



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

October 21, 2020

Mr. Anthony E. McFadden
Site Manager
G.E.-Hitachi Nuclear Energy
7555 East Collins Road
Morris, IL 60450

SUBJECT: NRC INSPECTION REPORT 07200001/2020-001(DNMS) – GENERAL
ELECTRIC-HITACHI MORRIS OPERATION FACILITY

Dear Mr. McFadden:

On September 24, 2020, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at the General Electric-Hitachi Morris Operation 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, the inspectors evaluated your emergency preparedness and fire protection programs; radiation protection and environmental monitoring programs; quality assurance, corrective action, and change management programs; plant operations, surveillance, and maintenance programs; training program; material control and accountability program, and a recent radioactive material shipment. At the conclusion of the inspection, the results were discussed with you and your staff at an exit meeting on September 24, 2020.

Areas examined during the inspection are identified in the enclosed report. Within these areas, the inspection consisted of a selective review of procedures and records, interviews with personnel, walkdowns of the facility, and observations of activities. Based on the results of this inspection, the inspectors did not identify any violations of significance of NRC requirements.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> in accordance with Title 10 of the *Code of Federal Regulations* (CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding."

A. McFadden

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We will gladly discuss any questions you have concerning this inspection. If you have questions, please contact Dr. Nicole Fields of my staff at 630-829-9570.

Sincerely,

David Hills, Chief
Materials Control, ISFSI, and
Decommissioning Branch
Division of Nuclear Materials Safety

Docket No. 07200001
License No. SNM-2500

Enclosure:
Inspection Report 07200001/2020-001(DNMS)

cc w/encl: B. Lockwood, General Manager
GE-Hitachi Nuclear Energy, Services Operations
S. Reynolds, Head Resident Inspection
Illinois Emergency Management Agency
State of Illinois

Letter to Anthony McFadden from David Hills, dated October 21, 2020.

SUBJECT: NRC INSPECTION REPORT 07200001/2020-001(DNMS) – GENERAL ELECTRIC-HITACHI MORRIS OPERATION FACILITY

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**U.S. Nuclear Regulatory Commission
Region III**

Docket No.: 07200001

License No.: SNM-2500

Report No.: 07200001/2020001

Enterprise Project ID: I-2020-001-0147

Licensee: G.E.-Hitachi Nuclear Energy Americas, LLC

Facility: Morris Operation

Location: 7555 East Collins Road
Morris, IL 60450

Dates: September 21-24, 2020

Inspectors: Rhex Edwards, Senior Health Physicist
Nicole Fields, Health Physicist

Approved by: David Hills, Chief
Materials Control, ISFSI, and
Decommissioning Branch
Division of Nuclear Materials Safety

Enclosure

EXECUTIVE SUMMARY

G.E.-Hitachi Nuclear Energy Americas, LLC Morris Operation NRC Inspection Report 07200001/2020-001(DNMS)

The inspection consisted of observations of licensed activities at the independent spent fuel storage installation (ISFSI) and evaluation of the licensee's programs and recent changes to those programs using inspection procedure (IP) 60858.

Emergency Preparedness and Fire Protection

- The licensee has maintained and implemented the emergency preparedness and fire protection programs in accordance with applicable regulations and the license. (Section 1.1)

Radiation Protection and Environmental Monitoring

- The licensee has maintained and implemented the radiation protection and environmental monitoring programs in accordance with applicable regulations, the license, and the associated technical specifications (TS). (Section 1.2)

Quality Assurance, Corrective Action, and Change Management

- The licensee has implemented the quality assurance, corrective action, and change management programs in accordance with applicable regulations, the license, and the associated TS. (Section 1.3)

Plant Operations, Surveillance, and Maintenance

- The licensee has implemented the operations, surveillance, and maintenance programs in accordance with applicable regulations, the license, and the associated TS. (Section 1.4)

Training

- The licensee has implemented the training program in accordance with applicable regulations and the license. (Section 1.5)

Material Control and Accountability and Radioactive Material Shipment

- The licensee has implemented the material control and accountability program and performed the radioactive material shipment in accordance with applicable regulations, the license, and the associated TS. (Section 1.6)

