

March 23, 2011

Mr. Donald R. Krause, Manager
Regulatory Compliance & EHS
GE Hitachi Nuclear Energy Americas, LLC
Vallecitos Nuclear Center
6705 Vallecitos Rd.
Sunsol, CA 94586

SUBJECT: AUTHORIZATION FOR LIMITED SHIPMENTS IN THE MODEL NO. GE-100
PACKAGE, CERTIFICATE OF COMPLIANCE NO. 5926, REVISION NO. 3

Dear Mr. Krause:

As requested by your application dated January 28, 2011, pursuant to 10 CFR Part 71, Certificate of Compliance No. 5926 for the Model No. GE-100 package is amended to authorize the following limited shipments, subject to the conditions listed below. This authorization letter supersedes, in its entirety, the letters authorizing limited shipments in the Model No. GE-100 package, dated May 13, 2010, April 6, 2010, and January 16, 2009.

1. The packaging is constructed in accordance with General Electric Company Drawing Nos. 129D4727, Rev. 5; 129D4729, Rev. 5; 129D4730, Rev. 4; and 129D4731, Rev. 1.
2. Contents
 - (a) Type and form of material
 - (1) Cobalt-60, meeting the requirements of special form radioactive material.
 - (2) Molybdenum-99, solid metal.
 - (b) Maximum quantity of material per package
As specified in Certificate of Compliance No. 5926.
3. Shipment will be by closed-transport or flat-bed transport vehicle, as exclusive use.
4. Number of shipments
 - (a) Three shipments of cobalt-60, to QSA Global, Inc. (Burlington, MA); and
 - (b) Ten shipments of molybdenum-99, to Oak Ridge National Laboratory (Oak Ridge, TN), MIT Research Reactor (Cambridge, MA), University of Missouri Research Reactor (Columbia, MO), GEH Vallecitos Nuclear Center (Sunsol, CA), Lantheus Medical Imaging (North Billerica, MA), or GE Healthcare (Arlington Heights, IL).

5. Package inspections are required before each use of the GE-100.
6. Authorization is for a maximum of thirteen shipments, and expires December 30, 2011

All other conditions of Certificate of Compliance No. 5926 remain the same. GE Hitachi Nuclear Energy Americas, LLC, has been issued Quality Assurance Program Approval for Radioactive Material Packages No. 0170 under the provisions of 10 CFR Part 71.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

/RA/

Michael D. Waters, Chief
Licensing Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

Docket No. 71-5926
TAC No. L24513

Enclosure: Safety Evaluation Report

cc w/encl: J. Shuler, Department of Energy
R. Boyle, Department of Transportation

- 5. Package inspections are required before each use of the GE-100.
- 6. Authorization is for a maximum of thirteen shipments, and expires December 30, 2011

All other conditions of Certificate of Compliance No. 5926 remain the same. GE Hitachi Nuclear Energy Americas, LLC, has been issued Quality Assurance Program Approval for Radioactive Material Packages No. 0170 under the provisions of 10 CFR Part 71.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

/RA/

Michael D. Waters, Chief
 Licensing Branch
 Division of Spent Fuel Storage and Transportation
 Office of Nuclear Material Safety
 and Safeguards

Docket No. 71-5926
 TAC No. L24513

Enclosure: Safety Evaluation Report

cc w/encl: J. Shuler, Department of Energy
 R. Boyle, Department of Transportation

Distribution: (closes L24513)
 SFST R/F

Filename: G:\SFST\Rankin\Expired Packages\expired package GE100.docx

ADAMS Accession No.: ML110820513

OFC	SFST	E	SFST		SFST	
NAME	JRankin		MDeBose		MWaters	
DATE	3/8/11		3/10/11		3/23/2011	

C=Without attachment/enclosure

E=With attachment/enclosure

N=No copy

OFFICIAL RECORD COPY

**SAFETY EVALUATION REPORT
DOCKET NO. 71-5926
MODEL NO. GE-100 PACKAGE
GE HITACHI NUCLEAR ENERGY AMERICAS, LLC
REVISION NO. 3**

SUMMARY

By application dated January 28, 2011, GE Hitachi Nuclear Energy Americas, LLC (GE Hitachi or the applicant) requested authorization to use the Model No. GE-100 package beyond the package authorization expiration date of October 1, 2008.

Based on the statements and representations in the application, staff agrees that the extension of use of the package, with the additional conditions stated below, meets the requirements of 10 CFR Part 71.

BACKGROUND

NRC amended the regulations in 10 CFR Part 71, effective October 1, 2004, to be compatible with the 1996 edition of the International Atomic Energy Agency (IAEA), "Regulations for the Safe Transport of Radioactive Material" (TS-R-1, as amended in 2000). As a result, certain transportation packages that are compatible to the IAEA 1967 edition will no longer be authorized for use under the 10 CFR Part 71 general license after October 1, 2008.

