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UNITED NUCLEAR CORPORATION

November 24, 1965

P. O. BOX 1883
368 WINCHESTER AVENUE
NEW HAVEN, CONN. 06508
777-5361

In Reply Refer to: NLS:REK-453

Mr. Donald A. Nussbaumer, Chief
Source and Special Nuclear Materials Branch
Division of Materials Licensing
U. S. Atomic Energy Commission
Washington, D. C. 20545

SUBJECT: Approved Shipping Containers

- Reference:
- (1) SNM-33, Section 700
 - (2) SNM-368, Section 8
 - (3) SNM-777, Section 700

Dear Mr. Nussbaumer:

Attached are 18 sets of revised pages describing approved shipping containers used by United Nuclear Corporation, Fuels Division, under the Special Nuclear Materials Licenses, references (1), (2), and (3). Included is a request to extend the use of the B.E. 1886 to SNM-33 and SNM-777.

It is requested that DML issue a new amendment approving these containers as described in the attached pages and superceding existing approvals and requests for approval. A summary of existing approvals and requests for approval is listed below.

Container	Amendment		
	SNM-33	SNM-368	SNM-777
B.E. #BA-93	Covered under Am. #7 of SNM-368	# 7	Covered under Am. #7 of SNM-368
B.E. #1351	Original License	Requested extension to SNM-368 on 11/8/65 (NLS:REK-430)	Requested extension to SNM-777 on 11/8/65 NLS:REK-430)
B.E. #1452	# 6 & #8	#5, #28, & #31	Condition 12 (applications of 6/25 - 6/30 & 7/1/64), # 3 and # 12
B.E. #1483	Original License	# 23 and #33	# 14
B.E. #1886	Requested extension to SNM-33 11/24/65.	# 10	Requested extension to SNM-777 11/24/65.
B.E. #2172	Not for use under this license.	# 27	# 11

Your approval is respectfully requested.

Very truly yours,
R.E. Kuff
D. F. Cronin
Director of Licensing

ACKNOWLEDGED

DFC/tc
attach:

G-13

2700

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SUPERSEDES New

SUBJECT: SHIPPING CONTAINERS
SNM-33: Section 700
SNM-368: Section 8
SNM-777: Section 700

1. Container Number or Identification
B. E. BA-93
2. Description of Container
 - (1) Inner Container: 2S Polyethylene liner
 - (2) Outer Container: 6J - 55 Gallon drum
3. Description of Material to be Packaged in Container
 - (1) Uranium bearing pickle liquors, elutriation solutions, laboratory wastes and other solutions
 - (2) Enrichments up to and including fully enriched.
4. Amount of Material per Container
 - (1) Maximum concentration not to exceed 5 grams U-235 per liter of solution.
 - (2) Not to exceed 700 grams U-235 per container.
5. Nuclear Safety Control
Mass and concentration.
6. Number of Containers per Shipment
Unlimited
7. Structural Tests
None Required
8. Classification Number
III Special
9. Special Restrictions
When shipping waste solutions or other materials with questionable amounts of U-235, One (1) gram of cadmium nitrate will be added for each gram of U-235.
10. Shipping Criteria
 - (1) Non-comingling certificate, or
 - (2) Exclusive use of vehicle, or
 - (3) Approved shipping route

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SUBJECT: SHIPPING CONTAINERS
SNM-33: Section 700
SNM-368: Section 8
SNM-777: Section 700

1. Container Number or Identification

B. E. 1351

2. Description of Container

(1) Inner Container: 5 inch high x 6 inch I.D. Schedule 40 pipe
(approximately 2.4 liters)

(2) Outer Container: 15 gallon drum.

(3) Inner Container Supports: Upper and lower metal "stools" constructed
of 1" x 1" x 1/8" steel.

3. Description of Material to be Packaged in Container

(1) Dry uranium metal, alloys, compounds and uranium bearing solutions.

(2) Enrichments up to and including fully enriched.

4. Amount of Material per Container

(1) Not to exceed 5.7 kgs U-235 as dry metal, alloys or compounds.

(2) Not to exceed 350 grams U-235 as solutions.

5. Nuclear Safety Control

Mass and geometry.

6. Number of Containers per Shipment

Not to exceed 19.

7. Structural Tests

Drop tested.

8. Classification Number

III special.

9. Special Restrictions

When shipping solutions, sufficient absorbant material will be added to
inner container to absorb 100 % of the solution.

10. Shipping Criteria

(1) Non-comingling certificate, or

(2) Exclusive use of vehicle, or

(3) Approved shipping route.

