

October 26, 2012

Mr. Donald R. Krause  
Manager, Regulatory Compliance and EHS  
GE Hitachi Nuclear Energy  
Vallecitos Nuclear Center  
6705 Vallecitos Rd.  
Sunol, CA 84586

SUBJECT: AUTHORIZATION FOR LIMITED SHIPMENTS IN THE MODEL NO. 1500  
PACKAGE, CERTIFICATE OF COMPLIANCE NO. 5939

Dear Mr. Krause:

As requested by your application dated December 5, 2011, supplemented August 31 and October 10, 2012, and pursuant to 10 CFR Part 71, GE Hitachi Nuclear Energy (GEH) Certificate of Compliance No. 5939, for the Model No. 1500 package is amended to authorize the following limited shipments, subject to the conditions listed below.

1. Packaging. Model No. 1500 packaging, conforming to General Electric Company Drawing Nos.: 129D4748, Rev. 7; 129D4749, Rev. 5; and 129D4750, Rev. 9.
2. Contents
  - (a) Type and form of material  

Cobalt-60 as sealed sources that meet the requirements of special form radioactive material.
  - (b) Maximum quantity of material per package  

As specified in Certificate of Compliance No. 5939, Rev. 32.
3. Shipment must be closed-transport or flat-bed transport vehicle, as exclusive use shipment.
4. Shipment must be subject to continuous and active monitoring.
5. In addition to the requirements of Subpart G of 10 CFR Part 71:
  - a) Each package must meet the Maintenance Inspection Program of the SAR referenced in the Certificate; and
  - b) The package must be prepared for shipment in accordance with the Operating Procedures of the SAR referenced in the Certificate.

6. This authorization is for a maximum of 2 shipments, including the return of used sources, to and from the Defense Microelectronics Activity (DMEA) facility in Sacramento, CA, for the period beginning November 1, 2012, through December 31, 2012.
7. This authorization expires December 31, 2012.

All other conditions of Certificate of Compliance No. 5939 remain the same. GEH has been issued Quality Assurance Program Approval No. 0170 for Radioactive Material Packages under the provisions of 10 CFR Part 71.

As stated in our June 20, 2012, letter, no further authorization will be granted for this expired package. All activities pertaining to the use of the Model No. 1500 package will be terminated on December 31, 2012.

If you have any questions regarding this matter, please contact Pierre Saverot at (301) 492-3408.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

/RA/

Mark Lombard, Director  
Division of Spent Fuel Storage and Transportation  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 71-5939  
TAC No. L24654

Enclosure: Safety Evaluation Report

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

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**ADAMS Accession No.:**

OFC	SFST	E	SFST	E	SFST	SFST	
NAME	PSaverot		MDeBose		BWhite for MWaters		MLombard
DATE	10/22/12		10/25/12		10/26/12		10/26/12

C=Without attachment/enclosure E=With attachment/enclosure N=No copy **OFFICIAL RECORD COPY**

**SAFETY EVALUATION REPORT**  
**Docket No. 71-5939**  
**Model No. 5939 Package**  
**GE-Hitachi Nuclear Energy**  
**Authorization for Limited Shipments**

## **SUMMARY**

By application dated December 5, 2011, supplemented on August 31 and October 10, 2012, GE Hitachi Nuclear Energy (GEH) requested authorization to continue the use of the Model No. 1500 package beyond the package authorization expiration date of October 1, 2008.

Based on the statements and representations in the application, the staff agrees that the extension of use of the package, for the two shipments, one to and one from Defense Microelectronics Activity (DMEA), meets the requirements of Title 10 Code of Federal Regulations Part 71 (10 CFR Part 71).

## **BACKGROUND**

The U.S. Nuclear Regulatory Commission (NRC) amended its 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 are no longer authorized for use under the 10 CFR Part 71 general license after October 1, 2008.