By application dated September 29, 2008, GE Hitachi requested authorization to use the Model No. GE-100 package beyond the package authorization expiration date of October 1, 2008. GE Hitachi submitted supplemental information by e-mail dated January 16, 2009. GE Hitachi was authorized to make eight shipments in the Model No. GE-100 package by letter dated January 16, 2009 [ML090160495]. By application dated March 12, 2010, the U.S. Department of Energy (DOE) requested authorization for four of the shipments originally requested by GE Hitachi. In conjunction with issuing authorization to DOE [ML100960235], the GE Hitachi authorization was revised on April 6, 2010, to remove these four shipments [ML100960267]. By application dated March 1, 2010, as supplemented April 14, 2010, GE Hitachi requested additional shipments of cobalt-60 (Co-60) and to add twelve shipments of molybdenum-99 (Mo-99). Authorization for Co-60, meeting the requirements of special form radioactive material and Mo-99 in solid form was issued on May 13, 2010 [ML101330366]. A total of twenty shipments were authorized for the period of May 13, 2009, through March 31, 2011.

GE Hitachi provided the information as described in U.S. Nuclear Regulatory Commission, Regulatory Issue Summary 2008-18, "Information on Requests for Extending Use of Expiring Transportation Packages."

EVALUATION

By application dated January 28, 2011, GE Hitachi requested authorization to use the Model No. GE-100 package beyond the package authorization expiration date of October 1, 2008. GE Hitachi requested to extend their authorization for shipment of Co-60 and Mo-99, from the

expiration date of March 31, 2011, until December 30, 2011. GE Hitachi provided the information as described in U.S. Nuclear Regulatory Commission, Regulatory Issue Summary 2008-18, "Information on Requests for Extending Use of Expiring Transportation Packages."

- (1) **Package Information.** The Model No. GE-100 contents authorized in Certificate of Compliance (CoC) No. 5926 includes byproduct and irradiated special nuclear material in the form of fuel rods, or plates, fuel assemblies, or meeting the requirements of special form radioactive material; or solid nonfissile irradiated metal hardware and reactor control rods (blades). The applicant has requested authorization for shipment of Co-60, as special form radioactive material, and Mo-99, as a solid metal. These contents are authorized by CoC No. 5926. Maximum quantity of material per package is as specified in Certificate of Compliance No. 5926.
- (2) **Identification of Shipment.** The GE Hitachi application requested a total of thirteen shipments be made prior to December 30, 2011. Three shipments of Co-60 will be from the GE Hitachi's Vallecitos Nuclear Center, Sunol, CA, to QSA Global, Inc., Burlington, MA. Ten shipments of Mo-99 will be to Oak Ridge National Laboratory (Oak Ridge, TN), MIT Research Reactor (Cambridge, MA), University of Missouri Research Reactor (Columbia, MO), GEH Vallecitos Nuclear Center (Sunol, CA), Lantheus Medical Imaging (North Billerica, MA), or GE Healthcare (Arlington Heights, IL). All shipments will be by closed-transport or flat-bed transport vehicle, as exclusive use.
- (3) **Reasons for Requesting Extended Use.** The GE Hitachi application provided the schedule for development of a replacement package and notes that extended use of the Model No. GE-100 package is needed while the replacement package is undergoing design and licensing approval, and new packagings are fabricated. GE Hitachi's revised schedule anticipates NRC design and licensing approval in 2011 and the first package ready-for-use approximately 6-9 months thereafter.

The applicant identified that shipment of Mo-99 is being requested to support the Molybdenum-99 Demonstration Project, pursuant to a Cooperative Agreement with DOE. The purpose of the shipments is to utilize existing facilities for post-irradiation processing of the irradiated molybdenum material. The research is part of a program to support the development of a domestic source for generation of technetium-99m (Tc-99m), which is widely used for medical imaging. There is a significant reduction in the worldwide availability of Tc-99m due to planned and unplanned shutdown of the reactors which have historically provided Mo-99.

- (4) **Safety Justification for Continued Use and Proposed Compensatory Measures.** GE Hitachi proposed specific compensatory measures to assure that shipments would have equivalent safety. These include exclusive use shipment and transport during times of low road usage and off-rush hour traffic.
- (5) **A Plan and Schedule to Acquire Replacement Packages or Complete Necessary Shipments.** GE Hitachi expects to resolve technical deficiencies with the design of the replacement package with licensing approval expected in 2011 and the first package ready-for-use approximately 6 to 9 months thereafter.

CONDITIONS

The conditions of the authorization for limited use of the Model No. GE-100 package have been revised as follows:

Condition No. 4 is revised to reflect the three shipments of Co-60 and ten shipments of Mo-99 which GE Hitachi is authorized to transport in the Model No. GE-100.

Condition No. 6 is revised to limit the authorization to a total of thirteen shipments, and the expiration date is extended to December 30, 2011.

CONCLUSIONS

Based on the statements and representations in the GE Hitachi application dated January 28, 2011, the staff agrees that the use by GE Hitachi of the Model No. GE-100 package, subject to the conditions of the authorization, meets the requirements of 10 CFR Part 71.

Issued on March 23, 2011.