CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES

1 a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE		PAGES
9204	15	71-9204	USA/9204/B(U)F-96	1	OF	6

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)*

Energy*Solutions*
140 Stoneridge Drive
Columbia, SC 29210

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

Energy*Solutions* application dated January 24, 2011.

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.: 10-160B

(2) Description

A cylindrical carbon steel and lead shielded shipping cask, designed to transport radioactive waste material. The cask is transported in the upright position and is equipped with steel encased, rigid polyurethane foam impact limiters on the top and bottom. The package has approximate dimensions, shielding, and weight as follows:

Cask height	88 inches
Cask outer diameter	78-1/2 inches
Cask cavity height	77 inches
Cask cavity diameter	68 inches
Overall package height, with impact limiters	130 inches
Overall package diameter, with impact limiters	102 inches
Lead shielding thickness	1-7/8 inches
Gross weight (packaging and contents)	72,000 lbs
Maximum total weight of contents, shoring, secondary containers, and optional shield insert	14,500 lbs

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

The cask body consists of a 1-1/8-inch thick carbon steel (ASME SA516 or SA537) inner shell, a 1-7/8-inch thick lead gamma shield, and a 2-inch thick carbon steel outer shell (ASME SA516). The inner and outer shells are welded to a 5-1/2-inch thick carbon steel bottom plate. The cask cavity has an optional 11-gage stainless steel liner. A 12-gage stainless steel thermal shield surrounds the cask outer shell in the region between the impact limiters. The impact limiters are secured to each other around the cask by eight ratchet binders.

The cask lid is a 5-1/2-inch thick carbon steel plate, and has a 31-inch diameter opening equipped with a secondary lid. The primary lid is sealed with a double elastomer O-ring and 24 equally spaced 1-3/4-inch diameter bolts. The secondary lid is 46 inches in diameter, is centered within the primary lid, and is sealed to the primary lid by a double elastomer O-ring and 12 equally spaced 1-3/4-inch diameter bolts. The space between the double O-ring seals is provided with a test port for leak testing the primary and secondary lid seals.

The optional cask drain and vent ports are sealed with a plug and an O-ring seal.

The package is equipped with four tie-down lugs welded to the cask outer shell. Two lifting lugs and two redundant lifting lugs are removed during transport. The lid is equipped with three lifting lugs which are covered by the top impact limiter and rain cover during transport.

An optional carbon steel shield insert may be used within the cask cavity.

(3) Drawings

The packaging is constructed and assembled in accordance with Energy*Solutions* Drawing No. C-110-D-29003-010, sheets 1 through 5, Rev. 14.

An optional shield insert is constructed in accordance with Chem-Nuclear Systems Drawing No. C-119-B-0018, Rev. 2.

5.(b) Contents

(1) Type and form of material

(i) Byproduct, source, and special nuclear material, non-fissile or fissile-excepted, as special form, or non-special form in the form of process solids or resins, either dewatered, solid, or solidified waste, in secondary containers; or

(ii) Dewatered, solid or solidified transuranic-containing wastes (TRU), fissile or non-fissile or fissile-excepted, in secondary containers; or

5.(b) (1) Type and form of material (Continued)

(iii) Plutonium 239 (Pu-239) as Pu-Be neutron sources meeting the requirements of special form sources; or

(iv) Neutron activated metals or metal oxides in solid form in secondary containers; or

(v) Miscellaneous radioactive solid waste materials, including special form materials and powdered solids, in secondary containers.

(2) Maximum quantity of material per package

(i) Maximum contents are limited to 0.495 TBq (13.4 Ci) of Co-60. For contents other than Co-60, the maximum quantity of radioactive materials is determined by the methodology described in Attachment 1 to Chapter No. 7 of the application.

(ii) Fissile contents must be limited to the fissile gram equivalent of 325 grams of Pu-239, as determined using the conversion factors in Table 9.1.3, in Chapter No. 4, Appendix 4.10.2, of the application. Plutonium content exceeding 0.74 TBq (20 Ci) must be in solid form.

(iii) TRU exceeding the fissile limits of 10 CFR 71.15 must not be machine-compacted and must have no more than 1% by weight of special reflectors and no more than 25% by volume of hydrogenous material.

(iv) Neutron sources as described in 5(b)(1)(iii) are limited to a maximum emission rate of 1.1E+8 n/sec.

(v) Maximum decay heat: 200 watts.

(vi) Maximum weight of contents: 14,500 pounds including shoring, secondary containers, and optional shield insert.

(vii) Explosives, corrosives, non-radioactive pyrophorics, and compressed gases are prohibited. Pyrophoric radionuclides may be present only in residual amounts less than 1 weight percent.

(viii) The total amount of potentially volatile organic compounds present in the headspace of a secondary container is restricted to 500 parts per million.

(ix) Powdered solid radioactive materials shall not include radioactive forms of combustible metal hydrides or combustible elemental metals, i.e., magnesium,

titanium, sodium, potassium, lithium, zirconium, hafnium, calcium, zinc, plutonium, uranium, and thorium, or combustible non-metals, i.e., phosphorus.

(x) Powdered solids contents with neutron emitters are not permitted.

5.(c) Criticality Safety Index 0.0

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

(a) The package must be prepared for shipment and operated in accordance with the Operating Procedures of Chapter No. 7 of the application, except Section No. 7.4., and

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

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

8. Flammable gas (hydrogen) concentration is limited to less than 5% in volume. For contents other than TRU waste, inerting is not allowed to limit the concentration of flammable gases. For TRU waste, compliance with the 5% hydrogen concentration limit is determined by the methods discussed in Appendix 4.10.2 of the application.

9. Payload containers authorized for shipment of TRU waste are the 30-gallon and the 55-gallon drums. TRU waste characteristics are determined and limited in accordance with Appendix 4.10.2 of the application.

10. The non-homogeneity of the package contents may lead to elevated levels of radiation on the package surfaces. Radiation surveys must be performed to obtain measurements from all surfaces of the package, and from the outer surfaces of the vehicle enclosure, unless process knowledge or survey history indicates that elevated radiation levels are not likely to be encountered.

11. Appropriate devices or measures must secure contents in the secondary container, if necessary.

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

13. Revision No. 14 of this certificate may be used until February 28, 2012.

14. Expiration date: October 31, 2015.

REFERENCES

Energy*Solutions* application dated January 24, 2011, Revision No. 3.

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 28, 2011