



U.S. Department
of Transportation
**Pipeline and
Hazardous Materials
Safety Administration**

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

**COMPETENT AUTHORITY CERTIFICATION
FOR A TYPE B(U)F FISSILE
RADIOACTIVE MATERIALS PACKAGE DESIGN
CERTIFICATE USA/0551/B(U)F-85, REVISION 8**

**REVALIDATION OF GERMAN COMPETENT AUTHORITY
CERTIFICATE D/4326/B(U)F-85**

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 - GNS-16 Cask.
2. Package Description and Authorized Radioactive Contents - as described in Germany Certificate of Competent Authority D/4326/B(U)F-85, Revision 7 (attached). Contents are restricted to loading variant 1 and loading variant 3 as described in the German certificate.
3. Criticality - The minimum criticality safety index is 0.0. 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.
 - 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.

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.

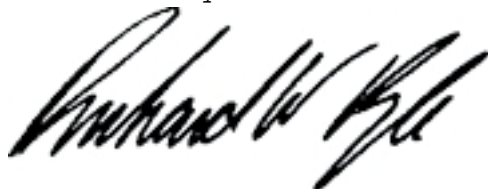
² Title 49, Code of Federal Regulations, Parts 100-199, United States of America.

CERTIFICATE USA/0551/B(U)F-85, REVISION 8

- d. This certificate provides no relief from the limitations for transportation of plutonium by air in the United States as cited in the regulations of the U.S. Nuclear Regulatory Commission 10 CFR 71.88.
 - e. 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 Condition - Except as specified in loading variant 1, known or suspected failed fuel assemblies and fuel with cladding defects greater than pin holes and hairline cracks are not authorized.
 - 6. Marking and Labeling - The package shall bear the marking USA/0551/B(U)F-85 in addition to other required markings and labeling.
 - 7. Expiration Date - This certificate expires on September 15, 2017.

This certificate is issued in accordance with paragraph 817 of the IAEA Regulations and Section 173.472 and 173.473 of Title 49 of the Code of Federal Regulations, in response to the October 08, 2014 petition by Transport Logistics International, Fulton, MD, and in consideration of other information on file in this Office.

Certified By:



Dr. Magdy El-Sibaie
Associate Administrator for Hazardous Materials Safety

Oct 27 2014
(DATE)

Revision 8 - Issued to revalidate, for limited contents, German Certificate of Competent Authority No. D/4326/B(U)F-85, Revision 7.

Federal Agency for Radiation Protection



Approval Certificate D/4326/B(U)F-85 (Rev. 7)

for a type B(U) design package for fissile radioactive material

Based on the application filed by Company Nuclear Cargo + Service GmbH on February 8, 2013 (Ref.: wh) the cask with manufacturer's designation **Transport Cask GNS 16** is approved as a type B(U) design package for fissile radioactive materials for transports on the road, per rail, for maritime transports and transports over domestic waterways, according to the following regulations:

Regulations for the Safe Transport of Radioactive Materials, 2009 Edition, International Atomic Energy Agency (IAEA), No. TS-R-1, § 817,

European Agreement for International Transports of Dangerous Goods by Road (ADR) of 30 September 1957 (BGBl. 1969 II p. 1489), Enclosures A and B in the version of the proclamation dated 03 June 2013 (BGBl. 2013 II p. 648),

Regulations for International Transports of Dangerous Goods by Rail (RID) - Appendix C of the Agreement concerning International Railway Traffic of 9 May 1980 (COTIF) (BGBl. 1985 II, p. 130) in the version of the proclamation dated 16 May 2008 (BGBl. 2008 II, p. 475, 899; 2009 II p. 1188, 1189; 2010 II p. 1273; 2012 II p. 168, 169, 1338), last amended by the 18th RID Amendment Decree dated 25 May 2013 (BGBl. 2013 II p. 562),

International Maritime Dangerous Goods Code (IMDG-CODE), Amendment 36-12,

European Agreement dated 26 May 2000 concerning the International Transport of Dangerous Goods on Inland Waterways (ADN) (BGBl. 2007 II p. 1906, 1908; 2009 II p. 534; 2010 II p. 122, 123, 1183, 1184, 1534, 1550, 1551, 1569, 1570), last amended by the 4th ADN Amendment Decree dated 3 December 2012 (BGBl. 2012 II p. 1386),

Regulations for the National and International Transport of Dangerous Goods by Road, by Rail and by Inland Waterways (Dangerous Goods Regulations Road, Rail and Inland Waterways (GGVSEB) in the version of the proclamation dated 22 January 2013 (BGBl. 2013 I, p. 110),

Regulations for Maritime Transports of Dangerous Goods (Dangerous Goods Regulations Sea - GGVSee) in the version of the proclamation dated 26 March 2014 (BGBl. 2014 I, p. 301),

in combination with the Guideline for the design approval procedure of packages for the transport of radioactive material, of special form of radioactive material and low dispersible radioactive material (R003) in the version of the proclamation dated 17 November 2004 (VkBl. 2004 p. 594) and the BAM-Dangerous Goods Guideline about Quality Assurance Measures of Packagings for Competent Authority Approved Package Designs for the Transport of Radioactive Material (BAM-GGR 011) Rev. 0 dated 25 June 2010 (Amts- und Mitteilungsblatt der BAM 2011 p. 323), put in force by the proclamation dated 1 July 2010 (VkBl. 2010 p. 282).

