



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

July 14, 2021

Ms. Connie Flohr, Manager
Department of Energy
Idaho Cleanup Project
1955 Fremont Ave., MS 1203
Idaho Falls, ID 83415

SUBJECT: THREE MILE ISLAND UNIT-2 INDEPENDENT SPENT FUEL STORAGE
INSTALLATION - NRC INSPECTION REPORT 07200020/2021-001

Dear Ms. Flohr:

This letter refers to the U.S. Nuclear Regulatory Commission's (NRC's) announced routine inspection conducted on June 21 - 24, 2021, of the dry cask storage activities associated with your Independent Spent Fuel Storage Installation (ISFSI). The NRC inspectors discussed the results of this inspection with Mr. Steve Ahrendts, NRC Licensed Facility Director, and other members of your staff during the on-site final exit meeting conducted on June 24, 2021. The inspection results are documented in the enclosure to this letter.

The inspectors examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of aging management inspection activities, and interviews with personnel. Specifically, the inspectors reviewed the dry cask storage operations for compliance with the requirements specified in the site-specific ISFSI License SNM-2508 and associated Technical Specifications, the ISFSI Final Safety Analysis Report, and the regulations in Title 10 of the *Code of Federal Regulations* (CFR) Part 72 and Part 20. No violations were identified and a response to this letter is not required.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter, its enclosure, and your response if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC's Website at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy or proprietary information so that it can be made available to the Public without redaction.

C. Flohr

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If you have any questions regarding this inspection report, please contact Lee Brookhart at 817-200-1549, or the undersigned at 817-200-1249.

Sincerely,

**Gregory G.
Warnick** Digitally signed by
Gregory G. Warnick
Date: 2021.07.14
16:07:40 -05'00'

Gregory G. Warnick, Chief
Reactor Inspection Branch
Division of Nuclear Materials Safety

Docket Nos.: 72-020
License Nos.: SNM-2508

Enclosure:
Inspection Report 07200020/2021-001

THREE MILE ISLAND UNIT-2 INDEPENDENT SPENT FUEL STORAGE INSTALLATION -
NRC INSPECTION REPORT 07200020/2021-001 - DATED JULY 14, 2021

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U.S. NUCLEAR REGULATORY COMMISSION REGION IV

Docket No.: 07200020

License No.: SNM-2508

Report No.: 07200020/2021-001

Enterprise Identifier: I-2021-001-0173

Licensee: U.S. Department of Energy - Idaho Operations Office

Location: Idaho Falls, Idaho 83415

Inspection Dates: On-site: June 21-24, 2021

Exit Meeting Date: June 24, 2021

Inspectors: L. Brookhart, Senior ISFSI Inspector
Reactor Inspection Branch
Division of Nuclear Materials Safety, Region IV

C. Smith, Reactor/ISFSI Inspector
Reactor Inspection Branch
Division of Nuclear Materials Safety, Region IV

Accompanied By: M. Davis, Senior Transportation and Storage Inspector
Inspection and Oversight Branch
Division of Fuel Management, Headquarters

Approved By: G. Warnick, Chief
Reactor Inspection Branch
Division of Nuclear Materials Safety, Region IV

Enclosure

EXECUTIVE SUMMARY

NRC Inspection Report 07200020/2021-001

On June 21-24, 2021, the U.S. Nuclear Regulatory Commission (NRC) performed a routine on-site inspection of the dry fuel storage activities of the Independent Spent Fuel Storage Installation (ISFSI) at the Idaho National Laboratory (INL) outside of Idaho Falls, Idaho. The inspection included an evaluation of the current condition of the ISFSI, observations of licensee's aging management inspections, and reviews of several topical areas to evaluate compliance with the applicable NRC regulations and the provisions of the site-specific license. The inspection included reviews of documentation relevant to ISFSI activities and operations that occurred at the Three Mile Island Unit-2 (TMI-2) ISFSI facility since the last inspection was performed in May 2018 (ADAMS Accession No. ML18171A380). The documentation reviewed included quality assurance records, radiological surveys, corrective action reports, and records demonstrating compliance with Technical Specifications and Final Safety Analysis Report (FSAR) requirements. The NRC inspectors did not identify any findings or violations during the inspection.

