



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD, SUITE 102
KING OF PRUSSIA, PA 19406-1415

February 07, 2024

John Sauger
President and Chief Nuclear Officer
TMI-2 Solutions, LLC
121 West Trade Street, Suite 2700
Charlotte, NC 28202

SUBJECT: TMI-2 SOLUTIONS, LLC, THREE MILE ISLAND NUCLEAR STATION,
UNIT 2 - NRC INSPECTION REPORT NO. 05000320/2023004

Dear John Sauger:

On December 31, 2023, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection under Inspection Manual Chapter (IMC) 2561, "Decommissioning Power Reactor Inspection Program," at the permanently shutdown Three Mile Island Nuclear Station, Unit 2 (TMI-2). On-site inspection activities were performed October 31-November 2, and November 28-30, 2023. Additional inspection activities (in office reviews) were conducted remotely during the inspection period. The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and the conditions of your license. The inspection consisted of observations by the inspectors, interviews with site personnel, a review of procedures and records and plant walk-downs. The results of the inspection were discussed with Frank Eppler, Deputy Project Director, and other members of your staff on January 17, 2024, and are described in the enclosed report.

Within the scope of this inspection, no violations of more than minor safety significance were identified.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if any, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC document system (ADAMS), accessible from the NRC website at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response, if any, should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Current NRC regulations and guidance are included on the NRC's website at www.nrc.gov; select **Radioactive Waste; Decommissioning of Nuclear Facilities**; then **Regulations, Guidance and Communications**. The current Enforcement Policy is included on the NRC's website at www.nrc.gov; select **About NRC, Organizations & Functions; Office of Enforcement; Enforcement documents**; then **Enforcement Policy** (Under 'Related Information'). You may also obtain these documents by contacting the Government Printing Office (GPO) toll-free at 1-866-512-1800. The GPO is open from 8:00 a.m. to 5:30 p.m. EST, Monday through Friday (except Federal holidays).

No reply to this letter is required. Please contact Steve Hammann of my staff at 610-337-5399, if you have any questions regarding this matter.

Sincerely,

Anthony Dimitriadis, Chief
Decommissioning, ISFSI, and Reactor Health
Physics Branch
Division of Radiological Safety and Security

Docket No.: 05000320
License No.: DPR-73

Enclosure:
Inspection Report No.: 05000320/2023004

cc w/ encl: Distribution via ListServ

SUBJECT: TMI-2 SOLUTIONS, LLC, THREE MILE ISLAND NUCLEAR STATION, UNIT 2 -
NRC INSPECTION REPORT NO. 05000320/2023004 DATED
FEBRUARY 07, 2024.

DOCUMENT NAME: <https://usnrc.sharepoint.com/teams/Region-I-Decommissioning-Branch/Inspection Reports/Inspection Reports - Draft/TMI U2 inspection report 4Q 2023.docx>
SUNSI Review Complete: SHammann

After declaring this document An Official Agency Record it will be released to the Public.

ADAMS ACCESSION NO. ML24031A275

OFFICE	DRSS/RI	DRSS/RI				
NAME	SHammann/SH	ADimitriadis				
DATE	1/31/24	02/07/2024				

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION
REGION 1

INSPECTION REPORT

Inspection No. 05000320/2023004

Docket No.: 05000320

License No.: DPR-73

Licensee: TMI-2 Solutions, LLC (TMI-2 Solutions)

Facility: Three Mile Island Nuclear Station, Unit 2 (TMI-2)

Location: Middletown, PA

Inspection Dates: October 1, 2023, to December 31, 2023

Inspectors: Stephen Hammann, Senior Health Physicist
Decommissioning, ISFSI, and Reactor Health Physics Branch
Division of Radiological Safety and Security

Harold Anagnostopoulos, CHP, CSP, Senior Health Physicist
Decommissioning, ISFSI, and Reactor Health Physics Branch
Division of Radiological Safety and Security

Approved By: Anthony Dimitriadis, Chief
Decommissioning, ISFSI, and Reactor HP Branch
Division of Radiological Safety and Security

EXECUTIVE SUMMARY

TMI-2 Solutions, LLC
Three Mile Island Unit 2
NRC Inspection Report No. 05000320/2023004

A routine announced decommissioning safety inspection was completed at the permanently shut-down Three Mile Island, Unit 2 (TMI-2) on December 31, 2023. On-site inspection activities were performed October 31 - November 2, and November 28-30, 2023. The inspection included a review of fire protection, effluent, and environmental monitoring, radwaste and transportation, and decommissioning performance and status. The inspection consisted of observations by the inspectors, interviews with site personnel, a review of procedures and records, and plant walk-downs. The NRC's program for overseeing the safe decommissioning of a shutdown nuclear power reactor is described in Inspection Manual Chapter (IMC) 2561, "Decommissioning Power Reactor Inspection Program."

