Form NRC-618
(12-73)
10 CFR 71

U.S. NUCLEAR REGULATORY COMMISSION

CERTIFICATE OF COMPLIANCE

For Radioactive Materials Packages

1.(a) Certificate Number	1.(b) Revision No.	1.(c) Package Identification No.	1.(d) Pages No.	1.(e) Total No. Pages
9152	1	USA/9152/B( )	1	3

2. PREAMBLE

2.(a) This certificate is issued to satisfy Sections 173.393a, 173.394, 173.395, and 173.396 of the Department of Transportation Hazardous Materials Regulations (49 CFR 170-189 and 14 CFR 103) and Sections 146–19–10a and 146–19–100 of the Department of Transportation Dangerous Cargoes Regulations (46 CFR 146–149), as amended.

2.(b) The packaging and contents described in item 5 below, meets the safety standards set forth in Subpart C of Title 10, Code of Federal Regulations, Part 71, "Packaging of Radioactive Materials for Transport and Transportation of Radioactive Material Under Certain Conditions."

2.(c) 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–

3.(a) Prepared by *(Name and address)*:

Chem-Nuclear Systems, Inc.
P.O. Box 1866
Bellevue, WA 98009

3.(b) Title and identification of report or application:

Chem-Nuclear Systems, Inc. application dated June 18, 1981, as supplemented.

3.(c) Docket No. 71-9152

4. CONDITIONS

This certificate is conditional upon the fulfilling of the requirements of Subpart D of 10 CFR 71, as applicable, and the conditions specified in item 5 below.

5. Description of Packaging and Authorized Contents, Model Number, Fissile Class, Other Conditions, and References:

(a) Packaging

(1) Model No.: CNS 1-13C II

(2) Description

A shipping cask for radioactive waste. The packaging consists of a double-walled steel circular cylinder separated by 16 ga wires, 39-1/8" in diameter and 68-1/2" high with a central steel lined cavity 26-1/2" in diameter and 54-1/16" high, approximately 5" of lead surrounds the central cavity. Closure is accomplished by a steel, plug type, lead filled cover secured by twelve (12), 1-1/4" bolts and seal provided by a flat silicone rubber gasket and a silicone rubber O-ring with a sealed 3/8" test port between the gaskets. Approximately 6" lead are in the base and cover. The cask is equipped with a cavity drain line sealed with a 3/8" cap screw and gasket, a steel lifting hook for the cover, and top and bottom impact limiters filled with 16.5 lb/cu ft rigid polyurethane foam clad in steel. The impact limiters are attached to the cask by six (6), 1" ratchet binders. The overall dimensions with impact limiters is 60" in diameter and 99-5/8" high. The package gross weight is approximately 27,000 lbs.

5. (a) Packaging (continued)

(3) Drawing

The packaging is constructed in accordance with Chem-Nuclear Systems, Inc., Drawing No. E-1-436-111, Sheets 1 and 2, Rev. D.

(b) Contents

(1) Type and form of material

(i) Greater than Type A quantities of nonfissile radioactive material as solidified or dewatered process solids (resins) within a sealed secondary container; or

(ii) Greater than Type A quantities of irradiated solid reactor components within a sealed secondary container.

(2) Maximum quantity of material per package

For the contents described in 5(b)(1)(i) and (ii):

Not to exceed a decay heat generation of 800 watts and 3,000 pounds including weight of the contents and seconary container; and

For the contents described in 5(b)(1)(i):

Residual water in the secondary container not to exceed the activity stated in Table 4.5.2-1 of the application.

6. As needed, appropriate shoring must be used in the cask cavity to limit movement of the secondary container during accident condition of transport.

7. The cask cover must be secured by twelve (12), SA-354, Type BD, 1-1/4"-7UNC x 2-1/4" long bolts torqued to 270 ft-lbs $\pm$ 10% (lubricated) or 360 ft-lbs $\pm$ 10% (dry).

8. Prior to each shipment, the leak tests described in Appendix 8B of the application must be performed. No package is to be delivered to a carrier for transport with a detectable leak using the method of Appendix 8B.

