



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration

COMPETENT AUTHORITY CERTIFICATION
FOR A TYPE B(U)F FISSILE
RADIOACTIVE MATERIALS PACKAGE DESIGN
CERTIFICATE USA/0768/B(U)F-96, REVISION 0

East Building, PHH-23
1200 New Jersey Avenue SE
Washington, D.C. 20590

REVALIDATION OF FRENCH COMPETENT AUTHORITY
CERTIFICATE F/0358/B(U)F-96

This certifies that the radioactive material package design described is hereby approved for use within the United States for import and export shipments only. Shipments must be made in accordance with the applicable regulations of the International Atomic Energy Agency¹ and the United States of America².

1. Package Identification - COG-OP-30B.
2. Package Description and Authorized Radioactive Contents - as described in France Certificate of Competent Authority F/0358/B(U)F-96, Revision Dj (attached). Contents are restricted to those listed in Appendix 7, revision 7j, and Appendix 8, revision 8j, of the French Certificate of Competent Authority No. F/358/B(U)F-96, Revision Dj (attached).
3. Criticality - The minimum criticality safety index is 5.0. The maximum number of packages per conveyance is determined in accordance with Table X of the IAEA regulations cited in this certificate.
4. General Conditions -
 - a. Each user of this certificate must have in his possession a copy of this certificate and all documents necessary to properly prepare the package for transportation. The user shall prepare the package for shipment in accordance with the documentation and applicable regulations.
 - b. Each user of this certificate, other than the original petitioner, shall register his identity in writing to the Office of Hazardous Materials Technology, (PHH-23), Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, Washington D.C. 20590-0001.

¹ "Regulations for the Safe Transport of Radioactive Material, 1996 Edition (Revised), No. TS-R-1 (ST-1, Revised)," published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

² Title 49, Code of Federal Regulations, Parts 100-199, United States of America.

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- c. This certificate does not relieve any consignor or carrier from compliance with any requirement of the Government of any country through or into which the package is to be transported.
 - d. Records of Quality Assurance activities required by Paragraph 310 of the IAEA regulations¹ shall be maintained and made available to the authorized officials for at least three years after the last shipment authorized by this certificate. Consignors in the United States exporting shipments under this certificate shall satisfy the applicable requirements of Subpart H of 10 CFR 71.
5. Special Conditions -
- a. Cylinders used under this certificate must have been designed and manufactured in compliance with the ANSI N14.1 standard in effect at the time of manufacture.
 - b. Cylinders used under this certificate must be operated, maintained and handled in accordance with the ANSI N14.1 standard in effect at the time of shipment.
 - c. Packages used under this certificate must be compliant with IAEA regulations for Type B(U)F packages and shipped as such. Transport of fissile contents within industrial packages is not authorized. Transport of fissile excepted or non-fissile contents is not authorized.
 - d. Minimum criticality safety index for a package containing residual (heel) quantities of uranium hexafluoride as described in Annex 7 of the French certificate is 0.0
6. Marking and Labeling - The package shall bear the marking USA/0768/B(U)F-96 in addition to other required markings and labeling.
7. Expiration Date - This certificate expires on March 31, 2011.

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This certificate is issued in accordance with paragraph 814 of the IAEA Regulations and Section 173.472 and 173.473 of Title 49 of the Code of Federal Regulations, in response to the February 18, 2009 petition by Areva, Lynchburg, VA, and in consideration of other information on file in this Office.

Certified By:



Apr 03 2009

(DATE)

 Robert A. Richard
Deputy Associate Administrator for Hazardous Materials Safety

Revision 0 - Issued to endorse French Certificate of Approval No.
F/358/B(U)F-96 (Dj).