Based on the results of this inspection, no violations of more than minor safety significance were identified.

REPORT DETAILS

1.0 Background

In December 1993, TMI-2 received a possession-only license from the NRC to enter Post-Defueling Monitored Storage (PDMS). On December 18, 2020, the license for TMI-2 was transferred from GPU Nuclear, Inc. to TMI-2 Solutions (ADAMS No. ML20352A381). On October 27, 2022, TMI-2 Solutions submitted Revision 5 of the Post-Shutdown Decommissioning Activities Report (ADAMS No. ML22306A051). On March 31, 2023, NRC staff issued an amended license to TMI-2 Solutions removing TMI-2 from Post Defueling Monitored Storage and allowing the commencement of decommissioning activities (ADAMS No. ML23051A042). TMI-2 is in active decommissioning as described in IMC 2561.

2.0 Active Decommissioning Performance and Status Review

a. Inspection Scope [Inspection Procedures (IPs) 64704, 71801, 84750, 86750]

The inspectors performed on-site decommissioning inspection activities on October 31-November 2, and November 28-30, 2023, supplemented by in-office document reviews and periodic phone calls. The inspections consisted of observations by the inspectors, interviews with site personnel, a review of procedures and records, and plant walk-downs.

The inspectors walked down selected fire areas to determine if the requirements detailed in the post-shutdown decommissioning activities report (PSDAR), the defueled fire hazard analysis, and pre-fire plans were being met. The inspectors examined the installed "Protectowire" fire detection system, including the control and indication panel located in the U1/U2 common hallway, and the fire dampers in the Containment Air Control Enclosure (CACE) to assess if the systems were effectively maintained and capable of performing their intended functions. The inspectors reviewed changes to the fire protection program (FPP) to determine if they reduced the effectiveness of fire protection, considering the current plant configuration and decommissioning activities. The inspectors reviewed TMI-2 Solutions most recent assessment of the fire protection program as required by NRC regulations. The inspectors reviewed the log of hot work permits for 2023, the most recently completed hot work permit, and the site procedure for the control of hot work. The inspectors examined the roster of qualified incipient fire brigade members, reviewed their training material, and reviewed documentation for annual drills. The inspectors reviewed the records of the Londonderry Volunteer Fire Department mutual aid and response onsite training as specified in their letter of agreement with Constellation Energy (the site property owner). The inspectors verified that TMI-2 Solutions was identifying problems related to the fire protection program at an appropriate threshold and is entering them into the corrective action program.

The inspectors attended plan of the day meetings, performed a walkdown of the auxiliary building, fuel handling building (FHB), and CACE, and reviewed the current status of the overall project to determine compliance with the license, technical specifications, and PSDAR. The inspectors observed work being performed on the equipment hatch enlargement and FHB cleanout to ensure compliance with work packages and plant procedures and interviewed the radiation protection operations manager about the radiation protection aspects of the work. The inspectors reviewed work packages for

modifications to the liquid radwaste system and reactor building ventilation and reviewed year to date dose records for site personnel.

The inspectors reviewed activities and documentation associated with effluent and environmental monitoring programs to determine if the licensee effectively controlled, monitored, and quantified releases of radioactive materials to the environment. The inspectors performed a walkdown of the gaseous monitoring system to determine the material condition of equipment. The inspectors reviewed procedures, the annual radiological environmental monitoring program (REMP) report, the annual radioactive effluent report, and the off-site dose calculation manual.

