NRC FORM 618
(8-85)
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
9111	13	USA/9111/A	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.
140 Stoneridge Drive
Columbia, SC 29210

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION:

Chem-Nuclear Systems, Inc., application dated June 29, 1983, as supplemented.

c. DOCKET NUMBER 71-9111

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 Nos.: CNS 6-80-2 and CNS 6-80-2A

(2) Description

A steel encased, lead shielded cask for solid radioactive material meeting the requirements for low specific activity material. The overall dimensions of the cask are 70-1/2-inch diameter by 78-5/8-inch height. The cask consists of two concentric carbon steel cylindrical shells surrounding a 4-1/4-inch thick lead shield. The 3/8-inch thick inner shell has a 59-inch ID, and the 1-inch thick outer shell has a 70-1/2-inch OD; the base consists of two, 4-inch thick welded steel plates of 60-inch diameter and 70-1/2-inch diameter, and a stepped welded lid comprised of two, 4-inch thick steel plates containing a centered 29-inch diameter secondary lid of similar construction with an additional 1-inch thick upper plate. The containment cavity is 59-inch diameter by 58-inches high. Closure of the primary lid is accomplished by eight, 1-1/4-inch bolts or studs and nuts. Both lids on Model No. CNS 6-80-2 are sealed using silicone gaskets. The secondary lid has a redundant Neoprene seal. Both lids on Model No. CNS 6-80-2A are sealed using a double O-ring configuration as shown on Drawing No. C-110-D-0020, Rev. A. A plugged drain port is located at the cask bottom. The cask is lined with 12 gauge stainless steel. Three lift lugs, located on the secondary lid are used for lifting both the cask and the primary lid. Four lugs, welded to the outer shell are used for tie-down. The package gross weight is approximately 51,500 pounds.

(3) Drawing

The packaging is fabricated in accordance with Chem-Nuclear Systems, Incorporated Drawing No. C-110-D-0028, Sheets 1 and 2 of 2, Revision B or optional lid seal configuration given in Drawing No. C-110-D-0020, Revision A, for the Model No. CNS 6-80-2A.

5. (b) Contents

(1) Type and form of material

(i) Greater than Type A quantity of byproduct material contained in solids and solidified waste, meeting the requirements for low specific activity material, in secondary containers.

(ii) Greater than Type A quantity of byproduct material contained in activated solid components meeting the requirements for low specific activity material.

(2) Maximum quantity of material per package

Greater than Type A quantity of radioactive material with the weight of the contents, secondary containers and shoring not exceeding 7,500 pounds. The decay heat load must not exceed 60 watts. The contents may include fissile materials provided the mass limits of 10 CFR §71.53 are not exceeded.

6. (a) For any package containing water and/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.

(1) 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

(2) 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 the package delivered to a carrier for transport, the secondary container must be prepared for shipment in the same manner in which the 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 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.

7. Except for close fitting contents, shoring must be placed between secondary containers and the cask cavity to prevent movement during normal conditions of transport.

8. The cavity drain line must be sealed with appropriate sealant applied to the pipe plug threads prior to transport.

9. Packages must be leak tested initially and at least once every 12 months, as specified in Subsection 8.1.3 of the Safety Analysis Report as revised December 19, 1988. The cavity or volume between the double O-ring seals (Model No. CNS 6-80-2A) shall be pressurized to 14.0 psig. Seal acceptance must be based on no observable leakage over a ten minute period using a pressure gauge with a maximum graduation of two pounds and the pressure supply line disconnected from the cask and test fixture.

10. The package authorized by this certificate must be transported on a motor vehicle, railroad car, aircraft, inland water craft, or hold on deck of a seagoing vessel assigned for sole use of the licensee.

11. Each package must meet the Acceptance Tests and Maintenance Program of Section 8.0 of the Safety Analysis Report of June 29, 1983, as revised September 19, 1983 and December 19, 1988.

12. The package shall be prepared for shipment and operated in accordance with the Operating Procedures of Section 7.0 of the current Safety Analysis Report of June 29, 1983, as revised September 19, 1983 and December 19, 1988.

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

14. Expiration date: January 31, 1999.

REFERENCES

Chem-Nuclear Systems, Incorporated application dated June 29, 1983.

Supplements dated: September 19, 1983, December 19, 1988 and December 20, 1993.

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: JAN 11 1994

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

APPROVAL RECORD
Model Nos. CNS 6-80-2 and CNS 6-80-2A
Certificate of Compliance No. 9111
Revision NO. 13

By application dated December 28, 1993, Chem-Nuclear Systems, Inc., requested renewal of Certificate of Compliance No. 9111. No changes to the package design, operating procedures and maintenance programs, or the authorized contents were requested.

Accordingly, the Certificate of Compliance is renewed for a five year period which expires January 31, 1999.

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: JAN 11 1994