

**CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES**

1. a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
9329	5	71-9329	USA/9329/AF-96	1 OF	4

2. PREAMBLE

- a. This certificate is issued to certify that the package (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 (<i>Name and Address</i>)
National Nuclear Security Administration
P.O. Box 5400
Albuquerque, NM 87185 | b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION
Los Alamos National Laboratory
Application, Revision No. 5, dated October 14, 2016. |
|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|

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.: S300
- (2) Description

The Model No. S300 package is a cylindrical container that is approximately 89 centimeters (35 inches) in overall height and 60 centimeters (23 inches) in overall diameter. The Model No. S300 is comprised of an overpack, pipe component, and a shielding insert. The Model No. S300 is designed to transport a single special form capsule (SFC). The maximum gross weight of the package is 217.7 kilograms (480 lbs).

The overpack design utilizes a standard 55-gallon drum as the outer container. A standard bolted clamping ring secures the drum lid to the drum body. Within the drum body is a rigid polyethylene liner (body and lid). Lid liner and lid are pierced and the drum lid is fitted with a filter vent. Within the liner is cane fiberboard dunnage and a sheet of plywood to provide shock absorption for the pipe component.

The pipe component consists of a stainless steel cylindrical pipe welded to a stainless steel flat cap at the bottom end and a bolted pipe flange at the other end. The pipe component is closed with a stainless steel flat lid attached to the flange with 12 stainless steel bolts. A filter vent is installed in the lid. The flange-to-lid seal is either a butyl or ethylene propylene elastomeric o-ring.

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5. a. Packaging (continued)

(2) Description (continued)

The shielding insert is located within the pipe component. The shielding insert is made from solid high density polyethylene plastic. Within the shielding insert is a cylindrical opening sized to accommodate the SFC.

(3) Drawings

The packaging is constructed in accordance with AREVA Drawing No. 60999-SAR, sheets 1 through 3, Revision 1, S300 Packaging SAR Drawing.

b. Contents

(1) Type and form material

Content No. 1: Plutonium-Beryllium (α,n) neutron sources (not to exceed $1.519E+5$ neutrons/second per gram of plutonium), or plutonium-based (α,n) neutron sources.

Content No. 2: Plutonium, other than neutron sources with (α,n) target material, in solid form.

Content Nos. 1 and 2 must meet the requirements of special form sources and are limited to:

- (a) The Model II source capsule - IAEA Certificate of Competent Authority Special Form Radioactive Materials Certificate Number USA/0696/S-96, issued by the U.S. Department of Transportation (DOT), assembled in accordance with AEA Technology QSA, Inc., Drawing No. R20047, Rev. B, or LANL Drawing No. 90Y-219998, Rev. H.
- (b) The Model III source capsule - IAEA Certificate of Competent Authority Special Form Radioactive Materials Certificate Number USA/0695/S-96, issued by the DOT, assembled in accordance with AEA Technology QSA, Inc., Drawing No. R20048, Rev. B, or LANL Drawing No. 90Y-220045, Rev. A.

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5. b. Contents (continued)

(2) Maximum quantity of material per package:

One source capsule, containing a maximum quantity of fissile plutonium (Pu-239 plus Pu-241) as shown below.

Non-Exclusive Use Shipment		Exclusive Use Shipment	
Model II	Model III	Model II	Model III
Content No. 1			
206 grams fissile plutonium	160 grams fissile plutonium	350 grams fissile plutonium	160 grams fissile plutonium
Content No. 2			
300 grams plutonium	160 grams plutonium	300 grams plutonium	160 grams plutonium

Source capsule may contain radionuclides listed below within the ranges shown.

Radionuclide	Percentage of total plutonium mass
Pu-238	0 – 0.5%
Pu-239	73 – 97%
Pu-240	3 – 21%
Pu-241	0 – 3%
Pu-242	0 – 2%
Am-241	0 – 2.5%

Total quantity of radioactive material within a package may not exceed a Type A quantity.

c. Criticality Safety Index

Content No. 1	0.3
Content No. 2	4.0

6. Transport by air is not authorized.

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7. In addition to the requirements of Subpart G of 10 CFR Part 71:
 - a. Each package shall be prepared for shipment and operated in accordance with the "Package Operations," in Chapter 7 of the application.
 - b. Each package shall be tested and maintained in accordance with the "Acceptance Tests and Maintenance Program," in Chapter 8 of the application.
8. Prior to each shipment, the package must be inspected to ensure the packaging is conspicuously and durably marked with its model number, serial number, gross weight, and package identification number, USA/9329/AF-96.
9. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.
10. Revision No. 4 of this certificate may be used until January 31, 2017.
11. Expiration date: January 31, 2022.

REFERENCES

Los Alamos National Laboratory Application, Revision No. 5, dated October 14, 2016.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

/RA/

John McKirgan, Chief
Spent Fuel Licensing Branch
Division of Spent Fuel Storage Management
Office of Nuclear Material Safety
and Safeguards

Date: October 31, 2016