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May 5, 2005  
CM05016 Errata

John D. Monninger, Chief  
Licensing Section  
Spent Fuel Project Office  
Office of Nuclear Material and Safeguards  
Washington, D.C. 20555-0001

Attention: Document Control Desk

- Reference: 1) USNRC Certificate of Compliance No. 9228, Docket Number 71-9228.  
2) NEDO-31581, "Model 2000 Radioactive Material Transport Package Safety Analysis Report", dated April 1988.  
3) USNRC Submittal dated May 4, 2005, Re: Request for "-96" designation and the Horizontal Transportation of LWR Spent Fuel and Hardware/Radioisotope Materials Up to 600 watts of Decay Heat.

Dear Mr. Monninger:

This Errata is issued to reflect the proper title for Appendix 5.5.5 (found in Reference 2) which was previously supplied in GE's application dated May 4, 2005 (Reference 3). The application requests the "-96" designation for the Model 2000 Package. Enclosed are six copies of the pages affected by these errata.

Please contact the undersigned if you require additional information.

Very truly yours,

For  
David W. Turner  
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Attachments

cc: C. Martinez, GE  
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NMSSD

## **ATTACHMENT**

### **Appendix 5.5.5**

**Horizontal Shipment of LWR SNF and Hardware/Radioisotope Materials**

## Appendix 5.5.5 Horizontal Shipment of LWR SNF and Hardware/Radioisotope Materials

### 1.0 PURPOSE

The purpose of this calculation is to determine the dose rates for the Model 2000 package when transporting LWR spent fuel and hardware/radioisotope materials in the horizontal position. Materials decay heat contentment is limited to 600 watts.

### 2.0 METHODOLOGY

The methodology of Section 5.5.4 of the Model 2000 Safety Analysis Report (SAR) [4.1] for calculating dose rates is to be the basis for this analysis. The Model 2000 package needs to be shipped in a horizontal position under certain conditions. As a result of tilting the package to a horizontal position, the original bottom of the package becomes the back and the original top of the cask becomes the front of the package. Figure 1 shows the horizontal shipping configuration.

Dose rates are calculated at three locations: On contact of the bottom of the shipping overpack, at a distance of 2 meters from the back end of the truck, and at the cab of the truck. The distance to the cab of the truck from the front over pack is 254.23 inches (6.45 m). The 2 m dose rate for exclusive use is measured from the back end of the truck and is thus 5.93 m from the closest approachable surface at the back. Figure 1 shows the distance from the front of the package (the cradle) to the cab to be 6.4 m. In the cab dose rate analysis, the distance from the front overpack to the cab was taken to be 6.4 m, thus making this calculation conservative (credit was not taken for an additional 13.75").

Dose rates are calculated for two types of sources: Light Water Reactor (LWR) spent nuclear fuel (SNF), and a Co-60 source with 600 Watts of decay heat. The source for the LWR SNF is the same source as was used in the shielding evaluation of the Cask 2000 SAR [4.1], and the Co-60 source is the same source as was used in the shielding evaluation of the Model 2000 Decay Heat Upgrade SAR [4.2], with the exception of being a 600 Watt source instead of a 2000 Watt source. The Co-60 source was selected as the bounding 600 Watt decay heat source as a result of its high energy photons (1.173 and 1.332 MeV), which penetrate the cask body more easily. Dose rates were calculated using the GE Level-2 ECP MCNP01A.

All dose rates from Section 5.1 of the Model 2000 SAR [4.1] for the LWR SNF and from Section 5.1 of the Model 2000 Decay Heat Upgrade SAR [4.2] for the Co-60 source are valid and bounding with the exception of the normal condition original bottom (now back) and the cab (now front) dose rates.