REPORT DETAILS

1. **IP 60858 - Away-from-Reactor ISFSI Inspection Guidance**

1.1 Emergency Preparedness and Fire Protection

a. Inspection Scope

The inspectors reviewed the Morris Operation emergency plan and related procedures, observed the licensee's biennial emergency exercise on-site on September 22, 2020, and evaluated the licensee's post-exercise critique.

b. Observations and Findings

The Emergency Plan was revised on December 18, 2018 to Revision 5, and the changes from Revision 4 were reviewed. These changes were made without prior NRC approval consistent with 10 CFR 72.44(f) and license SNM-2500 condition 12. The inspectors did not find that any of the changes made reduced the effectiveness of the emergency plan. The licensee notified the NRC of this change on May 28, 2019, in accordance with 10 CFR 72.44(f) and the license.

The licensee performed a biennial exercise and critique in accordance with the requirements of the emergency plan. The scenario for the exercise was comprehensive and involved simulated radiological and non-radiological hazards. The exercise involved off-site response as well as simulated notifications to the appropriate federal and state entities.

The inspectors observed the licensee's on-site post-exercise critique, which thoroughly discussed issues encountered by the licensee as part of the exercise. The inspectors also reviewed the "GE Morris Biennial Exercise Exit Evaluation" report of the September 22, 2020 exercise, which details both the performance of the exercise and the post-exercise critique. The inspectors reviewed quarterly emergency drill records from the first quarter of 2019 through the second quarter of 2020.

No findings of significance were identified.

c. Conclusion

The licensee has maintained and implemented the emergency preparedness and fire protection programs in accordance with applicable regulations and the license.

1.2 Radiation Protection and Environmental Monitoring

a. Inspection Scope

The inspectors reviewed the licensee's occupational radiation protection program for compliance with 10 CFR Part 20. This included reviewing Safety Committee Meeting (SCM) minutes, reviewing occupational doses received by workers, reviewing a selection of Regulated Work Permits (RWPs) and Special Work Permits (SWPs), and reviewing procedures for implementing radiological controls. The inspectors performed walkdowns of the facility to observe the licensee's radiological controls and postings and reviewed recent radiological surveys performed of various areas of the facility.

The inspectors reviewed the licensee's Environmental Monitoring Program, Morris Operation Instruction (MOI) 312, to determine the adequacy of the program in measuring the possible sources of radiation dose to the public. The inspectors reviewed the licensee's 2019 Annual Effluent Report, which was submitted by the licensee to the NRC as required by 10 CFR 72.44(d)(3) and TS 8.2.1. This report also includes a discussion of total potential radiation dose to the public to demonstrate compliance with 10 CFR 72.104. The inspectors reviewed recent surveillance data of Effluent Air samples (TS 4.1.1), Water-evaporation pond and sanitary lagoons samples (TS 4.2.1), and groundwater monitoring well samples. The inspectors reviewed the fence line thermoluminescent dosimeter (TLD) direct radiation data for 2019.

b. Observations and Findings

The inspectors determined that the occupational doses for radiation workers were reasonable when evaluated against the work performed by site personnel, and under the regulatory occupational dose limits. The SCM minutes discussed cumulative occupational dose for the year for each worker, as well as total site occupational dose relative to historical data. The reviewed RWPs and SWPs included appropriate descriptions of the anticipated radiological conditions and the radiation protection controls in place. The SWPs also included the occupational doses to the workers as a result of that activity. The inspectors observed appropriately controlled and posted radiological areas of the facility.

The licensee's Environmental Monitoring Program defines the methodology for determining the maximum potential public dose from both effluent and direct radiation sources. The licensee is following their program for measuring effluent samples, and all samples reviewed were under the appropriate limits. With regard to the direct radiation contribution, the licensee is taking TLD readings quarterly, and is conservatively using the highest recorded TLD values. The licensee is taking credit for occupancy factors in calculating direct dose to a member of the public at the site boundary fence. The inspectors determined that the licensee is appropriately accounting for both effluent and direct radiation dose to the public, and that the licensee is in compliance with the overall dose limits in 10 CFR 72.104.