**Direction des activités
industrielles et du transport**

**F/358/B(U)F-96 (Dj)
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APPROVAL CERTIFICATE OF A PACKAGE MODEL

The competent French Authority,

Further to the request made by **TN International** in letter CEX-08-00108115-082 of July 31st, 2008,

In light of Safety Analysis Report DOS-08-00117711 Revision 0 of July 31st, 2008, in light of note 11563-B-11 rev. 2 of 04 December 2003,

Hereby certifies that the package design comprising the **COG-OP-30B** overpack described hereinafter in Appendix 0 at index j, containing a 30B type cylinder placed in an overpack called COG-OP-30B, filled with uranium hexafluoride or heels of uranium hexafluoride enriched to a maximum of 5% in uranium 235 compliant to the definitions given in appendix 7 and 8 at index j, is compliant as a **type B package model for fissile material**, in conformity with the requirements of the regulations, agreements and recommendations listed below :

- Regulations for the Safe Transport of Radioactive Materials of the International Atomic Energy Agency, Safety Standard Series, N° TS-R-1 - 2005 edition,
- European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR),
- International Regulations concerning the Carriage of Dangerous Goods by Rail (RID),
- International Regulations concerning the Carriage of Dangerous Goods on the Rhine (ADNR),
- International Maritime Dangerous Goods Code (IMDG Code of OMI),
- Modified decree of June 1st, 2001 concerning the carriage of dangerous goods by road (ADR Decree),
- Modified decree of June 5, 2001 concerning the carriage of dangerous goods by rail (RID decree),
- Modified decree of December 5, 2002 concerning the carriage of dangerous goods by internal water way (ADNR decree),
- Modified decree of November 23, 1987 concerning the Safety of Ships (RSN), attached regulations, division 411 (RSN decree)

This certificate does not exempt the consignor from complying with the instructions established by the authorities of the countries through or to which the package will be transported.

This certificate expires on **March 31st 2011**.

Registration No. ASN/DIT/0080/2009

PARIS, February 6th 2009

APPENDIX 0 COG-OP-30B PACKAGING

1. DESCRIPTION OF THE PACKAGING

The package consists in a 30B type cylinder and a protective overpack, known as the COG-OP-30B overpack.

In all cases, the maximum weight of the package comprising the COG-OP-30B overpack containing a 30B type cylinder loaded with uranium hexafluoride is 4 232 kg.

1.1 Description of the COG-OP-30B Overpack

The cylindrical COG-OP-30B overpack is made up from two halves surrounding the 30B cylinder and held together by snap-fasteners (see figures 0.1 and 0.2). Each half overpack is made up of two half-shells in stainless steel. Inside of these, thermal protection is provided by non-corrosive phenolic foam.

At the end of each half overpack the phenolic foam is replaced by balsa wood and red cedar providing damping in the event of drops in normal transport and transport accident conditions.

The overpack is closed at the ends, from the inside towards the outside, by a stainless steel plate, then by thermal protection made up of the same phenolic foam as in the radial part, and finally with an outer stainless steel sheet. The main dimensions of the overpack are as follows:

- Overall dimensions:
 - length: 2 420 ± 12 mm
 - width: 1 340 ± 8 mm
 - height: 1 356 ± 8 mm
- Dimensions of the cavity
 - diameter: 780 ± 6 mm
 - length: 2 100 ± 12 mm

The maximum weight of the overpack is 1 295 kg.

The overpack is designed, manufactured, inspected, tested, maintained and used in compliance with:

- Safety Analysis Report TN International DOS-08-00117711 Revision 0 of July 31st 2008 ;
- design drawing Cogema Logistics 5188-05E Ind. J,
- the specifications related to the acceptance test indicated in Section 7A of the Safety Analysis Report TN International DOS-08-00117711 Revision 0 ;
- the principles of quality assurance described in Section 8A of the Safety Analysis Report TN International DOS-08-00117711 Revision 0.

The packaging is to be handled by two ways. Equipped with a forks passage, it can be handled by means of a lift truck. Two shackles fixed on the upper part of the shell allow the handling of the shell containing a loaded or emptied 30B cylinder. The handling can also be achieved by means of the binding supports by screwing lifting rings in the holes foreseen for the fixation of the bended shell.

The stowage of the Overpack on the means of transport is made through a cradle receiving the Overpack and not attached to the Overpack.

1.2 Description of 30B cylinder

All activities of design, manufacturing, using and maintaining of 30B cylinders shall be or shall have been performed in accordance with ISO 7195 and ANSI N14.1 in effect at the time of the activity.

