



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

October 11, 2016

Ms. Emily Martin
General Manager, Global Supply Chain
General Electric-Hitachi Nuclear Energy
3901 Castle Hayne Road
Wilmington, NC 28402

SUBJECT: NRC INSPECTION REPORT 07200001/2016-001(DNMS) - GENERAL
ELECTRIC-HITACHI MORRIS OPERATIONS FACILITY

Dear Ms. Martin:

On September 21, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed inspection activities at the General Electric-Hitachi Morris Operations Facility in Morris, Illinois. The purpose of the inspection was to determine whether activities authorized by the license were conducted safely and in accordance with NRC requirements. Specifically, during an on-site inspection on September 19-21, 2016, the inspectors evaluated your emergency preparedness program, environmental monitoring and radiation protection programs, quality assurance program, surveillance and maintenance program, and training program. At the conclusion of the inspection, the results were discussed with Mr. McFadden of your staff during an exit meeting on September 21, 2016.

Areas examined during the inspection are identified in the enclosed report. Within these areas, the inspection consisted of a selective examination of procedures and representative records, interviews with personnel, and observations of activities in progress.

Based on the results of this inspection, the inspectors did not identify any violations of significance of NRC requirements.

In accordance with Title 10 of the *Code of Federal Regulations* (CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

E. Martin

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We will gladly discuss any questions you have concerning this inspection. If you have questions, please contact Mr. Matthew Learn of my staff at 630-829-9603.

Sincerely,

/RA/

Michael Kunowski, Chief
Materials Control, ISFSI, and
Decommissioning Branch

Docket No. 07200001
License No. SNM-2500

Enclosure:
Inspection Report 07200001/2016-001(DNMS)

cc: A. McFadden, Morris Operation
C. Settles, Head Resident Inspection
Illinois Emergency Management Agency
J. Klinger, State Liaison Officer
Illinois Emergency Management Agency

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No.: 072-00001

License No.: SNM-2500

Report No.: 07200001/2016-001(DNMS)

Licensee: GE-Hitachi Nuclear Energy Americas, LLC

Facility: Morris Operation

Location: 7555 East Collins Road
Morris, IL 60450

Dates: September 19-21, 2016

Inspectors: Matthew Learn, Reactor Engineer
Gregory Roach, Senior Resident Inspector

Approved by: Michael Kunowski, Chief
Materials Control, ISFSI, and
Decommissioning Branch
Division of Nuclear Materials Safety

Enclosure

EXECUTIVE SUMMARY

GE-Hitachi Nuclear Energy Americas, LLC Morris Operation NRC Inspection Report 07200001/2016-001(DNMS)

The inspection consisted of observations of site activities and an evaluation of the licensee's programs including radiation protection, surveillance and maintenance, emergency, preparedness, environmental monitoring, training, and quality assurance.

Emergency Preparedness

- The licensee established and maintained its emergency plan in accordance with applicable regulations, the License, and Technical Specifications. (Section 1.1)

Radiation Protection and Environmental Monitoring

- The licensee established and maintained its environmental monitoring and radiation protection programs in accordance with applicable 10 CFR Part 20 and 72 regulations, the License, and Technical Specifications. (Section 1.2)

Quality Assurance

- The licensee conducted audits, Safety Review Committee meetings, corrective actions, and procedural changes in accordance with the Technical Specifications, regulatory requirements, and applicable site procedural requirements. (Section 1.3)

Surveillance and Maintenance

- The licensee implemented its surveillance and maintenance program in accordance with applicable regulations, the License, and Technical Specifications. (Section 1.4)

Training

- The licensee's training program complied with the requirements of the applicable regulations and the License. (Section 1.5)

Report Details

1.0 Away from Reactor Independent Spent Fuel Storage Installation (ISFSI) (IP 60858)

1.1 Emergency Preparedness

a. Inspection Scope

The inspectors reviewed the General Electric-Hitachi Morris Operations (GEHMO) Emergency Plan and reviewed the licensee's post-exercise assessment.

b. Observations and Findings

The GEHMO Emergency Plan was revised on August 21, 2014, and as such there have been no significant changes to the Emergency Plan since the last routine inspection on November 7, 2014.

Section 8.5 of the GEHMO Emergency Plan requires the licensee to perform a biennial exercise to demonstrate emergency response capabilities and effectiveness of the Emergency Plan. The scenario for the September 20, 2016, exercise involved a simulated contaminated injured individual and security event. The inspectors reviewed "GE Morris Operation Emergency Plan and Drill Report," dated August 4, 2016, which discussed the drill and assessed the licensee's performance. The inspectors reviewed quarterly drill records.

No findings were identified.

c. Conclusion

The licensee established and maintains its emergency plan in accordance with applicable regulations, the License, and Technical Specifications.