It is confirmed that the Federal Agency for Radiation Protection, Salzgitter, is the agency authorised by the Federal Ministry for Traffic and digital Infrastructure according to Chapter 7.9 of the IMDG-Code.

Holder of the authorisation: Nuclear Cargo + Service GmbH
Rodenbacher Chaussee 6
63457 Hanau

Documents:

Documents according to the list of documents DV-09-16, Rev. 3 from company Nuclear Cargo + Service GmbH

Change certification No. 1407-1, Rev. 0 from Nuclear Cargo + Service GmbH

*Concerning the verification of criticality safety, reference is especially made to the following:
Report GNB B 022/97, Rev. 3, Technical Notice E 2005/0013, Rev. 0 and Report WTI/81/06,
Rev. 1 (Documents with the running no. 5, 15 and 17 in the list of documents).*

Manufacturer's designation: Transport cask GNS 16

Package identification: D/4326/B(U)F-85

Validity of approval: till 15 September 2017 included

Allowable contents:

Irradiated fuel assemblies (FA) and special fuel assemblies (SFA)* as well as irradiated fuel plates from research reactors with data according to Attachment 1, maximum thermal decay power of 1.32 kW per cask and a maximum total activity of $6.3 \cdot 10^{16}$ Bq.

The following loading variants are admissible:

Loading variant 1: loading with box shaped MTR FAs and MTR SFAs and shipping canister with special fuel plates

up to 32 box shaped MTR FAs and MTR SFAs with enrichment level HEU(1) or up to 33 box shaped MTR FAs and MTR SFAs with enrichment level HEU(2) and LEU as well as maximal 40 special fuel plates packed in a shipping canister with data corresponding to Attachment 1, mixed arbitrarily, in a carrying basket FR 2/33 (Attachment 3, Fig. 2), provided that every FA and SFA as well as the shipping canister fulfils the following requirement:

$$S = \sum_{i=1}^{10} \frac{Q_i}{Q_{i0}} \leq 1$$

* The following are special fuel assemblies:

MTR irradiation, control and testing fuel assemblies, as well as conditioned TRIGA control assemblies, the fissile material contents of box shaped MTR SFA and the TRIGA control assemblies being less than the corresponding "Standard" FAs, whilst the tubular MTR SFA (testing FAs) present a lower enrichment than the corresponding "Standard" FAs.

with:

i	energy groups or spectral types 1 till 10 according to Attachment 2
Q_i	actual source intensities for the energy group or spectral type i
Q_{i0}	reference source intensities for the energy group or spectral type i according to Attachment 2. For the shipping canister the Q_{i0} of the box shaped MTR FAs from Attachment 2 must be used.

- Loading with failed (corroded) MTR FAs or MTR SFAs is authorised, provided that the corroded surface (Aluminium-Cladding) of the fuel plates does not exceed 500 cm² per cask.
- When loading with up to 32 MTR FAs and MTR SFAs with enrichment level HEU(1), position 17 of the carrying basket must remain free, according to Attachment 3, Fig. 2.
- The shipping canister with 40 special fuel plates corresponding to the drawing no. 3201-0134-Z1-002, Rev. 0 may only be loaded in position 17 (central position) of the basket FR 2/33 (Attachment 3, Fig. 2). A loading with a shipping canister is only permissible with box shaped MTR FAs and MTR SFAs with enrichment level LEU. In this case only control MTR SFAs with 17 fuel plates are permissible.

Loading variant 2: loading with tubular MTR FAs and MTR SFAs

up to 28 tubular MTR FAs and MTR SFAs with enrichment levels HEU, MEU and LEU, with data corresponding to Attachment 1, mixed arbitrarily, in a carrying basket FR 2/28 (Attachment 3, Fig. 3), provided that every FA and SFA fulfils the following requirement:

$$S = \sum_{i=1}^{10} \frac{Q_i}{Q_{i0}} \leq 1$$

with:

i	energy groups or spectral types 1 till 10 according to Attachment 2
Q_i	actual source intensities for the energy group or spectral type i
Q_{i0}	reference source intensities for the energy group or spectral type i according to Attachment 2

- Loading with failed (corroded) MTR FAs or MTR SFAs is authorised, provided that the corroded surface (Aluminium-Cladding) of the fuel plates does not exceed 500 cm² per cask.