In particular, the 30B cylinder is a cylindrical reservoir of outer diameter 762 mm (30"), which is closed at each end by a domed base of the same thickness (12.7 mm nominal). The orifices permitting the filling and emptying of the cylinder consist of a valve fitted on a domed base and of a plug screwed at the opposite on the other domed base. A skirt at each end extends the cylindrical shell and protects the valve and the plug during the normal operation handling. The material constituting the cylinder (except the valve and the plug), is carbon steel. The main characteristics of the 30B cylinder are the following:

- total length : 2 070 mm (81 ½ "),
- outer diameter : 762 mm (30 "),
- cylinder nominal weight : 635 kg (1 400 lb),
- minimum cavity free volume : 736 Liter (26 ft³),
- test pressure : 2.8×10^6 Pa (400 psig).

The only difference with regard to these standards, affects the brazing which secures the leaktightness at the valve/cylinder and plug/cylinder boundaries: the thread of the valve is to be tinned with an alloy for lead-tin brazing per ASTM B32, with at least 45 per cent tin, as for example ASTM B32 SN50 alloy.

1.3 Safety Functions

The main safety functions and main important elements for safety are :

- **the containment**, ensured by the 30B cylinder ;
- **the radiological protection**, ensured by the 30B cylinder ;
- **the criticality safety**, ensured by the confinement system as described in Section 5A of the Safety Analysis Report ;
- **the internal heat release**, ensured by the 30B cylinder ;
- **the protection against shocks**, ensured by the shock absorbers of the overpack ;
- **the protection against fire**, ensured by the phenolic foam of the overpack.

2. VERIFICATIONS TO BE MADE BY THE CONSIGNOR BEFORE SHIPMENT

The packaging must be used according to procedures in compliance with the Instructions of Operating from the section 6A of the Safety Analysis Report.

The 2978 UN number will be marked on the package in case of shipment of fissile excepted UF₆.

The 2977 UN number will be marked on the package in case of shipment of non fissile excepted UF₆.

3. MAINTENANCE PROGRAM

The maintenance of the packaging is described in section 7A of the Safety Analysis Report.

4. NOTIFICATION AND REGISTRATION OF SERIAL NUMBERS

Should a packaging be disposed of or change ownership, this must be notified to the competent authorities. Accordingly, the party relinquishing ownership of a packaging shall forward the name of the new owner.

5. QUALITY ASSURANCE

The principles of quality assurance to be applied during the design, manufacturing, inspection, tests, maintenance and use of the package must be in compliance with those described in chapter 8A of the Safety Analysis Report.