Away from Reactor ISFSI Inspection Guidance, Inspection Procedure 60858

- The inspectors reviewed the quality assurance audits and surveillances performed by the contractor and the Department of Energy-Idaho Office (DOE-ID) Quality Assurance Department since the last ISFSI inspection. Issues identified in the quality assurance audits and surveillances were entered into the site's corrective action program for resolution. No findings were identified related to the licensee's ISFSI quality assurance activities. (Section 1.2.a)
- Radiation levels around the ISFSI facility were within the expected ranges. The ISFSI facility was maintained in good physical condition. No flammable materials were stored in the ISFSI, all vegetative growth had been controlled, and radiation postings met the requirements 10 *Code of Federal Regulations* (CFR) Part 20 requirements. (Section 1.2.b)
- Environmental data reviewed from the 2018, 2019 and 2020 site radiological environmental operating reports determined that radiation levels offsite were nominal and in accordance with the design basis and 10 CFR Part 72.104. (Section 1.2.c)
- Since the last NRC ISFSI inspection, DOE-ID's 20-year license renewal request was approved by the NRC and the licensee completed one revision to their FSAR. No issues were identified in the review of the changes associated with the license or FSAR. (Section 1.2.d)
- The DOE-ID had begun implementation their TMI-2 ISFSI Aging Management Program, which was a requirement of the 20-year license renewal. The Aging Management Program is documented in the licensee's Certificate of Compliance and FSAR. The inspectors were on-site to observe multiple days of the site's baseline inspection activities. The inspectors observed that the canisters and Horizontal Storage Modules (HSMs) were good condition, only minor corrosion or degradation was observed. Additionally, the inspectors observed that previously inspected outside areas of the HSMs had already been repaired or remediated by the licensee. The licensee was on track to complete the FSAR's baseline inspections deadline of September 16, 2021. (Section 1.2.e)

- Selected deficiency reports and corrective action requests were reviewed for the period of June 2018 through June 2021. A wide range of issues were identified and resolved by the licensee. The issues identified did not impact the safety of the facility and all resolutions of those issues were appropriate. No adverse trends were identified during the review. (Section 1.2.f)
- The TMI-2 ISFSI Emergency Response Plan was being maintained and one revision to the plan was reviewed by the inspectors. The inspectors determined the changes did not reduce the effectiveness of the plan and did not require NRC approval pursuant to 10 CFR 72.44. Drills, exercises, and training were performed in accordance with requirements in the plan. Offsite support agencies were offered an opportunity to participate in the licensee's latest biennial exercise. (Section 1.2.g)
- The inspectors reviewed a sample of 10 CFR 72.48 screenings and evaluations that had been performed within the inspection period. No findings were identified through the selected sample review. (Section 1.2.h)

REPORT DETAILS

Summary of Facility Status

The Three Mile Island Unit-2 (TMI-2) Independent Spent Fuel Storage Installation (ISFSI) was loaded with 29 dry shielded canisters (DSCs) in Orano TransNuclear (TN) NUHOMS Horizontal Storage Modules (HSMs). Each DSC contains 12 TMI-2 fuel debris canisters (12T cask system). The ISFSI is maintained under a site-specific NRC Part 72 license. The facility was being maintained by Spectra Tech Inc. (STI) as the management and operation contractor for Department of Energy – Idaho Office (DOE-ID). The site currently maintains the ISFSI in accordance with SNM-2508 License Amendment 5 Renewed and the Final Safety Analysis Report (FSAR) Revision 9.

