

71-6400

Battelle

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April 15, 2005

Mr. Robert Lewis
Licensing and Inspection Directorate, MS 13D-13
Spent Fuel Project Office
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Baggett:

Subject: Request for Clarification Regarding the Use of the Model Number 6400 Package, Certificate of Compliance Number USA/6400/B () F, Revision 27, to Ship Standard Waste Boxes of Plutonium Contaminated Waste

As we discussed during our recent phone conversation, Battelle Memorial Institute, under the USNRC SNM-7 License, is nearing completion of our decommissioning efforts at our West Jefferson, Ohio site. One of our remaining tasks includes shipping our contact-handled transuranic waste (CH-TRU) to a DOE facility so that it may be certified for disposal at the Waste Isolation Pilot Plant. It is Battelle's intention to ship the CH-TRU using the Model Number 6400 Package (Super Tiger).

The Certificate of Compliance (CoC) for the Model 6400 Super Tiger, USA/6400/B () F, Revision 26, has been reviewed by Battelle. Portions of Section 5.(b) of the CoC were unclear as to whether the CH-TRU could be shipped in the Super Tiger without further clarification from the NRC. Therefore, Battelle is writing this letter to request that the NRC confirm that Battelle would be authorized to ship the CH-TRU in the Super Tiger as follows:

- There are a total of six standard waste boxes containing CH-TRU. Each standard waste box measures 71x54.5x36.875 inches with loaded weights ranging from 1,060 to 1,905 lb. The plutonium inventory for each standard waste box is listed in Table 1. The plutonium was either heat source plutonium consisting mostly of ²³⁸Pu, or fuel grade plutonium consisting mostly of ²³⁹Pu and ²⁴⁰Pu. The plutonium inventory in the standard waste boxes is based on material control and accountability measurements made when the wastes were generated (1978 through 1982). Each standard waste box has two NucFil filters installed to prevent hydrogen gas buildup. Four standard waste boxes contain waste that was directly loaded into the standard waste boxes. Two of the standard waste boxes contain waste that was first placed into eight 55-gallon drums and then placed in the standard waste boxes (4 drums per standard waste box). In six of the eight drums, a hole has been punched in the top of the drum to vent any gas present in the drums. The remaining two drums have a NucFil filter installed to vent any gas present in the drums.
- Battelle would ship all contact-handled transuranic waste in a CoC specification tight fitting 3/16-inch corrugated steel box constructed in accordance with Rockwell Hanford Operations' Drawing No. H-2-91888 Sheet 1, Rev. 0 (commonly referred to as the H2 inner container). Alternatively, Battelle may choose to use any of the other inner boxes specified in the CoC.

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- As mentioned above, the contact-handled transuranic waste contents have been placed into a DOT Specification 7A, Type A standard waste box. These contents will be placed into one of the tight fitting boxes referenced above (H2 inner containers). Each standard waste box will be foamed into position within the tight fitting box and shipped to a DOE facility for certification and ultimate shipment to and disposal at the Waste Isolation Pilot Plant.
- Because the Super Tiger holds two H2 inner containers, Battelle would ship the six standard waste boxes in three shipments. Each shipment would contain less than 20 Ci of plutonium. In addition, each shipment would contain less than 4 g of plutonium, much less than the CoC limit of 200 g of plutonium per shipment. The weight of the loaded standard weight boxes for each shipment would be less than 3,000 lb., so the weight of each shipment would be much less than the CoC limit of 30,000 lb per shipment.
- Battelle has evaluated the potential for gas buildup inside the Super Tiger. Using the model in the TRUPACT-II Safety Analysis Report, CH-TRU Payload Appendices, Revision 0. July 2004, it would take over one year for the hydrogen gas concentration to buildup to 5 percent inside the void volume of the Super Tiger. Over the same period of time, the total gas pressure would buildup to about 2 psig. Over one month, the total gas pressure would buildup to less than 0.2 psig.

Table 1. Plutonium Activity, Plutonium Mass, and Decay Heat for Six Contact-Handled Transuranic Waste Standard Waste Boxes.

Standard Waste Box	Plutonium Activity (Ci)	Plutonium Mass (g)	Decay Heat (W)
BCSWB-01	6.58	0.721	0.211
BCSWB-02	1.63	2.19	0.00871
BCSWB-03	10.8	0.701	0.357
BCSWB-04	3.38	0.397	0.108
BCSWB-05	15.8	1.30	0.518
BCSWB-06	16.0	1.04	0.532
Based on 20 years of decay time.			

In summary, Battelle believes that the CH-TRU as presently packaged when placed into the CoC specification tight fitting box will meet the requirements of the CoC. However, Battelle is seeking NRC concurrence in this matter. If you have any questions or need additional information please contact me at 614-424-4098.

Sincerely,



Joe Jacobsen
Radiation Safety Officer

JDJ/PJW/SJM