



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

March 7, 2024

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

SUBJECT: NRC INSPECTION REPORT NO. 07200001/2023001 (DRSS)
GENERAL ELECTRIC-HITACHI MORRIS OPERATION FACILITY

Dear Anthony McFadden:

On February 9, 2024, 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. The enclosed report presents the results of this inspection, which were discussed with you and other members of your staff on February 9, 2024.

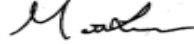
During the inspection period, the NRC inspectors reviewed the following aspects of onsite activities: design changes, radiation protection, emergency preparedness, maintenance and surveillances, environmental monitoring, and quality assurance. The inspection consisted of an examination of activities at the site as they relate to safety and compliance with the Commission's rules and regulations. 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, reviewing work activities, and interviews with personnel.

Based on the results of this inspection, the NRC identified one Severity Level (SL) IV violation of NRC requirements. However, because of the very low safety significance and because the issue was entered into your corrective action program (CAP), the NRC is treating the issue as a Non-Cited Violation (NCV), in accordance with Section 2.3.2 of the NRC's Enforcement Policy.

No response is required for the NCV. However, if you contest the violation or significance of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, Region III; and the Director, Office of Enforcement.

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> and at the NRC Public Document Room in accordance with Title 10 of the Code of Federal Regulations (CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,



Signed by Learn, Matthew
on 03/07/24

Matthew C. Learn, Team Lead
Decommissioning, Reactor, and ISFSI HP Branch
Division of Radiological Safety and Security

Docket No: 72-0001
License No: SNM-2500

Enclosure:
IR Nos. 07200001/2023001(DRSS)

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Letter to A. McFadden from M. Learn dated March 7, 2024.

SUBJECT: NRC INSPECTION REPORT NO. 07200001/2023001 (DRSS)
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: 07200001/2023001(DRSS)

Enterprise Identifier: I-2023-001-0097

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

Facility: Morris Operation

Location: Morris, IL

Dates: March 20, 2023 to February 9, 2024

Inspectors: Daniel Sargis, Health Physicist

Approved by: Matthew C. Learn, Team Lead
Decommissioning, Reactor, and ISFSI HP Branch
Division of Radiological Safety and Security

Enclosure

EXECUTIVE SUMMARY

**G.E.-Hitachi Nuclear Energy Americas, LLC
Morris Operation
NRC Inspection Report Nos. 07200001/2023-001(DRSS)**

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.

Changes, Tests, and Experiments

- The inspectors identified one Severity Level IV non-cited violation (NCV) of very low safety significance of Title 10 of the Code of Federal Regulations (CFR) 72.48(d)(1), "Changes, Tests, and Experiments," when the licensee failed to document the basis for why a change did not require a license amendment.
- The inspector with the assistance of staff in the Office of Nuclear Reactor Regulation (NRR) and the Office of Nuclear Materials Safety and Safeguard (NMSS) reviewed calculations associated with a proposed natural gas pipeline near the GEH-MO site boundary. The staff did not identify any technical issues of concern with addition of the pipeline. (Section 1.1)

Radiation Protection Program

- The licensee has maintained and implemented the radiation protection program in accordance with applicable regulations and the license. (Section 1.2)

Emergency Preparedness Program

- The licensee has maintained and implemented the emergency preparedness program in accordance with applicable regulations and the license. (Section 1.3)

Maintenance and Surveillance Program

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

Environmental Monitoring Program

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

Quality Assurance Program

- The licensee has maintained and implemented the quality assurance and corrective action programs in accordance with applicable regulations and the license. (Section 1.6)

Report Details

1.0 IP 60858 – Away-from-Reactor ISFSI Inspection Guidance

1.1 Changes, Tests, and Experiments

a. Inspection Scope

The inspectors reviewed the licensee's change management program. The inspectors reviewed a sample of changes performed by the licensee and corresponding 10 CFR 72.48 reviews to verify compliance with the applicable regulations and site procedural requirements.

The inspector reviewed 10 CFR 72.48 change evaluation SC-2022-48-01 to evaluate the proposed Three Rivers Lateral (TRL) natural gas pipeline. The proposed TRL pipeline will traverse to the west of the ISFSI.

b. Observations and Findings

The inspectors identified one Severity Level IV NCV of very low safety significance of 10 CFR 72.48(d)(1), "Changes, Tests, and Experiments," when the licensee failed to document the basis for why a change did not require a license amendment.

