



Ref: AFS-12-0025

January 24, 2012

ATTN: Document Control Desk  
Director, Spent Fuel Project Office  
Office of Nuclear Material Safety and Safeguards  
**U. S. Nuclear Regulatory Commission**  
Washington, DC 20555-0001

**SUBJECT:** TRUPACT-III Amendment Request, Docket No. 71-9305, SAR Revision 7

AREVA Federal Services LLC (AFS) hereby submits Revision 7 of the Safety Analysis Report for the TRUPACT-III packaging, Docket No. 71-9305. This revision to the application is to respond to comments provided by NRC staff in telephone conversations over the last week. The change consists of a revision to SAR drawing note 48, clarifying that the use of liquid penetrant inspection of containment boundary weld repairs is limited to repairs that occur after fabrication, i.e., after the packaging nameplate is affixed. Included with this letter is one paper copy of the revised pages and SAR drawings and one CD containing the entire SAR, Revision 7, in PDF file format. The CD is contained within an envelope labeled, "TRUPACT-III Docket 71-9305 Electronic Copy of Documents".

AFS and the U. S. Department of Energy (DOE) appreciate the NRC's timely response to this matter. To support the waste transportation needs of the DOE, AFS requests that this revision be approved and the revised TRUPACT-III Certificate of Conformance be issued at the earliest possible date. The urgency is to support the DOE agreements with the State of South Carolina for shipping of the large box TRU waste at the Savannah River Site (SRS).

Should you have any questions regarding this submittal, please contact me at (253) 552-1321 or via E-mail ([phil.noss@areva.com](mailto:phil.noss@areva.com)).

Very Truly Yours,  
**AREVA Federal Services LLC**

A handwritten signature in cursive script that reads "Phil Noss".

Phil Noss  
Licensing Manager

cc: Huda Akhavannik, NRC (including six paper copies and one CD)  
Andy Kee, AFS Project Manager

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NIM5501



### **Contents of Electronic Media**

This submission is composed of both paper copies and an electronic copy. The electronic copy is contained within an envelope labeled, "TRUPACT-III Docket 71-9305 Electronic Copy of Documents". The envelope contains one disc as follows:

<b>Title</b>	<b>Media Type:</b>	<b>Contents</b>
TRUPACT-III SAR	CD-R	One file of the complete text of the submittal: TRUPACT-III SAR, Complete, Rev. 7.pdf (19,181 kb) (578 pages)

**Delete and Insert Instructions  
for  
Updating TRUPACT–III Safety Analysis Report  
Docket Number 71–9305**

<b>SAR Section</b>	<b>Delete Rev. 6</b>	<b>Insert Rev. 7</b>
Cover and Spine	Cover Page and Spine	Cover Page and Spine
Table of Contents	Pages i to ix	Pages i to ix
1.3.1	Pages 1.3.1-1 – 1.3.1-2	Pages 1.3.1-1 – 1.3.1-2
2.3	Pages 2.3-1 – 2.3-2	Pages 2.3-1 – 2.3-2
General Arrangement Drawings	51199–SAR, Rev. 6	51199–SAR, Rev. 7





**Docket 71-9305**

# **TRUPACT-III**



## **Safety Analysis Report**

**Revision 7  
January 2012**

**AREVA Federal Services LLC**

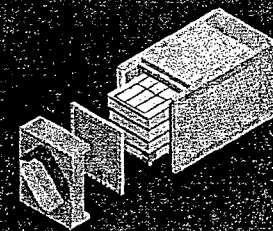




# TRUPACT-III

Revision 7  
January 2012

## Safety Analysis Report





**Docket 71-9305**



# **TRUPACT-III**



## **Safety Analysis Report**

**Revision 7  
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**AREVA Federal Services LLC**



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### 1.3.1 Packaging General Arrangement Drawings

This section presents the TRUPACT-III packaging general arrangement drawing<sup>1</sup>, consisting of 21 sheets entitled, *TRUPACT-III Packaging SAR Drawing*, Drawing Number 51199-SAR, Rev. 7.

Within the packaging general arrangement drawing, dimensions important to the packaging's safety are dimensioned and toleranced (e.g., sealing regions on the seal flanges). All other dimensions are provided as a reference dimension, and are toleranced in accordance with the general tolerance block.

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<sup>1</sup> The TRUPACT-III packaging general arrangement drawing utilizes the uniform standard practices of ASME Y14.5M-1994, *Dimensioning and Tolerancing*, American National Standards Institute, Inc. (ANSI).



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## 2.3 Fabrication and Examination

### 2.3.1 Fabrication

The TRUPACT-III packaging is fabricated using conventional metal forming and joining techniques. All welding procedures and welding personnel must be qualified in accordance with Section IX of the ASME Boiler and Pressure Vessel Code.<sup>1</sup> Where possible, containment boundary weld joints are made in flat sections and are full penetration butt joints. Where a corner joint is necessary, such as at the closed end of the containment boundary or at the body flange inner corner joints, the joint is a full penetration corner joint. Threaded parts are fabricated according to ASME B1.13M.<sup>2</sup> All non-containment joints, such as those connecting the CSA outer sheets, are fabricated in accordance with the requirements delineated on the drawings in Appendix 1.3.1, *Packaging General Arrangement Drawings*.