FIGURE 0.1
SKETCH OF COG-OP-30B OVERPACK

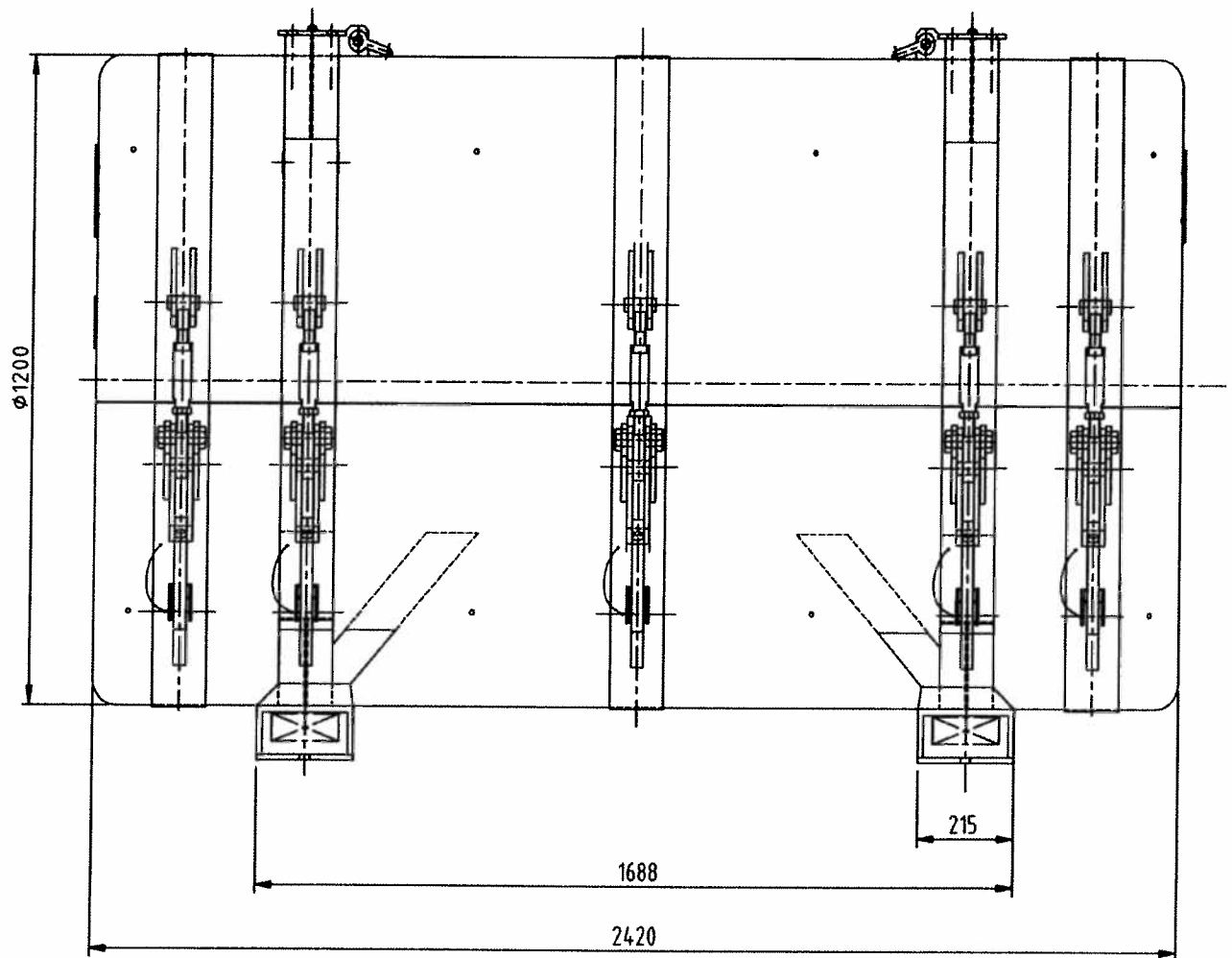


FIGURE 0.2
SKETCH OF COG-OP-30B OVERPACK

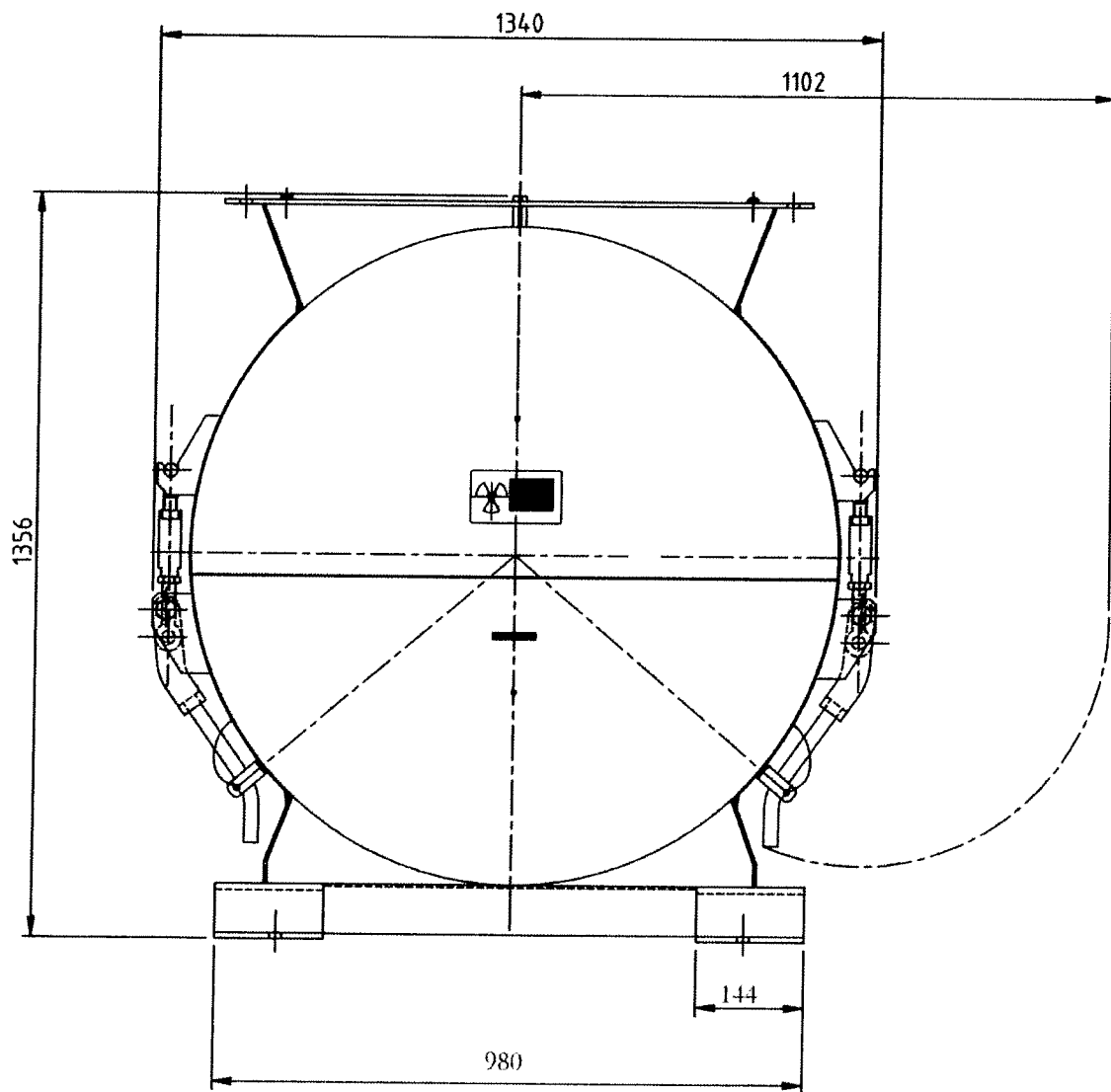
