U.S. Department
of Transportation

**Pipeline and
Hazardous Materials
Safety Administration**

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

COMPETENT AUTHORITY CERTIFICATION FOR A TYPE FISSILE RADIOACTIVE MATERIALS PACKAGE DESIGN CERTIFICATE USA/0745/AF-96, REVISION 1

REVALIDATION OF GERMAN COMPETENT AUTHORITY CERTIFICATE D/4365/AF-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 Agency[1] and the United States of America[2].

1. Package Identification - ANF-50.

2. Package Description and Authorized Radioactive Contents - as described in Germany Certificate of Competent Authority D/4365/AF-96, Revision 0 (attached).

3. Criticality - The minimum criticality safety index is 0.4. 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.

   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.

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[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.

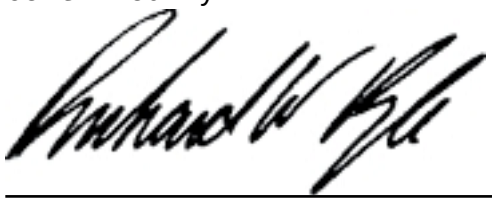
d. Records of Quality Assurance activities required by Paragraph 310 of the IAEA regulations[1] shall be maintained and made available to the authorized officials for at least three years after the last shipment authorized by this certificate. Consignors in the United States exporting shipments under this certificate shall satisfy the applicable requirements of Subpart H of 10 CFR 71.

5. Marking and Labeling - The package shall bear the marking USA/0745/AF-96 in addition to other required markings and labeling.

6. Expiration Date - This certificate expires on January 04, 2009.

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 November 10, 2006 petition by Areva, Lynchburg, VA, and in consideration of other information on file in this Office.

Certified By:



Robert A. Richard
Deputy Associate Administrator for Hazardous Materials Safety

Jul 03 2008
(DATE)

Revision 1 - Issued to endorse German Certificate of Approval No. D/4365/AF-96, Revision 0, for a period of six months.

Certificate of Approval

D/4365/AF-96 (Rev. 0)

for a transport package sample of Type A for fissionable radioactive materials

Based on the application of Advanced Nuclear Fuels GmbH, Lingen, of September 1, 2005 (File Ref.: 244/05/BfS/DST), last amended on September 21, 2006 (File Ref.: 306/06/BfS/DST), the container with manufacturer's designation "pellet shipping container ANF-50" is approved as a Type A transport package sample for fissionable radioactive materials according to the following regulations for transports by road, rail, sea and air:

Regulations for the Safe Transport of Radioactive Material, 1996 Edition (As Amended 2003), International Atomic Energy Agency (IAEA), No. TS-R-1,

European Convention of September 30, 1957 governing the international conveyance of dangerous goods by road (ADR) (BGBl. 1969, II p. 1489), last amended by the 17th ADR Amendment Ordinance of August 27, 2004 (BGBl. 2004 II p. 1274), Appendices A and B,

Ordinance for the international conveyance of dangerous goods by rail (RID) – Appendix I to Annex B of the Convention governing international rail transportation of May 9, 1980 (COTIF-Convention) (BGBl. 1985 II, p. 130), last amended by the 12th RID Amendment Ordinance of September 28, 2004 (BGBl. 2004 II p. 1434),

International Maritime Dangerous Goods Code (IMDG-Code), Amendment 32-04,

International Civil Aviation Organisation – Technical Instructions for the Safe Transport of Dangerous Goods by Air, Edition 2005/2006,

Ordinance governing the domestic and cross-border conveyance of dangerous goods by road and rail (Dangerous Goods Ordinance, Road and Rail – GGVSE) of January 3, 2005 (Dangerous Goods Ordinance, Road and Rail - GGVSE) of January 3, 2005 (BGBl. I p.37), last amended by Article 3a of the Fourth Order Revising the Orders Governing the Conveyance of Dangerous Goods of November 2, 2005 (BGBl. I p. 3131),

Ordinance governing the conveyance of dangerous goods by seagoing vessels (Dangerous Goods Ordinance , Maritime – GGVSee) of January 6, 2006 (BGBl. I p. 139),

Air Transport Approval Ordinance in the edition of the notification of March 27, 1999 (BGBl. I p. 610), last amended by the ordinance of July 27, 2005 (BGBl. I p. 2275) in connection with the ICAO dangerous goods regulations (ICAO Technical Instructions)

in connection with the Directives of the Federal Ministry for Transport, Building and Housing (BMVBW) of November 17, 2004 (VkBl. Vol. 23, p. 594, 2004) and of February 20, 1991 (VkBl Vol. 4, p. 231, 1991).

