

**CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES**

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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>NUKEM Corporation
3800 Fernandina Road, Suite 200
Columbia, SC 29210-3854</p> | <p>b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION</p> <p>Allied Technology Group, Inc., application
dated May 31, 2002.</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.: 10-142
- (2) Description

Steel encased, lead shielded cask for solid radioactive material. The overall dimensions of the cask and impact limiters are 112-inch diameter by 130-inch height. The cask consists of two concentric carbon steel cylindrical shells surrounding a 3-½-inch thick lead shield. The ½-inch thick inner shell has a 66-inch ID, and the 1-inch thick outer shell has a 76-inch OD. The base consists of two, 3-inch thick welded steel plates of 66- and 74-inch diameters. The base is welded to the steel cylindrical shells. A stepped welded lid, secured by 16, 1-1/2-6 UNC-2A bolts or studs and nuts, is comprised of two, 3-inch thick steel plates containing an opening for a secondary lid of similar construction with one additional 1-inch thick upper plate. Within the primary lid there is a 16-inch or 29-inch centered secondary lid. The 16-inch secondary lid is secured by 8, 7/8-inch bolts or studs and nuts, and the 29-inch secondary lid is secured by 16, 1-1/4-inch bolts or studs and nuts. The lids are sealed with a solid silicone flat gasket. The containment cavity is 66 inches in diameter by 72 inches high. A plugged drain port is located at the cask bottom and the lid is provided with a plugged test port. Toroidal impact limiters are located at the top and bottom of the cask. The impact limiters are 10-gauge steel sheets filled with rigid polyurethane and are equipped with plastic plugs. As an option, interior and exterior surfaces of the cask body and interior surfaces of the upper lid may be covered with 12-gauge 304 stainless steel cladding and seal welded.

All exposed side walls are covered with a stainless steel thermal barrier. Four skewed lugs, welded to the outer shell are used for tie-down. The package gross weight is approximately 68,000 pounds.

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5.(a) Packaging (Continued)

(3) Drawings

The packaging is constructed and assembled in accordance with ATG Nuclear Services, Inc., Drawing No. X-103-110-SNP, Sheets 1 through 5, Rev. E.

(b) Contents

(1) Type and form of material

- (i) Dewatered, solid, or solidified waste which may be in secondary containers;
- (ii) Activated components which may be in secondary containers;
- (iii) Dewatered, solid or solidified material, meeting the requirements for low specific activity material, which may be in secondary containers; or
- (iv) Dewatered or solidified ion exchange resin from light water reactors, in secondary containers.

(2) Maximum quantity of material per package

Decay heat not to exceed 400 watts. Fissile materials not to exceed the limits of 10 CFR 71.53 until October 1, 2004, and 10 CFR 71.15, thereafter. Maximum weight of contents, including dunnage and secondary containers, not to exceed 10,000 pounds.

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

Not to exceed a Type A quantity of transuranic materials.

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 not 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/ft³ 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 any package 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.

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- (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. Except for close fitting contents, dunnage must be provided in the shipping cask cavity sufficient to prevent significant movement of the contents or secondary containers relative to the outer packaging under normal condition.
8. Bolt/Stud and Nut Torque:
- The primary cask lid bolts or studs and nuts must be torqued to 300 ± 25 ft-lbs (lubricated).
- The secondary cask lid bolts or studs and nuts must be torqued to 200 ± 10 ft-lbs (lubricated).
9. In addition to the requirements of Subpart G of 10 CFR Part 71:
- (a) Prior to each shipment, the packaging seals must be inspected. The seals must be replaced with new seals if inspection shows any defects or every 12 months, whichever occurs first. Cavity drain and test ports must be sealed with appropriate sealant applied to the pipe plug threads.
- (b) The package must be prepared for shipment and operated in accordance with the Operating Procedures in Section 7.0 of the application.
- (c) Each package must meet the Acceptance Tests and Maintenance Program in Section 8.0 of the application.
- (d) For contents that meet the definition of low specific activity material or surface contaminated objects in 10 CFR 71.4, and also meet the exemption standard for low specific activity material and surface contaminated objects in 10 CFR 71.14(b)(3)(i), the pre-shipment leak test is not required.
10. Use of intumescent coating fire shield is not authorized.
11. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.
12. Revision No. 15 of this certificate may be used until August 31, 2007. Use of Revision No. 15 beyond August 31, 2007, is authorized only if this certificate has been renewed or is under timely renewal as specified in 10 CFR 71.38(b), or has otherwise not been terminated.
13. Expiration date: August 31, 2007.

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REFERENCES

Allied Technology Group, Inc., application dated May 31, 2002.

RWE NUKEM Corporation supplement dated May 8, 2003.

NUKEM Corporation supplement dated September 6, 2006.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

/RA/

Robert A. Nelson, Chief
Licensing Section
Spent Fuel Project Office
Office of Nuclear Material Safety
and Safeguards

Date: September 27, 2006

