

**CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIAL PACKAGES**

1.	a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
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## 2. PREAMBLE

- a. This certificate is issued to certify that the package (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

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| <p>a. ISSUED TO (<i>Name and Address</i>)</p> <p>EnergySolutions<br/>140 Stoneridge Drive<br/>Columbia, SC 29210</p> | <p>b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION</p> <p>Chem-Nuclear Systems, Inc., application dated<br/>November 24, 1987, as supplemented.</p> |
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## 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 1-13C

(2) Description

A steel encased lead shielded shipping cask. The packaging is a steel double-walled, lead-filled circular cylinder. A steel, plug-type, lead-filled lid is attached with twelve, 1-1/4" bolts; and a silicone gasket. Outer steel sheets are separated from the cask walls with small diameter wires. The lead shielding is 5" in the sides, 6" in the base and 5-3/4" in the lid. Two bolted-on steel lugs are for lifting only. The lid has a steel U-bar for lifting. The cavity drain line is closed with a plug. The cask is 39" in diameter and 68-1/2" long. The cavity is 26-1/2" in diameter and 54" long. The package weight is about 26,000 pounds.

(3) Drawings

The packaging is constructed in accordance with Chem-Nuclear Systems, Inc., Drawing Nos. C-110-E-0005, Sheets 1, 2, and 3, Rev. 7; and C-112-B-0006, Rev. A.

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5. (b) Contents

Type, form, and maximum quantity of material per package

(i) Greater than Type A quantity of byproduct material as solid metal. Decay heat not to exceed 600 watts; or

(ii) Decay heat not to exceed 5 watts, and:

Process solids, either dewatered, solid, or solidified, in a secondary sealed container, meeting the requirements for low specific activity material; or solid reactor components in secondary containers, as required, that meet the requirements for low specific activity material.

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:

(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<sup>3</sup> 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 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.

7. Shoring must be provided to minimize movement of contents during accident conditions of transport.

8. Maximum gross weight of the contents, secondary container, and shoring is limited to 5,000 pounds.

9. The lid closure to the cask shall be secured by twelve, SA-354, Type BD, 1-1/4"-7 UNC x 2-1/4" long bolts torqued to 320 ft-lbs ± 10% (lubricated) or 420 ft-lbs ± 10% (dry).

10. The cask shall be delivered to a carrier dry and the cavity drain line shall be sealed with appropriate sealant applied to threads of pipe plug.

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11. Prior to each shipment, the leak test described in Section 8.2 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 Section 8.2.
12. Radiation measurements shall be made to determine that the dose rate does not exceed 30 mrem/hr at one meter from the surface of a dry loaded cask.
13. Prior to each shipment, the lift lugs must be removed from the packaging.
14. The contents described in 5(b)(ii) shall be transported on a motor vehicle, railroad car, aircraft, inland water craft, or hold or deck of a seagoing vessel assigned for sole use of the licensee.
15. In addition to the requirements of Subpart G of 10 CFR Part 71:
  - (a) The package shall be prepared for shipment and operated accordance with the Operating Procedures in Chapter 7 of the application.
  - (b) The package shall be maintained in accordance with the Maintenance Program in Chapter 8 of the application.
16. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR §71.12.
17. Revision No. 14 of this certificate may be used until October 1, 2008.
18. Expiration date: October 1, 2008. This certificate is not renewable.

REFERENCES

Chem-Nuclear Systems, Inc. application dated November 24, 1987.

Supplements dated: November 24, 1992; October 31, 1997; July 28, 1999; January 5, 2000; April 23, 2001; December 17, 2002; and May 15, 2007.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

/RA/

Robert A. Nelson, Chief  
Licensing Branch  
Division of Spent Fuel Storage and Transportation  
Office of Nuclear Material Safety  
and Safeguards

Date: August 16, 2007