

71-9001



# Duratek™

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4 March 2005  
E&L-010-05

E. William Brach  
Director, Spent Fuel Project Office  
Office of Nuclear Material Safety and Safeguards, NMSS  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Dear Mr. Brach:

Subject: Revision Request for the IF-300 Certificate No. 9001

Duratek respectfully submits the enclosed request for a revision of the IF-300 cask Certificate of Compliance (C of C). We request that you revise the Certificate to reflect the following changes:

1. Revise Condition 5.(b)(1)(i) of the C of C for Group III fuel

Duratek requests removal of Note b to the Group III fuel assembly table on page 6 of the C of C. In January 2000, we requested the inclusion of the note in the C of C restricting shipping Type III fuel to only Cask Serial Nos. 303 and 304 due to a commercial agreement with the fuel manufacturer. At that time, Duratek owned Cask Serial Nos. 301 and 302, the only others of these casks that were manufactured. Subsequently, Duratek sold Cask Serial Nos. 301 and 302 and the restriction is no longer appropriate.

2. Revise Condition 12 of the C of C.

The SAR demonstrates that for certain BWR fuels Condition 12 is not necessary to ensure compliance with 10CFR 71. Duratek requests that Condition 12 be revised to read as follows:

12.(a) The cask contents shall be so limited that under normal conditions prior to transport, 62 times the neutron dose rate plus 6.3 times the gamma dose rate will not exceed 560 mrem/hr at a distance of six feet from the side of the cask (ten feet from the cask center-line).

12.(b) The cask content limitation of 12.(a) does not apply to:

- (1) Group II BWR fuel in the channeled fuel basket with a minimum planar average enrichment of 2.65 wt% <sup>235</sup>U.
- (2) Group III BWR fuel in the channeled fuel basket with a minimum planar average enrichment of 3.19 wt% <sup>235</sup>U.

Justification for this change is provided in Attachment 1.

To support planned shipments by the cask owner, we request the C of C revision be approved as soon as possible but not later than May 1, 2005

Should you or members of your staff have questions about the submittal, please contact Mark Whittaker at (803) 758-1898.

Sincerely,

Patrick L. Paquin  
General Manager – Engineering and Licensing

Attachment: Justification for Modifying Condition 12 of the IF-300 C of C

LI MSS01

Attachment 1

Justification for Modifying Condition 12 of the IF-300 C of C

## Justification for Modifying Condition 12 of the IF-300 C of C

### 1.0 Introduction

Volume 1, Section 8.5 of the IF-300 SAR contains dose-rate (D/R) acceptance criteria relating postulated post-accident dose-rates to normal conditions dose-rate measurements (i.e., Gamma D/R and Neutron D/R) that are taken prior to shipment. If the sum of the adjusted measurements exceeds an established value the shipment cannot be made. The acceptance criterion shown below was developed using conservative factors that relate the accident dose-rates to normal conditions dose-rates, as documented in Section 8.5.2.

$$(\text{Gamma D/R})(11.3) + (\text{Neutron D/R})(111.0) \leq 1000 \text{ mrem/hr}$$

This requirement was incorporated as condition 12 of the C of C as follows:

"The cask contents shall be so limited that under normal conditions prior to transport, 62 times the neutron dose-rate plus 6.3 times the gamma dose-rate will not exceed 560 mrem/hr at a distance of six feet from the side of the cask (ten feet from the cask center-line)."

In equation form this is:

$$(\text{Gamma D/R})(6.3) + (\text{Neutron D/R})(62) \leq 560 \text{ mrem/hr,}$$

which is equivalent to the formula above from Section 8.5.2. This condition has been invoked for all fuel types licensed for transport in the IF-300 cask to date.

### 2.0 Justification for Removing Condition 12 of the C of C

Appendix A of Volume III of the IF-300 SAR documents the safety basis for transporting fuel in the channeled BWR fuel basket. Section A-5 contains a shielding evaluation for Group II BWR fuel with an initial minimum planar average enrichment of 2.65 wt%  $^{235}\text{U}$ . The shielding evaluation in Section A-5 contains detailed calculations demonstrating that the Normal Conditions of Transport (NCT) and Hypothetical Accident Conditions (HAC) dose-rate limits are met, as summarized in Table A-5.1-1. Because the NCT and HAC dose-rate limits are shown to be met under conservative analysis conditions and NRC has approved the evaluation, there is no reason to impose additional acceptance criteria for normal conditions dose-rate measurements taken prior to shipment for this fuel.

Also, Appendix D of Volume IV documents the safety basis for Group III BWR fuel in the channeled BWR basket with an initial minimum planar average enrichment of 3.19 wt%  $^{235}\text{U}$ . Sections D-5 and D-7.2 demonstrate that the accident dose-rates for this fuel are below the allowable limit of 1000 mrem/h as summarized in Table D-7.2-3. So, once again, there is no reason to impose additional acceptance criteria for normal conditions dose-rate measurements taken prior to shipment for this fuel.

### 3.0 Conclusion

Since NRC-approved, conservative shielding analyses demonstrate compliance with the accident conditions dose-rate limit, Condition 12 of the C of C can be removed for the following fuel transported in the IF-300 Cask channeled BWR fuel basket:

Group II BWR Fuel with a minimum enrichment of 2.65 wt%  $^{235}\text{U}$   
Group III BWR Fuel with a minimum enrichment of 3.19 wt%  $^{235}\text{U}$