The licensee performed 10 CFR 72.48 change evaluation SC-2022-48-01 to evaluate a proposed natural gas pipeline near the GEH-MO boundary. A 10 CFR 72.48 evaluation is used to determine if a proposed change, test, or experiment requires prior NRC approval via license amendment under 10 CFR 72.56.

The licensee's Consolidated Safety Analysis Report (CSAR) Section 3.3 "Nearby Industrial, Transportation, and Military Facilities" states, in part: "None of the industrial, military, or transportation activities in the area present a credible hazard to the fuel storage facility nor to the transport of irradiated nuclear fuel. Explosions or fires at nearby industrial facilities would be too far away to have any influence on fuel in storage." However, the inspector noted that the licensee did not have an existing method of evaluation to evaluate nearby fire and explosion hazards used in establishing the design bases or in the safety analyses.

NRC Inspection Manual Chapter 0335 provides guidance to NRC inspectors on the assessment of 10 CFR 72.48 evaluations. It states that the evaluation explanations should be complete in the sense that another knowledgeable reader could draw the same conclusion. Restatement of the criteria in a negative sense or making simple statements of conclusion is not sufficient and should be avoided.

The inspector reviewed the licensee's 10 CFR 72.48 evaluation SC-2022-48-01 and identified that the evaluation did not provide information to demonstrate the basis for the determination that the change did not require a license amendment pursuant to 10 CFR 72.48(c)(2).

The inspector performed an independent review of the 10 CFR 72.48 evaluation SC-2022-48-01 and did not identify any criteria of 10 CFR 72.48 that would require prior NRC approval.

The inspector reviewed the licensee procedure for conducting 10 CFR 72.48 evaluations and the procedure did not provide comprehensive guidance that would have prevented providing an inadequate basis for why the change did not need a license amendment. This is similar to an example in the NRC enforcement manual for a Severity Level IV violation.

10 CFR Part 72.48(d)(1) states, in part, that the licensee and certificate holder shall maintain records of changes in the facility made pursuant to 10 CFR 72.48(c). These records must include a written evaluation which provides the bases for the determination that the change does not require a license amendment pursuant to paragraph (c)(2) of this section.

Contrary to the above, as of December 15, 2022, the licensee failed to maintain records of changes in the facility made pursuant to 10 CFR 72.48(c) that included a written evaluation which provided the bases for the determination that the change does not require a license amendment pursuant to 10 CFR 72.48(c)(2). Specifically, the evaluation for a proposed natural gas pipeline near the property did not explain why a safety evaluation of the pipeline did not result in a departure from a method of evaluation described in the CSAR.

Because this matter was of very low safety significance and has been entered into the licensee's corrective action program as Condition Report (CR) 42029, this violation is being treated as an NCV consistent with the NRC Enforcement Policy. (NCV 07200001/2023001-01).

The licensee's CR 42029 included actions to revise SC-2022-48-01 with additional detailed information.

The inspector, with the assistance of staff in NRR and NMSS reviewed calculations associated with the proposed pipeline. The calculations included a hazard analysis and frequency of failure analysis for the proposed pipeline included in C-FER Technologies Hazard Analysis Report of the Three Rivers Pipeline Lateral for the ISFSI, May 17, 2022, and Enbridge Pipeline Integrity Frequency of Failure Analysis for GE Hitachi Nuclear Energy, Morris Operation ISFSI: Final Report, April 12, 2022. Specifically, the staff observed:

The estimated annual frequency for failure of the proposed pipe section was determined to be small since the estimated rupture frequency is conservative as the model parameters used to estimate the annual rupture frequency are conservative;

The maximum overpressure generated by either a 10-minute or a 20-minute natural gas release from both ends of the proposed ruptured pipeline under different confinement conditions would be significantly lower than 1 psi; and

The calculated thermal offset distance was determined using a well-known jet/crater fire model and the estimated thermal offset distance of 508 ft is acceptable.

