

RETURN TO 396-SS



IFF, Inc.

International Freight Forwarders

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FMC #2652

November 10, 1987

U. S. Nuclear Regulatory Comm.  
Washington, D. C. 20555  
Attn: Mr. Charles Hillman  
Mailstop 825-SS

Ref: Additional information

Dear Mr. Hillman:

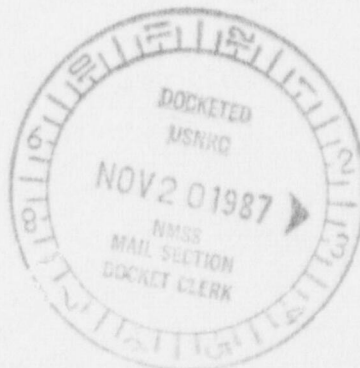
Enclosed please find the requested information.

In case of further questions, please do not hesitate to call me  
at 1-800/334-2701.

Sincerely yours,

*Peter Halpaus /st*  
Peter Halpaus

PH/sf  
Encl.



FEE EXEMPT

B712020036 871110  
PDR ADDCK 07003041  
C PDR

Agents all over the World

28784

DOCKET NO. 70-3041  
CONTROL NO. 28784  
DATE OF DOC. 11/10/87  
DATE RCVD. 11/20/87  
FCUF \_\_\_\_\_ PDR ✓  
FCAF \_\_\_\_\_ LPDR \_\_\_\_\_  
I & E REF. ✓  
SAFEGUARDS ✓  
FCTC \_\_\_\_\_ OTHER \_\_\_\_\_  
DATE 11/20/87 INITIAL CFC



- List of fourth Shipment -

KFA-Order-No. S/738/240 174/3

The fourth shipment consists of two GNS 11 casks which hold 28 DIDO fuel assemblies and 33 MERLIN (FRM) fuel assemblies.

GNS-11 No. 001 holds:

- basket No. GNS-11/B 510.11-23
- 28 DIDO F/A
- F/A Type: MK 4 and ESR B
- total activity: 112.730 Ci
- total heat load: 539,38 W

GNS-11 No. 002 holds:

- basket No. GNS-11/B 510.11-25
- 33 MERLIN (FRM) F/A
- F/A Type: FRM
- total activity: 77.878 Ci
- total heat load: 376,00 W

For more details about the DIDO and MERLIN (FRM) fuel assemblies please check attached fuel description (Document C).



Angaben zur Sendung / Information to the shipment

No. TRE 101 (7131/3)

GNS 11-Behälter-Nr. 001 / GNS 11-Cask No.: 001

28 Dido-Brennelemente / No. of Fuel assemblies: 28 (Dido-type)  
 Mengen, nach Bestahlung: / quantities, after irradiation:

U gesamt : 4.107,95 g

U, total : 4,107.95 g

U-235 : 2.612,13 g

U-235 : 2,612.13 g

Pu gesamt: 15,971 g

Pu, total : 15.971 g

(erbrütet)

(breded)

Restan-

residual

reicherung: ca. 67,54% (U.235)

enrichment: approx. 67.54% (U-235)

Restakti-

residual

vität : 112.730 Ci

activity : 112.730 Ci

( $\hat{=}$  4,172·10<sup>15</sup> Bq)( $\hat{=}$  4.172x10<sup>15</sup> Bq)

(4.172 PBq)

Restwärme-

residual heat

leistung : 539 W

production : 539 W

BE-Gewicht: ca. 56 kg

Weight of

fuel assem-

blies : approx. 56 kgs

Kernbrenn-

Weight of

stoff-Gew.: ca. 4,1 kg

irradiated

fuel : approx. 4.1 kgs

**GNS**

Gesellschaft für  
 Nuklear-Service mbH  
 Goethestr. 88 - 42699 Essen 1

TRE 101

Rev. 3

Angaben zur Sendung / Information to the shipment

No. TRE 101 (7131/3)

GNS 11-Behälter-Nr. 002 / GNS 11-Cask No.: 002

33 FRM-Brennelemente / No. of Fuel assemblies: 33 (FRM-type)  
Mengen, nach Bestrahlung: / quantities, after irradiation:

U gesamt :	4.065,42 g	U, total :	4,065.42 g
U-235 :	2.924,62 g	U-235 :	2,924.62 g
Pu gesamt:	13,18 g	Pu, total :	13.18 g
(erbrütet)		(breded)	
Restan-		residual	
reicherung: ca. 75% (U.235)		enrichment: approx. 75% (U-235)	
Restakti-		residual	
vität :	77,878 Ci	activity :	77,878 Ci
( <sup>^</sup> = 2,881 · 10 <sup>15</sup> Bq)		(= 2.881 x 10 <sup>15</sup> Bq	
		(2.881 PBq)	
Restwärme-		residual heat	
leistung :	376	production :	376 W
BE-Gewicht: ca. 185 kg		Weight of	
		fuel assem-	
		blies :	approx. 185 kgs
Kernbrenn-		Weight of	
stoff-Gew.: ca. 4,06 kg		irradiated	
		fuel :	approx. 4.06 kgs

Description of MTR-shipment No. TRE 101 (7131/3)1) Radioactive contents of this consignment:

- general designation: 61 pieces irradiated fuel elements "MTR" (Material Testing Reactor), origin from KFA, Jülich, property of german state, in "GNS 11 shielding cask, in shippers own 20'-container.
- designation following Imco Dangerous Goods Code: fissile substances, fissile class one, schedule 11 + 9, imco code page 7048, class 7
- EMS-No.: 7-01
- UN-no.: 2918

mass of rad. material, activity (per shipment: = per 20'container)

- uranium, total: 8,173.37 gram
- uranium, 235: 5,536.75 gram
- plutonium, total: 29.151 gram
- activity, total: 190 000 Ci ( $\hat{=}$   $7.051 \times 10^{15}$  Bq)
- residual enrichment: 75 weight - %
- residual heat 915 w
- physical form: solid (alloy)
- chemical form: metallic uranium/ Al-alloy
- type of packages (shielding cask): type B(U)F, Fissile class: I
- dose rates, at 20 feet container:
  - outer surfaces: approx. 3 mrem/h category: III-yellow
  - in 1 meter from surf.: approx 2 mrem/h
  - transport index of 20 feet cont.: approx. 1
- weight of the 61 pes fuel assemblies: approx 241 kgs
- weight of the irradiated fuel: (all) 8.77 kgs



Description of MTR-shipment No. TRE 101 (7131/3):2) Shielding casks "GNS 11"

The shipping cask (loaded) has a total mass of max. 13.3 tonnes and consists, according to the aforementioned drawing and the accompanying parts list, of a welded stainless steel/lead construction which is tightly closed with a lid (primary lid). In addition, the cask body above the lid region can be closed with a protection plate. For fixation of the ~~above~~ MTR fuel assemblies, a fuel basket is inserted into the cask cavity. The fuel basket as per Drawing No. B 500.03-15 holds 21 fuel assemblies, the fuel basket as per Drawing No. B 510.11-23 holds 28 tubular fuel assemblies (Type DIDO). The fuel basket as per Drawing No. B 510.11-25 holds 33 square-shaped fuel assemblies (e.g. Type MERLIN). The valid drawings for both the above mentioned fuel baskets and the latest parts lists are listed in the two addenda to the Testing Certificate No. 1.5/21507 from the BAM. The containment system is formed by the cask body, the primary lid including elastomer seals and bolting, as well as by the lid penetrations with the appropriate seal rings, plugs, and boltings. During transport, hood-shaped impact-limiters consisting of steel plates with a soft-wood filling are attached to the top and bottom of the cask. In the upper region, two trunnions are screwed to the cask body for handling. The cask has the following external dimensions:

Diameter (without impact limiters):	1185 mm
Diameter (with impact limiters):	1355 mm
Height (cask body):	1460 mm
Height (with impact limiters):	1780 mm

Manufacturing designation:      transport cask "GNS 11"

Description of MTR-shipment No. TRE 101 (7131/3):

Identification mark: D/4224/B(U) F

Drawing: No. B 510.11 from the firm GNS (overview-drawing)  
with the accompanying parts list

Package design approval no's

- D/4224/B(U)F (Rev. 1)	- country of origin
- USA/0381/B(U)F (Rev. 2)	- validation USA
- D/4224/B (U) F (1)	- validation Great Britain

3) 20 Feet Container as integrated overpack

TWO "GNS"-casks are positioned inside a shippers own freight container ISO 20 feet. The casks are strongly fixed by screwing and welding them to the reinforced mild steel bottom of the freight container (see drawing No. C 525.106-525). Therefore this load, per container, is to be seen as non-divisible.

The freight container which corresponds to the ISO safety criteria gives additional protection against shock/impact forces in case of accidents. They have been subject to run up tests at Deutsche Bundesbahn up to 4.5 g loads (with MTR casks in position) without damage.

Weights and dimensions, per consignment:

per consignment the 20 feet ISO-shippers own container, containing two approved shielding casks "GNS 11", containing MTR irradiated fuel elements (or emptied),



Description of MTR-shipment No. TRE 101 (7131/3):

## weights:

## a) filled

- gross weight 28.7 metric tons,
- tara: 2.2 metric tons
- pay load: 26.3 metric tons  
(2x "GNS 11" + 4 shock absorbers)

## b) emptied: - gross weight per s.o.c. 28.29 metric tons.

## Outer dimensions of 20 feet container:

- length: 6,058 mm
- width: 2,438 mm
- height: 2,591 mm

No. of 20'-Container: KFA U 000 001.

Docket No.

070-030410904  
70-3041  
32124

TO: William O. Miller, License Fee Management Branch

SUBJECT: MATERIALS LICENSE AMENDMENT CLASSIFICATION

APPLICANT:

IFF, Inc.

License No: General

Fee Category: Exempt (Mon.)

Application Dated: 11-10-87

Received: 11-16-87

1. The above application for amendment has been reviewed by  
NMSS/REGIONAL OFFICE in accordance with §170.31 of Part 170,  
and will require an amendment to the license. \_\_\_\_\_
2. The application is not subject to fees because it was filed  
(a) \_\_\_\_\_ pursuant to written NRC request  
and the amendment is being issued for the convenience of the Commission,  
or (b) \_\_\_\_\_ Other (State reason) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signature

Gloria M. Bennington

Date

November 17, 1987