It is hereby confirmed that the Federal Agency for Radiation Protection, Salzgitter, is the authority authorised by the Federal Ministry for Transport, Building and Housing pursuant to Section 7.9 of the IMDG-Code.

Certificate holder: ADVANCED NUCLEAR FUELS GmbH
Am Seitenkanal 1
49811 Lingen

Documents:

1. Application by Advanced Nuclear Fuels GmbH (ANF), Lingen, of September 1, 2005 (File Ref.: 244/05/BfS/DST), letters of ANF of July 24, 2006 (File Ref.: 301/06/BfS/DST) and September 21, 2006 (File Ref.: 306/06/BfS/DST)
2. Safety report of ANF, No. ANFG-11.105 (05), Rev. 3, of September 18, 2006
3. Test certificate by the Federal Institute for Material Research and Testing (BAM), Berlin, of August 28, 2006 (File Ref.:III.3/21139) and BAM letter of September 27, 2006 (File Ref.:III.3/21139)

With respect to the verification of criticality safety we refer specifically to the Criticality Safety Analysis in Section 7.1.3 of the Safety Analysis Report ANFG 11.106 (04), Rev. 3, the " Criticality Safety Analysis for the approval of the ANF-50 shipping container for public traffic " No. ANFG-5.060 (11), Rev. 2 and criticality safety analysis "Approval of the ANF-50 shipping container for transport by air" No. ANFG 5.060 (34), Rev. 1.

Manufacturer's designation: **Pellet shipping container ANF-50**

Identification mark of the package: **D/4365/AF-96**

Period of validity of the certificate: **Up to and including October 31, 2009**

Criticality safety index (CSI): **0.4**

Permissible content:

Content No. 1: Max. 52 kg uranium oxide, containing a maximum of 45.9 kg uranium with an enrichment (U-235 mass content in the uranium) of max. 5%, in the form of sintered pellets with a diameter of between 7 mm and 10 mm. The parameters detailed in Table 1 regarding the composition of the fuel must be complied with.

Content No. 2: Max. 14.5 kg uranium, containing a maximum of 12.8 kg uranium with an enrichment (U-235 mass content in the uranium) of max. 5%, in the form of pellets, pellet fragments, abraded pellet materials or uranium oxide powder. The parameters detailed in Table 1 regarding the composition of the fuel must be complied with.

Table 1: Composition of content

Nuclide	Mass content in the total uranium max. [%]	Activity per gram of uranium max. [Bq]	Gamma output per gram of uranium, max. [MeV * Bq]
U-232	1.00E-08 [1)]	8.27E+01	
U-234	5.50E-02	1.27E+05	
U-235	5.00	4.00E+03	
U-236	5.00E-02	1.20E+03	
U-238	100	1.24E+04	
Fission nuclides			30
Transuranic elements		2.5	

[1)] 1.00E-08 means $1.00 \cdot 10^{-8}$

Packaging design:

In terms of its mechanical and thermal properties in accordance with the test certificate and the letter of the BAM, Berlin, as detailed above and with regard to the criticality safety and the radiation shielding, according to testing by the BfS, the design for the pellet shipping container Type ANF-50 conforms to the requirements laid down for a Type A transport package for fissionable radioactive materials (IAEA-Regulations §§ 633 and 671).

In the criticality analysis the penetration of water into all cavities of the packaging was assumed.

Description of the packaging:

The ANF-50 shipping container consists of the following main components:

- Shipping frame with protective cover and receiving casing with casing cover
- Pellet container with container cover
- Supporting frame with clamping device and pellet tray.

The shipping frame consists of a welded structure of austenitic tubes and flat-bar profiles. Four vertically arranged tubes are connected at the top and bottom to four horizontally arranged tubes. The four sides are each reinforced with a diagonally arranged tube and are enclosed with longitudinal flat-bar profiles forming a grid-type structure. The bottom is reinforced with two diagonally arranged tubes and also enclosed with longitudinal flat-bar profiles forming a grid-type structure.