The staff did not identify any technical issues of concern with addition of the pipeline.

c. Conclusion

The inspectors identified one Severity Level IV NCV of very low safety significance of 10 CFR 72.48(d)(1), "Changes, Tests, and Experiments," when the licensee failed to document the basis for why a change did not require a license amendment.

The inspectors with the assistance of staff in NRR and NMSS reviewed calculations associated with a proposed natural gas pipeline near the GEH-MO site boundary. The staff did not identify any technical issues of concern with addition of the pipeline.

1.2 Radiation Protection Program

a. Inspection Scope

The inspectors reviewed the licensee's occupational radiation protection program for compliance with 10 CFR Part 20. The inspectors performed walkdowns of the facility to observe the licensee's radiological controls and postings, reviewed recent radiological surveys, and conducted interviews with personnel.

The inspectors also reviewed storage locations for licensed radioactive materials and verified that special nuclear material was accounted for.

b. Observations and Findings

The inspector 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 reviewed radiation worker permits included appropriate descriptions of the anticipated radiological conditions and the radiation protection controls in place. The inspectors observed appropriately controlled and posted radiological areas of the facility.

The inspector determined that special nuclear materials stored at the site were accounted for and that the types and quantities of radioactive materials stored on site were in conformance with restrictions in the license.

The inspector did not identify any deficiencies in the site's ALARA practices and did not identify any worker dose that was close to regulatory limits. The inspectors verified that the licensee had access to appropriate radiological monitoring and survey instruments and that they were calibrated. The inspector's independent radiological surveys were consistent with surveys conducted by the licensee.

No findings of significance were identified.

c. Conclusion

The licensee has maintained and implemented the radiation protection program in accordance with the applicable regulations and the license.

1.3 Emergency Preparedness Program

a. Inspection Scope

The inspectors reviewed the Morris Operation emergency plan and related procedures. The inspectors reviewed a sample of evaluations and critiques from drills performed by the site since the last inspection and changes to the emergency plan since the last inspection.

b. Observations and Findings

The emergency plan did not have any major revisions since the last inspection, and the inspectors did not identify any changes that reduced the effectiveness of the emergency plan.

The inspector reviewed previously performed drills and determined that drills were being conducted within the frequency of scope specified in the Morris Operation emergency plan.

No findings of significance were identified.

c. Conclusion

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

1.4 Maintenance and Surveillance Program

a. Inspection Scope

The inspector reviewed the licensee's implementation of the surveillance and maintenance programs associated with the wet storage of spent nuclear fuel. The inspector walked down the spent fuel basin area, interviewed personnel, and reviewed documentation of completed technical specification surveillances.

b. Observations and Findings

The inspector reviewed selected technical specification surveillances completed by the licensee since the previous inspection. The surveillances reviewed included operability tests and calibrations of the basin leak detection system, the area radiation monitors, the criticality alarms, and basin water samples. The surveillances were completed satisfactorily and in accordance with the frequency required by technical specifications.

The inspector walked down the ISFSI facility to assess the material condition of the site and to verify that combustible materials were properly stored within the facility. The inspector did not identify any deficiencies that would impact the safe operation of the ISFSI facility. Combustible material was stored in appropriate locations.

No findings of significance were identified.

c. Conclusion

The licensee has maintained and implemented the maintenance and surveillance programs in accordance with applicable regulations, the license, and technical specifications.

1.5 Environmental Monitoring Program

a. Inspection Scope

The inspector reviewed the licensee's environmental monitoring program to determine the adequacy of the program in measuring the possible sources of radiation dose to the public. The inspector reviewed the licensee's most recent annual effluent report. The inspector walked down the fence line dosimeter locations and reviewed direct radiation data.

b. Observations and Findings

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 within the appropriate limits. The licensee performed direct reading radiation measurements in accordance with their program to calculate direct dose to a member of the public at the site boundary fence. The inspector determined that the licensee is appropriately accounting for both effluent and direct radiation dose to the public in accordance with the dose limits in 10 CFR 72.104.

No findings of significance were identified.

c. Conclusion

The licensee has maintained and implemented the environmental monitoring program in accordance with applicable regulations and the license.

