

CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIALS PACKAGES

U.S. NUCLEAR REGULATORY COMMISSION

1. a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. PACKAGE IDENTIFICATION NUMBER	d. PAGE NUMBER	e. TOTAL NUMBER PAGES
9151	18	USA/9151/A	1	4

2. PREAMBLE

- 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."
- 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

ATG Nuclear Services L.L.C.
669 Emory Valley Road
Oak Ridge, TN 37830

Scientific Ecology Group, Inc. application
dated September 21, 1992.

c. DOCKET NUMBER 71-9151

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

- Model Nos.: HN-100 Series 3 and LN 14-170 Series I
- Description

Steel encased, lead shielded casks for radioactive material. The casks are right circular cylinders 81-1/2 inches high by 81-3/4 inches in diameter. The cask cavities are 73-3/8 inches high by 75-1/2 inches in diameter. The cask side walls consist of a 3/8-inch thick inner steel shell, a 1-7/8-inch lead shell, and a 7/8-inch thick outer steel shell. The base is comprised of two, 2-inch thick steel plates welded together to form a 4-inch thick base which is integrally welded to the inner and outer steel shells of the side wall. A steel flange is welded to the inner and outer steel shells of the side wall at the top. The lid is comprised of two, 2-inch thick steel plates, which are stepped and welded together to mate with the steel flange. The cask closure is sealed by a Neoprene gasket located between the lid and steel flange, positive closure of the lid is accomplished by eight, 1-3/4-inch ratchet binders. The lid contains a centrally located shield plug comprised of two, 2-inch thick steel plates and one, 1-inch thick steel plate stepped and welded. The shield plug is sealed by a Neoprene gasket, and eight, 3/4-inch studs and nuts are used to provide positive closure. The packaging are constructed of A-516, Grade 70 or A-537, Class 1, carbon steel. The outer shell will have a minimum yield strength of 46,000 psi. Tie-down is accomplished by four tie-down lugs welded to the cask body. There are four cask lifting lugs, three lid lifting lugs, and one shield plug lifting lug. The package gross weight is approximately 53,000 pounds.

5.(a) (3) Drawings

The Model No. HN-100 Series 3 packaging is fabricated in accordance with Hittman Nuclear & Development Corp. Drawing Nos.: C001-5-9138, Rev. 13; C001-5-9139, Rev. 8; C001-5-9140, Rev. 9; C001-5-9141, Rev. 3; C001-5-9142, Rev. 1; C001-5-9143, Rev. 8; and C001-5-9144, Rev. 3. Optional stainless steel shielding insert in accordance with Drawing Nos.: STD-02-035, Rev. A; STD-02-036, Rev. A; and STD-02-037, Rev. 2.

The Model No. LN 14-170 Series I packaging is fabricated in accordance with LN Technologies Corporation Drawing Nos.: 8916 M 2001, Rev. 1; 8916 M 2002, Rev. 0; 8916 M 2003, Rev. 0; 8916 M 2004, Rev. 0; 8916 M 2005, Rev. 0; and 8916 M 2006, Rev. 0.

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Page 2 - Certificate No. 9151 - Revision No. 18 - Docket No. 71-9151

5.(b) Contents

(i) Type and form of material

Process solids, either dewatered, solid or solidified, in secondary containers, and limited to the following:

- (i) Materials in which the radioactivity is essentially uniformly distributed and in which the estimated average concentration per gram of contents does not exceed:

0.0001 millicurie of radionuclides for which the A_2 quantity in Appendix A of 10 CFR Part 71 is not more than 0.05 curie;

0.005 millicurie of radionuclides for which the A_2 quantity in Appendix A of 10 CFR Part 71 is more than 0.05 curie, but not more than 1 curie; or

0.3 millicurie of radionuclides for which the A_2 quantity in Appendix A of 10 CFR Part 71 is more than 1 curie.

- (ii) Objects of nonradioactive material externally contaminated with radioactive material, provided that the radioactive material is not readily dispersible and the surface contamination, when averaged over an area of 1 square meter, does not exceed 0.0001 millicurie (220,000 disintegrations per minute) per square centimeter of radionuclides for which the A_2 quantity in Appendix A of 10 CFR Part 71 is not more than 0.05 curie, or 0.001 millicurie (2,200,000 disintegrations per minute) per square centimeter for other radionuclides.

