

October 5, 2000

MEMORANDUM TO: Susan F. Shankman, Deputy Director  
Licensing and Inspection Directorate  
Spent Fuel Project Office, NMSS

THROUGH: Michael Tokar, Chief **/RA/ original signed by /s/**  
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FROM: John Cook **/RA/ original signed by /s/**  
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SUBJECT: TRIP REPORT, IAEA REVISION PANEL MEETING,  
SEPTEMBER 4-8, 2000

On September 4-8, 2000, Messrs. Cook and Lewis of the Spent Fuel Project Office participated in the meeting of the Technical Committee (TC-405.9) to Revise the Regulations ("Revision Panel") for the Safe Transport of Radioactive Material (ST-1), at the International Atomic Energy Agency (IAEA) Headquarters in Vienna, Austria. The United States delegation was comprised of Messrs. Cook and Lewis, representatives from the Department of Transportation (Mr. R. Boyle, head of the U.S. delegation), the Department of Energy (Mr. M. Wangler), the Oak Ridge National Laboratory (Messrs. C. Parks and R. Rawl), and industry (Mr. R. Brown, Malinkrodt). Mr. Parks attended under contract to NRC/SFPO. Twenty-three Member States were represented at the Revision Panel. TC-405.9 considered about 200 proposals to change IAEA's regulations or its supporting documents relating to general provisions, activity limits and material restrictions, transport controls, packaging requirements, and test procedures.

The Revision Panel (RP) was chaired by Mr. R. Boyle. The chairman's report is the official record of the meeting, and because Mr. Boyle headed the U.S. delegation, the chairman's report also serves as a trip report for the U.S. travelers. IAEA has not yet issued the chairman's report.

During the plenary session, the IAEA staff informed us that the "Regulations for the Safe Transport of Radioactive Material" (formerly known as ST-1), have been reprinted and reissued, to include some errata, and that the reissued regulations will be redesignated TS-R-1. IAEA staff also noted that the "Advisory Material for the IAEA "Regulations for the Safe Transport of Radioactive Material," (to be issued as TS-G-1 but which formerly was known as ST-2) has gone to the printer. In addition, the Secretariat informed the RP attendees that the TRANSSAC has been renamed TRANSSC (Transport Safety Standards Committee), and that the ACSS has been renamed CSS (Committee on Safety Standards) - in both cases, the word "advisory" has been struck.

After the plenary session, the meeting was divided into three working groups (WGs). WG1 responsibilities included the change proposals associated with TS-R-1 Sections I, II, III, VIII, and Schedules 1-14. WG 2 responsibilities included the change proposals associated with TS-R-1 Sections IV and V. WG 3 responsibilities included the change proposals associated with TS-R-1 Sections VI and VII. Later in the week, WG 4 (to address "identified problems;" i.e., issues which are identified but do not have a specific, acceptable change proposals associated with them), and WG 5 (to address proposals to change the ST-2/TS-G-1 advisory material) were formed from members of WGs 1-3.

Mr. Cook participated in WGs 2 and 5. Particular attention was paid to contamination proposals that are of interest to the commission. Consideration of contamination-related proposals were referred to a "Coordinated Research Project on Radiological Aspects of Package and Conveyance Contamination," which was established at the 5th Meeting of the TRANSSAC that was held on May 11-15, 2000.

Mr. Lewis was the Secretary of Working Group 3. Working Paper 16, Rev. 1, is the Secretary's report of the Working Group's findings. WG3 reviewed the change proposals that concerned ST-1 paras 619-737; in general, these include the packaging requirements that appear in Part 71. However, the change proposals that affected ST-2 only were not reviewed by WG3 because they were reviewed by WG5. Two subgroups were formed from WG3 to manage the large number of proposals: one to address the criticality proposals and one to address the uranium hexafluoride proposals. Mr. Kirkhope, Canada, chaired the UF6 group, and Mr. Stewart, UK, chaired the criticality group with Mr. Parks, USA, as its Secretary.

