NRC FORM 618
(5-86)
10 CFR 71

U.S. NUCLEAR REGULATORY COMMISSION

CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIALS PACKAGES

1.a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. PACKAGE IDENTIFICATION NUMBER	d. PAGE NUMBER	e. TOTAL NUMBER PAGES
9168	7	USA/9168/B(U)	1	3

2. PREAMBLE

a. This certificate is issued to certify that the packaging and contents described in Item 5 below, meets the applicable safety standards set forth in Title 10, Code of Federal Regulations, Part 71, "Packaging and Transportation of Radioactive Material."

b. 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

a. ISSUED TO (*Name and Address*)

Chem-Nuclear Systems, Inc.
220 Stoneridge Drive
Columbia, SC 29210

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

Chem-Nuclear Systems, Inc. application dated February 26, 1990.

c. DOCKET NUMBER

71-9168

4. CONDITIONS

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified below.

5.

(a) Packaging

(1) Model No.: CNS 8-120B

(2) Description

The packaging is a carbon steel encased, lead shielded 74-inch OD by 88-inch high cask for radioactive waste materials. The cask is a right circular cylinder with a 62-inch ID by 75-inch high cavity. The walls of the cask contain a lead thickness of 3.35 inches encased in 0.75-inch thick inner steel shell and 1-1/2-inch thick outer steel shell. The exposed sides of the package are provided with a thermal barrier consisting of a 5/32-inch diameter wire wrap on 12-inch centers and covered with a 3/16-inch thick steel jacket. The bottom weldment is made of two, 3-1/4-inch thick carbon steel plates. The primary lid is sealed with a double silicone O-ring and 20 equally spaced 2-inch diameter bolts. The 29-inch diameter centered secondary lid is sealed with a double silicone O-ring and twelve equally spaced 2-inch diameter bolts. The optional drain line is sealed with a 3/4-inch diameter cap screw and a silicone O-ring. The lid sealing surfaces are stainless steel and the space between the double O-ring seals is provided with a test port for leak testing.

The top and bottom of the cask are provided with steel encased, rigid polyurethane foam impact limiters. The impact limiters are secured to each other about the cask with eight 1-inch diameter ratchet binders. The impact limiters are 102 inches in diameter and the overall height of the package with the impact limiters attached is 132 inches.

The package is provided with four tie-down and two removable lifting devices. Each lid is provided with three lifting lugs. The gross weight of the packaging and contents is approximately 74,000 pounds.

(a) Packaging (Continued)

(3) Drawings

The packaging is constructed in accordance with Chem-Nuclear Systems, Inc. Drawing No. C-110-E-0007, Sheets 1, 2, and 3, Revision No. H.

(b) Contents

(1) Type and form of material

(i) Byproduct material in the form of dewatered resins, solids, or solidified waste contained within secondary containers; or

(ii) Radioactive material in the form of activated reactor components.

(2) Maximum quantity of material per package

Type B quantity of radioactive material, not to exceed 2,000 times a Type A quantity, 100 thermal watts, and 14,680 pounds including weight of the contents, secondary containers, and shoring. The contents may include fissile materials provided the mass limits of 10 CFR §71.53 are not exceeded.

6. Except for close fitting contents, wood shoring must be placed between the secondary containers, or activated components, and the cask cavity to prevent movement during accident conditions of transport.

7. The cask primary lid must be secured by twenty and the secondary lid by twelve, 2"-8UNC-2A x 4" long hex cap screws with a flat washer torqued to 500 ft-lbs ± 50 ft-lbs (lubricated).

8. Prior to each shipment (except for the contents meeting the requirements for low specific activity material which is transported by exclusive use vehicle), the packaging must be leak tested in accordance with Section 8.2.2.2 of the application.

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

(i) Each package must meet the acceptance tests and be maintained in accordance with the Acceptance Tests and Maintenance Program of Section 8.0 of the application, as supplemented February 22, 1994,

(ii) The seals must be replaced with new seals if inspection shows any defects or every 12 months, whichever occurs first. The tests ports and optional drain line must be appropriately plugged and sealed prior to transport, and

(iii) The package must be prepared for shipment and operated in accordance with the operating procedures of Section 7.0 of the application.

10. (a) For any package containing water or organic substances which could radiolytically generate combustible gases, determination must be made by tests and measurements or by analysis 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 must be limited to 5% by volume in those portions of the package which could have hydrogen greater than 5%.

For any package 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.

(b) For any package containing materials with a radioactivity concentration not exceeding that for low specific activity material, and shipped within 10 days of preparation, or within 10 days after venting of drums or other secondary containers, the determination in (a) above need not be made, and the time restriction in (a) above does not apply.

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

12. Expiration date: March 31, 1995

REFERENCES

Chem-Nuclear Systems, Inc., application dated February 26, 1990.

Supplement dated: February 22, 1994.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Cass R. Chappell

Cass R. Chappell, Section Leader
Cask Certification Section
Storage and Transport Systems Branch
Division of Industrial and
Medical Nuclear Safety, NMSS

Date: MAR 25 1994

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

APPROVAL RECORD
Model No. CNS 8-120B Package
Certificate of Compliance No. 9168
Revision No. 7

By application dated February 22, 1994, Chem-Nuclear Systems, Inc. (CNSI) requested an amendment to Certificate of Compliance No. 9168, for the Model No. CNS 8-120B package. CNSI requested that an optional leak test gas be authorized for the periodic leak test, as described in Section 4 of the application. The alternative test gas is sulfur hexafluoride (R-134a), rather than R-12, the halogen gas currently used. CNSI provided calculations of maximum allowable leak rates and minimum test sensitivities using the new test gas.

NRC staff reviewed the calculations provided, and performed independent calculations. The NRC calculations were performed assuming that all flow was unchoked, using the appropriate equations in ANSI N14.5-1987. The NRC calculations confirmed that the maximum allowable leak rate and minimum test sensitivity provided in the application were equivalent to those using the previously approved test gas.

Condition No. 9 of the Certificate of Compliance has been revised to reference the February 22, 1994 supplement, which contains the alternative test gas for the annual leak test. This change does not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Cass R. Chappell

Cass R. Chappell, Section Leader
Cask Certification Section
Storage and Transport Systems Branch
Division of Industrial and
Medical Nuclear Safety, NMSS

MAR 25 1994

Date _____

DOCUMENT NAME: 9168R7.COC

DOCUMENT AUTHOR: NLOsgood

DOCUMENT DESCRIPTION: CHANGE IN LEAK TEST GAS FOR THE CNS 8-120B

Elaine - could you please look this over carefully - I retyped the entire C of C. Thanks, Nancy