

January 23, 2017

Mr. Scott P. Murray
Manager, Facility Licensing
GE-Hitachi Nuclear Energy
3901 Castle Hayne Road
P.O. Box 780
Wilmington, NC 28402

SUBJECT: AUTHORIZATION TO SHIP COBALT-60 SOURCE RODS IN THE MODEL NO.
2000 PACKAGE

Dear Mr. Murray:

By letter dated July 25, 2016, you requested the Nuclear Regulatory Commission re-approve the use of Configuration 1 for the shipment of Cobalt-60 (Co-60) source rods with a decay heat range between 0 and 1500 watts. As stated in your letter, the use of Configuration 1 for the shipment of Co-60 source rods with a decay heat range between 0 and 1500 watts was originally reviewed and approved by the NRC on February 11, 2016 (Agencywide Documents Access and Management System Accession No. ML16043A018). As described in the attached safety evaluation report, Certificate of Compliance (CoC) No. 9228 for the Model No. 2000 package is amended by this letter to allow shipment of Co-60 source rods to the General Electric-Hitachi (GEH) hot cell facility in Vallecitos, California, using the High Performance Insert (HPI) with its dedicated materials basket. All other conditions of CoC No. 9228 shall remain the same. This authorization expires on August 31, 2017, and is limited by the following conditions:

1. The package shall be shipped in "Configuration 1" with a decay heat between 0 - 1,500 watts.
2. The maximum Co-60 activity is 96,750 Curies.
3. The Co-60 source rods shall be shipped in the HPI using the HPI Material Basket.
4. The separators, basket filler, material basket, barrel rack, and basket support, described in sections 5(a)(3)(ix), 5(a)(3)(vi), 5(a)(3)(v), and 5(a)(3)(x) of the CoC, shall not be used.
5. Co-60 is the primary radionuclide allowed to be shipped in the HPI. Co-60 encapsulated in zircalloy and other source rod activation products (such as zirconium) are the radionuclides allowed to be shipped in the HPI.
6. The package will be prepared for shipment and operated in accordance with the operating procedures prescribed in CoC No. 9228, Rev. 26, and supplemented by Chapter 7 of the application dated January 15, 2016.
7. The package shall be shipped in the upright position and will be an exclusive-use shipment.
8. The acceptance tests and maintenance program of the package shall follow the CoC and supplemented by Chapter 8 of the application dated January 15, 2016.

9. The HPI and HPI Material Basket shall be constructed and assembled in accordance with GE Drawing No. 001N8422G001, Rev. 1, "GE 2000 HPI and Material Basket Licensing Drawing," Drawing No. 001N8423G001, Rev. 1, "GE 2000 HPI Licensing Drawing," Drawing No. 001N8424G001, Rev. 1, "GE 2000 HPI Material Basket Assembly Licensing Drawing," Drawing No. 001N8425G001, Rev. 1, "GE 2000 HPI Body Licensing Drawing," Drawing No. 001N8427G001, Rev. 1, "GE 2000 Top Plug Assembly Licensing Drawing," and Drawing No. 001N8428G001, Rev. 1, "GE 2000 HPI Bottom Plug Assembly Licensing Drawing."
10. Modifications to the cask shall be constructed and assembled in accordance with GE Drawing No. 101E8718, Sheet 1, Rev. 16, and Sheet 2, Rev. 15, "Model 2000 Shipping Cask S/N 2001," and Drawing No. 105E9520, Sheet 1, Rev. 8, and Sheet 2, Rev. 7, "Model 2000 Shipping Cask all S/N's Except S/N 2001."
11. The containment boundary of Model No. 2000 package (Configuration 1) includes the steel-clad lead cylinder with a stainless steel forging at each end, the closure lid with O-ring combination, the pipe plugs at vent port and drain port, the containment welds, and the base metals. The O-rings at the vent port and drain port are not part of the containment boundary.

If you have any questions regarding this authorization, please contact me or Chris Allen at (301) 415-6877.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

/RA/

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

Docket No. 71-9228
CAC No. L25134

Enclosure: Safety Evaluation Report

cc: R. Boyle, Department of Transportation

9. The HPI and HPI Material Basket shall be constructed and assembled in accordance with GE Drawing No. 001N8422G001, Rev. 1, "GE 2000 HPI and Material Basket Licensing Drawing," Drawing No. 001N8423G001, Rev. 1, "GE 2000 HPI Licensing Drawing," Drawing No. 001N8424G001, Rev. 1, "GE 2000 HPI Material Basket Assembly Licensing Drawing," Drawing No. 001N8425G001, Rev. 1, "GE 2000 HPI Body Licensing Drawing," Drawing No. 001N8427G001, Rev. 1, "GE 2000 Top Plug Assembly Licensing Drawing," and Drawing No. 001N8428G001, Rev. 1, "GE 2000 HPI Bottom Plug Assembly Licensing Drawing."
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SAFETY EVALUATION REPORT
DOCKET NO. 71-9228
Model No. 2000
Certificate of Compliance No. 9228

