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July 29, 2002

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

Ref: Proposed Rule
Compatibility with IAEA Transportation Standards (TS-R-1) and Other
Transportation Safety Amendments

To NRC Rulemaking and Adjudications Staff:

Transport Logistics International (TLI) appreciates the opportunity to comment on the NRC Proposed Rule, as published in the April 30, 2002 Federal Register, pages 21390 to 21484, regarding *Compatibility with IAEA Transportation Standards (TS-R-1) and Other Transportation Safety Amendments*.

TLI provides specialized transportation management services for all forms of radioactive material. TLI coordinates movement of Class 7 materials across international borders by all modes of transport – plane, vessel (including barge), truck and rail. The company's wholly owned subsidiary, TLI Shipping, LLC, also serves as a dedicated ocean carrier of radioactive materials. In association with its transportation management activities, TLI provides consulting services related to package licensing, to training in domestic and international regulations applicable to the packaging and transport of radioactive materials, and to import/export licensing.

As an active participant in the international and domestic transport of radioactive material, TLI appreciates the NRC's efforts to produce a thorough Proposed Rule and to solicit public comments through a variety of means, including the June 2002 public meetings.

We are pleased to provide the following written comments on the April 30, 2002 Proposed Rule. Our comments are keyed to the nineteen issues as outlined in the rulemaking:



Issue 1: SI Units

We support the NRC proposal as a practical approach.

Issue 2: Radionuclide Exemption Values

We support the NRC proposal to adopt the new radionuclide exemption values. Use of the TS-R-1 exemption values is important to ensure consistency between domestic and international movements of radioactive material.

While the level at which individual radionuclides are controlled may increase or decrease as compared with the specific activity threshold of 70 Bq/g, the estimated dose is estimated to be significantly less. The NRC's analysis in analyzing the average annual dose rates for a number of representative radionuclides is helpful to a review of this issue.

Issue 3: Revision of A_1 and A_2 Values

We support the NRC proposal to adopt the new A_1 and A_2 values. Use of the TS-R-1 A_1 and A_2 values is important to ensure consistency between domestic and international movements of radioactive material. We understand that, while some A_1 and A_2 values are higher and some are lower, the potential doses to an individual in an accident scenario remain unchanged.

Issue 4: Uranium Hexafluoride Package Requirements

We support the NRC proposal regarding requirements for uranium hexafluoride packages.

Issue 5: Introduction of Criticality Safety Index Requirements

We support adoption of the Criticality Safety Index (CSI). Use of the CSI, especially in conjunction with the Transport Index for radiation exposure, provides more accurate communication regarding radioactive material in transport. This information is important to carriers as well as to emergency responders. Use of the CSI is important to ensure consistency between domestic and international movements of fissile material.



We strongly oppose, however, the proposed text in 71.59(c)(1) that would restrict accumulations of fissile materials to a total of CSI = 50.0 in situations in which fissile materials are stored incident to transport. Multimodal and international shipments are, by their very nature, subject to storage incident to transport (even if only for short durations).

Adoption of the Proposed Rule as drafted would effectively remove the ability to transport internationally and/or by multiple modes under exclusive use conditions. The Proposed Rule is silent on the intent behind this proposed change.

This seemingly arbitrary restriction on storage incident to transport would negatively impact the international movement of fissile materials, including the transport of fissile commodities to the United States under existing national nonproliferation programs.

On an annual basis, TLI transports thousands of packages containing fissile material to, from or through the United States on an international and/or multimodal basis under exclusive use conditions. Packages in these shipments are controlled with regard to accumulation in transport conveyances and are stowed and segregated for both radiation and criticality control purposes. These controls are documented in exclusive use instructions disseminated to entities involved in the shipment (including the carrier).

Under the text proposed in 71.59(c)(1), these shipments could be transported aboard an ocean vessel, truck or railcar under exclusive use conditions, however the same shipments under the identical radiation and criticality controls would be restricted at any transfer point (such as a port facility). The practical effect would be to create an artificial bottleneck at ports without any corresponding safety benefits.

TLI seeks to avoid the unnecessary transport of radioactive material. As written, however, 71.59(c)(1) would result in an increase in the number of shipments, likely by a factor of four at a minimum. While the total number of packages shipped would remain the same, the number of opportunities for potential exposure would increase. As such, the safety basis for the proposed change remains unclear.