On August 14, 2008, the NRC issued Regulatory Issue Summary (RIS) 2008-18, "Information on Requests for Extending Use of Expiring Transport Packages," to clarify a regulatory method for extending the phase-out plans for limited circumstances. The RIS lists specific information that should be received, including (1) package information, (2) identification of shipments, (3) reasons for requesting extended use, (4) safety justification for continued use and proposed compensatory measures, and (5) a plan and schedule to acquire replacement packages. The RIS also provides criteria for demonstrating the need for a request for extension, including "*(a) there are no alternative domestically approved package available, (b) the contents cannot be reconfigured such that transport can be conducted in accordance with the regulations, and (c) the transport schedule cannot be adjusted so as to be conducted in accordance with the regulations.*"

In its June 20, 2012, letter to GEH, staff stated that it will evaluate any request for extended use of the Model No. 1500 package only until December 2012, because (i) staff believes that there are "alternative domestically approved packages available" consistent with paragraph 3(a) of the RIS, and (ii) staff has reasons to believe that cobalt-60 contents can be "reconfigured to conduct shipments in accordance with current Part 71 regulations" consistent with paragraph 3(b) of the RIS. Staff also stated that it will consider, in part, the interest of material licensees to obtain

cobalt-60 sources with respect to National Security or other important needs through December 31, 2012.

## EVALUATION

The GEH application generally addresses the information needs as described in RIS 2008-18. The supplements dated August 31 and October 10, 2012, address more specifically staff's request for additional information (RAI) letters dated June 20 and October 1, 2012.

GEH provided information as follows:

- (1) Package Information. The packaging to be used is the Model No. 1500 package limited to Serial No. 1507. The sole use of the package is for the transport of cobalt-60 in sealed capsules meeting the requirements of special form radioactive material. GEH did not request any change in the packaging serial numbers or content.
- (2) Identification of Shipments. GEH requested eight shipments, on behalf of (JL Shepherd & Associates (JLS&A), "through the balance of calendar year 2012." Shipments were destined to DMEA, Honeywell International, STAAR Surgical, Hill Air Force Base, National Institute of Health Rocky Mountain Laboratory, Sanaria Inc., and Silicon Effects Radiation Laboratory (Si-REL, LLC).

However, GEH did not provide any information on most of those shipments, stating only that purchase orders were "pending" and that an "additional request will be made to the NRC when details of these shipments are available." As a consequence, requests pertaining to undefined shipments within an undefined timeframe cannot still be evaluated as of today.

Regarding the remaining four shipments, two cobalt-60 shipments were planned from the GE Hitachi's (GEH) Vallecitos Nuclear Center (VNC), Sunol, California (location of the cobalt-60 special form encapsulation facility) to JLS&A, San Fernando, California (where the individual sources are installed in commercial process irradiators). One shipment is to originate at VNC and terminate at DMEA, Sacramento, California, and one shipment is to originate at DMEA and terminate at VNC for the return of the DMEA used sources.

Neither GEH nor JLS&A provided specific and detailed information on the two planned shipments from VNC to JLS&A. Staff's RAI No. 1 dated October 1, 2012, stated the following: "Provide details on the size, type, or configuration of cobalt-60 sources to be shipped from GEH-VNC to JLS&A to allow staff to make a determination on the need for the use of the expired Model No. 1500 package for such transport. There are various domestically approved packages available at this time to transport cobalt-60 sources and the applicant needs to justify why the expired Model No. 1500 is the only package that can be used between VNC and JLS&A."

Since no RAI response was provided on the specific details of these proposed shipments, staff's position is that currently certified packages, other than the expired Model No. 1500, can be used to ship sources from VNC to JLS&A. Such shipments requesting the use of the Model No. 1500 cannot be authorized. As a consequence, this

evaluation pertains only to 2 requested shipments to and from DMEA, for which specific information was provided.

- (3) Reasons for Requesting Extended Use. GEH stated that the Model No. 1500 is “best suited” for the two aforementioned shipments to and from DMEA. GEH provided an analysis of the currently certified Model No. NPI-20WC-6MKII package with regard to the proposed shipment of 19,200 Curies of cobalt-60 to DMEA.
- (4) Safety Justification for Continued Use and Proposed Compensatory Measures.

