

CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIALS PACKAGES

1. a. CERTIFICATE NUMBER 9073	b. REVISION NUMBER 18	c. PACKAGE IDENTIFICATION NUMBER USA/9073/A	d. PAGE NUMBER 1	e. TOTAL NUMBER PAGES 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)

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

Scientific Ecology Group, Inc.  
P.O. Box 2530  
1560 Bear Creek Road  
Oak Ridge, TN 37831-2530

Scientific Ecology Group, Inc., application  
dated January 26, 1994.

c. DOCKET NUMBER

71-9073

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.: 10-142A
- (2) Description

A steel encased, lead shielded cask for solid radioactive material. The overall dimensions of the cask are 101-inch diameter by 120-inch height. The cask consists of two concentric carbon steel cylindrical shells surrounding a 3-1/2-inch thick lead shield. The 1/2-inch thick inner shell has a 66-inch ID, and the 1-inch thick outer shell has a 76-1/4-inch OD; the base consists of two, 3-inch thick welded steel plates. The base is welded to the steel cylindrical shells. A stepped welded lid, secured by eight ratchet binders, is comprised of two, 3-inch thick steel plates containing openings for a secondary lid of similar construction with an additional 1-inch thick upper plate. The secondary lid is secured to the primary lid through eight, 1-inch diameter bolts. The containment cavity is 66 inches in diameter by 72 inches high. The package design is provided with a lid test port. Toroidal impact limiters are located at the top and bottom of the cask. The impact limiters are 10-gauge stainless steel filled with rigid polyurethane foam. Interior and exterior surfaces of the cask body and interior surfaces of the upper lid are covered with 12-gauge, 304 stainless steel cladding and seal welded.

The primary lid is closed by means of eight ratchet binders. The 29-inch diameter secondary lid is closed by eight, 1-inch diameter stud bolts. Both lids are sealed using silicone gaskets bonded to the lid plates. Lifting is facilitated with three lugs welded to the primary lid. The secondary lid has a redundant Neoprene seal, and a centrally located lift lug.

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 64,000 pounds.

5. (a) (3) Drawings

The packaging is fabricated in accordance with Scientific Ecology Group, Inc., Drawing No. STD-02-107, Sheets 1 and 2, Rev. 0.

(b) Contents

(1) Type and form of material

- (i) Dewatered ion exchange resins or solid waste meeting the requirements for low specific activity material in secondary containers; or
- (ii) Activated solid components meeting the requirements for low specific activity material in secondary containers.

(2) Maximum quantity of material per package

Greater than Type A quantities of radioactive materials which may contain fissile contents not to exceed the generally licensed mass limits as specified in 10 CFR §§§71.18, 71.20, and 71.22. Internal decay heat not to exceed 400 watts and the maximum weight of contents, including secondary containers, not to exceed 10,000 pounds.

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. 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 conditions.
8. In addition to the requirements of Subpart G of 10 CFR Part 71:
  - (a) Prior to each shipment, the packaging lid seals must be inspected. The seals must be replaced with new seals if inspection shows any defects or every 12 months, whichever occurs first. The cavity test port must be sealed with appropriate sealant applied to the pipe plug threads.
  - (b) The package shall be prepared for shipment and operated in accordance with the Operating Procedures in chapter 7 of the application.
  - (b) The package must meet the Acceptance Tests and Maintenance Program in chapter 8 of the application.
9. The package authorized by this certificate must be transported on a motor vehicle, railroad car, aircraft, inland watercraft, or hold or deck of a seagoing vessel assigned for the sole use of the licensee.
10. Packagings fabricated after March 28, 1980 must be constructed of A-516 Grade 70 carbon steel.
11. The packaging authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR §71.12.
12. Expiration date: February 28, 1999.

REFERENCES

Scientific Ecology Group, Inc., application dated January 26, 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

FEB. 28 1994

Date: \_\_\_\_\_



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

APPROVAL RECORD

Model No. 10-142A  
Certificate of Compliance No. 9073  
Revision No. 18

By application dated January 26, 1994, Scientific Ecology Group, Inc., (SEG) requested renewal of Certificate of Compliance No. 9073. In support of the request a consolidated application was submitted which incorporates the previous application and supplement referenced in Revision 17 of the certificate. There have been no changes to the package design since the last renewal.

Sections on operating procedures, acceptance tests and maintenance program were reviewed and found to be adequate. The certificate has been conditioned to require that the package be prepared for shipment, operated and maintained in accordance with the procedures in the application.

The certificate was revised to show that SEG is the certificate holder, due to a change in company ownership. In addition, SEG requested that the model number be changed from LN-142 to 10-142A.

The Certificate of Compliance has been renewed for a five year term which expires February 28, 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: FEB 28 1994