<ul> <li>1 • CERTIFICATE NUMBER 9073</li> <li>2 PREAMBLE a This certificate is issued to certify that the packagin of Federal Regulations. Part 71 Packaging and To b This certificate does not relieve the consignor from applicable regulatory agencies. Incl. Ag the gove</li> <li>3 THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY a ISSUED TO (Name and Address)</li> <li>3 THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY a ISSUED TO (Name and Address)</li> <li>4 CONDITIONS This certificate is conditional upon fulfilling the require 5</li> <li>(a) Packaging (1) Model Nos.: (2) Description Steel encass The overall height. This shells surrinner shell shell has a welded stee welded to ti binders. A eight studs</li> </ul>	BION NUMBER 16 g and contents describ ansportation of Radioa is compliance with any is analysis REPORT OF b. TITLE AND c. DOCKET NU ements of 10 CFR Part 0H-142, 0H- LN-142	C PACKAGE IDENTIFICATION NUMBER USA/9073/A red in Item 5 below, meets the ap Dicable active Material requirement of the regulations of the U y through or into which the package with THE PACKAGE DESIGN OR APPLICATION IDENTIFICATION OF REPORT OR APPLICATION IDENTIFICATION OF REPORT OR APPLICATION Nuclear Packaging, I dated May 6, 1985, a UMBER 71=9073 171. as applicable, and the conditions -142 MKI, OH-142 MKIB,	d PAGE NUMB 1 salety standards set S. Department of Tr ill be transported. ATION: Incorporated specified below. , OH-142 MKI	torth in Title 10 Code ransportation or other nted.
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<ul> <li>(a) Packaging         <ul> <li>(1) Model Nos.:</li> <li>(2) Description</li> <li>Steel encas: The overall height. The shells surr inner shell shell has a welded stee welded to to binders. A eight studs</li> </ul> </li> </ul>	OH-142, OH- LN-142	-142 MKI, OH-142 MKIB,	, OH-142 MK	II, and
containing i least one an is 66 incher located at is provided Toroidal im The impact polyurethan option, into surfaces of steel cladd There are for Series casks Mark 1, 3) 1	ed, lead shie dimensions of e casks const ounding a 3-1 has a 66-ind 76-1/4-inch l plates of 6 has steel cylt stepped weld and nuts, is openings for dditional 1-1 s in diameter the cask both with a lid t pact limiters limiters are e, and are ed erior and ext the upper limiters limiters are e, and are ed erior and ext the upper limiters limiters are e. The design Mark 1 with t	elded casks for solid of the casks are 101-i ists of two concentric 1/2-inch thick lead sh ch ID, and the 1- or 1 OD; the base consists 66- and 74-inch diamet indrical shells or sea ded 1id, secured by ei s comprised of two, 3- secondary 1ids of sim inch thick upper plate r by 72 inches high. tom. The Model No. LN test port in lieu of a s are located at the t 10-gauge steel sheets quipped with fusible p terior surfaces of the id may be covered with welded. e lid closure designs gns are referred to as bolt on 1id, and 4) Ma	radioactive inch diamete carbon ste hield. The l-1/8-inch t s of two, 3- ters. The t aled and hel ight ratchet inch thick milar constr A plugged of l-142 packag cask drain op and bott hilled wit blastic plug cask body 12-gauge 3 for the Mod 12-gauge 3	e material. er by 120-inch eel cylindrica 1/2-inch thick thick outer -inch thick base is either 1d by ratchet t binders or steel plates ruction with a tainment cavit drain port is ge design h line. tom of the cas th rigid gz. As an and interior 304 stainless del No. OH-142 line design, 2

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## 5. (a) (2) Description (Continued)

Baseline closure design. Closure of the primary lid is accomplished by eight ratchet binders; and of the 24-inch (29-inch) secondary lid by eight, 7/8-inch (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.

Mark 1 closure design. Closure of the primary lid is accomplished by eight ratchet binders, and a bondad silicone gasket provides the primary seal. Lifting is facilitated with three lugs welded to the primary lid. Six, 19-inch (or cor, 16-inch, centered) diameter secondary lids with centers located on a 44-inch circle each have six, 3/4-inch diameter hex head bolts. They each have a primary bonded silicone seal, a redundant Neoprene seal, and a centrally located lift lug.

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An alternate Mark 1 configuration utilizes eight, 1-3/8-inch studs and nuts for primary lid closure and two lifting lugs on the primary lid.