9. For all packages containing residual water or other substances which could radiolytically generate combustible gases, a determination must be made by tests and measurements of a representative package such that the following criteria are met over a period of time that is twice the expected shipment time:

(i) The hydrogen generated must be limited to a molar quantity that would be no more than 5% by volume (or equivalent limits for other inflammable gases) of the secondary container gas void if present at STP (i.e., no more than 0.063 g-moles/ft^3 at 14.7 psia and 70°F); or

(ii) The secondary container and cask cavity must be inerted with a diluent to assure that oxygen shall be limited to 5% by volume in those portions of the package which could have hydrogen greater than 5%.

9. (Continued)

For packages to be delivered to a carrier for transport, the secondary container must be prepared for shipment in the same manner in which determination for gas generation is made. Shipment period begins when the package is prepared (sealed) and must be completed within twice the expected shipment time.

10. In addition to the requirements of Subpart D of 10 CFR Part 71:

(i) Each package must meet the acceptance tests and be maintained in accordance with the Maintenance Program of Section 8 of the application.

(ii) The O-ring, test port and drain line seals must be replaced quarterly with new seals. The flat lid gasket must be replaced annually.

11. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR §71.12(b).

12. Expiration date: March 31, 1987.

REFERENCES

Chem-Nuclear Systems, Inc. application dated June 18, 1981.

Supplements dated: September 30 and December 31, 1981; and April 1, 1982.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Charles E. MacDonald, Chief
Transportation Certification Branch
Division of Fuel Cycle and
Material Safety, NMSS

Date: MAY 21 1982

U.S. Nuclear Regulatory Commission
Transportation Certification Branch
Approval Record
Model No. CNS 1-13C II Packaging
Docket No. 71-9152

The NRC Certificate of Compliance No. 9152, Revision No. 0, dated April 4, 1982 has been amended. The purpose of the amendment is to clarify and to simplify the leak test specified prior to first use after the third use, and annually thereafter. The original test specified a maximum leak rate of 3×10^{-5} atm-cm^3/sec at STP. It did not mention the corresponding test gas which should have been air. The specified test using air satisfies the required containment criteria of maximum leakage not exceeding 1.34×10^{-5} atm-cm^3/sec (air at 25°C and 1 atm leaking to 1×10^{-2} atm). The test to be performed on the package will use Freon R-12 gas and will have a sensitivity of 3.86×10^{-5} atm-cm^3/sec. This test will demonstrate compliance with the containment criteria (1.34×10^{-5} atm-cm^3/sec for air at 25°C and 1 atm leaking to 1×10^{-2} atm), and is already included in Section 8 of the application. Therefore, deleting this test specification as a condition will require performance of the Freon R-12 test.

Charles E. MacDonald, Chief
Transportation Certification Branch
Division of Fuel Cycle and
Material Safety, NMSS

Date: MAY 21 1982

71-9152

Distribution: w/encls
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Docket File
NMSS R/F
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Regions (5)

Return to A. MacLellan 396-SS

MAY 21 1982

RECEIVED MAY 26 1982 U.S. NUCLEAR REGULATORY COMMISSION DOCUMENT MANAGEMENT BR TIDC

FCTC:RHO
71-9152

Chem-Nuclear Systems, Inc.
ATTN: Ms. Chryl A. Marsh
P.O. Box 1866
Bellevue, WA 98009

Gentlemen:

Enclosed is Certificate of Compliance No. 9152, Revision No. 1, for the Model No. CNS 1-13C II shipping package. This certificate supersedes, in its entirety, Certificate of Compliance No. 9152, Revision No. 0, dated April 4, 1982.

Changes made to the enclosed certificate are indicated by vertical lines in the margin.

Chem-Nuclear Systems, Inc. and GPU Nuclear Corporation have been registered as users of this package under the general license provisions of 10 CFR §71.12(b) or 49 CFR §173.393a.

The approval constitutes authority to use this package for the shipment of radioactive material and for the package to be shipped in accordance with the provisions of 49 CFR §173.393a.

Sincerely,

Original Signed by
CHARLES E. MACDONALD

Charles E. MacDonald, Chief
Transportation Certification Branch
Division of Fuel Cycle and
Material Safety, NMSS

Enclosures:
1. Certificate of Compliance
   No. 9152, Rev. 1
2. Approval Record

cc w/encls:
Mr. Richard R. Rawl
Department of Transportation

GPU Nuclear Corporation
ATTN: Mr. Ray E. Hahn
P.O. Box 480
Middletown, PA 17057

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DATE	05/21/82	05/21/82	05/21/82

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