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June 20, 1970

In Reply Refer to NIS:DGD-70-157

Mr. Donald A. Nussbaumer, Chief
Source & Special Nuclear Materials Branch
Division of Material Licensing
4915 St. Elmo Place
Bethesda, Maryland 20014

Regulatory

File Cy.



Subject: SNM-777, Docket 70-820, Shipping Container UNC 2800

Reference: Amendment 71-19 to SNM-777

Dear Mr. Nussbaumer:

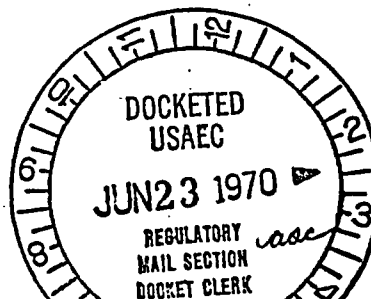
United Nuclear Corporation respectfully requests amendment of the subject license to increase the number of Dresden (BWR) elements permitted in the subject shipping container from two (2) to four (4).

In support of this application, the following listed pages and documents are enclosed:

1. Pages 13, 13a, and 13b, dated 6/20/70, Subsection 703.
2. "Criticality Safety Analysis of Shipping Container Model UNC-2800 with Four Dresden (BWR) Fuel Assemblies per Container", memo NIS:REK-70-187, dated May 28, 1970.
3. UNC Drawing D-304329.

In addition to the requested amendment, revisions have been made on pages listed in 1. above to incorporate changes authorized by the referenced amendment to SNM-777. There are no changes to the container itself.

Due to cessation of operation of the Elk River reactor, approval to ship Elk River fuel elements in this container is no longer necessary and has been accordingly deleted.



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June 20, 1970

Current commitments require approval of this application by August 15, 1970, so that shipment of the increased number of Dresden elements may commence. Should you require further information please call collect.

To facilitate processing of our petition for approval of this change by the Department of Transportation, please forward a copy of your approval to:

Secretary, Hazardous Materials Regulation Board
Department of Transportation
400 Sixth Street SW
Washington, D. C. 20590

Very truly yours,



David G. Darr, Acting Manager
Nuclear & Industrial Safety

gm

cc: AEC (8 copies)
DOT (3 copies)

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Issued 6/20/70

LICENSE: SNM-777, Docket 70-820
SECTION: 700 - TRANSPORTATION
Subsection: 703 -- Shipping Containers
Subpart:

Supersedes 9/18/69

Approved

Amendment No.

703. Shipping Containers

1. Container Number or Identification

UNC 2800

2. Description of Container

2.1 Inner container: 9 inch high x 10 inch wide x 192 inch long, 7 gage steel channel shaped strongback that is shock mounted to the outer container by means of eight heavy duty shear mounts.

For elements, the strongback contains adjustable end clamps and eight cross support brackets to support various size and configuration fuel elements. Lifting holes are provided for handling the strongback outside of the outer container. Four (4) BWR elements are packaged as per UNC Drawing D-304329.

*

Individual PuO₂ UO₂ rods not assembled into fuel elements are packaged as follows:

Ninety rods will be placed in the strongback channel. These will be located in a 9" (vertical) by 10" (horizontal) array on about 1" centers. Spacing will be maintained by sheets of Dow Ethafoam installed at seven equally spaced locations along the rods. At each of these locations, a metal "hold-down" bar will be used to retain the rods in the strongback channel.

The rods will be prevented from moving axially by an adjustable block at each end. These blocks will be fabricated of three layers (1" of rubber, 3/4" of wood and 1" of aluminum) and will be held in place against the rod ends by jack screws. Reference: Drawing REC 18253.

2.2 Outer Container: 36 inch ID x 207 inch long cylinder, constructed of 12 guage steel. The container is formed by two sections employing a centerline split (or closure flange). Both sections are completely seal welded. The closure flange contains an "O" ring rubber gasket and the two sections are bolted together by fifty-six 5/8 inch bolts and lock nuts. Metal skids and stacking brackets are welded to the shells. Stacking brackets are fitted with combination tie-down holes and corner locking bolt holes. The two sections are protected by metal roll rings. An air relief valve is provided.

3. Description of Material to be Packaged in Container

3.1 BWR and PWR rod type fuel elements and rods fabricated to reactor use specification with enrichments up to and including 3.5% as pellets.

* Indicates change

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Subpart:

Supersedes 9/18/69

Approved

Amendment No.

3. Description of Material to be Packaged in Container (continued)

- * 3.2 Special PuO₂ UO₂ Dresden rods and elements (BWR) fabricated to reactor use specifications.

4. Amount of Material per Container

- * 4.1 Not to exceed 4 BWR standard or special elements, or
4.2 One (1) PWR element, or
* 4.3 90 special PuO₂ UO₂ fuel rods or two (2) special PuO₂ UO₂ elements.

5. Nuclear Safety Control

5.1 Mass

6. Number of Containers per Shipment

- * 6.1 BWR Fuel Elements
1.1 Fissile Class I: Unlimited.
- 6.2 PWR Fuel Element
2.1 Fissile Class I: None.
2.2 Fissile Class II: Not to exceed 38 (1.3 transport units per container).
2.3 Fissile Class III: Not to exceed 80 containers.
- * 6.3 PuO₂ UO₂ Rods or Elements
3.1 Fissile Class I: None
3.2 Fissile Class II: Not to exceed 7 (7.1 transport units per container).
3.3 Fissile Class III: Not to exceed 17 containers.

7. Special Restrictions

7.1 Containers will be marked in accordance with 49 CFR 73 and 78 (ICC Regulations) and 10 CFR 71 (AEC Regulations).

8. Design Requirements

8.1 Structural Determination: Free Fall, puncture and thermal tested.

8.2 Weight Limitations:

Total Weight of Container - 2,340 lbs.

Weight of Contents - 1,510 lbs.

Total Weight - 3,850 lbs.

* Indicates change

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Subpart:

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9. Shipping Criteria

- * Fissile Class I: Applicable for BWR shipments only
- Fissile Class II: Must meet "50 unit rule".
- Fissile Class III: Exclusive use of carrier or courier.

10. Reference

- 10.1 Drawings: Applied Design Drawings 874A1 through 874A136, REC 18253, UNC Drawing D-304329.
- 10.2 Structural Evaluation: Structural Evaluation Summary for UNC 2800, dated July 28, 1967. Supplement to Structural Evaluation Summary, dated January 9, 1969.
- 10.3 Nuclear Safety Evaluation: Nuclear Safety Evaluation, UNC 2800, dated September 15, 1967. Supplement to Nuclear Safety Evaluation--Dresden Fuel Element, dated January 9, 1969.
- * 10.4 Nuclear Safety Evaluation: Criticality Safety Analysis for Shipping Container Model UNC 2800, with four (4) Dresden (BWR) fuel assemblies per container, NIS:REK-70-187, dated May 28, 1970.

* Indicates change