Loading variant 3: loading with TRIGA FAs and TRIGA SFAs

up to 90 TRIGA FAs and TRIGA SFAs with enrichment level LEU, with data corresponding to Attachment 1, in up to 15 fuel assembly loading units of the types BEL-A2 (6 FAs or SFAs per loading unit) or BEL-B2 (5 FAs or SFAs per loading unit) in a carrying basket FR 2/15 (Attachment 3, Fig. 4), provided that every FA and SFA fulfils the following requirement for each energy group or spectral type:

$$\frac{Q_i}{RQ_i} \leq 1 \text{ for } i = 1, 2, \dots, 10$$

with:

i	energy groups or spectral types 1 till 10 according to Attachment 2
Q_i	actual source intensities for the energy group or spectral type i
RQ_i	reference source intensities for the energy group or spectral type i according to Attachment 2

- Arbitrary mixtures of loading units of types BEL-A2 and BEL-B2 are authorised.

Critical Safety Index (CSI): **0**

Package design:

The package design Transport Cask GNS 16 fulfils concerning the mechanical and thermal characteristics according to the test certificate issued by the Federal Institute for Materials Research and Testing (BAM) on 25 May 1998 (Ref. No.: III.3/20510), to the letter of BAM dated 9 June 1999 (Ref. No.: III.32/Nz), to the first addendum to Test Certificate III.3/20510 issued by BAM on 18 April 2001 (Ref. No.: III.3/20795) and to the expertise of BAM dated 3 December 2001 (Ref. No.: III.3/20858) and 5 October 2005 (Ref. No.: III.3/21073) as well as the second addendum to Test Certificate III.3/20510 of BAM dated on 19 November 2007 (Ref. No.: III.3/21198) and the expertise of BAM dated 23 February 2010 (Ref. No.: III.3/21307) and the expertise of BAM dated 17 June 2014 (Ref. No.: III.3/21504), and with regard to criticality safety and radiation protection after evaluation by BfS the requirements toward a Type B(U) package for fissile radioactive materials (IAEA Regulations for the Safe Transport of Radioactive Material, 1985 Edition (As Amended 1990) §§ 549 till 556 and 559 till 568).

Criticality analysis was performed assuming the penetration of water into all voids in the package.

Package description:

Transport Cask GNS 16 consists of a cylindrical body with sandwich structure, the upper orifice of which is closed tightly by the primary lid (structural material 1.4313), with its screwed closures (structural material 1.4313) and elastomer seals (structural material EPDM). A protective plate with corresponding screwed closure is found above the primary lid. The cask body consists of the structural groups inner liner with welded stainless steel bottom (structural material 1.4541), mantle with welded bottom plate (structural material 1.4541) and head ring (structural material 1.4541), to which the inner liner and the mantle are welded. The space between the inner liner and the mantle is filled with cast lead (structural material 2.3030). A plate protecting the mantle (structural material 1.4301) is found on the exterior surface of the mantle, covering the area between the shock absorbers.

The leak-tight containment consists of the inner liner with bottom, of the head ring, of the primary lid with its closing lid, each with the corresponding screwed closures and of the interior elastomer seals.

The interior cask cavity can take one carrying basket. Carrying basket FR 2/33 essentially consists of 33 rectangular stainless steel shafts which receive the fuel assemblies or the shipping canister, and of boronated stainless steel plates between the shafts. Carrying basket FR 2/28 essentially consists of 28 tubular stainless steel shafts welded to each other, which receive the fuel assemblies. Carrying basket FR 2/15 essentially consists of a cast aluminium body with 15 cylindrical shafts, which receives the fuel assemblies previously introduced into loading units.

The transport cask is equipped with a lid and bottom shock absorber, which are part of the package. The transport is carried out in a transport container, which is the easy access surface according to the transport regulations.

The main dimensions of transport cask GNS 16 are:

Diameter (without shock absorbers):	approx. 1200 mm
Diameter (with shock absorbers):	approx. 1800 mm
Height (without shock absorbers):	approx. 1535 mm
Height (with shock absorbers):	approx. 2075 mm
Mass (loaded and with shock absorbers):	approx. 15250 kg

This approval certificate presently covers the packages specified by the respective revised parts lists in Attachment 4.

Auxiliary directives and remarks:

1. All quality assurance measures during planning, accompanying controls and during operation must be according to the Dangerous Goods Guideline of BAM "Quality Assurance Measures of Packagings for Competent Authority Approved Package Designs for the Transport of Radioactive Material (BAM-GGR 011, Rev. 0).
2. New manufacturing of packages according to the parts list in Attachment 4 is not permitted. This does not apply for new manufacturing of shock absorbers according to this parts list.
3. This approval certificate is only valid together with the acceptance certificate issued for the corresponding series model, which must be sent without request to BAM and BfS. Deviations tolerated by BAM according to BAM-GGR 011, as well as modifications according to Auxiliary Directive No. 7 must be documented in this acceptance certificate.
In the case of model series already manufactured, deviations tolerated by BAM and modifications according to Auxiliary Directive No. 7 must be documented in the inspection book for the model series.
4. It must be assured that every user of the package is registered with the BfS before using the package for the first time and confirms that he has received the cask inspection book, which principally contains the approval certificate, the user's manual and maintenance instructions and the inspection plans for periodic inspections, and that he observes it. Specific documents on these connections are:
 - Handling of cask GNS 16
Handling instructions No. HA-08-04, rev. 4 from Nuclear Cargo + Service GmbH
 - Periodic inspections of cask GNS 16
Testing Instructions No. WP-08-01, rev. 1 with the accompanying test follow-up plans:
 - Test follow-up plan - after 15 transports or 3 years at the latest - with rev. 1
Test follow-up plan - after 60 transports or 6 years at the latest - with rev. 1
Test follow-up plan impact limiters - after 15 transports or 3 years at the latest - with rev. 1For the present approval certificate, the use of documents for handling and tests of the cask with a higher revision index as fixed in the list of documents is permitted only after release by the BAM and agreement by BfS. They thus become part of this Certificate of Approval.
5. Every series model must be durably marked with the above mentioned identification and with the date (month, year) of the next periodic inspection.
6. Every series model must be submitted to periodic inspections in due time. For series models used exclusively outside of the Federal Republic of Germany, periodic inspections may be performed and certified by personnel authorised by the authorities of the country where the cask is being used. Certifications of periodic inspections carried out must be sent without request to BAM and BfS.
7. Changes concerning the parts lists and the drawings and material specifications contained therein, which are the base of the approval, must be approved by BfS after being released by BAM in the form of an approval of the change certification or of an extended type list (according to Attachment 4). They thus become part of this Certificate of Approval.
8. The package design is to be transported under exclusive use.
In case of transport on a ship, the necessity of a special arrangement required when the maximum dose rate at the surface of the package exceeds 2 mSv/h, is especially mentioned, unless the package is on board of the ship inside a railway carriage or a road vehicle, under exclusive use, and will at no time be unloaded from that carrying vehicle while being on board the ship.
9. This approval does not exempt the consignor from the obligation to observe the regulations emitted by the government of a state in or through which the package will be transported.

Costs:

1. Based on § 12 Sections 1 and 2 of the Law for Transport of Dangerous Goods (Dangerous Goods Transport Act - GGBefG) in the version of its publication on 07 July 2009 (BGBl 2009 I p. 1774, 3975), modified by Article 2 Section 148 of the law dated 7 August 2013 (BGBl. I p. 3154), in connection with § 1 section 2 of the Decree concerning Costs for Measures Required for the Transport of Dangerous Goods (GGKostV) of 7 March 2013 (BGBl. 2013 I p. 466), payment of the costs - fees and expenses - will be requested for this certification. The fees arise from § 2 in conjunction with Annex 2 of the GGKostV.
2. According to § 12 Section 1 GGBefG, in conjunction with § 13 Section 1 No. 1 of the Law for Administrative Costs (VwKostG) of 23 June 1970 (BGBl. 1970 I p. 821), in the version valid until 14 August 2013 dated 5 December 2012 (BGBl. I p. 2415), NCS Nuclear Cargo + Service GmbH has to bear the costs.
3. The determination of these costs will be communicated through separate information.

Statement of rights of appeal:

Objections against this information may be filed within one month after its issuing. Objections must be filed with the Federal Agency for Radiation Protection, Willy-Brandt-Straße 5, 38226 Salzgitter, either in written form, or to be written down.

Salzgitter, 15 September 2014

In representation

(Official stamp)

Börst

Appendices

Appendix

Attachment 1: data of fuel assemblies and special fuel assemblies

Attachment 2: reference source intensities

Attachment 3: Figures 1 till 4: overview drawings

Attachment 4: type list

- Appendix to Approval Certificate D/4326/B(U)F-85 (Rev. 7) -

Rev. No.	Date of issue	Duration of validity	Reason for revision
0	29 May 1998	31 May 2001	First issue
1	16 June 1999	30 June 2002	Rework of the approval, with modification of the following sections: traffic regulations, documents, duration of validity, admissible contents, package construction design and description, auxiliary directives and remarks, costs, Attachment 1; Note: Revision 0 of the Approval will remain valid till 31 December 1999
2	24 April 2001	31 December 2003	Rework of the approval, with modification of the following sections: traffic regulations, documents, duration of validity, admissible contents, package construction design, auxiliary directives and remarks, costs, Attachments 1 and 4; Note: Revision 1 of the Approval will remain valid till 31 December 2001
3	31 January 2002	31 January 2005	Total rework of the approval, extension of admissible contents through a converter plate, extension of duration of validity; Note: Revision 3 of the Approval replaces Revision 2 of the Approval
4	23 November 2005	23 November 2008	Rework of the approval with modification of the following sections: traffic regulations, holder of the approval, documents, duration of validity, admissible contents, package construction design, auxiliary directives and remarks, costs, Attachments 1, 2 and 4;
5	20 December 2007	23 November 2008	Consideration of new regulations (quotation of regulations, costs), inclusion of a shipping canister with special fuel plates in loading variant 1 and with that change of the sections documents, admissible contents, package construction design, auxiliary directives and remarks, Attachment 1, Attachment 4. Note: Revision 4 of the Approval remains valid.
6	07 April 2010	07 April 2013	Consideration of new regulations (regulations of quotations, costs), extension of duration of validity, new documents for handling and examination and because of that change of the sections documents, auxiliary directives and remarks and of the type list
7	15 September 2014	15 September 2017	Consideration of new regulations (quotation of regulations, costs), extension of validity, new documents for handling and inspection and with that change of the sections documents, auxiliary directives and remarks and the type list