Shipments will be made by truck, as exclusive use shipments, in accordance with applicable security orders, including NRC Order EA-05-006.

GEH/JLS&A submitted a response to staff’s RAIs that contained an assessment of the capability of a competitor’s certified package to perform the shipments needed by JLS&A. While staff does not agree with the assessment in the JLS&A letter attached to GEH’s October 10 submittal, regarding the capability of the Model No. NPI-20WC-6MkII package to transport 9,500 Ci of cobalt-60 and meet the transportation regulations in 10 CFR part 71, staff will enter the JLS&A assertions in the October 10 transmittal into the NRC allegation process. After the allegation process has been completed, NRC will formally disposition each allegation.

- (5) A Plan and Schedule to Acquire Replacement Packages or Complete Necessary Shipments. GEH had initially designated the Model No. AOS-100 package as their replacement package before making a business decision to pull out of the packaging and transportation business line. JLS&A submitted an application for the Model No. BU650B on June 29, 2012 (see ADAMS Accession Nos. ML121850145 and 121850149), which was not accepted for review by staff on September 5, 2012 (See ADAMS Accession No. ML12261A315). JLS&A further stated that it may take 2 years to develop a better package design and perform the required testing of the prototypes before an application could be resubmitted (See ADAMS Accession No. ML12263A193).

Staff approves the two shipments, including the return of used sources, to and from DMEA, for the following reasons:

- (i) GEH had originally committed to the Model No. AOS-100 package and this package will not be available before the end of December 2012.
- (ii) There is currently no package alternative immediately or reasonably available between now and December 2012. However, staff notes that the Model No. NPI-20WC-6MKII package does represent a viable alternative and can in fact be used. Specific tooling for handling the sources in question may need to be manufactured.
- (iii) DMEA is the Department of Defense center for microelectronics technology, acquisition, transformation, and support. Due to budgetary pressures, DMEA was unable to fund a reloading of their irradiator until this year. DMEA has now a contract in place and the shipment of the cobalt-60 sources will allow DMEA to adequately test the microelectronics devices for defense weapons systems. In its June 20, 2012, letter, staff had previously indicated that it would consider shipments related to national security concerns.

Staff does not intend to grant further authorizations for use of the Model No. 1500 beyond December 31, 2012, because (i) the previously identified Model No. AOS-100 replacement package will be available in January 2013, (ii) the Model No. NPI-20WC-6MKII package is available with sufficient notice, and (iii) sufficient time has passed to arrange alternate plans for performing shipments with currently certified packages without using an expired package.

Staff finds that the package, subject to the conditions listed below, meets the requirements of 10 CFR Part 71.

#### **CONDITIONS**

1. Packaging. Model No. 1500 packaging, conforming to General Electric Company Drawing Nos.: 129D4748, Rev. 7; 129D4749, Rev. 5; and 129D4750, Rev. 9.
2. Contents
  - (a) Type and form of material  

Cobalt-60 as sealed sources that meet the requirements of special form radioactive material.
  - (b) Maximum quantity of material per package  

As specified in Certificate of Compliance No. 5939, Rev. No. 32.
3. Shipment must be closed-transport or flat-bed transport vehicle, as exclusive use shipment.
4. Shipment must be subject to continuous and active monitoring.
5. In addition to the requirements of Subpart G of 10 CFR Part 71:
  - a) Each package must meet the Maintenance Inspection Program of the SAR referenced in the Certificate; and
  - b) The package must be prepared for shipment in accordance with the Operating Procedures of the SAR referenced in the Certificate.
6. This authorization is for a maximum of two shipments, including the return of used sources, to the Defense Microelectronics Activity (DMEA) facility in CA, for the period beginning November 1, 2012, through December 31, 2012.
7. This authorization expires December 31, 2012.

## **CONCLUSIONS**

Based on the statements and representations in the GEH application, supplemented August 31 and October 10, 2012, the staff agrees that the use by GEH of the Model No. 1500 package meets the requirements of 10 CFR Part 71, subject to the conditions listed above.

Issued on October 26, 2012.