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April 16, 2004

Our file: 40-169  
Your file: 71-9310

Mr. Stewart Brown  
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Licensing Section  
Spent Fuel Project Office  
Office of Nuclear Material Safety and Safeguards  
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United States Nuclear Regulatory Commission  
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**RE: Request for Additional Information Related to Nordion's Model No. F-431  
Package, Docket No. 71-9310 (L23617)**

Dear Mr. Brown:

This letter is in response to the U.S. Nuclear Regulatory Commission's (NRC) Request for Additional Information (RAI) dated February 18, 2004.

The Safety Analysis Report for the F-431 Transport Package, MDS Nordion Report number IN/TR 1913 F431 has been revised. Together with the Response to the Request for Additional Information attached to this letter, the Safety Analysis Report (SAR) revision 2 provides a complete response to the RAI.

Attached are five proprietary copies of the revised sections of IN/TR 1913 F431 and one non-proprietary copy for the Public Document Room. In addition, I have attached an affidavit to support MDS Nordion's request to withhold parts of the sections listed below from the Safety analysis report IN/TR 1913 F430 (2) from public disclosure. Parts of the SAR have been deleted, as they are specific to the design and fabrication of the F-431 and would enable a third party to manufacture a similar transport package.

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The following sections have been updated to revision 2 and are enclosed.

- Cover Page
- Table of Contents
- Chapter 1,
- Appendices 1.3.1 and 1.3.2
- Chapter 2
- Appendices 2.10.1 and 2.10.7
- Chapter 3 (page numbers only)
- Chapter 4
- Appendices 4.4.5 through 4.4.12
- Chapter 5
- Appendix 5.5.1
- Chapter 7
- Chapter 8
- Appendix 9.3.4 (deleted)

If you have any questions or require further information please feel free to contact me by telephone at (613) 592-3400 extension 2421 or by email at [mcharette@mds.nordion.com](mailto:mcharette@mds.nordion.com).

Yours sincerely



Marc-André Charette  
International Transport & Nuclear Initiatives  
Manager, Regulatory Affairs

Attached: IN/TR 1913 F431 (2), Affidavit

Copy to: Mike Krzaniak, Blair Menna, Luc Desgagne, MDS Nordion

## CHAPTER 2 – STRUCTURAL EVALUATION

- 2.1 Table 2.1 has been revised and now includes the English units of measure.
- 2.2 Appendix 2.10.7 is new and addresses the lifting analysis for the F-431 package. Included in the analysis are the 16 bolts that secure the main lid to the F-431.
- 2.3 The lifting analysis for the four forklift pockets is included in Appendix 2.10.7.
- 2.4 A new marking has been added to the top of the F431 to forbid the use of the hoist rings and forklift pockets for tie-down.
- 2.5 Failure of the lifting devices under excessive load is analysed now in Appendix 2.10.7.
- 2.6 The fasteners for the tie-down collar have been changed. In order to ensure that the nil ductility temperature for the tie-down collar fasteners is less than  $-20^{\circ}\text{F}$ , the material has been changed to austenitic stainless steel. The new specifications for the bolts and nuts are ASTM A193, grade B8, class 2 and ASTM A194, Grade 8, class 2 respectively. The drawing and SAR have been revised accordingly.
- 2.7 The specification for the closure fasteners has been revised to ASTM A325 Grade 5. This specification is consistent with the specification for the F430 package and the unit that was subjected to the drop tests. The drawing and SAR have been revised accordingly.

## CHAPTER 4 – CONTAINMENT

- 4.1 Containment is provided by the sealed sources. The containment boundary definition in Chapter 4 has been changed, and is now consistent throughout the report. Also, the safety of the RAMCO-50 source is discussed in Section 2.8 and in Chapter 4.

## CHAPTER 5 – SHIELDING EVALUATION

- 5.1 The GC2000 has been withdrawn from the authorized contents for the F-431. More detail about the GC1000 and GC3000 has been provided in the drawing in Appendix 1.3.2. The most important difference between the two models is that when they are installed in the laboratory, the GC1000 accommodates a 1 L beaker and the GC3000 accommodates a 3 L beaker. When the gammacells are prepared for shipment, there is very little difference between the two models. Because of the larger chamber volume (more air), the GC3000 is slightly lighter, and has less shielding near the back of the biological shield. However, they are manufactured with the

same materials and processes and they have the same external dimensions. The differences in the designs of the two units would have no impact on their performance during the Normal and Accident Conditions of Transport.

#### **CHAPTER 7 – OPERATING PROCEDURES**

- 7.1 This chapter has been revised. The operating instructions are explicitly listed as requested.
- 7.2 The Operating Specification IN/DS 1892 F431 is no longer referenced.

#### **CHAPTER 8 – ACCEPTANCE TESTS AND MAINTENANCE PROGRAM**

- 8.1 The acceptance tests for the GC1000 and GC3000 have been added to Chapter 8. The Operating Specification IN/DS 1892 F431 is no longer referenced.
- 8.2 This chapter has been revised. The inspection instructions are explicitly listed as requested.