1.6 Quality Assurance Program

a. Inspection Scope

The inspector reviewed the licensee's quality assurance and corrective action programs. The inspector reviewed the licensee's audits and focused self-assessments completed since the last inspection. The inspector reviewed the licensee's condition reports generated since the last inspection.

b. Observations and Findings

The licensee was effective at identifying and correcting issues. The licensee staff were using the corrective action program to resolve issues and issues were being entered at an appropriate level. Condition reports were assigned priority in accordance with their significance.

The licensee was performing audits and focused self-assessments in accordance with their quality assurance program.

No findings of significance were identified.

c. Conclusion

The licensee has maintained and implemented the quality assurance program in accordance with applicable regulations and the license.

2.0 Exit Meeting

The inspectors presented the inspection results to Anthony McFadden and other members of the licensee staff on February 9, 2024. The licensee acknowledged the issues presented.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

A. McFadden, Senior Plant Manager, Morris Operations
F. Partney, Coordinator, Operations and Maintenance
C. Lauterbur, Administrator, EHS & Procurement

INSPECTION PROCEDURES (IPs) USED

IP 60858 Away-From-Reactor Independent Spent Fuel Storage Installation Inspection
Guidance

ITEMS OPENED, CLOSED, AND DISCUSSED

<u>Opened</u>	<u>Type</u>	<u>Summary</u>
07200001/2023001-01	NCV	Failure to document bases for why a change did not require a license amendment (Section 1.1)
<u>Closed</u>	<u>Type</u>	<u>Summary</u>
07200001/2023001-01	NCV	Failure to document bases for why a change did not require a license amendment (Section 1.1)

PARTIAL LIST OF DOCUMENTS REVIEWED

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety, but rather that selected sections of portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

- 2022 Q4; Drill Exit Evaluation; 11/29/2022
- 2022 Q2; Drill Exit Evaluation; 06/29/2022
- 2023-02; Monthly Radiation Survey; 02/13/2023
- CR 38331; Dosimeters Lost During Shipment; 11/24/2021
- CR 39495; Basin Filter Pump Seized; 05/02/2022
- CR 39029; Structural Inspection Results; 02/11/2022
- CR 41197; Renewed License Condition Tracking; 11/22/2022
- CR 42029; NRC Identified Issues with 10CFR72.48 Evaluation; 03/21/2023
- F23-52-1; Quarterly Smear Surveys; 02/21/2023
- M230027; 2022 GEH Morris Operation Annual Effluent Report; 02/20/2023
- M335; Hazard Analysis of the Three Rivers Pipeline Lateral for the ISFSI; 05/17/2022
- MOI-312; Environmental Monitoring Program; 12/18/2014
- MOI 314; Special Nuclear Material Accountability; 11/30/2015
- MOI 314; 2022 Fuel Inventory; 09/14/2022
- MOI-430; Preparation of Safety Analysis; 11/30/2015
- MOI-717; Condition Reporting and Management; 10/12/2017
- MOI 934; Fire Protection Program; 07/22/2019
- NEDO21326D12 App B.22; Offsite Dose Calculation Manual; 01/25/2011

- NQA-2021-09; GEH Morris Operations Internal Audit Report; 01/07/2022
- Pipeline Integrity Frequency of Failure Analysis for GE Hitachi Nuclear Energy, Morris Operation ISFSI; 04/12/2022
- SC-2021-48-1; Revise MO CSAR NEDO-21326; 02/23/2021
- SC-2022-48-1; Provide Easement for 20" Natural Gas Pipeline; 12/15/2022
- SOP 16-98; ARM Calibration and Compliance Test; 01/16/2023
- SOP 16-12; Basin Leak Detection Calibration Compliance Test; 02/08/2023
- SOP 16-11; Basin Leak Detection Alarm Operability Test; 02/20/2023
- SOP 16-97; Criticality Alarms Compliance Test; 02/20/2023

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access and Management System
ALARA	As Low As Is Reasonably Achievable
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
CSAR	Consolidated Safety Analysis Report
DRSS	Division of Radiological Safety and Security
GEH-MO	GE Hitachi, Morris Operation
IP	Inspection Procedure
IR	Inspection Report
ISFSI	Independent Spent Fuel Storage Installation
NCV	Non-Cited Violation
NMSS	Office of Nuclear Material Safety and Safeguards
NRC	U.S. Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
TRL	Three Rivers Lateral