1.2 Radiation Protection and Environmental Monitoring

a. Inspection Scope

The inspectors reviewed the licensee's 2014 and 2015 Environmental Operating Report as required by 10 CFR Part 72 and Technical Specification 8.2.1 to verify the maximum potential dose to a member of the public was below the required 10 CFR Part 72 limit. In combination with the Environmental Operating Report review, the inspectors evaluated the site boundary thermoluminescent dosimeter (TLD) values for 2014 and 2015 to verify the value reported in the Environmental Operating Reports and that the TLD results were consistent with site radiological conditions. The licensee's Environmental Monitoring Program was also reviewed to determine the adequacy of the licensee's method of determining the maximum public dose. In addition, the inspectors reviewed site occupational dose data for 2014 and 2015 to verify all doses were under the limits established in 10 CFR Part 20.

b. Observations and Findings

The licensee's Environmental Monitoring Program defines the methodology for determining the maximum potential public dose at the site fence from direct radiation. This process uses the most conservative TLD value from each quarter and an occupancy factor for a member of the public at the site fence. The inspectors determined that the TLD values were consistent with site radiological conditions.

The inspectors determined the 2014 and 2015 Environmental Operating Report values for maximum potential dose to a member of the public from direct radiation was consistent with the Environmental Monitoring Program methodology using the most conservative TLD data. This value, when combined with nearly negligible effluent release dose values, was well below the 10 CFR Part 20 regulatory limit.

The inspectors determined that the occupational doses for radiation workers for both 2014 and 2015 were consistent and reasonable when evaluated against the work performed by site personnel, and well under the regulatory occupational dose limits.

No findings were identified.

c. Conclusion

The licensee established and maintained its environmental monitoring and radiation protection programs in accordance with applicable 10 CFR Part 20 and 72 regulations, the License, and Technical Specifications.

1.3 Quality Assurance

a. Inspection Scope

The Inspectors reviewed the licensee's audit, Safety Committee, and corrective action program, as well as the most recent audit report and minutes from the Safety Committee meetings. The inspector reviewed corrective action reports from 2015 and 2016 to determine the licensee's effectiveness in identifying, resolving, and preventing problems. The inspector also reviewed a sample of procedural changes from 2015 and 2016 to verify compliance with the applicable regulations and site procedural requirements.

b. Observations and Findings

Technical Specification 6.4.2 requires audits to be conducted in accordance with GE Nuclear Energy Management procedures. Morris Operation Instruction (MOI) 702, "MO Internal Audits," was used for guidance on conducting audits. Three audits had been completed since the last NRC inspection.

The Safety Committee and its function are specified in Section 6.4.1 of the Technical Specifications and in MOI-904, "Safety Committee." The safety committee is required to meet every 45 days and with a minimum of three members. The function of the Committee is to review plans, procedures, and operations involving the elements of radiological safety prior to implementation. A sample of meeting minutes since the last inspection was reviewed. The minutes indicated that the Committee: met monthly;

always contained the required number of members; reviewed site activities involving radiological safety; and reviewed monthly employee dose reports.

The licensee wrote 46 corrective action requests in 2015 and 2016 as required by 10 CFR 72.172.

The licensee performed five 72.48 applicability analyses for changes, tests, and experiments since the last inspection. The inspectors determined the licensee performed the change and associated applicability analysis in accordance with its 72.48 program and the determination that no 72.48 evaluation was required was consistent with the applicable site procedures and 10 CFR Part 72 regulations.

No findings were identified.

c. Conclusion

The licensee was conducting audits, Safety Review Committee meetings, corrective actions, and procedural changes in accordance with the Technical Specifications, regulatory requirements, and applicable site procedural requirements.

1.4 Surveillance and Maintenance

a. Inspection Scope

The inspectors reviewed the licensee's surveillance and maintenance program associated with wet fuel storage to verify compliance with the applicable regulations, Technical Specifications, and applicable site procedures. The inspectors walked down the spent fuel basin (SFB), observed preventative maintenance activities, interviewed personnel, and reviewed select documents.

b. Observations and Findings

During the walk down of the site and SFB, the inspectors noted the radiological controlled areas to be generally clean and free of dirt and debris, and adequately marked and posted as required.

In accordance with Technical Specification 4.4 requirements, the licensee performed operability and calibration of the basin leak detection system. The basin leak detection system was used to provide indication of a leak in the spent fuel basin liner. The test consisted of the verification of the pumping capability of the system and turning the alarm unit setpoint down to the current leak detection level causing the alarm to activate. The inspectors evaluated the documentation provided for 2015 and 2016. The current leak rate was approximately 150 gallons per day.

In accordance with Technical Specification 4.1 requirements, the licensee utilizes Standard Operating Procedures (SOP) 16-84, "Exhaust Sample Analysis – Compliance Test," Revision 17, to perform effluent air samples between the main stack and the sand filter on a weekly basis to measure activity in the air leaving the sand filter for environmental monitoring purposes. The inspectors evaluated the documentation provided for 2015 and 2016; all activity values were below those specified in the applicable site procedure and Technical Specifications.

In accordance with Technical Specification 4.2 requirements, the licensee utilizes Standard Operating Procedure (SOP) 16-100, "Effluent Water Analysis – Compliance Test," Revision 22, to collect water samples of the sanitary lagoons on a monthly basis to measure activity in the water for environmental monitoring purposes. The inspectors evaluated the documentation provided for 2015 and 2016; all activity values were below those specified in the applicable site procedure and Technical Specifications.