1. Away From Reactor ISFSI Inspection Guidance (IP60858)

1.1 Inspection Scope

The inspectors performed a review of the licensee's ISFSI activities to verify compliance with requirements of the site-specific License SNM-2508, License Amendment 5 Renewed, and FSAR Revision 9. The inspectors observed aging management activities, reviewed selected procedures, corrective action reports, and records to verify ISFSI operations were compliant with the licensee's Certificate of Compliance, Technical Specifications, requirements in the FSAR, and NRC regulations.

1.2 Observations and Findings

a. Quality Assurance Audits

Since the last ISFSI inspection, both DOE-ID and the contractor, STI, had performed numerous Quality Assurance (QA) audits and QA surveillances of operations at the TMI-2 ISFSI since the last NRC inspection in May 2018. A total of six audit reports and 33 surveillance records were sampled for review during the inspection. The licensee's audit and surveillance program encompassed many topical areas and provided in-depth reviews of the licensee's ISFSI programs, operations, training, and record keeping. The audits covered ISFSI documentation and activities related to ISFSI Technical Specifications; FSAR requirements; implementation of ISFSI programs; training and qualifications; design control; emergency preparedness; and other ISFSI-related areas.

All identified issues were placed into either the licensee's corrective action program (CAP) or STI's CAP as deficiency reports (DRs) or Corrective Action Requests (CARs). Each DR or CAR required a formal response from the impacted program department. The inspectors reviewed the problem statements for all DRs and CARs that resulted from the ISFSI audits. The DRs/CARs were evaluated to ensure that the problems being identified were properly categorized based on their safety significance and were properly resolved by the licensee. The inspectors determined corrective actions identified or taken for the issues were appropriate for the significance of the problems being identified. The inspectors did not identify any concerns related to the findings of

the site's QA auditing and surveillance program. The audits and surveillances performed met the requirements of 10 CFR 72, Subpart G and the licensee's QA program requirements.

b. Radiological Conditions and Tour of the ISFSI

A tour of the TMI-2 ISFSI was performed during the inspection. A recent radiological survey of the ISFSI was provided to the inspectors prior to arrival at the facility. The ISFSI Manager accompanied the inspectors during the facility tour. During the tour, the inspectors determined that the concrete HSMs and the HSM lids were in good physical condition. No flammable or combustible materials were observed anywhere inside or near the ISFSI and all vegetative growth within the ISFSI fence had been controlled by the licensee. Radiation levels surveyed by the licensee near the edges of the ISFSI remained at background levels. Areas within the ISFSI pad that required postings were properly posted in accordance with 10 CFR Part 20 requirements.

c. Radiological Environmental Monitoring Reports

The TMI-2 ISFSI Annual Radiological Environmental Monitoring Reports were reviewed for 2018, 2019, and 2020. The site's environmental monitoring program measured the direct radiation impacts of facility operations at 22 dosimetry stations along the outer perimeter fence of the TMI-2 ISFSI. The program includes annually monitoring loose surface radioactive contamination surveys at the vent and purge ports of each DSC and the drain port of each HSM. Additionally, a low-volume air sampler, between the two rows of HSMs, is used to collect air through a particulate filter during a seven-day period each month.

The ISFSI 100-meter security boundary fence locations are the ones used to demonstrate compliance with the 10 CFR 72.104 requirements for radiation dose. For the three-year period reviewed by the inspectors, the dose measurements at the dosimetry locations remained at consistent levels. The dose results demonstrated the maximum dose to an individual of the public was well below the 10 CFR 72.104(a)(2) requirement of less than 25 mrem per year. No findings were identified related to the radiological review.

d. Changes to the SNM-2508 License and FSAR

At the time of the last inspection conducted in June 2018, TMI-2 ISFSI utilized SNM-2508 License Amendment 5 and FSAR Revision 8. Since then, on September 16, 2019, DOE-ID received a 20-year license renewal for the ISFSI from the NRC. The SNM-2508 ISFSI License Amendment 5 Renewed has an expiration date of midnight on March 19, 2039.

