Form NRC-618
(12-73)
10 CFR 71

U.S. NUCLEAR REGULATORY COMMISSION

CERTIFICATE OF COMPLIANCE

For Radioactive Materials Packages

1.(a) Certificate Number	1.(b) Revision No.	1.(c) Package Identification No.	1.(d) Pages No.	1.(e) Total No. Pages
9073	2	USA/9073/B( )	1	3

2. PREAMBLE

2.(a) This certificate is issued to satisfy Sections 173.393a, 173.394, 173.395, and 173.396 of the Department of Transportation Hazardous Materials Regulations (49 CFR 170-189 and 14 CFR 103) and Sections 146-19-10a and 146-19-100 of the Department of Transportation Dangerous Cargoes Regulations (46 CFR 146-149), as amended.

2.(b) The packaging and contents described in item 5 below, meets the safety standards set forth in Subpart C of Title 10, Code of Federal Regulations, Part 71, "Packaging of Radioactive Materials for Transport and Transportation of Radioactive Material Under Certain Conditions."

2.(c) 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–

3.(a) Prepared by *(Name and address)*:

Nuclear Packaging, Incorporated
1733 South Fawcett
Tacoma, WA 98402

3.(b) Title and identification of report or application:

Nuclear Packaging, Incorporated, application dated September 30, 1976, as supplemented.

3.(c) Docket No. 71-9073

4. CONDITIONS

This certificate is conditional upon the fulfilling of the requirements of Subpart D of 10 CFR 71, as applicable, and the conditions specified in item 5 below.

5. Description of Packaging and Authorized Contents, Model Number, Fissile Class, Other Conditions, and References:

(a) Packaging

(1) Model No.: OH-142

(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 1-1/8-inch thick outer shell has a 76-1/4-inch OD; the base consists of two, 3-inch thick welded steel plates of 66- and 74-inch diameters. The base is either welded to the steel cylindrical shells or sealed and held by ratchet binders. A stepped welded lid, secured by eight ratchet binders or eight (8) studs and nuts, is comprised of two, 3-inch thick steel plates containing openings for secondary lids of similar construction with at least one additional 1-inch thick upper plate. The containment cavity is 66 inches in diameter by 72 inches high. A plugged drain port is located at the cask bottom. Toroidal impact limiters are located at the top and bottom of the cask. The impact limiters are 10-gage steel sheets filled with rigid polyurethane, and are equipped with fusible plastic plugs.

There are three alternate lid closure designs for the Model No. OH-142 cask. The designs are referred to as: 1) Baseline design, 2) Mark 1, and 3) Mark 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 secondary lid by eight, 7/8-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 or eight, 1-3/8-inch studs and nuts, and a bonded silicone gasket provides the primary seal. Lifting is facilitated with three lugs welded to the primary lid. Six, 19-inch diameter secondary lids with centers located on a 44-inch circle each have six, 3/4-inch diameter stud bolts. They each have a primary bonded silicone seal, a redundant neoprene seal, and a centrally located lift lug.

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 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 diameter stud bolts. The secondary lid has a bonded silicone seal, a redundant neoprene seal and three lift lugs.

All exposed side walls are coated with an intumescent material. Four skewed lugs, welded to the outer shell are used for tie-down. The package gross weight is approximately 64,000 pounds.

(3) Drawing

The packaging is fabricated in accordance with Nuclear Packaging, Incorporated Drawing No. Y-20-201D, Sheets 1 and 2, Rev. E; or AL-20-202, Sheets 1 and 2, Rev. D; or AL-20-203, Sheets 1 and 2, Rev. A; or Y-20-202D, Sheets 1 and 2, Rev. B.

(b) Contents

(1) Type and form of material.

Radioactive material including fissile material in the form of dry, solid, waste material and activated reactor components.

(b) Contents (Continued)

(2) Maximum quantity of material per page.

Internal decay heat not to exceed 400 watts, and the maximum weight of contents including secondary containers not to exceed 10,000 pounds. Fissile contents not to exceed the generally licensed mass limits as specified in 10 CFR §71.11.

6. Dunnage shall 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 or accident conditions.

7. Gaskets and seals shall be replaced at least every 4 months or earlier if visible degradation occurs.

8. Packagings fabricated (10 CFR §71.53(c)) after March 28, 1980, shall be constructed of A-516, Grade 70 carbon steel.

9. The packaging authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR §71.12(b).

10. Expiration date: November 30, 1982.

REFERENCES

Nuclear Packaging, Incorporated application dated September 30, 1976.

Supplements dated: March 18, April 29, July 6, and October 3, 1977; January 10, February 17 and 20, April 14, and May 4, 1978; September 4, 1979; and February 18, 1980.

Section 8, pp. 8-1 through 8-14, regarding Quality Assurance are not considered part of this application.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

R F Oldgaarden

for Charles E. MacDonald, Chief
Transportation Certification Branch
Division of Fuel Cycle and
Material Safety

Date: MAR 28 1980

U.S. NUCLEAR REGULATORY COMMISSION
ADDENDUM 2 TO SAFETY EVALUATION
REPORT FOR THE NUCLEAR PACKAGING, INC.
MODEL NO. OH-142 PACKAGING
USA/9073/B( )

Summary

By application dated September 4, 1979, Nuclear Packaging, Incorporated has requested Revision No. 2 to the Certificate of Compliance 9073 for the Model No. OH-142, issued December 1, 1977. The revision involves the substitution of A-516 steel for A-36 carbon steel.

Based on the statements and representations contained in the application, we have concluded that the Model No. OH-142 packaging and contents, as modified, satisfy the requirements of 10 CFR Part 71.

References

1. Nuclear Packaging, Inc. application for revision, dated September 4, 1979.

2. Supplement dated: February 18, 1980.

Drawing

Nuclear Packaging, Inc. Drawings Nos.: Y-20-202D, Sheets 1 and 2, Rev. B.

Packaging Description and Structural Evaluation

The original Mark II configuration was approved using A-36 carbon steel throughout. Revision 10 proposes changing the A-36 to A-516 material. This steel provides increased strength as well as a significant improvement in nil ductility and cold weather performance. Because of its increased strength (i.e., 70,000 psi vs. 55,000 psi) it's possible to decrease the thickness of the external skin from 1.125 inches to 1.000 inches. The resultant package provides a slightly larger positive Margin of Safety than the one previously approved. This represents the only safety related change and the only change to the drawing.

Numerous other revisions detailed in the supplemental letter dated February 18, 1980, have been made to the SAR, for the most part, provide a refinement to the previous analysis and demonstrate the existence of a larger positive Margin of Safety. These other revisions simply provide additional data.

R H Odegaarden

for Charles E. MacDonald, Chief
Transportation Certification Branch
Division of Fuel Cycle and Material Safety

Date: MAR 28 1980