The protective cover consists of a frame of rectangular profiles whose top is equipped with a cover plate. The protective cover is screwed to the frame at the four right-angle brackets at the corners.

The receiving casing consists of a sandwich-type structure with an external and an internal austenitic cover plate. Between the cover plates is a welded structure made of austenitic tubes and rectangular tubes and of austenitic round-, angular- and flat-bar profiles, in addition to a filling of inorganic insulation material. The cover plates are welded to the structure of the receiving casing. The receiving casing is welded to the vertically arranged tubes of the shipping frame at the four side edges by means of steel brackets.

The cover of the receiving casing is also designed as a sandwich-type structure with external and internal austenitic cover plates, and with inorganic insulation material between these cover plates. The casing cover is fastened to the receiving casing with eight bolts.

The pellet container and the container cover are manufactured from austenitic sheet metal. The container cover is fastened to the pellet container with 10 bolts.

The pellet holding structure consists of 15 pellet trays, the supporting frame for holding the pellet trays, two barrier plates for positioning the pellet trays in the supporting frame as well as the clamping device for bracing the layered pellet trays which can be locked in place in the supporting frame at different heights.

If the container is used for transporting Content No. 1, the pellets are enclosed in layers between the pellet trays. The pellet container with supporting structure, clamping device and pellet trays is also used for transporting Content No. 2. Content No. 2 is transported unsorted in an additional metal box in the empty space between the clamping device and the unloaded pellet trays.

A schematic description of the transport package (Drawing No. ANF–3–127-3763-03 Rev. 1) is attached as Appendix 1.

The main dimensions of the transport package are: Length approx. 712 mm, width approx. 712 mm, height approx. 756 mm.

The mass of the shipping container is: Tare approx. 190 kg, gross max. 248 kg

The packaging specified by the relevant revisions of the design documents (general drawing and list of drawings) in Appendix 2 (Type list) are at present in conformity with this Certificate of Approval (also see Supplementary Condition and list of drawings No. 7).

Supplementary conditions and notes:

Supplementary conditions and notes:

1. All quality assurance measures relating to planning, monitoring inspections and operation must be performed in accordance with the Technical Directive governing Quality Assurance (QA) and Monitoring Measures (QM) for Packaging Used to Transport Radioactive Substances (TRV 006) issued by the Federal Transport Ministry (BMV) (VkBl. Vol. 4, p. 233, 1991).
2. The remanufacture of packing materials is only permissible in accordance with the design documents with the highest revision index in Appendix 2 including the amendments in accordance with Supplementary Condition No. 7.
3. This approval is only valid in connection with the Certificate of Acceptance issued for the relevant series production sample; this Certificate shall be sent to the BAM (Federal Institute of Material Research and Testing) and BfS (Federal Office for Radiation Protection) without a specific request being issued. Any deviations tolerated by the BAM in accordance with TRV 006 and any changes as per Supplementary Condition No. 7 shall be documented in this Certificate of Acceptance. In the case of already manufactured series production samples, the deviations tolerated by the BAM and the changes as per Supplementary Condition No. 7 shall be documented in the inspection and test log book for the series production sample.
4. It must be ensured that each user of the packaging registers with the BfS before first-time use and confirms that he has received and complies with the inspection and test log book, which in particular contains the Certificate of Approval, the instructions for use and maintenance and the instructions or recurring tests. In this regard particular attention must be attached to the following:
   - Container instructions "Handling and maintenance of the ANF-50 pellet shipping containers" ANFG-11.101 (29), Rev. 1, issued on February 20, 2006, released on July 12, 2006
   - Container instructions "Recurring tests of ANF-50 shipping containers" ANFG-11.101 (25), Rev. 2, issued on August 22, 2005, released on September 9, 2006.

   Within the frame of this Approval the use of documents with a higher revision index is only permissible after prior release by the BAM and with authorisation of the BfS.
5. Each series production sample shall be subjected to recurring tests in due time. For series production samples that are to be used solely outside the Federal Republic of Germany, the recurring tests can be performed and certified by testing personnel authorised by the responsible authorities in the relevant country. The certificates for the recurring tests shall be forwarded to the Federal Institute for Material Research and Testing (BAM) and to the Federal Office for Radiation Protection (BfS) without these organisations having to request them.
6. Each series production sample must be permanently marked with the identification mark detailed above and with the date (month/year) of the next recurring test or inspection.
7. Changes relating to the design documents listed in Appendix 2, upon which the approval is based, require after release through the BAM the authorisation of the BfS of the Revision Certificate or an extended type list (in accordance with Appendix 2). They shall then form part of the present approval.
8. This approval does not release the sender from the obligation to comply with any regulations of any country through which or in which the transport package is conveyed.