The FSAR was revised once since the last inspection. Revision 9 updated the FSAR based on the changes that were approved by the NRC as part of the license renewal process. The major changes associated with License Amendment 5 Renewed and Revisions 9 of the FSAR was the inclusion of License Condition 17 and FSAR Section 9.8, titled *Aging Management*. This program established the processes and procedures to manage the aging of ISFSI components into extended storage periods. Per the License Condition 17, the Aging Management Program (AMP) was required to be established within one year after the issuance of the renewed license and per

Section 9.8 of the FSAR, baseline inspections were to be completed no later than 2 years after the renewed license effective date (September 16, 2021).

e. Aging Management Inspections

In September 2020, DOE-ID performed some of the AMP baseline inspections using direct visual testing (VT-1) of the accessible areas of the TMI-2 ISFSI HSMs, DSCs, and ISFSI pad. The licensee had already begun performing minor repairs on the outside surfaces of the HSMs and ISFSI pad. The inspectors noted the concrete surfaces of the HSMs to be in good condition with only superficial defects and minor spalling.

During the NRC inspection, the licensee was in the process of performing the AMP remote visual testing (VT-3) of the non-accessible areas of the HSMs and DSCs. The licensee was using remote monitoring equipment that allowed the licensee to view all surfaces of the DSC using a very long probe equipped with a borescope camera capable of VT-3 inspection levels. Inspectors were on-site to observe borescope inspections of the outside of the DSC and the inside of the HSM. The inspectors observed that the canisters and HSMs were in good condition, only minor corrosion or degradation was observed. The licensee's assessment of AMP inspection activities was incomplete during the NRC inspection period. The licensee was on track to complete the FSAR's AMP baseline inspections deadline of September 16, 2021.

f. Corrective Action Program

The inspectors performed a review of TMI-2 ISFSI's CAP associated with ISFSI operations. A list of ISFSI-related DRs and CARs issued since the last routine NRC inspection in May 2018 was provided by the licensee during the current inspection. Several DRs and CARs were selected by the inspectors for further review.

The conditions discussed in the DRs and CARs reviewed covered a broad range of paperwork and maintenance issues that were identified during routine ISFSI storage operations. Based on the types of problems identified, the licensee continued to demonstrate a reasonably low threshold for placing ISFSI and maintenance issues into the CAP. The actions taken to resolve the issues were appropriate. No significant safety concerns or adverse trends were identified during the review of the CAP at the TMI-2 ISFSI facility.

g. Emergency Planning

A revision to the licensee's Emergency Plan since the last NRC inspection in May 2018 was reviewed. The TMI-2 ISFSI Emergency Response Plan, STI-NLF-EIP-015, Revision 1 had been issued in October 2020. The changes to the plan were related to only editorial corrections. The inspectors determined the changes were appropriate, did not result in a decrease in the effectiveness of the plan, and pursuant to 10 CR 72.44, the changes did not require NRC approval.

Required emergency drills/exercises were listed in Section 13.5 of the plan. Required annual drills included radiological/health physics drills, medical drills, and fire drills. Biennial exercises were larger drills that tested the adequacy of the implementing procedures, emergency equipment, and communications networks and ensured the emergency response personnel were familiar with their duties. Offsite response

organizations were invited to participate in the biennial exercises. The licensee had successfully conducted the required exercises and drills since the last ISFSI inspection. A sample of drill packages and the most recent biennial exercise were selected for review. The inspectors determined that the selected drills and the exercise met the objectives of the site's Emergency Response Plan. No concerns were identified with the licensee's implementation of their Emergency Response Plan.

h. 10 CFR 72.48 Safety Evaluations and Screenings

The licensee's 10 CFR 72.48 screenings and evaluations performed since the NRC's last ISFSI inspection were reviewed to determine compliance with regulatory requirements.

The licensee performed several procedure revisions, one FSAR revision, equipment changes, and some process changes through the 10 CFR 72.48 program since the last inspection. The inspectors reviewed the 10 CFR 72.48 screenings and evaluations for those changes made within the ISFSI program. All screenings and evaluations were determined to be adequately performed.

