



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I  
2100 RENAISSANCE BOULEVARD, SUITE 100  
KING OF PRUSSIA, PA 19406-2713

June 28, 2021

Mr. Trevor L. Orth  
Site Decommissioning Director  
Three Mile Island Nuclear Station, Unit 1  
2625 River Road  
Middletown, PA 17057

SUBJECT: NRC INSPECTION REPORT NO. 05000289/2021001, EXELON GENERATION CO., LLC, THREE MILE ISLAND NUCLEAR STATION, UNIT 1

Dear Mr. Orth:

On June 3, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an announced routine inspection under Inspection Manual Chapter 2561, "Decommissioning Power Reactor Inspection Program," at the permanently shutdown Three Mile Island Nuclear Station, Unit 1 (TMI Unit 1). An on-site inspection was performed May 12-13, 2021. Additional inspection activities (in office reviews) were conducted remotely as a consequence of the COVID-19 public health emergency (PHE) 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 plant walkdowns and observations by the inspector, interviews with site personnel, and a review of procedures and records. The results of the inspection were discussed with you and other members of the TMI Unit 1 staff on June 3, 2021 and are described in the enclosed report. No findings of safety significance were identified.

In accordance with Title 10 Code of Federal Regulations (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 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. 05000289

License No. DPR-50

Enclosure: Inspection Report 05000289/2021001

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NRC INSPECTION REPORT NO. 05000289/2021001, EXELON GENERATION CO., LLC,  
 THREE MILE ISLAND NUCLEAR STATION, UNIT 1, MIDDLETOWN, PENNSYLVANIA  
 DATED JUNE 28, 2021

DOCUMENT NAME: [https://usnrc.sharepoint.com/:w:/r/teams/Region-I-Decommissioning-Branch/\\_layouts/15/Doc.aspx?sourcedoc=%7B5CEE98AC-826F-414C-A60B-6D7D3FFC25DE%7D&file=TMI%20Unit%201%20June%202021%20report.docx&action=default&mobileredirect=true](https://usnrc.sharepoint.com/:w:/r/teams/Region-I-Decommissioning-Branch/_layouts/15/Doc.aspx?sourcedoc=%7B5CEE98AC-826F-414C-A60B-6D7D3FFC25DE%7D&file=TMI%20Unit%201%20June%202021%20report.docx&action=default&mobileredirect=true)

SUNSI Review Complete: SHammann

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NAME	SHammann/SH	ADimitriadis/ad				
DATE	6/21/21	06/28/2021				

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U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

INSPECTION REPORT

Inspection No. 05000289/2021001  
Docket No. 05000289  
License No. DPR-50  
Licensee: Exelon Generation Co., LLC (Exelon)  
Facility: Three Mile Island Nuclear Station, Unit 1 (TMI Unit 1)  
Location: Middletown, PA 17057  
Inspection Dates: May 12, 2021 – June 3, 2021  
Inspector: Stephen Hammann, Senior Health Physicist  
Decommissioning, ISFSI, and Reactor Health Physics Branch  
Division of Radiological Safety and Security, Region I  
Approved By: Anthony Dimitriadis, Chief  
Decommissioning, ISFSI, and Reactor Health Physics Branch  
Division of Radiological Safety and Security, Region I

Enclosure

## **EXECUTIVE SUMMARY**

Exelon Generation Co., LLC  
Three Mile Island Nuclear Station, Unit 1  
NRC Inspection Report No. 05000289/2021001

An announced decommissioning inspection was completed at TMI Unit 1 on June 3, 2021. An on-site inspection was performed May 12-13, 2021. Additional inspection activities were conducted remotely during the inspection period as a consequence of the COVID-19 public health emergency (PHE). The inspection included a review of design changes and modifications, audits and corrective actions, spent fuel pool (SFP) safety, and solid radwaste management and transportation. The inspection consisted of plant walkdowns and observations by the inspector, interviews with site personnel, and a review of procedures and records. The NRC's program for overseeing the safe operation 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 safety significance were identified.

## REPORT DETAILS

### **1.0 Background**

On September 26, 2019, Exelon sent a letter [Agency Documentation and Management System (ADAMS) Accession Number ML19269E480] to the NRC certifying the permanent cessation of activities and permanent removal of fuel from the reactor. This met the requirements of 10 CFR 50.82(a)(1)(i) and 50.82(a)(1)(ii). On October 1, 2019, the NRC notified Exelon that the NRC would cease using the Operating Reactor Assessment Program and that implementation of the Decommissioning Power Reactor Inspection Program would begin (ADAMS Accession No. ML19274B163). TMI Unit 1 is currently in the SAFSTOR phase of decommissioning with fuel in the SFP as described in IMC 2561.