In accordance with Technical Specifications 4.3 requirements, the licensee utilizes SOP 16-110, "Sealed Source Inventory and Leak Check – Compliance test," Revision 16, to perform leak testing of sealed sources on a quarterly basis. The inspectors evaluated the documentation provided for 2015 and 2016; all leak tests results were below those specified in the Technical Specifications.

In accordance with Technical Specifications 4.5 and 4.6 requirements, the licensee utilizes SOP 16-10, "Basin Water Analysis – Compliance Test," Revision 17, to perform SFB water samples on a monthly basis to measure the conductivity and activity in the water to ensure adequate aging management. These values were monitored in order to maintain a benign environment for fuel and equipment stored in the SFB. The inspectors evaluated the documentation provided for 2015 and 2016; all conductivity and activity values were below the limits specified in the Technical Specifications.

The licensee utilizes SOP 16-97, "Criticality Alarms Operability – Compliance Test," Revision 13, and SOP 16-98, "Area Radiation Monitor Calibration – Compliance Test," Revision 21, to partially fulfill Technical Specifications 4.4 requirements. Technical Specification 4.4 states that systems and equipment shall be tested for operability and calibrated at least once during the intervals specified in Table 4-2.

Table 4-2 states that criticality monitors shall be operability tested on an annual basis and calibrated on a quarterly basis. The licensee performed criticality monitor surveillance in accordance with Technical Specification 4.4 and Table 4-2.

Table 4-2 states that area radiation monitors shall be operability tested on a quarterly basis and calibrated on a quarterly basis. The licensee performed area radiation monitor surveillance in accordance with Technical Specification 4.4 and Table 4-2.

No findings were identified.

c. Conclusion

The licensee implemented its surveillance and maintenance program in accordance with applicable regulations, the License, and Technical Specifications.

1.5 Training

a. Inspection Scope

The inspectors reviewed the licensee's training program.

b. Observations and Findings

The inspectors reviewed the training program as well as the qualification records of Operations personnel. MOI-155, "MO Training," and MOI-606, "MO Training Program," were reviewed as well as a sample of qualification records for plant staff. The inspectors verified that all operators met the required training requirements.

No findings were identified.

c. Conclusion

The licensee's training program complied with the requirements of the applicable regulations and the License.

2.0 Exit Meeting

The inspectors presented the inspection results to licensee management at the conclusion of the inspection on September 21, 2016.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PEOPLE CONTACTED

A. McFadden, Plant Manager, GEHMO
B. Partney, Coordinator, Operations and Maintenance
J. Legner, Administrator, EHS and Procurement
M. Venters, Manager, Emergency Preparedness

INSPECTION PROCEDURE USED

60858 Away-From-Reactor ISFSI Inspection Guidance

ITEMS OPENED, CLOSED, AND DISCUSSED

<u>Opened</u>	<u>Type</u>	<u>Summary</u>
None		

<u>Closed</u>	<u>Type</u>	<u>Summary</u>
None		

<u>Discussed</u>	<u>Type</u>	<u>Summary</u>
None		

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
CFR	Code of Federal Regulations
DNMS	Division of Nuclear Materials Safety
GEHMO	General Electric-Hitachi Morris Operations
NRC	United States Nuclear Regulatory Commission
MCID	Materials Control, ISFSI, and Decommissioning Branch
MOI	Morris Operation Instruction
SFB	Spent Fuel Basin
SOP	Standard Operating Procedure
TLD	Thermoluminescent Dosimeter

LIST OF DOCUMENTS REVIEWED

10 CFR 72.48 Evaluations 2014 -215
Annual 2014 OSL Dose Summary
Annual 2015 OSL Dose Summary
Corrective Action Requests 2014-2015
Emergency Plan and Drill Report; dated August 4, 2016
Environmental Operating Report 2014; Letter to NRC RIII Regional Administrator
Environmental Operating Report 2015; Letter to NRC RIII Regional Administrator
Morris Operation Emergency Plan; August 21, 2014
Quality Assurance Plan for Morris Operations; Revision 2
Radiation Dosimetry Reports; 1st through 4th Quarter 2014 and 1st through 4th Quarter 2015
Safety Review Committee Meetings Summaries 2014-2015
SOP 16-10; Basin Water Analysis Compliance Test Data Sheets; January 2010 through August 2010; Revision 17
SOP 16-100; Effluent Water Analysis Compliance Test Surface Water Data Sheets; Revision 22
SOP 16-11; Basin Leak Detection Alarm – Operability Test; Revision 14
SOP 16-110; Sealed Source Inventory and Leak Check; Revision 16
SOP 16-12; Basin Leak Detection Calibration – Compliance Test; Revision 13
SOP 16-84; Exhaust Sample Analysis – Compliance Test; Revision 17
SOP 16-97; Criticality Alarms Operability – Compliance Test; Revision 13
SOP 16-98; Area Radiation Monitor Calibration – Compliance Test; Revision 21