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Department of Energy

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July 29, 2002 (5:22PM)),

Ms. Annette L. Vietti-Cook, Secretary
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
Attention: Rulemaking and Adjudications Staff

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

Dear Ms. Vietti-Cook,

The U.S. Department of Energy (DOE) supports the U.S. Nuclear Regulatory Commission's proposed changes to 10 CFR Part 71 making this Part compatible with International Atomic Energy Agency standards in TS-R-1. I am forwarding the following pages as an advance copy of the official Departmental comments. The official DOE comments will be send over the signature of Jessie Robinson, Assistant Secretary, Office of Environmental Management. If you have any questions regarding these comments, please contact me at (301) 903-2102, or Julia Phifer at (301) 903-2920.

Sincerely,

Kent Hancock, Director
Office of Transportation
Office of Integration and Disposition
Office of Environmental Management



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**U.S. Department of Energy Comments on the
U.S. Nuclear Regulatory Commission Proposed Rule on 10 CFR Part 71 "Compatibility
with IAEA Transportation Safety Standards (TS-R-1) and Other Transportation Safety
Amendments, dated April 30, 2002**

§71.0 Purpose and scope.

General Comments. The Department of Energy generally supports the proposed rule. Before finalizing the rule, the Commission should ensure that its provisions represent a risk-informed, performance based approach. With the increased concerns over the safety of transportation, we need to focus our action where they are needed.

Specific Comments. The definition of "person" as stated in §70.4 should be included under §71.4 so it is clear that DOE is not a person with the meaning of proposed paragraph 71.0(e).

§71.4 Definitions.

The definition of LSA-I should agree with the proposed DOT definition.

§71.15 Exemption from classification as fissile material.

This section is inconsistent with TS-R-1 and should be revised to retain the exceptions stated in paragraph 672 of those regulations. Specifically, the 15 g and 5 g /10 liter volume exceptions should be retained as stated in the current regulations. The Department of Energy uses these provisions extensively and has done so for decades without incident. The recommendations in NUREG/CR-5342 do not include the provisions in the proposed §71.15(a).

Given the manner in which shipments are made under §71.15(a)(1) and (a)(3) of the current regulations there is insufficient data in NUREG/CR-5342 to support changing these sections of the regulations. The assumptions made in this analysis appear based on theoretical scenarios that do not reflect current shipping practices. Data in NUREG/CR-5342 does not demonstrate that the shipments currently made under these sections pose any criticality concern or require the additional controls proposed.

If the intent of the controls is to address concerns with mass conveyance limits, then a balance must be made with the operational aspects of transportation. While DOE recognizes the necessity for increased security, the proposed controls are disproportional to the actual risk posed by typical shipments.

These changes impact a significant number of shipments (e.g., contaminated laundry, environmental samples, bulk packaged low level waste). Typical fissile mass per package (and in some cases conveyance) ranges from micrograms to 15 g. These shipments are vital to meeting the DOE missions of research and environmental cleanup. The Commission may wish to examine again its data analysis to identify whether this change is appropriate from both a cost and safety basis. The shipping history for these materials has been exemplary and there are no indications of legitimate criticality concerns associated with them.

DOE makes extensive use of the fissile exempt section of the regulations. Typical shipments made under these provisions include contaminated laundry shipments, environmental sample

shipments and low-level waste shipments. Typical packaging configurations include: fiberboard boxes, poly bottles in plastic coolers, canvas bags, metal boxes and drums and railcars. Radioactive contents includes solids and liquids, and sometimes special form sources.

The proposed regulations would result in DOE being either unable to ship laundry and environmental shipments as fissile excepted, and in their current packaging configuration. Low level waste shipments will be impacted to a lesser extent.

Environmental sample shipments are typically shipped with inner glass or poly bottles inside of a plastic cooler. Additional inner contents can include absorbent material for liquids and cushioning materials to hold the bottles securely in place. There is usually either dry ice or "blue packs" included to maintain the samples at an EPA mandated temperature. Such shipments can not be accommodated under the proposed regulations. This would cause DOE to design and have certified a Type AF package for these shipments. This is an undue and costly burden without demonstrated increase in safety. A similar argument can be made for laundry shipments presently made in canvas bags or bins.

The economic impact will be significant. In Oak Ridge alone, an average of 10 environmental shipments are made daily and laundry shipments run weekly. These types of shipments have been made safely for decades without criticality incidence. The current provision for 15 grams/package should be retained for domestic shipments until such time as DOT and NRC can demonstrate that this is an unsafe configuration for these shipments.