- Attachment 1 to Approval Certificate D/4326/B(U)F-85 (Rev. 7) -

Data for the fuel elements, special fuel elements and special fuel plates in a shipping canister

Reactor type Fuel element/ Special fuel element Basket	MTR			MTR			TRIGA	MTR
	box-shaped			tubular			rod- shaped	Special fuel plates in a shipping canister
Max. FE length, mm	FR 2/33			FR 2/28			FR 2/15	FR 2/33
Max. cross section dimensions, mm	915			635			755	875 ³⁾
Max. FE mass, kg	81.0 x 77.0 ¹⁾ resp. 84.0 x 77.0 ²⁾			103			38.0	84 x 84 ³⁾
Max. number of FE per cask	7.0			4.0			3.5	5.8 ³⁾
Enrichment level	32	33	33	28			90	1 ³⁾
Max. initial enrich- ment, wt.-% U-235	HEU(1)	HEU(2)	LEU	HEU	MEU	LEU	LEU	HEU
Max. initial U-235 mass, g	94.6	95.1	20.4	94.5	45.8	20.4	21.8	90.0
Max. initial Uranium mass, g	459	194	420	173	173	230	39.2	24.2 ³⁾
Max. decay heat power, W	510	208	2115	218	389	1179	201	26.9 ³⁾
	40			26			1	0.20 ³⁾

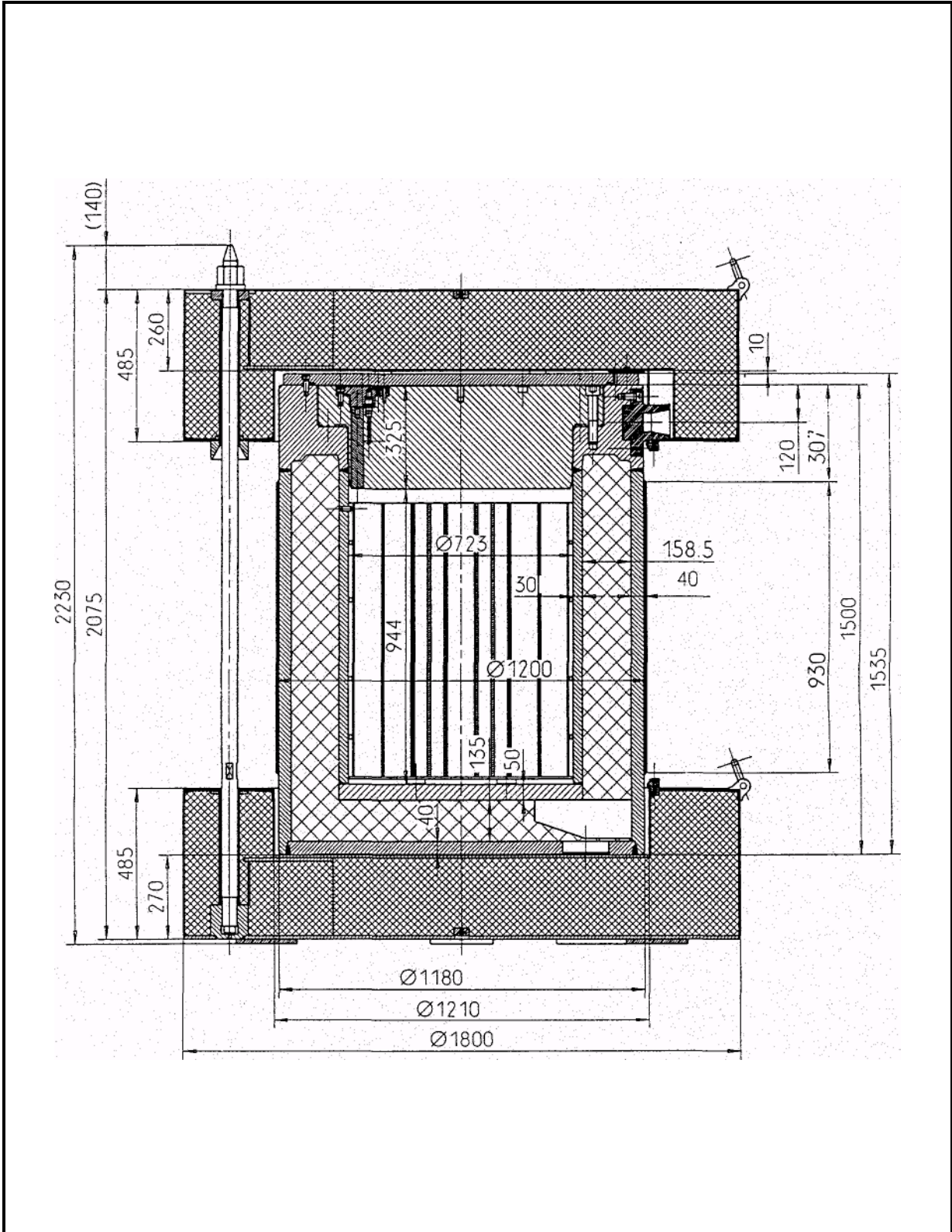
¹⁾ for box-shaped MTR FE with even fuel plates

