



**DEPARTMENT OF ENERGY**  
NATIONAL NUCLEAR SECURITY ADMINISTRATION  
1000 INDEPENDENCE AVENUE SW  
WASHINGTON DC 20585-1000

NR:RR:NSPlate G#17-02950

June 15, 2017

Marc L. Dapas  
Director, Office of Nuclear Materials Safety and Safeguards  
Nuclear Regulatory Commission  
Washington, DC 20555

**D1G CORE BASKET-THERMAL SHIELD SHIPPING AND STORAGE CONTAINER -  
NUCLEAR REGULATORY COMMISSION CERTIFICATE OF COMPLIANCE  
[USA/9792/B(U)]; REQUEST FOR RENEWAL**

**Background:** The Model 1 D1G Core Basket-Thermal Shield (CB-TS) Shipping and Storage Container is used to make disposal shipments of irradiated D1G Core Basket-Thermal Shield assemblies along with associated core components internal to the assembly (not including spent fuel). The container is a right circular cylinder consisting of an inner 8-inch-thick steel vessel, a 9-inch-thick layer of reinforced concrete, and an outer 3/8-inch-thick stainless steel shell. The container is closed via a bolted closure head and a welded closure ring. The Naval Reactors Program currently owns 11 unused Model 1 D1G CB-TS containers. Since the last renewal of this Certificate of Compliance (CoC), there have been no shipments of Model 1 D1G CB-TS containers.

**Request for NRC Renewal:** This letter requests renewal of the Nuclear Regulatory Commission (NRC) CoC for the D1G CB-TS Shipping and Storage Container, USA/9792/B(U). The NRC CoC expires on January 31, 2018. Since the last renewal of the CoC, there have been no operational experiences or container modifications that would preclude continued use of the container. Enclosure (1) to this letter provides proposed revision 10 of the DOE-NR CoC for your review.

A handwritten signature in black ink that reads "B. K. Miles".

**B. K. MILES**  
Naval Reactors

**Enclosure: (1) D1G CORE BASKET-THERMAL SHIELD SHIPPING AND STORAGE  
CONTAINER CERTIFICATE OF COMPLIANCE [USA/9792/B(U) (DOE-  
NR)], REVISION 10 (PROPOSED)**

Copy to: See page 2.

Copy to (Prime Contractor):

KAPL ADSARS

M. Layton, Director, Division of Spent Fuel Management, NMSS, NRC

J. McKirgan, Chief, Spent Fuel Licensing Branch, SFM, NMSS, NRC

B. White, Senior Project Manager, Licensing Branch, SFM, NMSS, NRC

General Manager, NNL

Manager, Reactor Servicing, NNL

Manager, Reactor Servicing Systems, RS, NNL

Manager, Shipping Containers, RSS, RS, NNL

Manager, Shipping Container Analysis, SC, RSS, RS, NNL

J. T. Maciupa, Shipping Container Analysis, SC, RSS, RS, NNL

NRLFO

**ENCLOSURE (1)**

**D1G CORE BASKET-THERMAL SHIELD SHIPPING AND STORAGE CONTAINER  
DOE-NR CERTIFICATE OF COMPLIANCE [USA/9792/B(U)], REVISION 10  
(PROPOSED)**

The enclosed proposed Certificate of Compliance shows additions and deletions from revision 9 of the certificate. Minor formatting and editorial changes are not highlighted.

Enclosure (1) to  
08G#17-02950

U. S. DEPARTMENT OF ENERGY  
**CERTIFICATE OF COMPLIANCE**  
For Radioactive Materials Packages

1a. Certificate Number <b>USA/9792/B(U) (DOE-NR)</b>	1b. Revision No. <b>910 (Proposed)</b>	1c. Package Identification No. <b>USA/9792/B(U) (DOE-NR)</b>	1d. Page No. <b>1</b>	1e. Total No. Pages <b>2</b>
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2. PREAMBLE

- 2a. This certificate is issued under the authority of 49CFR Part 173.7(d).
- 2b. The packaging and contents described in item 5 below, meets the safety standards set forth in subpart E, "Package Approval Standards" and subpart F, "Package, Special Form, and LSA-III Tests" Title 10, Code of Federal Regulations, Part 71.
- 2c. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

3. This certificate is issued on the basis of a safety analysis report of the package design or application

(1) Prepared by (Name and address): <b>Naval Nuclear Laboratory P.O. Box 79 West Mifflin, PA 15122-0079</b>	(2) Title and Identification of report or application: <b>Safety Analysis Report for Packaging an Irradiated D1G Type Core Basket-Thermal Shield Assembly in the Model 1 D1G Core Basket-Thermal Shield Shipping and Storage Container</b>	(3) Date <b>October 1987</b>
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4. CONDITIONS

This certificate is conditional upon the fulfilling of the applicable Operational and Quality Assurance requirements of 49CFR Parts 100-199 and 10CFR Part 71, and the conditions specified in item 5 below.