No findings of significance were identified.

c. Conclusion

The licensee has maintained and implemented the radiation protection and environmental monitoring programs in accordance with applicable regulations, the license, and the associated TS.

1.3 Quality Assurance, Corrective Action, and Change Management

a. Inspection Scope

The inspectors reviewed the licensee's quality assurance, corrective action, and change management programs. The inspectors reviewed the licensee's change to the quality assurance program. The inspectors reviewed the licensee's audits and focused self-assessments completed since October 1, 2018, and the corresponding audit procedures. The inspectors reviewed the licensee's procedures for reporting defects and noncompliance. The licensee did not report any defects during this inspection period.

The inspectors reviewed licensee condition reports from October 2018 through September 2020 to determine the licensee's effectiveness in identifying and correcting issues. The inspectors also reviewed a sample of changes performed by the licensee and the corresponding 10 CFR 72.48 reviews to verify compliance with the applicable regulations and site procedural requirements.

b. Observations and Findings

During this inspection period, the licensee updated the Quality Assurance Plan (QAP) to Revision 4. This revision was submitted to the NRC in January 2020 and approved by the NRC in April 2020. This was the only revision to the QAP since the previous inspection.

The inspectors reviewed the audit of the licensee conducted in December 2019 by G.E.-Hitachi personnel who are not staff at the Morris Operation (NQA-2019-12), an annual radiation protection audit conducted in October 2019, and the licensee's focused self-assessments. Audits and self-assessments were being conducted in accordance with TS 6.4.2, the GE-Hitachi Quality Assurance Program, NEDO-11209-A, Revision 14, and procedures CP-18-100 and CP-18-202.

The inspectors reviewed the condition reports written between October 2018 through September 2020 and determined that the licensee was effective at identifying and correcting issues. Licensee staff were using the corrective action program to resolve issues, and issues were being entered at an appropriate level. There were no 10 CFR Part 21 defects identified.

The licensee is reviewing changes, including procedure changes, for 10 CFR 72.48 applicability. A change to procedure SOP 16-17 was performed in July 2019, and this change was reviewed against the eight 10 CFR 72.48 criteria and found to not require prior NRC approval to implement the procedure change. This review was documented by the licensee in SC-2019-48-01. The inspectors determined that the licensee did not inappropriately make any changes that would require prior NRC approval in accordance with 10 CFR 72.48.

No findings of significance were identified.

c. Conclusion

The licensee has implemented the quality assurance, corrective action, and change management programs in accordance with applicable regulations, the license, and the associated TS.

1.4 Plant Operations, Surveillance and Maintenance

a. Inspection Scope

The inspectors reviewed the licensee's implementation of the surveillance and maintenance programs associated with the wet storage of spent nuclear fuel. The inspectors walked down the spent fuel basin (SFB) area, interviewed personnel, and reviewed documentation of completed TS surveillances.

b. Observations and Findings

The inspectors reviewed selected TS 4.4.1 surveillances completed by the licensee since October 2018. These surveillances included operability tests and calibrations of the basin leak detection system, the area radiation monitors, and the criticality monitors. The surveillances were satisfactorily performed in accordance with the frequencies as required by the TS. The personnel performing these surveillances were knowledgeable of the systems involved and the testing methods.

The inspectors also reviewed the most recent TS 4.5.1 and TS 4.6.1 surveillances, which measure the conductivity and the gross beta concentration of the water samples. The licensee's samples from Basin-1, Basin-2, and demineralized water were all within the TS limits.

No findings of significance were identified.

c. Conclusion

The licensee has implemented the operations, surveillance, and maintenance programs in accordance with applicable regulations, the license, and the associated TS.

1.5 Training

a. Inspection Scope

The inspectors reviewed the licensee's training program, which included interviewing personnel and reviewing operator training records.

b. Observations and Findings

MOI-606, "MO Training Program," describes the licensee's training program for staff. The inspectors reviewed qualification records for licensee staff, which included written re-certification exams for operators, as well as topical courses attended. The inspectors verified that the operators met the training requirements.