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SUBJECT: SHIPPING CONTAINERS

SNM-33: Section 700

SNM-368: Section 8

SNM-777: Section 700

1. Container Number or Identification
B.E. 1452
2. Description of Container
 - (1) Inner Container: 5 inch I.D. pipe
 - (2) Outer Container: 55 gallon drum
 - (3) Inner Container Supports: 4 to 8 spokes constructed of 3/16" x 2" x 2" angle iron attached to top and bottom of inner container.
3. Description of Material to be Packaged in Container
 - (1) Dry uranium metal, alloys and compounds
 - (2) Enrichments up to and including fully enriched.
4. Amount of Material per Container
Not to exceed 10 kgs U-235.
5. Nuclear Safety Control
Mass and geometry.
6. Number of Containers per Shipment
Not to exceed 19
7. Structural Tests
Design evaluation.
8. Classification Number
III Special.
9. Special Restrictions
 - (1) Not to exceed 120 pounds in inner container.
 - (2) May be intermixed with B.E. 1483 containers.
10. Shipping Criteria
 - (1) Non-comingling certificate, or
 - (2) Exclusive use of vehicle, or
 - (3) Approved shipping route.

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SUBJECT: SHIPPING CONTAINERS
SNM-33: Section 700
SNM-368: Section 8
SNM-777: Section 700

1. Container Number or Identification
B. E. 1483
2. Description of Container
 - (1) Inner Container: 5.25 inch I.D. x 36 inch long pipe.
 - (2) Outer Container: 65 gallon drum.
 - (3) Inner Container Supports: 4 spokes constructed of 1" schedule 40 pipe attached to top and bottom of inner container.
3. Description of Material to be Packaged in Container
 - (1) Dry uranium metal, alloys and compounds.
 - (2) Enrichments up to and including fully enriched.
4. Amount of Material per Container
Not to exceed 10 kgs U-235.
5. Nuclear Safety Control
Mass and geometry.
6. Number of Containers per Shipment
Not to exceed 19.
7. Structural Tests
Drop tested:
8. Classification Number
III Special
9. Special Restrictions
 - (1) Approved for shipment of 1 gallon of uranium bearing solution under SNM-33
 - (2) May be intermixed with B.E. 1452 containers.
10. Shipping Criteria
 - (1) Non-comingling certificate, or
 - (2) Exclusive use of vehicle, or
 - (3) Approved shipping route.

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SUBJECT: SHIPPING CONTAINERS
SNM-33: Section 700
SNM-368: Section 8
SNM-777: Section 700

1. Container Number or Identification

B. E. 1886

2. Description of Container

- (1) Inner Container: 14 inch x 14 inch x 94 inch rectangular box constructed of 16 gage steel with 3/8 inch thick loading rack cruciform.
- (2) Outer Container: 36 inch I.D. x 99 inch long extended drum constructed of 16 gage steel.
- (3) Inner Container Supports: 8 spokes constructed of 2 inch schedule 40 pipes welded to 1/4 inch x 3 inch x 14 inch steel inner ring and welded to 1/4 inch x 3 inch x 36 inch steel outer ring - supports attached to top, bottom and middle of inner container and tack welded to outer container.

3. Description of Material to be Packaged in Container

- (1) Type A: $UO_2 + ThO_2$ in metallic clad fuel bearing components with enrichments up to and including 4.4 %.
- (2) Type B: UO_2 in metallic clad fuel bearing components with enrichments up to and including 6%.

4. Amount of Material Per Container

- (1) Type A: Not to exceed 4.5 kgs U-235
- (2) Type B: Not to exceed 4.8 kgs U-235

5. Nuclear Safety Control

Mass

6. Number of Containers per Shipment

Unlimited

7. Structural Tests

Design Evaluation

8. Classification Number

III Special

9. Special Restrictions

Not to exceed 600 pounds in inner container.

10. Shipping Criteria

- (1) Non-comingling certificate, or
- (2) Exclusive use of vehicle, or
- (3) Approved shipping route.

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SNM-368: Section 8
SNM-777: Section 700

1. Container Number or Identification
B. E. 2172
2. Description of Container
5 inch I.D. x 12 foot long schedule 40 pipe with standard pipe caps as end closures
3. Description of Material to be Packaged in Container
 - (1) Uranium bearing material
 - (2) Enrichments up to and including fully enriched.
4. Amount of Material per Container
Maximum density not to exceed 3.2 grams U-235 per cc of container volume.
5. Nuclear Safety Control
Geometry and density.
6. Number of Containers per Shipment
1
7. Structural Tests
Design evaluation.
8. Classification Number
III Special.
9. Special Restrictions
 - (1) Each pipe cap will be securely tightened with at least 5 threads engaged.
10. Shipping Criteria
Exclusive use of vehicle.