NRC FORM 618
(3-96)
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 |
|---|---|---|---|---|
| 9177 | 9 | USA/9177/A | 1 | 5 |

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)*

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

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION:

NUPAC application dated February 29, 1988, as supplemented.

c. DOCKET NUMBER 71-9177

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.: NUPAC 10/140 and LN 10-135A

(2) Description

Steel encased lead shielded casks for radioactive material. The casks are right circular cylinders with a 66.0-inch ID by 73.0-inch IH cavity. The walls of the casks contain a lead thickness of 2.75 inches encased in 0.50-inch thick inner steel shell and 1.13-inch thick outer steel shell. The top cover and cask bottom are made up of two steel plates ranging in thickness from 2.0 to 3.0 inches. The primary cask lid is secured to the cylindrical cask body by eight, 1-1/4-inch rachet binders. An optional secondary lid is centered in the primary lid and is secured to the primary lid with eight, 3/4-inch studs and nuts. Each lid is provided with a Neoprene gasket seal. The casks may be provided with an optional 12-gauge stainless steel liner (seal welded along all edges), an optional lid vent line with pipe plug, and an optional 3/4-inch drain line and pipe plug. The casks are provided with four equally spaced lifting/tie-down devices. The primary lid is provided with three lifting lugs and the optional secondary lid is provided with one lifting lug. Each cask has a gross weight of 56,500 pounds.

(3) Drawings

Model No. NUPAC 10/140

The package is fabricated in accordance with Nuclear Packaging, Inc., Drawing No. X-20-308-SNP, Sheets 1, 2, and 3, Rev. A.

Model No. LN 10-135A

The package is fabricated in accordance with LN Technologies Corporation Drawing No. 5025-M-2005: Sheets 1 and 2, Rev. 0.

5. (b) Contents

(1) Type and form of material

Dewatered, solid, or solidified waste, or activated solid components, 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 decay heat load is limited to 24 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/$ft^3$ 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 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 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. Maximum gross weight of the contents, secondary containers, and shoring is limited to 15,000 pounds.

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

9. The lid and the shield plug lifting lugs must not be used for lifting the cask, and must be covered in transit.

10. The cask must be provided with either (or both) a drain line or a lid vent line as shown in the drawing in order to provide a method to leak test the package.

11. In addition to the requirements of Subpart G of 10 CFR Part 71:

    (a) Prior to each shipment, the packaging Neoprene 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 twelve (12) months, which ever occurs first. Cavity drain and vent lines must be sealed with appropriate sealant applied to the pipe plug threads.

    (b) Each packaging must meet the Acceptance Tests and Maintenance Program of:

        Model No. NUPAC 10/140

        Section 8.0 of the application.

        Model No. LN 10-135A

        LN Technologies Corporation Procedures WM-036, Rev. A; WM-026, Rev. B; and WM-013, Rev. F.

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

        Model No. NUPAC 10/140

        Section 7.0 of the application.

        Model No. LN 10-135A

        LN Technologies Corporation Procedures WM-025, Rev. C.

12. The ratchet binders on the cask lid must be torqued to 100±10 ft-lb.

13. The cask body and each cask lid must be marked in accordance with 10 CFR §71.85(c).

14. The packages 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.

15. The packages authorized by this certificate are hereby approved for use under the general license provisions of 10 CFR §71.12.

16. Expiration date: April 1, 1999. This certificate is not renewable.

## REFERENCES

Nuclear Packaging, Inc. application dated February 29, 1988.

Supplements dated: April 19, 1988; February 16, 1993; and August 5, 1997.

NUS supplement dated: November 22, 1985.

LN Technologies Corporation supplement dated: February 16, 1988.

Scientific Ecology Group, Inc. supplement dated: April 30, 1993.

ATG Nuclear Services L.L.C. supplement dated: 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 11, 1999

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

APPROVAL RECORD
Model No. NUPAC 10/140 and LN 10-135A Packages
Certificate of Compliance No. 9177
Revision No. 9

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. 9177 for the Model No. NUPAC 10/140 and LN 10-135A 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.

Cass R. Chappell

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

Date: March 11, 1999