No findings of significance were identified.

c. Conclusion

The licensee has implemented the training program in accordance with applicable regulations and the license.

1.6 Material Control and Accountability and Radioactive Material Shipment

a. Inspection Scope

The inspectors reviewed the licensee's material control and accountability program, including the 2019 and 2020 inventory of spent nuclear fuel and the 2020 inventory of sealed sources, which included source leak checks, as applicable. The inspectors performed walkdowns of the storage locations of both the spent nuclear fuel and the radioactive sealed sources. The inspectors also reviewed the licensee's radioactive waste shipment of an evaporator.

b. Observations and Findings

In accordance with 10 CFR 72.72, the licensee is required to conduct an annual physical inventory of its special nuclear material. The licensee uses procedure MOI-314, Revision 7, to inventory the spent fuel stored in fuel basin-1 and fuel basin-2. The licensee has performed annual inventories of the spent fuel stored on-site. Additionally, the licensee has not been receiving, moving, or shipping any spent fuel assemblies.

To comply with TS surveillance 4.3.1, the licensee performs an annual inventory of all radioactive sealed sources and also performs quarterly alpha and beta leak tests on the four applicable sealed sources. The inspectors reviewed the 2020 sealed source inventory, and the most recent leak test results. All results were within the TS limits.

During this inspection period, the licensee made one radioactive material shipment. This shipment was of an evaporator to the EnergySolutions Clive Disposal Site in Clive, UT. The shipment was a low specific activity (LSA-II) class shipment, shipped by exclusive use. The inspectors reviewed the records for the contents and the dose rates for the shipment and found that the licensee was in compliance with the applicable radioactive material shipping requirements in Title 49 of the CFR.

No findings of significance were identified.

c. Conclusion

The licensee has implemented the material control and accountability program and performed the radioactive material shipment in accordance with applicable regulations, the license, and the associated TS.

2. Exit Meeting

The inspectors presented the inspection results to licensee management and staff at the conclusion of the inspection on September 24, 2020.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PEOPLE CONTACTED

A. McFadden, Senior Plant Manager, Morris Operations
F. Partney, Coordinator, Operations and Maintenance
C. Lauterbur, Administrator, EHS & Procurement
C. Gukeisen, Operator and Health Physics Technician
J. Smalley, Operator and Health Physics Technician

INSPECTION PROCEDURE USED

IP 60858 Away-From-Reactor ISFSI Inspection Guidance

ITEMS OPENED, CLOSED, AND DISCUSSED

<u>Opened, Closed, or 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
ISFSI	Independent Spent Fuel Storage Installation
IP	Inspection Procedure
NRC	United States Nuclear Regulatory Commission
MCID	Materials Control, ISFSI, and Decommissioning Branch
MOI	Morris Operation Instruction
RWP	Regulated Work Permit
SWP	Special Work Permit
SCM	Safety Committee Meeting
TLD	Thermoluminescent Dosimeter
TS	Technical Specifications

