

**From:** "MONTGOMERY, Richard" <Richard.Montgomery@areva.com>  
**To:** "Shawn Williams" <SAW8@nrc.gov>  
**Date:** 4/10/06 11:03AM  
**Subject:** RE: Please have someone perform a Quality Review check of the 9288 Draft CoC

Shawn,

Thanks for your email and discussions. Sorry we were not able to respond sooner, both Rose and I were on travel. Below is the justification for the noted changes as we discussed by phone on Friday.

The OF-TU has always been (since the first submittal) explicitly evaluated for any chemical form of uranium oxide (e.g., UO<sub>2</sub>, UO<sub>3</sub>, U<sub>3</sub>O<sub>8</sub>). The graphite was evaluated as a part of the RAI for the first submittal and is addressed in Section 6.4.2.1. Section 6 (criticality) discusses the allowance for uranium oxides (as opposed to uranium dioxide) on page 6-2 in detail.

Section 1.2.3.1 of the SAR gives the type and form of material as "fissile uranium compounds . . . (i) The ratio of the non-fissile atoms to uranium atoms of the compound is not less than 2.0, (ii) The theoretical density of the compound is less than that of uranium dioxide (10.96 g/cc). . ." Also, Section 1.2.3.1 (i) "An unlimited quantity of graphite may be present within the Oxide Vessels."

Prior and current shipments have been limited to UO<sub>2</sub> as a result of the CoC wording, however we are proposing to transport incinerator ash with is primarily U<sub>3</sub>O<sub>8</sub> with a 20% carbon (graphite) residue.

Please do not hesitate to contact me if you need additional information.

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**Subject:** RE: Please have someone perform a Quality Review check  
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**Creation Date:** 4/10/06 11:02AM  
**From:** "MONTGOMERY, Richard" <Richard.Montgomery@areva.com>  
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NRC FORM 618 (8-2000) 10 CFR 71		U.S. NUCLEAR REGULATORY COMMISSION			
<b>CERTIFICATE OF COMPLIANCE FOR RADIOACTIVE MATERIAL PACKAGES</b>					
1. a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
9288	DRAFT	71-9288	USA/9288/B(U)F-96	4	OF 5

Uranium compounds must have a ratio of non-fissile atoms to uranium atoms greater than two (2) and the density of these compounds is less than 10.96 g/cm<sup>3</sup> (density of UO<sub>2</sub>). Material such as U-metal, U-metal alloys, or uranium hydrides (e.g., UH<sub>x</sub>) may not be shipped. Uranium-bearing materials may include oxides, carbides, silicates or other compounds of uranium. Uranium-bearing materials may be moderated by graphite to any degree. Compounds may be mixed with other non-fissile materials with the exception of beryllium, graphite, or hydrogenous material enriched in deuterium. Materials with a hydrogen density greater than water must be excluded, *EXCEPT FOR THE ALLOWABLE PROVIDED BY 5 (b)(1)*.

\* F.

Heterogeneous (pellets or previously pelletized materials) Uranium-bearing materials enriched to 5.0 weight percent in the U-235 isotope in the form of solids, or solidified or dewatered materials with a maximum of 402 pounds per 7.5-inch or 6-inch diameter Oxide Vessel and a maximum of 1608 pounds per package.

Uranium compounds must have a ratio of non-fissile atoms to uranium atoms greater than two (2) and the density of these compounds is less than 10.96 g/cm<sup>3</sup> (density of UO<sub>2</sub>). Material such as U-metal, U-metal alloys, or uranium hydrides (e.g., UH<sub>x</sub>) may not be shipped. Uranium-bearing materials may include oxides, carbides, silicates or other compounds of uranium. Uranium-bearing materials may be moderated by graphite to any degree. Compounds may be mixed with other non-fissile materials with the exception of beryllium, graphite, or hydrogenous material enriched in deuterium. Materials with a hydrogen density greater than water must be excluded, *EXCEPT FOR THE ALLOWABLE PROVIDED BY 5 (b)(1)*.

\* 5.(b)(2)

Maximum quantity of material per package

*URANIUM OXIDES*

\* No more than 402 pounds of UO<sub>2</sub> material per 8-inch, 7.5-inch, or 6-inch Oxide Vessel. No more than 1608 pounds of UO<sub>2</sub> material per package.

*URANIUM OXIDES*

The maximum allowable contents heat generation rate is 1.0 BTU/hr/ft<sup>3</sup> (10.3 W/m<sup>3</sup>).

5.(c) Criticality Safety Index 2.0

6. In addition to the requirements of Subpart G of 10 CFR Part 71:

- (a) The package must be prepared for shipment and operated in accordance with the Operating Procedures in Section 7 of the application.
- (b) Each packaging must be acceptance tested and maintained in accordance with the Acceptance Tests and Maintenance Program in Section 8 of the application.

7. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.

\* DELETE THE WORD 'GRAPHITE' TWO PLACES