The costs required to transport the same quantity of material would be increased by tens of thousands of dollars per additional shipment. Further, the NRC restriction on storage incident to transport would apply only to shipments to or



from the United States, thus penalizing U.S. companies who ship and receive radioactive materials for processing. Without additional justification or description of anticipated benefits, it is difficult to fully evaluate the impact of this proposal.

Issue 6: Type C Packages and Low Dispersible Material

We agree with the NRC analysis that there is little current need for domestic approval of Type C packages and low dispersible material, however we support the decision to ensure that there is a mechanism for reviewing validations of foreign approvals.

Issue 7: Deep Immersion Test

We support the NRC proposal regarding deep immersion test requirements.

Issue 8: Grandfathering

We support the NRC proposal to allow continued safe use of existing packagings through incorporation of the TS-R-1 transitional arrangement provisions.

Issue 9: Definitions

We support changes to definitions as outlined in 71.4 of the April 30, 2002 Proposed Rule. We are concerned, however, with the omission of several important definitions contained in the international regulations. These include (in alphabetical order):

Confinement system: The NRC notes in the Proposed Rule that it is intentionally excluding "confinement system" as the definition is included within the broader definition for containment system. This omission has the potential, however, to negatively impact entities that develop package designs for use in multiple countries. It is conceivable that a design may be developed in which the criticality evaluation is based on the international definition for confinement system (as distinct from containment system), however the NRC would fail to recognize the benefits or limits of such an approach in its review of the same design. The Proposed Rule contains no discussion on the proposed advantages



of omitting this definition. We urge the NRC to incorporate the TS-R-1 definition for "confinement system" into Part 71.

Consignment: The NRC's omission of a definition for "consignment" is significant, particularly given the NRC proposals for fissile exemptions and for accumulations of fissile materials. In connection with Issue 16, and contrary to the recommendation provided to the Commission by Oak Ridge National Laboratory, the NRC states that defining consignment is "not necessary"; no justification for this view is provided. From the perspective of a large volume transporter of radioactive materials, this definition plays a significant role in ensuring correct use of the regulations governing transport of Class 7 materials. We therefore urge the NRC to adopt the TS-R-1 definition for "consignment".

Contamination: It is important to ensure an internationally consistent and understood definition for contamination, including non-fixed and fixed contamination. We therefore urge the NRC to adopt the TS-R-1 definitions for "contamination", "non-fixed contamination" and "fixed contamination".

Deuterium: As the definition of "deuterium" is significant in determining fissile exemptions under the Proposed Rule, we question the use of the Part 110 definition for this purpose. The Part 110 definition was originally developed for nonproliferation purposes rather than for criticality control. It may be prudent to more carefully evaluate this proposal.

Graphite: As the definition of "graphite" is significant in determining fissile exemptions under the Proposed Rule, we question the use of the Part 110 definition for this purpose. The Part 110 definition was originally developed for nonproliferation purposes rather than for criticality control. It may be prudent to more carefully evaluate this proposal.

Shipment: As with "consignment", the NRC's omission of a definition for "shipment" is significant, particularly given the NRC proposals for fissile exemptions and for accumulations of fissile materials. We therefore urge the NRC to adopt the TS-R-1 definition for "shipment".

Unirradiated uranium: The NRC's omission of a definition for "unirradiated uranium" has the potential to negatively impact entities that develop package designs for use in multiple countries, particularly where authorized contents are clearly specified and where safety analyses are linked to such defined contents. The Proposed Rule contains no discussions on the proposed advantages of omitting this definition. We urge the NRC to incorporate the TS-R-1 definition for "unirradiated uranium" into Part 71.



Issue 10: Crush Test

We support the NRC proposal regarding crush test requirements.

Issue 11: Fissile Material Package Design for Transport By Aircraft

As the International Civil Aviation Organization has required compliance with the new criticality requirements for air transport of fissile material for the past year, we support the NRC proposal to ensure consistent review of affected package designs.

Issue 12: Special Package Authorizations

We support the NRC proposal to develop special package authorizations as a practical means of addressing unique transportation situations while ensuring an appropriate level of review.

We also support the NRC proposal that a special package authorization obviate the need for a corresponding DOT exemption. We urge the NRC and DOT to work closely together in this regard to ensure clear implementation of this intent.

Issue 13: Expansion of Part 71 Quality Assurance Requirements to CoC Holders

TLI supports the NRC proposal.

Issue 14: Adoption of ASME Code

We note the NRC decision not to adopt the ASME Code.

Issue 15: Change Authority for Dual-Purpose Package Certificate Holders

We support the NRC proposal to provide consistent application of change authority between Parts 71 and 72.