The polyurethane foam, calcium silicate insulation, balsa wood, and butyl rubber O-rings are procured using written procedures. See Section 8.1.5, *Component Tests*, for details of the fabrication and performance requirements of these components.

### 2.3.2 Examination

Each of the materials performing a significant safety function must meet the ASTM specifications delineated on the drawings in Appendix 1.3.1, *Packaging General Arrangement Drawings*. Safety-significant materials not having an ASTM designation are controlled by means of written procedures whose requirements are summarized in Section 8.1.5, *Component Tests*.

All welds are subject to visual examination per AWS D1.6.<sup>3</sup> Welds of the containment boundary plates and flanges are examined additionally by radiographic inspection in accordance with the ASME Boiler and Pressure Vessel Code, Section III, Division 1, Subsection NB, Article NB-5000, and Section V, Article 2,<sup>4</sup> and by liquid penetrant inspection on the final pass in accordance with the ASME Boiler and Pressure Vessel Code, Section III, Division 1, Subsection NB, Article NB-5000, and Section V, Article 6.<sup>5</sup> Fillet welds attaching the V-stiffeners to the containment sheets, and all other welds of the CSA outboard of that location, are inspected in the same way, omitting the radiographic inspection. Welds between components of the overpack structures (including welds to the outside of the CSA) are inspected visually as noted above, and additionally using liquid

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<sup>1</sup> American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section IX, *Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators*, 2004 Edition, 2005 and 2006 Addenda.

<sup>2</sup> American Society of Mechanical Engineers (ASME) B1.13M, *Metric Screw Threads – M Profile*.

<sup>3</sup> ANSI/AWS D1.6:1999, *Structural Welding Code—Stainless Steel*, American Welding Society (AWS).

<sup>4</sup> American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section III, *Rules for Construction of Nuclear Facility Components*, Division 1 - Subsection NB, *Class 1 Components*, and Section V, *Nondestructive Examination*, Article 2, *Radiographic Examination*, 2004 Edition, 2005 and 2006 Addenda.

<sup>5</sup> American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section V, *Nondestructive Examination*, Article 6, *Liquid Penetrant Examination*, 2004 Edition, 2005 and 2006 Addenda.



penetrant inspection on the final pass in accordance with the ASME Boiler and Pressure Vessel Code, Section III, Division 1, Subsection NF, Article NF-5000, and Section V, Article 6.<sup>6</sup>

Repairs of containment boundary welds that are inaccessible for radiographic examination are inspected by ultrasonic examination in accordance with the ASME Boiler and Pressure Vessel Code, Section III, Division 1, Subsection NB, Article NB-5000, and Section V, Article 4<sup>7</sup>, or by liquid penetrant inspection on each pass and on the final pass in accordance with the ASME Boiler and Pressure Vessel Code, Section III, Division 1, Subsection NB, Article NB-5000, and Section V, Article 6.<sup>8</sup> The use of multi-pass liquid penetrant examination for repair of containment boundary welds is identified on the drawings in Appendix 1.3.1, *Packaging General Arrangement Drawings*. Subsequent to repairs of containment boundary welds, the CSA containment boundary will be subjected to the pressure and leakage rate tests described below.

Each TRUPACT-III packaging will also be subjected to the following three tests:

- CSA internal pressure test, in which the containment boundary is pressurized to at least 150% of the MNOP. The pressure test requirements are described in Section 8.1.3.2, *Containment Vessel Pressure Testing*.
- Containment boundary leakage rate test, which includes helium leakage rate tests of the structural containment boundary, the containment O-ring seal, and the vent port containment O-ring seal. The requirements are described in Section 8.1.4, *Fabrication Leakage Rate Tests*.
- Load test of the upper ISO lift fittings, in which each fitting is tested to 150% of its maximum working load. The load test requirements are described in Section 8.1.3.1, *Lifting Device Load Testing*.

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<sup>6</sup> American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section III, *Rules for Construction of Nuclear Facility Components*, Division 1 - Subsection NF, *Supports*, 2004 Edition, 2005 and 2006 Addenda.

<sup>7</sup> American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section III, *Rules for Construction of Nuclear Facility Components*, Division 1 - Subsection NB, *Class 1 Components*, and Section V, *Nondestructive Examination*, Article 4, *Ultrasonic Examination*, 2004 Edition, 2005 and 2006 Addenda.

<sup>8</sup> American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section V, *Nondestructive Examination*, Article 6, *Liquid Penetrant Examination*, 2004 Edition, 2005 and 2006 Addenda.



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		AREVA Federal Services LLC Packaging Projects Tacoma, WA 98402	
		TRUPACT-III PACKAGING SAR DRAWING	
		SCALE: NONE	WT. N/A
		REV: 7	SHEET 1 OF 21
		DWG NO. 51199-SAR D	
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