(2) Maximum quantity of material per package

Greater than Type A quantity of radioactive material which may contain fissile material provided the fissile material does not exceed the limits in 10 CFR §71.53. The weight of the contents, optional shield insert, and secondary containers shall not exceed 17,800 pounds. When the shield insert is not installed in the cask, the internal decay heat load shall not exceed 7 watts. When the shield insert is installed in the cask, the internal decay heat load shall not exceed 28 watts.

- 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/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 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.

Page 3 - Certificate No. 9151 - Revision No. 18 - Docket No. 71-9151

- 6(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. In addition to the requirements of Subpart G of 10 CFR Part 71:

- (a) Prior to each shipment, the packaging lid seals, if opened (or if security seal is broken), must be inspected. The seals must be replaced with new seals if inspection shows any defects or every 12 months, whichever occurs first.
- (b) Each package must meet the Acceptance Tests and Maintenance Program of:

Model No. HN-100 Series 3

Section 7.0 of the application. Gamma scan for the shielding acceptance may be based on lead equivalence for lead and steel with all readings within 2.3 inches \pm 10% on a 4-inch grid.

Model No. LN 14-170 Series I

LN Technologies Corporation Procedures WM-011, Rev. H; WM-012, Rev. H; WM-013, Rev. F.

- (c) The package shall be prepared for shipment and operated in accordance with the Operating Procedures of:

Model No. HN-100 Series 3

Section 6.0 of the application.

Model No. LN 14-170 Series I

LN Technologies Corporation Procedure WM-014, Rev. L.

8. Torque requirements for closure fasteners:

- (a) Primary lid ratchet binders must be torqued to 175-200 ft-lbs.
- (b) Secondary lid bolts must be torqued to 120 \pm 10 ft-lbs.

9. Seals which show any visual defects (cracking, gouging, tearing, etc.) must be repaired in accordance with:

Model Nos. HN-100 Series 3

Note No. 3 on Hittman Drawing No. C001-5-9138, Rev. 13; or, replaced with a new seal.

Model No. LN 14-170 Series I

LN Technologies Corporation Procedure WM-012, Rev. H, Section 7.1 (joint angle must be approximately 45°); or, replaced with a new seal.

Page 4 - Certificate No. 9151 - Revision No. 18 - Docket No. 71-9151

10. 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.
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: April 1, 1999. This certificate is not renewable.

REFERENCES

Scientific Ecology Group, Inc. application dated September 21, 1992.

Supplements dated October 10, 1997; and December 1, 1998.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Cass R. Chappell

Cass R. Chappell, Chief
Package Certification Section
Spent Fuel Project Office
Office of Nuclear Material Safety
and Safeguards

Date: March 4, 1999



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

APPROVAL RECORD
Model No. HN-100 Series 3 and LN 14-170 Series I Packages
Certificate of Compliance No. 9151
Revision No. 18

By letter dated December 1, 1998, ATG Nuclear Services L.L.C., and Molten Metal Technology, Inc., requested that the certificate holder for Certificate of Compliance No. 9151 for the Model No. HN-100 Series 3 and LN 14-170 Series I Packages be changed from Molten Metal Technology, Inc., to ATG Nuclear Services L.L.C. ATG Nuclear Services L.L.C., has accepted responsibility for the completeness and accuracy of the statements and representations of the previous certificate holder. ATG Nuclear Services L.L.C., will be responsible for maintenance of the certificate, the safety analysis report for the package designs, and the quality assurance records in accordance with 10 CFR §71.91(c). ATG Nuclear Services L.L.C., has been issued Quality Assurance Program Approval for Radioactive Material Packages No. 0870, under Subpart H of 10 CFR Part 71.

The Certificate has been revised to show ATG Nuclear Services L.L.C., as certificate holder. These changes do not affect the ability of the packages to meet the requirements of 10 CFR Part 71.

A handwritten signature in cursive script, reading "Cass R. Chappell", is positioned above the typed name and title.

Cass R. Chappell, Chief
Package Certification Section
Spent Fuel Project Office
Office of Nuclear Material
Safety and Safeguards

Date: March 4, 1999