



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION I  
475 Allendale Rd., SUITE 102  
KING OF PRUSSIA, PA 19406-1415

January 29, 2024

David P. Rhoades  
Senior Vice President  
Constellation Energy Generation, LLC  
President and Chief Nuclear Officer  
Constellation Nuclear  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: CONSTELLATION ENERGY GENERATION, LLC, THREE MILE ISLAND  
NUCLEAR STATION, UNIT 1 - NRC INSPECTION REPORT NO.  
05000289/2023006

Dear David P. Rhoades:

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 1 (TMI-1). On-site inspection activities were performed August 28-30, September 11-12, 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 Steve Minnick, Site Decommissioning Director (Acting), and other members of the TMI-1 staff on January 11, 2023, 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](http://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](http://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 M. Dimitriadis, Chief  
Decommissioning, ISFSI, and Reactor Health  
Physics Branch  
Division of Radiological Safety and Security

Docket No.: 05000289  
License No.: DPR-50

Enclosure:  
Inspection Report No.: 05000289/2023006

cc w/ encl: Distribution via ListServ

SUBJECT: CONSTELLATION ENERGY GENERATION, LLC, THREE MILE ISLAND NUCLEAR STATION, UNIT 1 - NRC INSPECTION REPORT NO. 05000289/2023006 DATED JANUARY 29, 2024.

DOCUMENT NAME: <https://usnrc.sharepoint.com/teams/Region-I-Decommissioning-Branch/Inspection Reports/Inspection Reports - Draft/TMI U1 inspection report 2nd 2023.docx>  
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DATE	1/22/2024	1/29/2024				

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U.S. NUCLEAR REGULATORY COMMISSION  
REGION 1

INSPECTION REPORT

Inspection No. 05000289/2023006

Docket No: 05000289

License No.: DPR-50

Licensee: Constellation Energy Generation, LLC (Constellation)

Facility: Three Mile Island Nuclear Station, Unit 1 (TMI-1)

Location: Middletown, PA

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

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

Harry Anagnostopoulos, CHP, CSP, Senior Health Physicist  
Decommissioning, ISFSI, and Reactor HP 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**

Constellation Energy Generation, LLC  
Three Mile Island Unit 1  
NRC Inspection Report No. 05000289/2023006

A routine announced decommissioning inspection was completed at the permanently shut-down Three Mile Island Station, Unit 1 (TMI-1) on December 31, 2023. On-site inspection activities were performed August 28-30, September 11-12, October 31-November 2, and November 28-30, 2023. The inspection included a review of the safety reviews and modification, fire protection, effluent, and environmental monitoring, and radwaste and transportation. 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 shut-down 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.

## 1.0 Background

On September 26, 2019, Constellation sent a letter [Agency Documentation and Management System (ADAMS) Accession Number ML19269E480] to the NRC certifying the permanent cessation of activities and certifying that the fuel had been permanently removed from the reactor. This met the requirements of 10 CFR 50.82(a)(1)(i) and 50.82(a)(1)(ii). TMI-1 is currently in the SAFSTOR phase of decommissioning as described in IMC 2561.

## 2.0 SAFSTOR Performance and Status Review

### a. Inspection Scope [Inspection Procedures (IP) 37801, 64704, 84750, 86750]

The inspectors performed on-site decommissioning inspection activities on August 28-30, September 11-12, October 31-November 2, and November 28-30, 2023, supplemented by in-office reviews of documents and periodic phone calls. The inspection consisted of observations by the inspectors, interviews with site personnel, a review of procedures and records, and plant walk-downs.

The inspectors conducted document reviews and interviews with plant personnel to determine if Constellation's procedures and processes conformed with the regulations and guidance associated with 10 CFR 50.59. The inspectors also reviewed Exelon's 50.59 review process that is used to determine if a 10 CFR 50.59 evaluation was needed and reviewed a sampling of 10 CFR 50.59 screenings. The inspectors reviewed the qualification and training for 10 CFR 50.59 screeners and evaluators and reviewed meeting minutes for a Safety Review Committee meeting.

This inspectors performed a walkdown of selected fire areas and verified that the requirements detailed in the post-shutdown decommissioning activities report, the defueled fire hazard analysis, and pre-fire plans were being met. The inspectors examined the installed fire protection, detection and suppression systems in the Flammable Liquids Storage Building to determine if the systems were effectively maintained and capable of performing their intended function. The inspectors reviewed installed plant fire water supply hose reels to assess compatibility with offsite responder equipment. The inspectors reviewed changes to the fire protection program (FPP) to assure that they do not reduce the effectiveness of fire protection, taking into account the current plant configuration and decommissioning activities. The inspectors reviewed Constellation's most recent assessment of the fire protection program as required by NRC regulations and also reviewed administrative controls used by Constellation for the use and storage of combustible materials. The inspectors reviewed the roster of qualified incipient fire brigade members, reviewed their training material, and documentation for annual drills. The inspectors reviewed the records of the Londonderry Volunteer Fire Department mutual aid and response onsite training. In addition, the inspectors reviewed site condition reports to determine if Constellation was identifying problems related to the fire protection program at an appropriate threshold and had entered them into the corrective action program.