SUMMARY

By application dated July 25, 2016, GEH requested authorization to ship Model No. 2000 packages using a HPI with its dedicated materials basket to ship Co-60 source rods. The HPI with its dedicated materials basket is not authorized for use in CoC No. 9228. A letter authorization was previously issued on February 11, 2016 (Agencywide Documents Access and Management System Accession No. ML16043A018) to authorize these shipments. Based on the statements and representations in the application, the staff agrees that use of the package with these additional components meets the requirements of 10 CFR Part 71.

EVALUATION

The applicant requested, by letter dated July 25, 2016, that the NRC re-approve a GEH request to ship Co-60 source rods using a HPI with its dedicated materials basket submitted on December 12, 2014, as supplemented September 25, 2015, October 16, 2015 and January 15, 2016. Based upon the information submitted by GEH on December 12, 2014, as supplemented, staff authorized, by letter dated February 11, 2016, shipment of Co-60 source rods using a HPI with its dedicated material basket in Model No. 2000 packages.

In their request dated July 25, 2016, GEH provided accession numbers for the proprietary information submitted to support authorization of their previous request. GEH requested review and approval of this previously submitted information, and did not identify any changes to the previously provided information. As conditioned in the safety evaluation report issued on February 11, 2016, staff found reasonable assurance that the GEH request to ship Co-60 source rods in Model No. 2000 packages with the HPI and its dedicated materials basket met the requirements of 10 CFR Part 71. Consequently, since GEH has not identified any changes to the information provided previously, staff has reasonable assurance that the shipment of Co-60 source rods in Model No. 2000 packages with the HPI and its dedicated materials basket meets the requirements of 10 CFR Part 71.

CONDITIONS

1. The package shall be shipped in "Configuration 1" with a decay heat between 0 - 1,500 watts.
2. The maximum Co-60 activity is 96,750 Curies.
3. The Co-60 source rods shall be shipped in the HPI using the HPI Material Basket.
4. The separators, basket filler, Material Basket, barrel rack, and basket support, described in sections 5(a)(3)(ix), 5(a)(3)(vi), 5(a)(3)(v), and 5(a)(3)(x) of the CoC, shall not be used.

5. Co-60 is the primary radionuclide allowed to be shipped in the HPI. Co-60 encapsulated in zircalloy and other source rod activation products (such as zirconium) are the radionuclides allowed to be shipped in the HPI.
6. The package will be prepared for shipment and operated in accordance with the operating procedures prescribed in CoC No. 9228, Rev. 26, and supplemented by Chapter 7 of the application dated January 15, 2016.
7. The package shall be shipped in the upright position and will be an exclusive-use shipment.
8. The acceptance tests and maintenance program of the package shall follow the CoC and supplemented by Chapter 8 of the application dated January 15, 2016.
9. The HPI and HPI Material Basket shall be constructed and assembled in accordance with GE Drawing No. 001N8422G001, Rev. 1, "GE 2000 HPI and Material Basket Licensing Drawing," Drawing No. 001N8423G001, Rev. 1, "GE 2000 HPI Licensing Drawing," Drawing No. 001N8424G001, Rev. 1, "GE 2000 HPI Material Basket Assembly Licensing Drawing," Drawing No. 001N8425G001, Rev. 1, "GE 2000 HPI Body Licensing Drawing," Drawing No. 001N8427G001, Rev. 1, "GE 2000 Top Plug Assembly Licensing Drawing," and Drawing No. 001N8428G001, Rev. 1, "GE 2000 HPI Bottom Plug Assembly Licensing Drawing."
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11. The containment boundary of Model No. 2000 package (Configuration 1) includes the steel-clad lead cylinder with a stainless steel forging at each end, the closure lid with O-ring combination, the pipe plugs at vent port and drain port, the containment welds, and the base metals. The O-rings at the vent port and drain port are not part of the containment boundary.

CONCLUSIONS

Based on the statements and representations in the GEH application dated July 25, 2016, the staff agrees that the use of the Model No. 2000 packages by GEH meets the requirements of 10 CFR Part 71 subject to the conditions listed above.

Issued with letter to S. Murray
dated January 23, 2017.