The inspectors observed activities, interviewed personnel, performed walkdowns and reviewed documentation to evaluate the effectiveness of the licensee's programs for handling, storage, and transportation of radioactive material. The inspectors observed workers handling and packaging radioactive waste and performed a walk-down of radioactive waste storage locations to determine if the licensee had properly classified and stored radioactive materials. The inspectors observed personnel surveying, labeling, and placarding vehicles used for transporting radioactive waste and observed the vehicle checkout and instructions given to the vehicle drivers. Additionally, the inspectors reviewed documented transportation packages including records of shipment packaging, surveying, labeling, marking, placarding, vehicle checks, and emergency instructions to determine compliance with the applicable NRC and Department of Transportation (DOT) regulations. The inspectors reviewed the training program and records to determine if radwaste personnel were qualified to appropriately implement the site solid radwaste program.

b. Observations and Findings

The inspectors determined that TMI2-Solutions maintained the FPP within NRC requirements and the fire protection plan minimizes the potential for radiological releases in the event of a fire at the plant. The inspectors verified fire protection equipment had been maintained and were in a state of operational readiness. The inspectors verified staffing and training of the on-site incipient fire brigade was adequate and agreements were appropriately established with the local fire department to be the primary responder for onsite fires. The inspectors found that TMI-2 had now transitioned their fire protection program such that it no longer relied upon any active or passive fire suppression system, and now credited only portable extinguishing systems and an offsite response. The inspectors noted that TMI-2 had transitioned to a Working Hours Incipient Fire Brigade (WHIFB) and therefore personnel protective equipment and manual fire-fighting equipment were no longer required. The inspectors found that there were a sufficient number of qualified WHIFB members, and that relevant training material and routine drills were sufficient for the task. The inspectors found that offsite emergency response had been appropriately coordinated through the Constellation Energy Fire Marshall at Unit 1.

The inspectors determined the work being performed on the equipment hatch enlargement and reactor building cleanout was performed safely and in accordance with work plans and plant procedures and that radiation protection technicians effectively maintained radiological controls for the work-in-progress. The inspectors noted that the site status was in compliance with license and NRC requirements.

The inspectors determined that effluent releases to the environment had been properly controlled, monitored, and quantified as required by NRC regulations. The inspectors verified that the annual radiological effluent and the annual REMP reports demonstrated that calculated doses were below regulatory dose criteria of 10 CFR 50, Appendix I. The inspectors noted the site environmental and effluent program is controlled and documented by Constellation Energy Generation, LLC, owners of Three Mile Island Unit 1 (TMI-1), and most aspects of the program are inspected under the TMI-1 license.

The inspectors verified solid radioactive waste was adequately stored and monitored and worker radwaste training and qualifications were up to date. The inspectors also verified that radioactive waste shipping paperwork was properly completed and Northstar personnel were knowledgeable of their duties and responsibilities. The inspectors determined radioactive waste shipped was properly classified, described, packaged, marked, and labeled, and was in proper condition for transportation. The inspectors determined the licensee's radwaste shipments were in compliance with NRC and DOT regulations.

c. Conclusions

No violations of more than minor safety significance were identified.

3.0 Exit Meeting Summary

On January 17, 2024, the inspectors presented the inspection results to Frank Eppler, Deputy Project Director, and other members of TMI-2 Solutions staff. No proprietary information was retained by the inspectors or documented in this report.

PARTIAL LIST OF PERSONS CONTACTED

F. Eppler, Deputy Project Director
D. Delvechio, Project Director
M. Casey, SME
T. Devik, Manager, Nuclear Licensing
D. Divittore, Radiation Protection Operations Manager
J. Harris, Radwaste Supervisor
G. McCarty, Radiation Protection Manager
D. Morneault, Structural Engineer
H. Pell, Licensing Engineer
J. Scott, ALARA Engineer
K. Sena, Fire Protection Engineer
M. Scott, Radwaste Broker
A. Spriggle, Fire Marshall

ITEMS OPEN, CLOSED, AND DISCUSSED

None

PARTIAL LIST OF DOCUMENTS REVIEWED

Audits and Reports

Post-Defueling Monitored Storage Safety Analysis Report, Update 14
Post-Shutdown Decommissioning Activities Report (PSDAR), Revision 5
Safety Evaluation by The Office of Nuclear Material Safety and Safeguards, Office of Nuclear Reactor Regulation, and Office of Nuclear Security and Incident Response Related to Amendment No. 67 to Possession-Only License No. DPR-73, TMI-2 Solutions, LLC, Three Miles Island Nuclear Station, Unit No. 2, Docket No. 50-320, dated 3/31/2023.
TMI2-QA-AUD-2023-0001, Audit of Radiation Protection Program