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 in liquid and gaseous forms

to the environment. The inspectors accompanied site personnel on walkdowns of liquid monitoring systems and discharge points to determine the material condition of equipment. The inspectors accompanied a chemistry technician during the collection of monitoring well environmental samples to determine if sampling techniques were in accordance with procedures. The inspectors also walked down select dosimetry stations and monitoring wells to determine accessibility, material condition, and whether they were located as described in the Off-Site Dose Calculation Manual (ODCM). The inspectors reviewed procedures, the annual radiological environmental monitoring program (REMP) report, the annual radioactive effluent report, and the ODCM. The inspectors reviewed liquid discharge permits to determine if the releases were within the limits specified in the regulations and technical specifications and reviewed the implementation of TMI-1's radiological groundwater protection program to determine if it met regulatory requirements.

The inspectors observed activities, interviewed personnel, performed walkdowns and reviewed documentation to verify the effectiveness of the licensee's programs for handling, storage, and transportation of radioactive material. The inspectors attended pre-job briefs for radwaste activities to assess their ability to identify critical steps of the evolution, potential failure scenarios, and human performance tools to prevent errors. The inspectors observed workers move a resin liner into a shipping container, site personnel surveying, labeling, and placarding vehicles used for transporting 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 interviewed drivers of radwaste shipments and reviewed transportation packages for shipments of radioactive waste. The review included records of shipment packaging, surveying, labeling, marking, placarding, vehicle checks, and emergency instructions to ensure 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. The inspectors reviewed the most recent sealed source inventory and leak tests to determine compliance with NRC regulations.

b. Observations and Findings

The inspectors determined that 10 CFR 50.59 screenings had been performed and that Constellation had trained and qualified individuals to perform the screenings and evaluations. The inspectors determined that no changes or modifications had been made in the past year which would have required prior NRC approval in accordance with 10 CFR 50.59.

The inspectors determined that Constellation 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 and fire water supply systems had been maintained and appropriately tested 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 noted that the current fire hazards analysis for Unit 1 no longer requires the maintenance of fire barrier components beyond the plant structural components themselves. Also, since Unit 1 had shifted its fire response strategy to the use of an incipient fire brigade, with an offsite response from a local fire department, the inspectors noted that inventory,

inspection, or testing of personnel protective equipment or manual fire-fighting equipment was also no longer required.

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. Additionally, the inspectors verified that environmental samples were collected in accordance with site procedures and effluent sampling equipment and area radiation monitors were checked, calibrated, and maintained as specified in the ODCM. The inspectors verified sampling stations were accessible and as described in the ODCM.

The inspectors verified solid radioactive waste was adequately stored and monitored and worker radwaste training and qualifications were up to date. The inspectors determined the licensee workforce conducted the movement of the resin liner into a shipping container in a safe manner and in accordance with the work packages and procedures. The inspectors determined that pre-job briefings were thorough and identified the significant potential hazards for the activities to be performed. The inspectors also verified that radioactive waste shipping paperwork was properly completed, and Constellation 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 11, 2024, the inspectors presented the inspection results to Steve Minnick, Site Decommissioning Director (Acting), and other members of Constellation's staff. No proprietary information was retained by the inspectors or documented in this report.



## **PARTIAL LIST OF PERSONS CONTACTED**

T. Orth, Site Decommissioning Director  
S. Minnick, Site Decommissioning Director (Acting)  
K. Bissinger, Fire Marshall  
R. Holmes, Senior Manager RP/Chem/Environmental  
R. Fauntleroy, RP Technician  
S. Fink, Site Project Management Lead  
D. Jordan, Decommissioning Specialist, Environmental  
D. Kenny, Senior Manager, Site Security  
A. McGraw, Fire Protection and Decommissioning Engineer  
D. Moore, Senior Radiation Protection Specialist  
J. Shrum, Supervisor, Radiation Protection  
C. Smith, Regulatory Assurance Manager  
W. Stoner, Supervisor, Radiation Protection

### **CGS Personnel**

R. Baumann, Chemistry Technician

## **ITEMS OPEN, CLOSED, AND DISCUSSED**

None

## **LIST OF DOCUMENTS REVIEWED**

### **Audits and Reports**

2022 Annual Radiological Effluent Release Report  
2022 Annual Radiological Environmental Operating Report  
Audit Report, Rev. 1, NOS-TMI-22-07 (AR 4519296)  
Post-Shutdown Decommissioning Activities Report, Three Mile Island Nuclear Station Unit 1, TM-19-025, dated 4/5/2019.