²⁾ for box-shaped MTR FE with curved fuel plates

³⁾ values for a shipping canister loaded with 40 special fuel plates and 10 fuel-free dummy plates

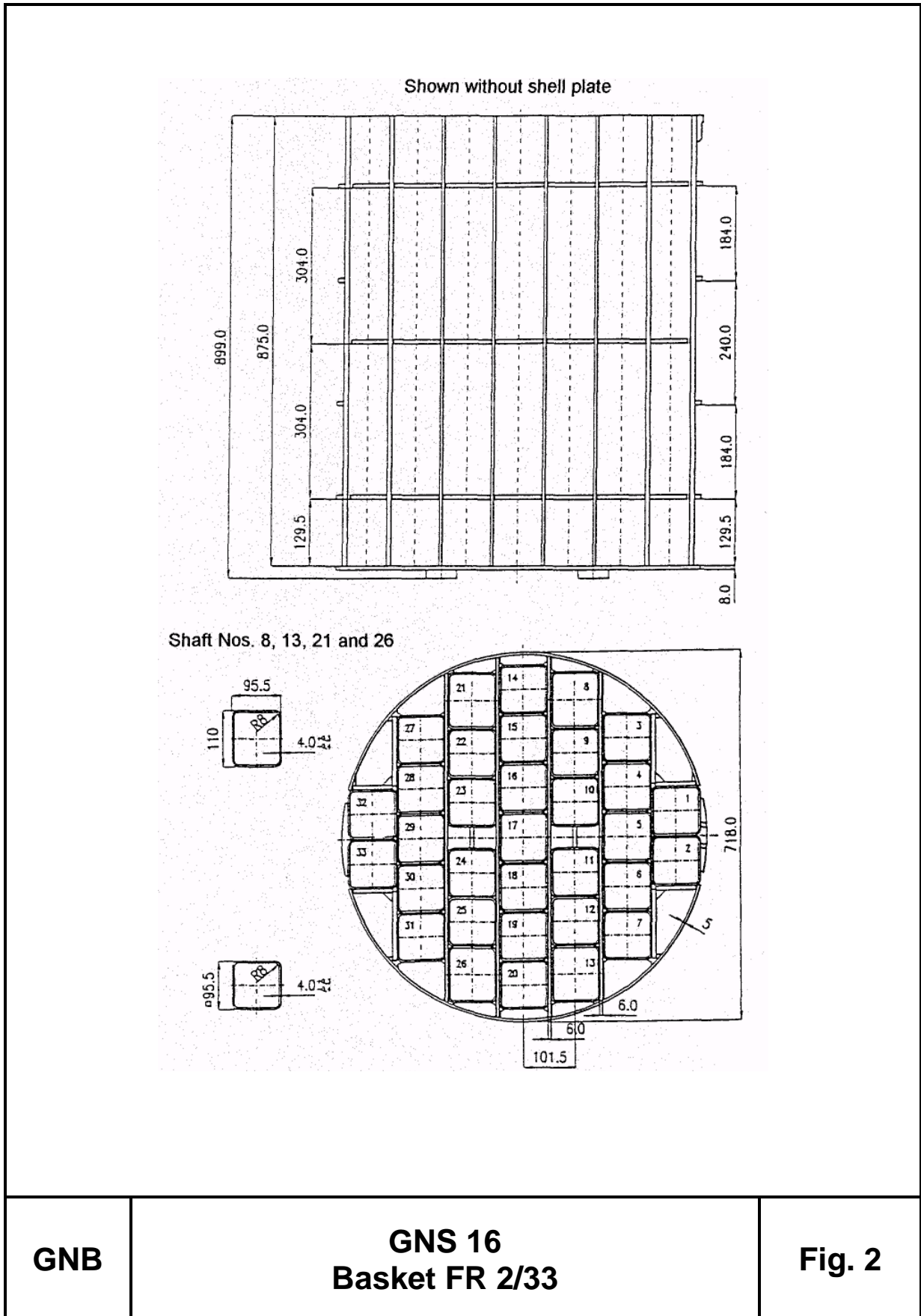
Reference source intensities

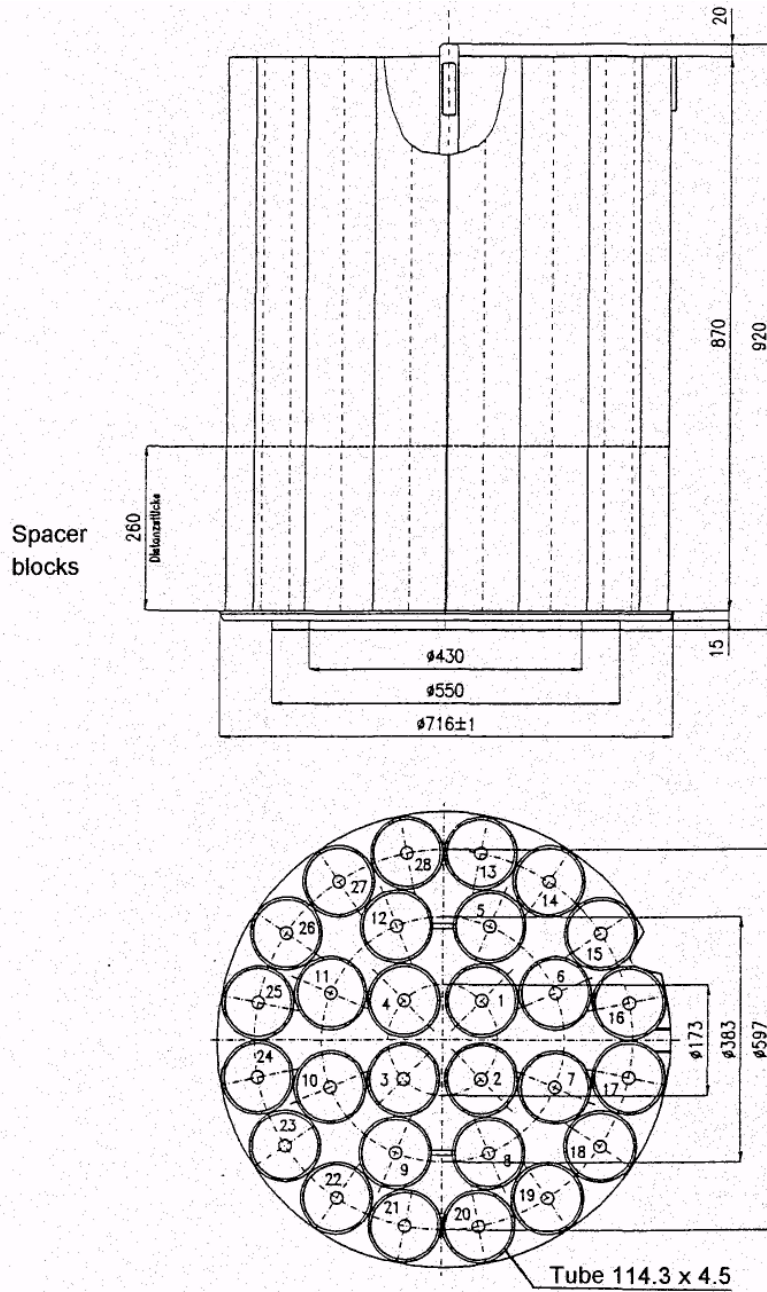
i	Energy group or spectral type	Q_{i0} box shaped MTR FAs Basket FR 2/33 [s⁻¹]	Q_{i0} tubular MTR FAs Basket FR 2/28 [s⁻¹]	RQ_i TRIGA fuel assemblies Basket FR 2/15 [s⁻¹]
1	0.375 MeV	$6.6 \cdot 10^{15}$	$4.6 \cdot 10^{15}$	$7.0 \cdot 10^{10}$
2	0.575 MeV	$6.7 \cdot 10^{16}$	$3.1 \cdot 10^{16}$	$7.0 \cdot 10^{11}$
3	0.850 MeV	$1.0 \cdot 10^{16}$	$5.4 \cdot 10^{15}$	$7.0 \cdot 10^{11}$
4	1.250 MeV	$7.5 \cdot 10^{13}$	$4.1 \cdot 10^{13}$	$3.0 \cdot 10^{11}$
5	1.750 MeV	$5.7 \cdot 10^{12}$	$3.5 \cdot 10^{12}$	$2.0 \cdot 10^9$
6	2.250 MeV	$1.7 \cdot 10^{12}$	$1.0 \cdot 10^{12}$	$6.0 \cdot 10^9$
7	2.750 MeV	$9.3 \cdot 10^{11}$	$5.7 \cdot 10^{11}$	$3.0 \cdot 10^7$
8	3.500 MeV	$4.4 \cdot 10^{11}$	$2.7 \cdot 10^{11}$	$3.0 \cdot 10^6$
9	Spontaneous fission	$2.1 \cdot 10^6$	$2.8 \cdot 10^6$	$2.0 \cdot 10^2$
10	(α -n) reaction	$2.1 \cdot 10^6$	$2.8 \cdot 10^6$	$1.0 \cdot 10^2$