5. Description of Packaging and Authorized Contents, Model Number, Transport Index for Criticality Control, Other Conditions, and References:

**Model: Model 1 D1G Core Basket -Thermal Shield Shipping and Storage Container**

a. Description of Packaging

The D1G Core Basket-Thermal Shield (CB-TS) Shipping and Storage Container is a right circular cylinder 115 inches in diameter and 209 inches long (D1G design including impact limiter assembly) or 216 inches long (D2W design including impact limiter assembly). Access for loading is provided by a removable closure head. The container, consisting of the cylindrical side walls and the bottom end, has a three-layer construction with a steel inner vessel approximately 8 inches thick covered with approximately 9 inches of reinforced concrete which is encased by a 3/8-inch-thick stainless steel outer shell. The CB-TS is secured in place inside the container by a steel preload ring that is bolted to the inner vessel with 72 high strength bolts.

Closure of the containment vessel is provided by a steel closure head that is bolted to the inner vessel with 72 high strength bolts. A steel closure ring is installed over the bolts and is welded to the inner vessel and closure head to provide containment.

6a. Date of Issuance: <b>August 6, 2012</b>	6b. Expiration Date: <b>January 31, 20182023</b>
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**FOR THE U.S. DEPARTMENT OF ENERGY**

7a. Address (of DOE Issuing Office)  <b>Naval Reactors U. S. Department of Energy Washington, D. C. 20585</b>	7b. Signature, Name and Title (of DOE Approving Official)  <b>S. J. Trautman Deputy Director, Naval Reactors</b>
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5. (Continued)

An inner impact limiter and an outer impact limiter are attached to the container. The steel inner impact limiter is welded to the top end of the closure ring. The wooden outer impact limiter is bolted to the top plate of the container outer shell.

For land transport, the shipping container is transported with its axis horizontal and is supported by a shipping skid or trunnion. For sea transport, the shipping container is transported with its axis vertical and is supported by a shipping frame assembly. The weight of a loaded container ranges from approximately 155½ tons to 185 tons.

b. Authorized Contents

One D1G CB-TS containing up to one core worth of D1G support assemblies, D1G lower control rod drive mechanisms, D1G upper support assemblies and some residual water (estimated to be about 3.5 gallons). The components are irradiated and the surfaces are contaminated with activated corrosion products.

c. Criticality Safety Index

Not Applicable.

d. Other Conditions (Restrictions)

- (1) Preloading of closure heads and preload rings and sealing the container must be done with an ambient temperature between +40°F and +100°F.
- (2) Shipment shall be made when the historical average daily temperature is above +10°F.
- (3) The D1G CB-TS shipments shall be made no sooner than 150 days after shutdown of the reactor.

e. References

None.

f. Additional Information

The Nuclear Regulatory Commission in memorandum SGTB:RHO 71-9792 dated October 13, 1987, concurred that shipment of the D1G prototype Core Basket-Thermal Shield in the Model 1 D1G Core Basket-Thermal Shield Shipping Container complied with the requirements of 10CFR71.

The Nuclear Regulatory Commission in memorandum SGTB:NLO 71-9792 dated August 9, 1991; concurred that the shipment of one D1G shipboard Core Basket-Thermal Shield assembly and associated irradiated components in the Model 1 D1G Core Basket-Thermal Shield Shipping Container complies with the requirements of 10CFR71.

The Nuclear Regulatory Commission in memorandum Docket #71-9792 dated October 19, 1995, concurred that the shipment of one D1G shipboard Core Basket-Thermal Shield assembly and associated irradiated components in the redesigned Model 1 D1G Core Basket-Thermal Shield Shipping Container complies with the requirements of 10CFR71.

Nuclear Regulatory Commission concurrence with renewal of this Certificate of Compliance is contained in their memorandum dated ~~June 18, 2012~~ (TBI).