Issue 16: Fissile Material Exemptions and General License Provisions

While we recognize the considerable time and effort associated with NRC review of the fissile exemptions and general license provisions, we oppose the NRC proposal as drafted on the basis that it is unnecessarily complicated, it is inconsistent with international mass-consignment limits and it contains poorly defined terms and justifications.

While the Proposed Rule discusses a desire to simplify the requirements for fissile exemptions, the proposed 71.15 system is fairly complicated in the need to calculate mass ratios for individual packages. At the practical level, attempts to conduct sample mass ratio calculations for several package designs were complicated by use of unclear terms in the rulemaking. This lack of clarity could result in different entities reaching different results for individual calculations; the safety benefit of this result is questionable.

71.15(a) would create a mass ratio of iron to fissile material greater than 200:1. The proposed rule does not speak to the definition of "iron"; for example, does the NRC mean "Fe" specifically or would steel be acceptable? The definition is significant.

This issue was raised during the June 24, 2002 public meeting. Based on responses received during that meeting, it appears that the NRC is using the term "iron" to indicate heavy metal as a noncombustible, insoluble-in water material. If this interpretation is correct, then it is unclear why the Proposed Rule establishes two distinct categories of mass ratio limits with effectively the same criteria.

In 71.15(a), the intent appears to be to restrict the amount of fissile material versus heavy metal (assuming that "iron" is used to represent metal). In the case of 71.15(b), the intent appears to be to restrict the amount of fissile material versus any noncombustible, insoluble-in water material, which could include a broad range of materials such as metal, concrete, plastics, etc.

Yet if "iron" means any noncombustible, insoluble-in water material, the benefits associated with 71.15(b) are greater: one could count the weight of a broader range of material when calculating the mass ratio and one could also load a significantly larger amount of fissile material (350 g versus 15 g) into a single package.



It should also be noted that the NRC does not reference standards for determining whether a material is "noncombustible" or "insoluble-in water". If the mass, and the composition of the mass, of the package are deemed significant in determining a fissile exemption, the method for identifying how material should be counted in the calculation should not be left open to wide interpretation.

If the NRC proposal were adopted as written, shippers would need to have detailed information available regarding the materials in each packaging. This approach assumes that this information would be readily available and disseminated to shippers. Further, shippers making international shipments would likely need to meet both the NRC domestic requirements for determining fissile exempt quantities and the international mass consignment limits, thus further complicating the evaluation of criticality controls for a shipment.

As outlined in our comments on Issue 5 above, the text proposed in 71.22(d)(3) and 71.59(c)(1) regarding accumulations of fissile cargoes when stored incident to transport would negatively and significantly impact multimodal and international transports. We reiterate our strong objection to these provisions.

As outlined in our comments on Issue 9 above, we question the NRC decision to omit definitions for "consignment" and "shipment", especially over the objections of Oak Ridge National Laboratory, which formally recommended that the NRC adopt relevant definitions. From the perspective of a large volume transporter of radioactive materials, these definitions play a significant role in ensuring correct use of the regulations governing transport of Class 7 materials. We urge the NRC to adopt the TS-R-1 definitions for these terms.

Issue 17: Double Containment of Plutonium

We note the NRC proposal to remove the requirements in 71.63(b).

Issue 18: Contamination Limits

We note the NRC discussion on contamination limits.



Issue 19: Modifications to Event Reporting Requirements

We note the NRC proposal to modify event reporting requirements. As drafted, the proposed changes to 71.95 would direct the licensee to request information from certificate holders, however neither the supporting discussion nor regulatory text addresses a situation in which a certificate holder declines to provide comments. Is the licensee's obligation satisfied at the point that a request is made to CoC holders?

The Proposed Rule would require notification to the NRC for instances in which there is a significant reduction in the effectiveness of any NRC-approved Type B or Type A(F) packaging during use or when defects with safety significance in NRC-approved Type B or fissile material packagings are identified. It is unclear if the NRC intended to exempt DOT specification and foreign package designs holding U.S. validations from the reporting requirements. If the NRC intends to make a distinction between NRC-approved packagings and other authorized packagings, it may be necessary to develop separate quality assurance procedures and related instructions. The impacts on resources associated with such development may bear further investigation.

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We appreciate the multiple opportunities provided by the NRC to provide comments on this rulemaking. Please do not hesitate to contact us with any questions or comments, as we would be pleased to expand on any of the discussion contained herein.

Thank you for your consideration.

Best regards,

Melissa Mann
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