Engineering Changes and Work Packages

TMI2-C-AB-WKPG-1098, Rev. 1, Install Liquid Radwaste & Water Processing Pipe
TMI2-EN-MPKG-00-0026, Rev. 1, Modification Package, TMI2 Decon WDL System
TMI2-EN-EID-M-00-0025, Rev. 2, Engineering Installation Instruction, TMI2 Decon WDL System
TMI2-EN-MPKG-M-00-0033, Modification Package, RB Duct Modifications

Fire Protection

Assessment, "TMI2 Fire Protection Program Assessment", TMI2-MA-FASA-2023-0011, dated 10/2/2023.
Fire Protection Program Evaluation (fire hazards analysis), Rev. 0, TMI2-EN-DPL-F-00-0004, dated 11/29/2022.
Hot Work Permit 23-070
Lesson Plan, "Fire Extinguishers and Agents", TMI2-FP-DBIG-012
Lesson Plan, "ESJ Fire Watch", TMI2-FP-DBIG-013
Log, Hot Work Permits 2023
Log, open ESJ work requests related to fire protection.
"Portable Fire Extinguisher Usage Demonstration Checklist", Attachment 1
Pre-Fire Plans, TMI Unit 2, May 3, 2023, Edition
Roster, current TMI-2 Incipient Fire Brigade members and qualification status
Rosters, TMI-2 Incipient Fire Brigade Drills for 2022
Rosters, TMI-2 Incipient Fire Brigade Drills for 2023

Procedures and Programs

Fire Protection Program Plan, Rev. 1, TMI2-FP-PN-001, dated 11/30/2022.
TMI2-FP-5048-0021 Fire Protection Review Form dated 8/23/2023.
TMI2-FP-PR-015, Rev. 1, "TMI-2 Control of Transient Combustible Material"
TMI2-LLRW-WM-PR-003, Rev. 1, Waste Material Control and Tracking
TMI2-LLRW-WM-PR-004, Rev. 1, Waste Characterization and Classification
TMI2-LLRW-WM-PR-005, Rev. 1, Sampling of Hazardous Materials and Wastes
TMI2-LLRW-WM-PR-011, Rev. 1, RADMAN Suite Software Package
TMI2-LLRW-WM-PR-017, Rev. 0, Shipment of Hazardous Materials
TMI2-LLRW-WM-PR-019, Rev. 1, Training and Qualifications of Waste Management Personnel
TMI2-RP5-PR-005, Rev. 1, Radiological Posting and Labeling Requirements
TMI2-RP5-PR-006, Rev. 0, Unconditional Release Survey Method from Radiologically Controlled Areas
TMI2-RP5-PR-007, Rev. 1, Surveying Radioactive Material for Shipment
TMI2-SH-PR-064, Rev. 2, "TMI-2 Hot Work Control"

Corrective Reports

ES-TMI-CR-2022- 0002, 0026, 0050, 0064, 0070, 0085, 0169, 0197; 2023- 0042, 0079, 0104, 0117, 0163, 0216, 0223

Miscellaneous

Inventory, radioactive sources for TMI-2
Training Certificates for radwaste shippers
Transportation Package LLRW-23-0030, 0031
Work Process Request 2023-WPR-082

LIST OF ACRONYMS USED

ADAMS	Agency Documentation and Management System
CACE	Containment Air Control Envelope
CFR	Code of Federal Regulations
DOT	Department of Transportation
FHB	Fuel Handling Building
FPP	Fire Protection Program
GPO	Government Printing Office
IMC	Inspection Manual Chapter
IP	Inspection Procedure
NRC	U.S. Nuclear Regulatory Commission
PDMS	Post-Defueling Monitored Storage
PSDAR	Post Shutdown Decommissioning Activities Report
REMP	Radiological Environmental Monitoring Program
TMI-1	Three Mile Island, Unit 1
TMI-2	Three Mile Island, Unit 2
TMI-2 Solutions	TMI-2 Solutions, LLC
WHIFB	Working Hours Incipient Fire Brigade