The change proposals, in the packaging area, that were accepted by the RP and that are expected to result in ST-1 changes during this revision cycle (pending TRANSSC approval), are summarized in the attachment. Many other proposals were submitted, but they are not listed in the attachment, as the RP's disposition as 'rejected' or 'returned' means that they are effectively out of consideration during the current revision cycle. The categorization scheme used by the RP was that: (1) a major change affects a requirement or performance standard; (2) a change of detail is a clarification without a substantive change; and (3) and a minor change is essentially a translation problem or typo. **Only three approved proposals (WG2.2, WG2.4, WG3.1) have a current, parallel provision in Part 71.** The U.S. positions that are indicated were formulated at an all-day meeting at DOT, on August 29, 2000. NRC input to the U.S. positions was developed by J. Cook, R. Lewis, and N. Osgood.

Attachment: Accepted proposals

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**ATTACHMENT TO TRIP REPORT**  
**Accepted proposals from Sept 4-8,2000 IAEA Revision Panel Meeting**

**WG3.1. France/00/14 (major change to ST-1 para 654 and Table XI).** The purpose of the change is to define a better insulation requirement, e.g., for 45-degree surfaces facing up. The WG noted that the current Table XI is a problem for some non-horizontal (but close to horizontal) surfaces. An octagonal-cross section Japanese package prompted the proposal. In accepting the proposal, WG-3 modified 2<sup>nd</sup> row of proposed table to read "Surfaces transported vertically and other downward-facing surfaces." The U.S. position going into the RP was to neither object nor agree to this change. *Note: this could eventually require consideration of a revision to the table in Part 71.71(c).*

**WG3.2. France/00/30 (major change to ST-1 para 648a).** The purpose of the change is to clarify that for liquid bearing Type A packages, after the 9 meter drop test, the only acceptance criterion that applies is containment. The other ST-1 para 646 criterion (20% radiation level increase) would not make sense for Type A quantities (e.g., using the q system), and in certain cases even makes the liquid-bearing Type A package need to be more rigorous than an accident resistant package. [Note that separate provisions in ST-1 specify acceptance criteria for fissile-bearing packages, including liquids, and the proposed change does not affect those requirements]. The U.S. position going into the RP was to neither object nor agree to this change. This change is consistent with the initial intent of this ST-1 requirement. *Note: there is no current parallel in Part 71.*

**WG3.4. Argentina/00/08, France/00/12, France/00/13 (change of detail for several ST-1 paras including 624 and 628).** This proposal is to consistently refer to Industrial packages throughout ST-1 and St-2. The preferred wording is "Industrial Packages Types 2 and 3 (Type IP-2 and IP-3)." The U.S. position going into the RP was to agree with Argentina/00/08 and was to neither object nor agree to France/00/12. *Note: there is no current parallel in Part 71.*

**WG3.5. Argentina/00/07 (change of detail for ST-1 para 675).** This proposal concerns incorrect usage of the defined terms *package* and *packaging*. The WG modified the proposal as follows, para 675 will read: "The *package*, after being subjected to the tests specified in paras 719-724, must prevent the entry of a 10 cm cube." The U.S. position going into the RP was that the grammar correction is appropriate. *Note: there is no current parallel in Part 71.*

**WG3.6. Canada/00/12, UK/00/01 (change of detail for ST-1 para 629-632).** These proposals clarify the UF<sub>6</sub> packaging requirements consistent with a March 8-12, 2000, Technical Committee Meeting (TC-1156). The Canadian proposal was accepted as written except that the text of 632a should come from UK/00/01. Note these changes primarily affect non-fissile (DOT) packages. The U.S. position going into the RP was to agree but to prefer USA/00/06. *Note: there is no current parallel in Part 71.*

**WG3.7. France/00/39, (change of detail for ST-1 para 737).** This proposal concerns the impact test target orientation for the Type C 90 m/s impact test (only). This proposal

clarifies the current wording, which implies that a 'drop' is required for the Type C test. A sled test is acceptable and more practical. The WG noted that paras 717 and 737 should not contradict each other, and modified the proposal as follows: Delete "737" from Para 717. Para 737: "... be as defined in para. 717, except that the target surface may be at any orientation as long as the surface is normal to the specimen path." The U.S. position going into the RP was to agree. *Note: there is no current parallel in Part 71.*

**WG3.8. France/00/40, (change of detail for ST-1 para 735a).** The probe for the puncture test for Type C packages is not fully described in ST-1. This proposal makes the probe 'sharpness' parallel to the probe used in the Type B puncture test. The U.S. position going into the RP was to agree. *Note: there is no current parallel in Part 71.*

