable laws, including Public Law 94-79 (Scheuer Amendment, enacted in 1975).

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The Murkowski Amendment further provides that all costs incurred by NRC, associated with the testing program and related administrative costs, shall be reimbursed to NRC by the foreign nation receiving the plutonium.

A related Public Law 94-79, enacted on August 9, 1975, known as the Scheuer Amendment, restricted NRC from licensing air transport of plutonium until the NRC certified to the Congress that a safe container had been developed and tested which will not rupture under crash and blast-testing equivalent to the crash and explosion of a high-flying aircraft. As a result of the Scheuer Amendment, NRC established a package certification program, including the development of qualification criteria prescribing appropriate performance requirements and acceptance standards for packages used for export, import and domestic shipment of plutonium by air (NUREG-0360, "Qualification Criteria to Certify a Package for Air Transport of Plutonium," 1978). These criteria received an independent technical review and endorsement by both the NRC Advisory Committee on Reactor Safeguards and the National Academy of Sciences.

Discussion:

Staff's view of the technical adequacy of the NUREG-0360 criteria has not changed. The qualification criteria assure that package survival will approach certainty in aircraft accidents occurring during take-off, landing, or ground operations. These types represent the majority of all aircraft accidents. The intention in developing the criteria was to clearly and conservatively encompass a reasonable upper limit of severity for such accidents. Considering the conservatism inherent in the criteria for protecting against take-off and landing accidents, and the numerous factors present in an accident situation which could mitigate package damage, the criteria also assure a high degree of protection against accidents which occur in other phases of flight. These include accidents of extreme severity, such as mid-air collision and high speed crashes.

By memorandum dated February 10, 1988, the General Counsel provided the Commission with a legal interpretation of the Murkowski Amendment. The Amendment may be viewed as adding drop and crash tests, for shipments transiting U.S. air space, to the criteria developed under the Scheuer Amendment, which are otherwise acceptable. In a letter dated July 27, 1988, Chairman Zech advised Senator Murkowski that NRC cask certification would be required even if shipment through U.S. air space was only planned in an emergency.

The Office of General Counsel (OGC) has recently provided staff with additional conclusions and legal opinions in response to staff questions on the meaning of terms and requirements in the Murkowski Amendment (Enclosure 2). In particular, staff requested an interpretation of "worst case" crash conditions as used in both the

actual crash and developmental testing alternatives under the testing requirement described earlier. OGC has concluded that the "worst case" language in the Amendment refers to the worst aircraft crash on record.

The impact speeds involved in such worst case crashes could exceed by a factor of 2 to 3 of those considered in the development of NUREG-0360. Accordingly, the staff believes that "worst case" language as used in the Murkowski Amendment will result in more rigorous criteria than that developed in NUREG-0360. This determination has been discussed with representatives of the Government of Japan. Staff has also held initial discussions with representatives of Japan's Power Reactor and Nuclear Fuel Development Corporation (PNC) on an NRC/PNC project to review actual aircraft accidents to establish "worst case" conditions. Lawrence Livermore National Laboratory has been requested by staff to provide project cost and schedule information.

OGC has also provided additional clarification with respect to NRC's previously certified containers. The Murkowski Amendment contains a provision stating that "This section shall not apply to any containers for the shipment of plutonium previously certified as safe by the Nuclear Regulatory Commission under Public Law 94-79....". However, remarks made by Senator Murkowski during debate suggest that he wanted any container used for future shipments of plutonium from one foreign nation to another through U.S. air space to satisfy not only the requirements currently required by NRC, but also the new requirements of the Murkowski Amendment. In OGC's view it is reasonable to argue that the statute is clear on its face. Thus Mr. Murkowski's remarks need not be looked to for clarification, and packages previously certified (PAT-1 and PAT-2) to Congress by NRC under the Scheuer Amendment may be used for transport without being tested to new criteria. OGC, however, states that such an interpretation is not without litigative risk.

The staff has discussed approaches for implementing the Murkowski Amendment with representatives of Japan. The Japanese have stated that they are willing to fund an initial implementation phase, managed by NRC, in which draft crash test requirements and draft developmental test criteria are developed in parallel. Staff has held subsequent discussions with Lawrence Livermore National Laboratory about performing the work.

It should be noted that the U.S. and Japan have recently completed consultations on the feasibility of using sea shipment for the return of plutonium from EURATOM to Japan under the Bilateral Agreement

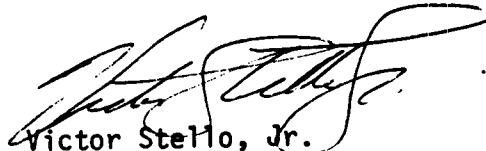
(SECY-88-175). A subsequent arrangement to the Bilateral Agreement which provides for sea shipment was submitted to the Congress and became effective on October 6, 1988. Sea shipment was used for a previous retransfer of plutonium from Europe to Japan in 1984.

Conclusion:

The "worst case" language in the Murkowski Amendment refers to the worst aircraft crash on record. The Murkowski Amendment effectively requires testing new packages for shipping plutonium from one foreign nation to another through U.S. air space to more rigorous criteria than NUREG-0360, but could permit the use of PAT packages. OGC states that the interpretation regarding PAT package utility is not without litigative risk. The staff's view remains that although NUREG-0360 criteria do not consider worst case accidents, they provide adequate public health protection for air shipment of plutonium.

Scheduling:

Staff has discussed the Murkowski Amendment requirements with representatives of Japan. Based on indications from Japanese contacts that air transport is considered as a first priority, staff is initiating implementation of the Murkowski Amendment. In this regard, staff considers the situation dynamic: for example, the Japanese do not appear to have reached consensus on the alternative they would prefer under the crash test/review panel requirement described earlier. Also, the Japanese have not developed a candidate package that meets Public Law 94-79. Nevertheless, the staff and PNC are in the process of developing an agreement for reimbursement of costs by PNC to the NRC, and to generally outline the NRC program for implementation of the Murkowski Amendment. The agreement, which may take the form of a Memorandum of Understanding, will be forwarded to the Commission in the next several months.



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Enclosures:

1. Murkowski Amendment
2. OGC Legal Opinions

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