CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES

1. a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE		PAGES
9342	3	71-9342	USA/9342/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 *(Name and Address)*

Century Industries
P.O. Box 17084
Bristol, VA 24209

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

Century Industries application dated August 6, 2010, as supplemented.

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.: Versa-Pac in two configurations, i.e., VP-55 and VP-110.

(2) Description

The Model No. Versa-Pac is either a 55-gallon (Model No. VP-55) or a 110-gallon (Model No. VP-110) shipping container for uranium oxides, uranium metal, uranyl nitrate crystals and other uranium compounds, e.g., uranium carbides, uranyl fluorides and uranyl carbonates, and thorium 232 as TRISO fuel.

The exterior skin of the packaging is a UN1A2/X400/S 16 gauge carbon steel material for the Model No. VP-55 and a UN1A2/Y409/S 16 gauge carbon steel for the Model No. VP-110.

Both models use a 12 gauge bolted closure ring, ASTM A 307 bolts and nuts, a closed-cell EPDM gasket, a drum cover reinforced by a 10 gauge thick plate with four or eight bolts depending upon the Model No. VP-55 or VP-110, respectively.

Both models are strengthened with vertical stiffeners, two inner liners insulated by a ceramic fiber blanket and a ¼" carbon steel reinforcing plate on the bottom. The packaging's interior is completely insulated with layers of a ceramic fiber blanket around the containment cavity with rigid polyurethane foam disks on the top and bottom of the cavity.

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

A ½" thick fiberglass ring is used as a thermal break at the payload cavity flange. The cavity blind flange is secured to the flange with twelve bolts.

The primary containment boundary is defined as the payload cavity with its associated welds, the containment end plate, the inner flange ring, the silicone-coated fiberglass gasket, the cavity blind flange, and the bolts.

The approximate dimensions and weights of the packaging are as follows:

Model No.	Packaging OD (in.)	Packaging Height (in.)	Payload Containment Cavity ID (in.)	Payload Containment Cavity Height (in.)	Packaging Weight (lbs.)	Maximum loaded weight (lbs.)
VP-55	23-1/16	34 ¾	15	25-7/8	390	640
VP-110	30-7/16	42 ¾	21	29-3/4	705	965

(3) Drawings

The packaging is constructed and assembled in accordance with Century Industries Drawing Nos.:

VP-55-LD-1 Rev. No. 7, VP-55-LD-2 Rev. No. 9, Sheets 1 of 2 and 2 of 2.

VP-110-LD-1 Rev. No. 7, VP-110-LD-2 Rev. No. 7, Sheets 1 of 2 and 2 of 2.

5.(b) Contents

(1) Type and form of material

Solid, homogeneous (powder or crystalline), or non-homogeneous, uranium materials with no free-standing liquids. Materials shall be stable and in a non-pyrophoric form. Density is not limited.

Contents are limited to:

(i) A. Uranium oxides (U_xO_y).

5(b)(1) Type and Form of Material (Continued)

B. Uranyl nitrate crystals in the form of uranyl nitrate hexahydrate, trihydrate or dihydrate.

C. Other uranium compounds, e.g., uranyl fluorides and uranyl carbonates. Uranium compounds may also contain carbon or be mixed with carbon or graphite. Uranium carbide is authorized for shipment. However, uranium hydrites are not authorized for shipment.

D. Uranium metal or uranium alloys.

(ii) TRISO fuel which is C/SIS/C coated $ThUC_2$ particles pressed with a carbon matrix to form rods.

Contents may be pre-packaged in polytetrafluoroethylene, aluminum, and carbon steel per Table No.1-4 of the application.

Payload materials shall have an auto-ignition temperature and melting point greater than 600ºF. Materials with a hydrogen density greater than 0.141 g/cm^3 are not authorized.

(2) Maximum quantity of material per package

(i) For contents described in 5(b)(1)(i) and 5(b)(1)(ii):

The net weight of the authorized contents shall not exceed 250 lbs for the Model No. VP-55, and 260 lbs for the Model No. VP-110.

350 grams U-235 enriched up to 100 weight per cent.

(ii) For contents described in 5(b)(1)(ii):

875 rods, with each rod having approximately 10 grams of Th-232, and containing up to 0.4 grams U-235.

350 grams U-235 enriched up to 100 weight per cent.

(3) Contents are limited to normal form material. The radionuclide inventory of the loaded contents, including U-234 and U-236, shall be less than the calculated mixture A_2 value.

(4) Decay heat is limited to 11.4 W.

5(c) Criticality Safety Index (CSI): 1.0

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

   (a) The package shall be prepared for shipment and operated in accordance with the Operating Procedures in Section No. 7 of the application.

   (b) Each packaging must meet the Acceptance Tests and Maintenance Program of Section No. 8 of the application.

7. Transport by air of fissile material is not authorized.

8. Transport of plutonium above minimum detectable quantities is not authorized.

9. Packages must be marked with the appropriate Model Number, i.e., VP-55 or VP-110, as applicable.

10. Content forms may not be mixed in a single package.

11. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.

12. Expiration date: June 30, 2015.

REFERENCES

Century Industries application "Safety Analysis Report for the Century Industries Versa-Pac Shipping Container," Revision No. 4, dated August 6, 2010.
Supplements dated August 24, September 7, November 19, 2010, and February 14, 2011.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

/RA/

Michele Sampson, Acting Chief
Licensing Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

Date: February 25, 2011