**WG3.9. Spain/00/03 (change of detail for ST-1 para 529).** This proposal clarifies that the CSI for an overpack is the sum of the CSI's for the contained packages. The U.S. position going into the RP was to agree. *Note: there is no current parallel in Part 71.*

**WG3.10. Spain/00/05 (change of detail for ST-1 para 568).** This proposal was to eliminate repetitive reference in, para 568, to "packages, overpacks and freight containers" and to use the abbreviated form "CSIs". The WG modified the proposal to: "The number of packages, overpacks and freight containers containing fissile material stored in transit in any one storage area shall be so limited that the total sum of the CSIs in any group does not exceed 50." Groups shall be stored so as to maintain spacing of at least 6 m from other such groups. The U.S. position going into the RP was to neither object nor agree to this change. *Note: there is no current parallel in Part 71.*

**WG3.11. UK/00/43 (change of detail for ST-1 para 680).** This proposal clarifies (but does not change) requirements in ST-1 for fissile air shipments. Consistent with the findings from a technical committee meeting held on March 8-12, 2000 (TC-1156). The WG modified the proposal to read  
"For packages to be transported by air:  
(a) the package shall be subcritical under conditions consistent with the Type C package tests specified in para. 734 assuming reflection by at least 20 cm of water but no water inleakage, and  
(b) in the assessment of para 679 allowance shall not be made for the special features of para 677 unless, following the Type C package tests specified in para 734 and, subsequently, the water inleakage test of para 733, leakage of water into or out of void spaces is prevented."

The U.S. position going into the RP was to agree to this change. *Note: there is no current parallel in Part 71.*

**WG3.12. UK/00/44 (change of detail to ST-1 para 222 and 672).** This proposal mainly involved changing the definition of fissile material, and most of it was rejected. However, one part, the last sentence of para 672(a) was accepted: "Neither beryllium nor deuterium shall be present in quantities exceeding 1% of the consignment mass limits provided in Table XII." *Note: Consistent with current Part 71.53; i.e., no domestic change would be necessary.*

**WG3.13 Accepted minor changes** (defined as a translation errata or correction of a Typo): Argentina/00/08; Cuba/00/09; France/00/16; France/00/28, France/00/44. The U.S. position going into the RP was to “agree” to each of these changes. *Note: there is no current parallel in Part 71.*

**WG1.1. IAEA/00/01 and Germany/00/01 (Major change to ST-1 para 312 - adds new paragraphs after 312).** As a result of non-compliance events regarding contamination in Europe, this proposal (as modified by WG1) results in a requirement to be added to ST-1 that requires shippers, consignees, and carriers to report, to relevant competent authorities, non-compliance with radiation or contamination limits. The U.S. position going into the RP was to disagree to this change (based on implementation questions). The U.S. was position was not upheld by plenary. *Note: there is no current parallel in Part 71.*

**WG1.2. USA/00/05 (Major change to ST-1 para 3xx - new paragraph).** This U.S. proposal is to include language regarding training requirements that Parallels the UN orange book in ST-1. The U.S. position going into the RP was to agree to this change (it follows current DOT Hazmat requirements). *Note: there is no current parallel in Part 71.*

**WG1.3. Canada/00/04 (Change of Detail to ST-1 Part 9 of Schedules 5, 6, 7, & 9).** This proposal is to clarify several Schedules related to for fissile excepted UF6 shipped as UN 2798. The U.S. position going into the RP was to agree to this change. *Note: there is no current parallel in Part 71.*

**WG1.4 Accepted minor changes** (defined as a translation errata): France/00/02; France/00/22; France/00/29. *Note: there is no current parallel in Part 71.*

**WG2.1. Germany/00/06 (Major change to ST-1 para 517b).** This proposal exempts instrument & article consumer products from the requirement to have “radioactive” marked on them. The U.S. position going into the RP was to agree to this change. *Note: there is no current parallel in Part 71.*