LIST OF DOCUMENTS REVIEWED

- 2019 Fenceline Radiation Dosimetry Reports; 1Q2019 through 4Q2019
- 2020 Source Inventory; 03/09/2020
- 72.48 Review No.: SC-2018-44-1; 72.48 Applicability Review Checklist; 12/18/2018
- 72.48 Review No.: SC-2019-48-1; Revise SOP 16-17 Fuel Storage System Inspection; 07/31/2019
- 72.44 Review No.: SC-2018-44-1; 72.44 Applicability Review Checklist; 12/18/2018
- Condition Report 35216; Improvements were identified during the emergency exercise; 09/24/2020
- Condition Report 35218; During a periodic regularly scheduled NRC inspection, two test records were found to be incomplete; 09/22/2020
- Condition Reports; November 2018 through August 2020
- CP-18-100; Quality Assurance Internal Audit Requirements; Revision 10.0
- CP-16-108; Corrective Action Program; Revision 13.0
- CP-18-202; Focused Self-Assessments; Revision 12.1
- Certificate of Disposal; 0507C-C-0091; 08/26/2019
- Emergency Plan Drills; 1Q2019 through 2Q2020
- ES-BR-PR-002, Attachment 5.6; Shipment ID Number 0507C-C-0091; 08/21/2019
- Focused Self-Assessment Reports; December 2018 through June 2020
- Form 540; Uniform Low-Level Radioactive Waste Manifest Shipping Paper; 08/26/2019
- GE Morris Biennial Exercise Exit Evaluation; 09/22/2020
- GE Morris Operation Radiological Protect Program Annual Audit; October 2019
- Instrument Calibration Form; Basin Leak Detection; June, July, and August 2020
- M200010; Revised Version of the GE-Hitachi Nuclear Energy, Morris Operation, Topical Report NEDE-31559, Entitled "GE-Hitachi Nuclear Energy Quality Assurance Plan - Morris Operation," Revision 4; 01/23/2020
- M200030; 2019 GEH Morris Operation Annual Effluent Report; 02/24/2020
- MOC Preliminary Screening SOP 16-17; 07/31/2019
- MOC Preliminary Screening SOP 16-84; 02/24/2020
- MOI-205; Completing the MO Situation Notification Worksheet; Revision 5
- MOI-223; Off-Site Contamination Release; Revision 8
- MOI-224; Fire; Revision 11
- MOI-233; Situation Plan; Revision 24
- MOI-310; Reporting Defects and Noncompliance; Revision 8
- MOI-312; Environmental Monitoring Program; Revision 4
- MOI-314; Physical Inventory; September 2019, September 2020
- MOI-430; Preparation of Safety Analysis; Revision 10
- MOI-606, Attachment 4; Operator Training and Certification Program Training Summary; June 2019
- MOI-606, Attachment 5; Job Performance Statement; June 2019
- MOI-717; Condition Reporting and Management; Revision 7
- MOI-725; Document Control; Revision 26
- MOI-934; Fire Protection Program; Revision 1
- NEDE-31559; GE-Hitachi Nuclear Energy Quality Assurance Plan Morris Operation; Revision 4
- NEDO-11209-A; GEH Quality Assurance Program Description; Revision 14
- NEDO-21326D12, Appendix B.22; Off-site Dose Calculation Manual for General Electric – Morris Operation; 01/25/2011
- NEDO-31955; GE-Hitachi Morris Operation Emergency Plan; Revision 5
- NQA-2019-12; GEH Morris; 12/27/2019
- Operator Re-Certification Exams; June 2019
- Package Characterization Report; 08/20/2019
- Radiation and Contamination Surveys; 2020

- Safety Committee Meeting Minutes; June, July, and August 2020
- SOP 16-10, Attachment 2; Basin Water Analysis Compliance Test Data Sheet; August 2020
- SOP 16-11, Attachment 3; Basin Leak Detection Alarm Operability Test Data Sheet; October 2018 through August 2020
- SOP 16-12, Attachment 2; Basin Leak Detection Calibration – Compliance Test – Data Sheet; October 2018 through August 2020
- SOP 16-84, Attachment 2; Stack Loop 1 & 2 and Prefilter Flow Data Sheet; September 2020
- SOP 16-97, Attachment 2; Criticality Alarms – Compliance Test Data Sheet; 4Q2018 through 3Q2020
- SOP 16-98, Attachment 3; ARM Calibration and Compliance Test Data Sheet; 4Q2018 through 3Q2020
- SOP 16-100, Attachment 2; Effluent Water Analysis Compliance Test Surface Water Data Sheet; August 2020
- SOP 16-102, Attachment 2; Effluent Water Analysis Compliance Test Groundwater Data Sheet; July 2020
- SOP 16-110; Sealed Source Inventory and Leak Check – Compliance Test; Revision 16
- SWP F19-217-1; Radiation Survey #689383-3; 08/15/2019
- SWP F20-014-1; Special Work Permit; 01/15/2020
- SWP F20-80-1; Special Work Permit; 04/21/2020
- SWP F20-99-1; Special Work Permit; 04/09/2020
- Training Records; September 2019, October 2019, April 2020
- WI-16-108-07; Reporting of Defects and Noncompliance Under 10 CFR Part 21; Revision 8.0