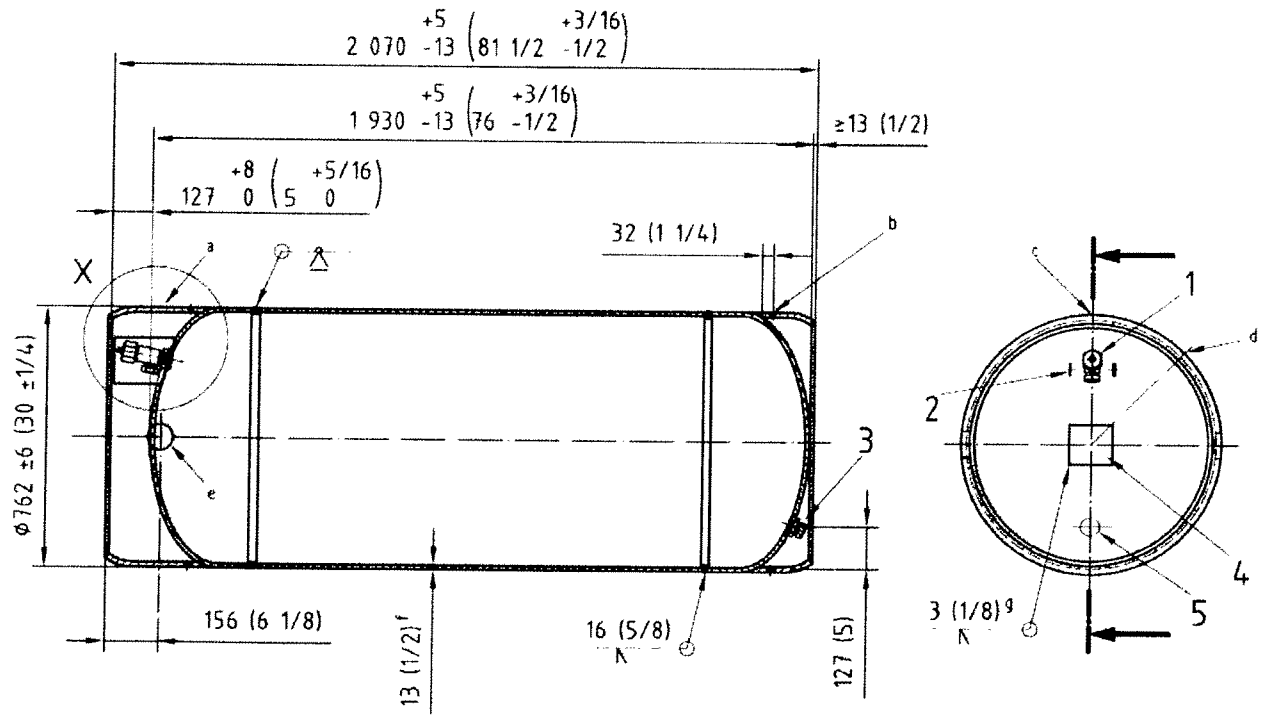


FIGURE 0.3
SKETCH OF 30B CYLINDER



This figure arises from ISO 7195 : 2005. It is presented here for information.