GNB	Transport cask GNS 16	Fig. 1
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- Attachment 3 to Approval Certificate D/4326/B(U)F-85 (Rev. 7) -



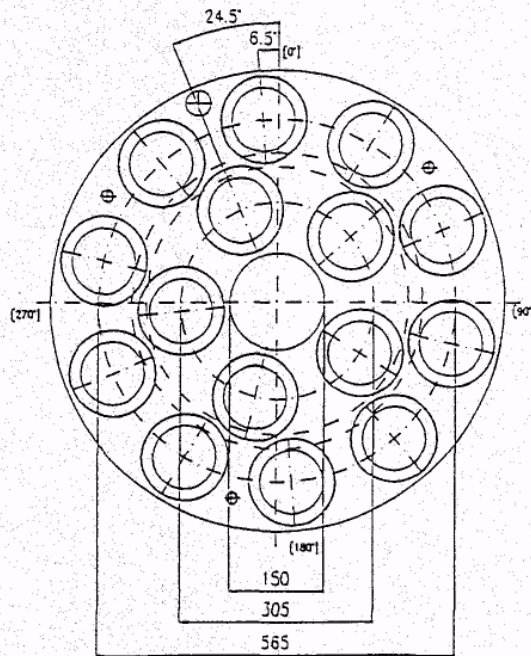
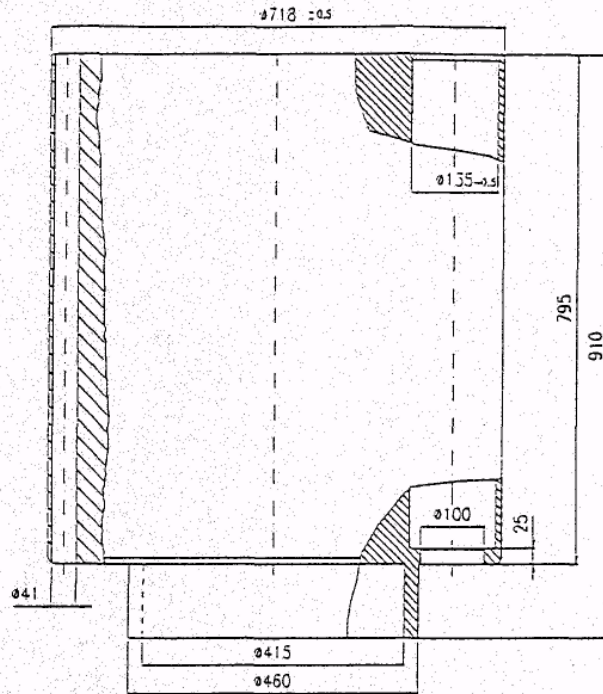


GNB

GNS 16
Basket FR 2/28

Fig. 3

- Attachment 3 to Approval Certificate D/4326/B(U)F-85 (Rev. 7) -



GNB

GNS 16
Basket FR 2/15

Fig. 4

- Attachment 4 to Approval Certificate D/4326/B(U)F-85 (Rev. 7) -

Type list

for Transport Cask GNS 16

Transport casks of the type GNS 16 which were manufactured according to the following parts lists, correspond to the design model covered by the present Approval Certificate (cf. among others Auxiliary Directives 2, 3 and 7).

Parts list revision	Release through BAM
510.060-01/1 Rev. 4 *)	BAM Test Certificate dated 25 May 1998 (Ref. No.: III.3/20510)

*) for the cask components primary lid (item 20) and closure lid (item 28) o-rings of EPDM instead of FPM for items 42, 46 and 48 in the parts list above must be used according to the change certification no. 1407-1, rev. 0

The loading of TRIGA FAs, TRIGA SFAs and special fuel plates in packages according to the above parts list only is permitted in the loading units or shipping canister mentioned below, according to the section "Admissible contents".

Type of loading unit	Revision of parts list	Release through BAM
BEL-A2 BEL-B2	21VA002B, Rev. B from Noell Company	Letter from BAM dated 10 December 1998 (Ref. No.: III.32/Nz)
shipping canister	s6920-072, Rev. 3 from WTI Company	2. addendum to Test Certificate III.3/20510 dated 19 November 2007 (Ref. No.: III.3/21198)

Salzgitter, 15 September 2014

In representation

(Official stamp)

Börst



U.S. Department
of Transportation

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

**Pipeline and
Hazardous Materials
Safety Administration**

CERTIFICATE NUMBER: USA/0551/B(U)F-85, Revision 8

ORIGINAL REGISTRANT(S):

Mr. Darren Condrey
Transport Logistics International
Transport Logistics International
8161 Maple Lawn Blvd
Suite 450
Fulton, 20759
USA

Mr. Mark Lambert
Transport Logistics International
Transport Logistics International
8161 Maple Lawn Blvd.
Suite 450
Fulton, 20759
USA

Norman Kent
Director Engineering Services
Transport Logistics International
TLI Engineering Services
3700 Forest Drive
Suite 202
Columbia, 29204
USA