### **2.0 SAFSTOR Performance and Status Review**

#### **a. Inspection Scope [Inspection Procedures (IPs) 37801, 40801, 60801, 71801, 86750]**

The inspector conducted document reviews and interviews with plant personnel to determine if Exelon's procedures and processes conformed with the regulations and guidance associated with 10 CFR 50.59. The inspector 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 screenings conducted in accordance with 10 CFR 50.59. The inspector reviewed the qualification and training for the staff that conducted the screening per 10 CFR 50.59 and evaluators and reviewed meeting minutes for multiple Safety Review Committee meetings.

The inspector reviewed Exelon's program for the safe wet storage of spent fuel. The inspector performed a walkdown of the SFP and associated support systems to assess material condition, configuration control, and system operation. The inspector toured the control room and interviewed certified fuel handlers (CFHs) to determine if the SFP system instrumentation, alarms and leakage detection monitoring was adequate to assure the safe storage of spent fuel. The inspector accompanied chemistry technicians as they collected and analyzed a SFP water sample. The inspector also reviewed SFP chemistry sample analysis that Exelon had performed between March 2020 and March 2021, in order to determine if chemistry parameters were within the limits of Exelon's license commitments.

The inspector reviewed documents and interviewed TMI Unit 1 personnel to determine if Exelon management performed audits and ensured issues were identified and corrected in accordance with the site's corrective action program (CAP). The inspector reviewed a representative selection of CAP documents to determine if a sufficiently low threshold for problem identification existed, follow-up evaluations were of sufficient quality, and Exelon assigned timely and appropriate prioritization for issue resolution commensurate with the significance of the issue. The inspector reviewed one of the site audits for the past year to determine if audits were thorough and if corrective actions were initiated if necessary.

The inspector performed walkdowns and reviewed documentation associated with solid radioactive waste management to determine the effectiveness of the site's radiological protection program. The inspector performed a walk-down of radwaste buildings and

radioactive waste storage locations to ensure TMI Unit 1 had properly classified and stored radioactive materials. The inspector also reviewed work 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 regulations. The inspector reviewed the training program and records to verify radwaste personnel were qualified to implement the site solid radwaste program.

The inspector performed walkdowns, interviewed personnel and reviewed documentation associated with Exelon's activities removing fill structure from the cooling towers. Additionally, the inspector observed activities for the construction of overpacks at the sites' independent spent fuel storage installation.

b. Observations and Findings

The inspector determined that 10 CFR 50.59 screenings were adequately performed and that Exelon had trained and qualified individuals to perform the screenings and evaluations. The inspector determined that no changes or modifications under 10 CFR 50.59 were made in the past year.

The inspector determined that Exelon was safely storing spent fuel in wet storage. The inspector verified SFP chemistry and cleanliness controls had been adequately implemented. The inspector verified surveillance requirements for water level and temperature of the SFP was adequate and procedures provided appropriate guidance to restore SFP water level if required. The inspector also verified the rounds conducted by the CFH were adequate and satisfied the associated technical specification requirements for the SFP.

The inspector determined that issues were being identified and entered into the CAP in a timely manner and the issues were effectively screened, prioritized, and evaluated commensurate with their safety significance. The inspector verified audits had been performed by qualified individuals independent of the organization being audited and that management reviewed the audits and associated corrective actions. The inspector verified the Exelon Nuclear Oversight organization continues to perform oversight of decommissioning activities.

The inspector verified that solid radioactive waste was adequately stored and monitored, and that worker radwaste training and qualifications were up-to-date. The inspector verified that radioactive waste shipping paperwork was properly completed, and Exelon personnel were knowledgeable of their duties and responsibilities. The inspector determined radioactive waste shipped was properly classified, described, packaged, marked, and labeled, and was in proper condition for transportation.

c. Conclusions

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

### **3.0 Exit Meeting Summary**

On June 3, 2021, the inspector presented the inspection results to Mr. Trevor Orth, Site Decommissioning Director, and other members of Exelon staff. No proprietary information was retained by the inspector or documented in this report.