CONTENT N°7

HEELS OF URANIUM HEXAFLUORIDE (UF₆) ISSUED FROM REPROCESSED URANIUM ENRICHED TO A MAXIMUM OF 5% IN URANIUM 235**6. DESCRIPTION OF THE RADIOACTIVE CONTENT**

The radioactive content of the 30B cylinder consists of heels of uranium hexafluoride UF₆ and its parent products under any chemical form such as UO₂F₂ in any proportion left after emptying, with a maximum enrichment in ²³⁵U of 5 %.

Heels constituting the content come from UF₆ issued from reprocessed uranium.

The essential parameters of the content for safety are the following:

- UF₆ load allowed in the cylinder : equal or less than 11.34 kg ;
- Maximum ²³⁵U enrichment : 5 % ;
- Maximum total activity of the content : 0.1 TBq ;
- Maximum weight concentration in uranium U233 for UF₆ issued from reprocessed uranium : 50 µg/gU.

7. SAFETY ANALYSIS REPORT

The Safety Analysis Report justifying this content is the TN International DOS-08-00117711 Rev. 0 report, dated July 31st 2008.

8. CRITICALITY SAFETY STUDY

This is described in Section 5A of the Safety Analysis Report TN International DOS-08-00117711 Rev. 0, dated July 31st 2008.

The confinement system is described in chapter 5A of Safety Analysis Report TN International DOS-08-00117711 Rev. 0, dated July 31st 2008.

Criticality Safety Index (CSI) : 0

CONTENT N°8

URANIUM HEXAFLUORIDE (UF₆) ENRICHED TO A MAXIMUM OF 5% IN URANIUM 235

1. DESCRIPTION OF THE RADIOACTIVE CONTENT

The radioactive content of the 30B cylinder consists of uranium hexafluoride (UF₆) with a maximum enrichment in ²³⁵U of 5 %.

The uranium constituting the UF₆ can come from reprocessed uranium.

The essential parameters of the content for safety are the following:

- UF₆ load allowed in the cylinder : between 455 kg and 2277 kg
- Maximum ²³⁵U enrichment : 5 % ;
- Maximum total activity of the content : 11.7 TBq ;
- Minimum purity of UF₆ transported : 99.5 % ;
- Maximum thermal power of content : 1 W ;
- Maximum weight concentration in uranium U233 for UF₆ issued from reprocessed uranium : 50 µg/gU.

2. SAFETY ANALYSIS REPORT

The Safety Analysis Report justifying this content is the TN International DOS-08-00117711 Rev. 0 report, dated July 31st 2008.

3. CRITICALITY SAFETY STUDY

This is described in Section 5A of the Safety Analysis Report TN International DOS-08-00117711 Rev. 0, dated July 31st 2008.

The confinement system is described in chapter 5A of Safety Analysis Report TN International DOS-08-00117711 Rev. 0, dated July 31st 2008.

Criticality Safety Index (CSI) : 0



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CERTIFICATE NUMBER: USA/0768/B(U)F-96, Revision 0

ORIGINAL REGISTRANT(S):

Richard Montgomery
Nuclear Criticality Safety & Shipping Containers
Areva
1724 Mount Athos Road
P.O. Box 11646
Lynchburg, VA 24506-1646

Ms. Catherine Anne
Director of Transport Operations
Areva
7135 Minstrel Way
Suite 300
Columbia, 21045
USA

Mr. Jim Davis
Areva
2101 Horn Rapids Road
Richland, WA 99352

Mr. Charlie Holman
Areva
P.O. Box 11646
Lynchburg, VA 24506-1646

Ralf Witten
Areva
Abteilung ANF-LP
Advanced Nuclear Fuels GmbH
Postfach 1485
Lingen, Niedersachsen 49784
Germany