Mark 2 closure design. Closure of the primary lids located at the top and bottom of the cask is accomplished by eight ratchet binders, and a bonded silicone gasket on each primary lid provides a seal. Lifting is facilitated with three lugs welded to the upper primary lid. The upper lid contains a centrally located 24-inch (or 29-inch) diameter secondary lid comprised of two stepped and welded 3-inch steel plates above and below a 1-inch steel plate. Closure of the secondary lid is provided by eight, 7/8-inch (or 1-inch) diameter stud bolts. The secondary lid has a bonded silicone seal, a redundant Neoprene seal and three lift lugs.

The Model No. LN-142 cask is nearly identical to the baseline Model No. OH-142 cask with a 29-ii ch diameter secondary lid.

All exposed side walls are coated with an intumescent material or 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.

## (3) Drawings

The Model No. OH-142 Series packagings are fabricated in accordance with Nuclear Packaging, Incorporated Drawing Nos.: OH-142 - Y-20-201D, Sheets 1 through 3, Rev. Q; OH-142 MKI - AL-20-202, Sheets 1 through 3, Rev. L; OH-142 MKIB - AL-20-203, Sheets 1 through 3, Rev. J; and OH-142 MKII - Y-20-202D, Sheets 1 through 3, Rev. M.

The Model No. LN-142 packaging is fabricated in accordance with LN Technologies Corporation Drawing No. E-9414-M-3204, Sheets 1 and 2, Rev. O.

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(b) Contents

Type and form of material. (1)

- (i) Dewatered, solids, or solidified 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.

- (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 nydrogen 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>o</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 而此是、因、可、因、是、是、因、因、可、可、可、思、思、可、思、思、思、思、思、思、思、思、思、 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.
- Except for close fitting contents, aunnage must be provided in the shipping cask 7. cavity sufficient to prevent significant movement of the contents or secondary containers relative to the outer packaging under normal conditions.

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- 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. Cavity drain and vent lines must be sealed with appropriate sealant applied to the pipe plug threads.

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

Model No. HO-142 Series Section 7.0 of the application. The package must be leak tested as required by 7.1.1 and 7.2.5 and in accordance with 7.2.5.1 and 7.2.5.3.

Model No. LN-142 LN Technologies Corportion Procedures WM-011, Rev. G; WM-013, Rev. F; and WM-022, Rev. F.

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

Model No. OH-142 Series Section 6.0 of the application

Model No. LN-142 LN Technologies Corporation Procedures WM-021, Rev. E.

9. The packages authorized by this certificate must be transported on a vehicle, railroad car, aircraft, inland water craft, or hold or deck of a seagoing vessel assigned for sole use of the licensee.

- 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: March 31, 1988.

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## REFERENCES

Nuclear Packaging, Incorporated application dated May 6, 1985.

Supplements dated: May 16, June 3 and 12, July 30 and September 6, 1985.

NUS Process Services supplements dated: October 15, 1984.

LN Technologies Corporation supplements dated: June 1 and July 29, 1987.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

MacDonald. Chief Charles E. Transportation Branch Division of Safeguards and Transportation, NMSS

Date:

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## UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D. C. 20555

<u>Approval Record</u> <u>Model Nos. OH-142 Series and LN-142 Packages</u> <u>Docket No. 71-9073</u> <u>Revision No. 16</u>

By application dated June 1, 1987, as supplemented July 29, 1987, LN Technologies Corporation requested the Model No. NUS 10-135 packaging be revised to Model No. LN-142. On September 30, 1986, London Nuclear Services purchased all the outstanding stock of the NUS Process Services Corporation. The two organizations merged into a new company called LN Technologies Corporation. The Operating Procedures, Leak .est Procedures, Maintenance Procedures, Gamma Scanning Procedures, and the cask drawings have been revised to reflect the name change and the change in model number.

LN Technologies also requested that the use of procedure WN-Oll Soap Bubble Leak Test, be authorized in lieu of WM-O23 Halogen Leak Test presently cited in the certificate. The soap bubble test is an acceptable method of checking the containment system of a package whose contents are limited to low specific activity material in the type and form cited by the certificate.

Condition 9 has been added to the certificate to cite the requirements of 10 CFR §71.52 relative to the transport of low specific activity material.

There have been no changes to the package design. The requirements of 10 CFR Part 71, have been met.

Charles E. MacDonald, Chief Transportation Branch Division of Safeguards and Transportation, NMSS

Date: AND 2 5 1987