## **PARTIAL LIST OF PERSONS CONTACTED**

### Licensee

T. Orth, Site Decommissioning Director  
C. Smith, Manager, Licensing and Regulatory Affairs  
E. Carreras, EP Manager  
S. Fink, Project Manager Lead  
T. Fitting, Chemistry Technician  
D. Heverling, Chemistry Technician  
R. Holmes, Radiation Protection Manager  
A. McGraw, Engineering  
S. Minnick, Senior Manager Projects  
D. Moore, Technical Specialist  
G. Rodriguez, CAP/EP Specialist

### Commonwealth of PA

S. Acker, Director Nuclear Safety Division  
S. Martin, Nuclear Safety Specialist

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

None

## **LIST OF DOCUMENTS REVIEWED**

### Assignment Reports

AR – 04381035, 04410257, 04414799, 04419050, 04419667, 04420056, 04423130

### Procedures and Programs

CY-TM-130-9070, Rev. 2, Determination of Boron Using The Mettler T70 Titrator  
CY-TM-551-807, Rev. 4, Chemistry Primary Sampling  
DC-AA-300-1005, Rev. 4, Decommissioning Transition-Scoping and Screening Process  
DC-AA-420, Rev. 0, Abandoned Equipment During Decommissioning  
EI-AA-101, Rev. 11, Employee Concerns Program  
LS-AA-104, Rev. 12, Exelon 50.59 Review Process  
LS-AA-104-1006, Rev. 5, Exelon 50.59 Training and Qualification  
LS-DC-106, Rev. 1, Safety Review Committee  
NO-DC-10, Rev. 1, Decommissioning Quality Assurance Program  
Operating Procedure 1104-6, Rev.49, Spent Fuel Cooling System  
Operating Procedure 1104-29C, Rev.37, Spent Fuel Cleanup Process  
PI-AA-125-1003, Rev. 6, Corrective Action Program Evaluation Manual  
PI-DC-120, Rev. 1, Decommissioning Issue Identification and Screening Process  
PI-DC-125, Rev. 1, Decommissioning Corrective Action Program (D-CAP) Procedure  
RP-AA-600, Rev.18, Radioactive Material/Waste Shipments  
RP-AA-600-1005, Rev. 20, Radioactive Material and Non-Disposal site Waste Shipments  
RP-AA-602, Rev. 21, Packaging of Radioactive Material Shipments  
RP-AA-603, Rev. 11, Inspection and Loading of Radioactive Material Shipments  
RW-AA-100, Rev. 12, Process Control Program for Radioactive Wastes  
TQ-AA-166, Rev. 3, Radioactive Material Shipping Training

## **LIST OF DOCUMENTS REVIEWED (CONTINUED)**

### **Miscellaneous**

2018-2019 Biennial 10 CFR 50.59 Summary Report and 2019 Commitment Revision Summary Report, dated April 30, 2020  
50.59 Screening TMI-D-0004 (EC625471: Abandon ESAS and Emergency Power)  
50.59 Screening TMI-D-077 (EC628984: Abandon DEG 511C (NDCT))  
50.59 Screening TMI-D-130 (EC627878: DEG 220 Abandonment-Reactor Coolant System)  
EC 0000628984, Abandonment of DEG 511C, "1A" NDCT (CW-C-1A) and "1B" NDCT (CW-C-1B) Fill and Support Equipment  
RP-AA-800, Rev. 10, Attachment 2, Source Leak Test Record, 2/10/21  
RSCS, Leak Test Certificates, 2/18/21  
SFP Water Sample Analysis, 3/4/2020 - 3/17/2021  
SRC Meeting Minutes 2021-01, 1/14/21; 2021-02, 1/19/21; 2021-03, 3/1/21; 2021-04, 3/10/21  
ST-1301-7.2, Sealed Source Inventory, 2/10/21  
Training Matrix, Radwaste, ID: 952579  
Training Matrix, 50.59 Evaluator, IDs: 127757 and 128375  
Transportation Package Shipment Number RS 20-040-I, RS 21-022-I  
WO 4968690, Work Task Instructions, B NDCT

## **LIST OF ACRONYMS USED**

ADAMS	Agencywide Document and Access Management System
CAP	Corrective Action Program
CFH	Certified Fuel Handler
CFR	Code of Federal Regulations
Exelon	Exelon Generation Co., LLC
IMC	Inspection Manual Chapter
IP	Inspection Procedure
NRC	U.S. Nuclear Regulatory Commission
PHE	Public Health Emergency
SFP	Spent Fuel Pool
TMI Unit 1	Three Mile Island Unit 1