1.3 Conclusions

The inspectors reviewed the QA audits and surveillances performed by the contractor and DOE-ID QA Department since the last ISFSI inspection. Issues identified in the QA audits and surveillances were entered into the site's CAP for resolution. No findings were identified related to the licensee's ISFSI QA activities.

Radiation levels around the ISFSI facility were within the expected ranges. The ISFSI facility was maintained in good physical condition. No flammable materials were stored in the ISFSI, all vegetative growth had been controlled, and radiation postings met the requirements 10 CFR Part 20 requirements.

Environmental data reviewed from the 2018, 2019 and 2020 site radiological environmental operating reports determined that radiation levels offsite were nominal and in accordance with the design basis and 10 CFR 72.104.

Since the last NRC ISFSI inspection, DOE-ID's 20-year license renewal request was approved by the NRC and the licensee completed one revision to their FSAR. No issues were identified in the review of the changes associated with the license or FSAR.

The DOE-ID had begun implementation their TMI-2 ISFSI AMP, which was a requirement of the 20-year license renewal. The AMP is documented in the licensee's Certificate of Compliance and FSAR. The inspectors were on-site to observe multiple days of the site's baseline AMP inspection activities. The inspectors observed that the canisters and HSMs were good condition, only minor corrosion or degradation was observed. Additionally, the inspectors observed that previously inspected outside areas of the HSMs had already been repaired or remediated by the licensee. The licensee was on track to complete the AMP baseline inspections deadline of September 16, 2021.

Selected DRs and CARs were reviewed for the period of June 2018 through June 2021. A wide range of issues were identified and resolved by the licensee. The issues

identified did not have an impact on the safety of the facility and all resolutions of those issues were appropriate. No adverse trends were identified during the review.

The TMI-2 ISFSI Emergency Response Plan was being maintained and one revision to the plan was reviewed by the inspectors. The inspectors determined the changes did not reduce the effectiveness of the plan and did not require NRC approval pursuant to 10 CFR 72.44. Drills, exercises, and training were performed in accordance with requirements in the plan. Offsite support agencies were offered an opportunity to participate in the licensee's latest biennial exercise.

The inspectors reviewed a sample of 10 CFR 72.48 screenings and evaluations that had been performed within the inspection period. No findings were identified through the selected sample review.

2. Exit Meeting Summary

On June 24, 2021, the inspectors presented the final inspection results of the ISFSI inspection to Mr. Steve Ahrendts, NRC Licensed Facility Director, and other members of the licensee's staff.

**SUPPLEMENTAL INSPECTION INFORMATION
PARTIAL LIST OF PERSONS CONTACTED**

Licensee Personnel

S. Ahrendts, NRC License Facility Director, DOE-ID
D. Bland, ISFSI Program Manager, STI
J. Long, TMI-2 ISFSI Manager, STI
S. Wahnschaffe, NRC License Manager, DOE-ID

INSPECTION PROCEDURES USED

IP 60858 Away from Reactor ISFSI Inspection Guidance

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
AMP	Aging Management Program
CAP	Corrective Action Program
CAR	Corrective Action Request
CFR	<i>Code of Federal Regulations</i>
DOE-ID	Department of Energy - Idaho Operations Office
DNMS	Division of Nuclear Materials Safety
DR	Deficiency Report
DSC	dry shielded canisters
FSAR	Final Safety Analysis Report
HSM	Horizontal Storage Module
INL	Idaho National Laboratory
IP	Inspection Procedure
ISFSI	Independent Spent Fuel Storage Installation
NRC	U.S. Nuclear Regulatory Commission
QA	Quality Assurance
STI	Spectra Tech, Incorporated
TMI-2	Three Mile Island Unit-2
TN	Transnuclear
VT-1	Direct Visual Testing
VT-3	Remote Visual Testing