### **Corrective Action Documents**

AR -04478477, 04488018, 04499064, 04499308, 04503732, 04509678, 04516100, 04519296, 04525507, 04525751, 04525752, 04537355, 045422049, 04708471

### **Design Change and Modifications**

Engineering Change EC 632005, SAFSTOR Water Management Plan  
Engineering Change EC 632009, Installation of SSC's for SAFSTOR Water Management Plan  
Engineering Change EC 636654, Abandonment of Security Features Not Required to Support TMI-2 Part 37 CCA Boundary  
Engineering Change EC 637463, SAFSTOR Sump Water Management  
Engineering Change EC 638348, Abandonment of HDL and Hittman

### **Procedures and Programs**

AP-1038, "Administrative Controls Fire Protection Program", Revision 97  
CY-AA-170-100, Rev.2, Radiological Environmental Monitoring Program  
CY-ES-214, Rev. 1, CGS Collection of RGPP Water Samples for Radiological Analysis  
CY-TM-170-300, Rev. 10, Offsite Dose Calculation Manual  
CY-TM-170-2001, Rev. 3, Releasing Radioactive Liquid Waste  
CY-TM-170-2012, Rev. 3, Releasing Radioactive Gaseous Effluents Reactor Building Purges – TMI-1  
DC-AA-300-1005, Rev. 5, Decommissioning Transition – Scoping and Screening Process

EN-TM-408-4160, Rev. 5, RGPP Reference Material for Three Mile Island Generating Station  
LS-AA-104, Rev. 12, Exelon 50.59 Review Process  
LS-AA-104-1006, Rev. 6, Exelon 50.59 Training and Qualification  
OP-AA-201-004, Rev. 19, "Fire Prevention for Hot Work"  
OP-AA-201-009, Rev. 29, "Control of Transient Combustible Material"  
RP-AA-600, Rev. 18, Radioactive Material/Waste Shipments

### **Fire Protection**

Course Attendance Sheet, "Off-Site Fire/Emergency Medical Services (EMS) Emergency Plan Orientation", dated 9/25/2021.  
e-mail, "TMI Off-Site Drill" (for Londonderry Volunteer Fire Company), dated 1/23/2023.  
Lesson Plan 11.4.06.054, Rev. 7, "Off Site Fire / Emergency Medical Services (EMS) Emergency Plan Orientation"  
Lesson Plan, Rev. 1, N-TM-SA-INCIPIENT-FIRE-PRAC, "Incipient Fire Extinguishing Practical"  
Letter of Agreement, Londonderry Volunteer Fire Company, Exelon Generation, and GPU Nuclear, dated 8/30/2019.  
Letter of Agreement – Addendum 1, Londonderry Volunteer Fire Company & Constellation Energy Generation, dated 8/23/2023.  
Permanently Defueled Fire Hazards Analysis Report, Three Mile Island Unit No. 1, Rev. 33, 990-1745  
Pre-fire plans DC-3, DC-19, DC-32, and DC-35  
Record, fire drills 2023-1,2, & 3 for 2023.  
Roster, Incipient Fire Brigade training and drill participation for 2023

### **Radiation Protection**

ALARA Plan Number 23-001  
ALARA Work in Progress Review, 23-001, 6/28/2023  
Leak Test Certificates (RSCS) 124577-124584, 124586  
Liquid Discharge Permit L-20230822-1360-B  
Radwaste Shipper Qualifications Matrix  
Radwaste Transportation Package RS-23-051-I  
RWP TM-1-23-00930  
Sealed Source Inventory, 10/03/23  
Source Leak Test Records, 10/02/23 and 10/03/23

### **Miscellaneous**

50.59 Employee Training Records  
50.59 Qual Matrix for Screeners and Evaluators, 11/30/23  
Decommissioning Safety Analysis Report, Rev. 2, TMI-1  
Safety Review Committee Meeting Minutes, SRC Number: 2023-003, 8/8/2023

**LIST OF ACRONYMS USED**

ADAMS	Agency Documentation and Management System
CFR	Code of Federal Regulations
Constellation	Constellation Energy Generation, LLC
DOT	Department of Transportation
FPP	Fire Protection Program
GPO	Government Printing Office
IMC	Inspection Manual Chapter
IP	Inspection Procedure
NRC	U.S. Nuclear Regulatory Commission
ODCM	Off Site Dose Calculation Manual
REMP	Radiological Environmental Monitoring Program
TMI-1	Three Mile Island, Unit 1