Costs:

1. Costs, charges and expenses shall be levied for this Decision in accordance with § 12 paragraph 1 and 2 of the Act Governing the Conveyance of Dangerous Goods (GGBefG) in the version of the notification of September 29, 1998 (BGBl. I p. 3114), last amended by the Act of June 21, 2005 (BGBl. I p. 1818), in connection with Article 1 and Appendix (to Article 1), Part 1, Fee Number 007 in the Order Governing Costs for Safety Measures with Conveying Dangerous Goods (GGKostV) of November 13, 1990 (BGBl. I p. 2490), last amended by the Third Order Revising Orders Governing the Conveyance of Dangerous Goods of December 17, 2004 (BGBl. I, p. 3711).
2. The costs shall be borne by ANF GmbH, in accordance with § 12 paragraph 1 of the GGBefG in conjunction with § 13 paragraph 1 No. 1 of the Administrative Costs Act (VwKostG) of June 23, 1970 (BGBl. I p. 821), last amended by the Act of May 5, 2004 (BGBl. I p. 718).
3. The costs shall be determined in a separate decision.

Information about available legal remedies:

Objections against this decision may be lodged within one month of notification of this decision. Objections must be lodged either in writing to or be recorded at the Bundesamt für Strahlenschutz, Willy-Brandt-Str. 5, 38226 Salzgitter, Germany.

Salzgitter, October 18, 2006

In charge

Dr. Reiche

Appendices

Annex
Appendix 1: Data sheet for the ANF-50 shipping container, drawing number ANF-3-127-3763-03, Rev. 1
Appendix 2: Type list

Rev. No.	Date of issue	Validity	Reason for revision
0	Oct. 18, 2006	Oct. 31, 2009	Initial issue

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Appendix 1
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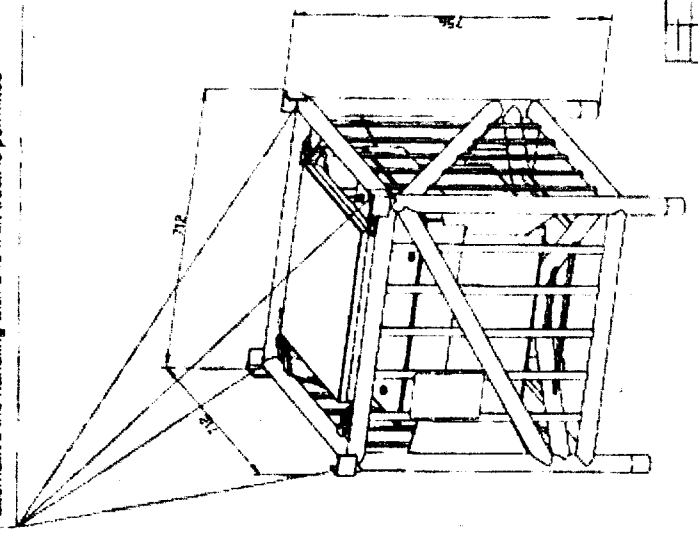
The handling of the Shipping Container ANF-50 by means of crane and 4 round slings which are to be attached to the 4 top corners of the shipping frame, alternative the handling with a fork lift truck is permitted



Type list

for the ANF-50 pellet shipping container

Type ANF-50 shipping containers, which shall be or have been manufactured in accordance with the following ANF GmbH design documents, conform to the model type specified in this Certificate of Approval (see also Supplementary Conditions 2, 3 and 7).

Revision status of the design documents	**Release by BAM**
General drawing No. AD-003750-001-003-000, Rev. 3 Detailed drawings, see list of appendices to Safety Report ANFG-11.105 (05), Rev. 3, Register 19	BAM test certificate of August 28, 2006 (File Ref.: III.3/21139)

Salzgitter, October 18, 2006

In charge

Dr. Reiche

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

CERTIFICATE NUMBER: USA/0745/AF-96, Revision 1

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