§71.15(b)

This section does not identify what standard is to be used in applying either the term "non-combustible" or the term "insoluble-in-water". If this section is kept as proposed, there is a need to clarify the terms and specify an appropriate standard.

Tables 71-1 and 71-2

How are these tables applied for uranium enriched greater than 24%? Highly enriched uranium does not meet the criteria under §71.22(e)(5). If this means that material enriched > 24% cannot be shipped in a DOT 7A, this would have significant cost and operational impacts on DOE.

§71.22 (a)(3) Tables 71-1 and 71-2 Mass Limits for General License Packages.

The NRC should clarify how these are used for uranium enriched greater than 24%. Highly enriched uranium does not meet the criteria under §71.22(e)(5). This presents a considerable negative impact on the Department of Energy if uranium enriched >24% can't be shipped in a DOT 7A.

§71.41 Demonstration of Compliance.

The Department of Energy supports the proposed provisions in paragraph 71.41(d) for special package authorizations. This revision provides a consistent approach to dealing with the transport of large pieces of equipment and non-standard items. The safety and cost effectiveness of onsite and offsite transfers of large equipment items will be improved with this provision.

§71.63 Special Requirement for plutonium shipments.

The Department of Energy supports the proposed removal of the requirement for "double containment" of plutonium from § 71.63. A single containment barrier is adequate for Type B packages containing more than 20 Curies of solid form plutonium. The Department of Energy conducted an in-depth analysis of the current double containment rule and identified the associated impact on worker health due to additional radiation exposure as well as projected increased operational costs. This proposed revision will reduce radiation exposure to personnel who open and close packages and will reduce the cost of packaging and its associated hardware. The excellent safety record of single containment Type B packages in 40 years of shipments, confirmed by DOE and NRC safety studies, as well as improved QA and analysis capability developed in that period, provide reasonable assurance that this revision to the Type B packaging standards for plutonium will provide adequate protection to public health, safety, and the environment during transport.

We recommend removal of §71.63 because it has no technical basis for existence and presents a continuing cost to DOE without any commensurate safety benefits. The requirement for double containment (separate inner container) is particularly troublesome and inconsistent with the science and radiation protection basis for packaging all radionuclides. Particular problems with the current requirement include:

- **Technical Basis:** The proposed rule cites the inconsistency of double containment with the technical basis of the A_1 and A_2 values, and the Q-system principles of equating radiation effects. To continue the artificial requirement for double containment plutonium contained in 10 CFR 71.63 removes flexibility in package designs that might be needed to meet DOE's mission. Thus, the DOE urges NRC to eliminate the double containment requirement as early as practicable.
- **ALARA Inconsistency:** Double containment operations require more handling than single containment, which results in increased worker radiation exposure. Increased handling has caused and will cause unnecessary worker radiation exposure in the future during package operations, estimated to be 1200 to 1700 person-rem over a 10-year period. This penalty is attributable almost entirely to the additional operations required for double containment of TRU wastes. The impact of dealing with the additional collective dose at WIPP, which has self-imposed an administrative worker dose limit of 1 rem/yr, would be to use more workers or develop more restrictive work processes. Both methods would be costly and unwarranted.
- **Transportation Risk:** The risk incurred by the public in incident-free transport relates principally to exposure to radiation from the package that cannot be eliminated. Double containment will have an impact on this source of risk because of elimination of an extra boundary. However, the reduction is likely to be relatively small. In an accident, removal of double containment may incur a small-calculated increase in public radiological risk. However, in any case, the dose rate is already small enough at distances where the public is likely to be exposed that the impact of single- or double contained material will not be consequential.

— **Excessive Cost:** Double containment increases cost without measurable benefit. The costs to DOE of double containment for the period 2001 through 2010 is estimated to be over \$60 million for transuranic waste and plutonium oxide shipments. In addition to the specific impacts cited above, not removing 10 CFR 71.63 requirements could have significant cost impact from design, certification, and fabrication of future packaging, such as the TRUPACT III or the DPP-1 and DPP-2, needed to complete DOE's *Accelerated Cleanup* strategy for resolution of the legacy wastes and materials from the cold war.

— **Outdated Regulatory Environment:** The proposed rule correctly states the rationale for the former Atomic Energy Commission's (AEC) decision for a separate inner container. The expectations for liquid plutonium nitrate shipments has never materialized and the AEC concerns are now moot.