**WG2.2. France/00/01 (Change of Detail to ST-1 para 236).** This proposal changes the definition *Radioactive Material*, in particular, to clarify that contaminated non-radioactive objects are subject to ST-1 if the contamination levels exceed the levels in ST-1 para 214. The U.S. position going into the RP was to agree to this change, it parallels the approach we use for Surface Contaminated Objects (SCO); e.g., see NUREG-1608. *Part 71.4 contains the definition Radioactive material.*

**WG2.3. Spain/00/04 (Major change to ST-1 para 549k).** This proposal requires more shipping paper information on each package that is contained in overpacks, freight containers, etc. (this facilitates recovery of scattered packages after an accident). The U.S. position going into the RP was to agree to this change. *Note: there is no current parallel in Part 71.*

**WG2.4. US/00/11 (Major change to ST-1 Table 1).** This proposal changes (doubles) the A1 value for californium-252, based on application of more recent data to the Q

system. The U.S. position going into the RP was to agree to this change. *Note: Part 71 Table A1 contains the A1/A2 values.*

**WG2.5. Argentina/00/01 (Change of Detail to ST-1 para 502h).** This proposal clarifies that the low dispersible certificate (not the package certificate) is referenced by this section. The U.S. position going into the RP was to agree to this change. *Note: there is no current parallel in Part 71.*

**WG2.6. France/00/10 (Change of Detail to ST-1 para 517b, 518b, 537, 543a).** This proposal only effects the French version of ST-1. It allows English markings to be used. The U.S. position going into the RP was to neither agree nor object to this change (but support the concept). *Note: there is no current parallel in Part 71.*

**WG2.7. France/00/11 (Change of Detail to ST-1 para 566c).** This proposal clarifies that for stowage during transport and storage incident to transport, the radiation levels for exclusive use conveyances can follow the exclusive use limits. The U.S. position going into the RP was to object this change (note that the U.S. does not use conveyance dose rate limits for non-exclusive use vehicles). *Note: there is no current parallel in Part 71.*

**WG2.8. France/00/25 (Change of Detail to ST-1 para 535).** This proposal italicizes the words *proper shipping name*, and adds reference to Table VIII. The U.S. position going into the RP was to neither agree nor object to this change. *Note: there is no current parallel in Part 71.*

**WG2.9. France/00/26 and Spain/00/02 (Change of Detail to ST-1 para 526).** The French proposal clarifies the title of Table VI to be more explicit. The Spanish proposal clarifies the determination of the TI and addresses large packages. The U.S. position going into the RP was to neither agree nor object to these changes. *Note: there is no current parallel in Part 71.*

**WG2.10. Germany/00/02 (Change of Detail to ST-1 para 514).** This proposal clarifies para 514 to be more explicit (only LSA material or SCO could be unpackaged). The U.S. position going into the RP was to agree to this change. *Note: there is no current parallel in Part 71.*

**WG2.11. Spain/00/03 (Change of Detail to ST-1 para 514).** This proposal clarifies that the CSI for overpacks, etc., must be the sum of the CSI's of the contained packages. The U.S. position going into the RP was to agree to this change. *Note: there is no current parallel in Part 71.*

**WG2.12. Spain/00/05 (Change of Detail to ST-1 para 568).** This proposal clarifies the language (only) of para 568 regarding collection of fissile packages in a storage area (sum on total CSI of 50). The U.S. position going into the RP was to neither agree nor object to this change. *Note: there is no current parallel in Part 71.*

**WG2.13. UK/00/40 (Change of Detail to ST-1 Table VIII).** This proposal corrects Table VIII in the case where more than one proper shipping name corresponds to a UN

ID number. The U.S. position going into the RP was to agree to this change. *Note: there is no current parallel in Part 71.*

**WG2.14. WNTI/00/03 (Change of Detail to ST-1 para 509).** This proposal limits the surface contamination levels on conveyances, to the same as the limit for packages. Since Para 513 already (albeit indirectly) limits this, the proposal only represents a clarification. The U.S. position going into the RP was to object, because this change could be forwarded to and addressed by the contamination coordinated research program. *Note: there is no current parallel in Part 71.*

**WG2.15 Accepted minor changes** (defined as a translation errata or correction of a Typo): Canada/00/02, Cuba/00/21, France/00/09, France/00/27. The U.S. position going into the RP was to “agree” to each of these changes. *Note: there is no current parallel in Part 71.*