



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION I
2100 RENAISSANCE BLVD., SUITE 100
KING OF PRUSSIA, PA 19406-2713

October 22, 2020

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

SUBJECT: NRC INSPECTION REPORT NO. 05000289/2020004, EXELON GENERATION
CO., LLC, THREE MILE ISLAND UNIT 1, MIDDLETOWN, PA

Dear Mr. Orth:

On September 30, 2020, the U.S. Nuclear Regulatory Commission (NRC) completed its quarterly inspection under Inspection Manual Chapter 2561, "Decommissioning Power Reactor Inspection Program," at the permanently shutdown Three Mile Island Nuclear Station, Unit 1 (TMI-1). On-site inspections were performed August 24-25, and September 23-24, 2020. 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 inspectors, 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-1 staff on September 30, 2020 and are described in the enclosed report. No findings of safety significance were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure(s), 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).

T. Orth

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

Sincerely,

/RA/

Anthony M. Dimitriadis, Chief
Decommissioning, ISFSI, and Reactor HP
Branch
Division of Nuclear Materials Safety

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

Enclosure:
Inspection Report 05000289/2020004

cc w/ encl: Distribution via ListServ

NRC INSPECTION REPORT NO. 05000289/2020004, EXELON GENERATION CO., LLC
 THREE MILE ISLAND UNIT 1, MIDDLETOWN, PENNSYLVANIA DATED OCTOBER 22, 2020.

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DATE	10/22/2020	10/22/2020				

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U.S. NUCLEAR REGULATORY COMMISSION
Region 1

Inspection Report

Inspection No. 05000289/2020004
Docket Number(s): 05000289
License Number(s): DPR-50
Licensee: Exelon Generation Co., LLC (Exelon)
Facility: Three Mile Island, Unit 1 (TMI-1)
Location: Middletown, PA 17057
Inspection Dates: July 1, 2020 to September 30, 2020
Inspectors: Stephen Hammann, Senior Health Physicist
Decommissioning, ISFSI, and Reactor HP Branch
Division of Nuclear Materials Safety, Region I
Jeff Rady, Emergency Preparedness Inspector
Plant Support Branch
Division of Reactor Safety, Region 1
Approved By: Anthony Dimitriadis, Chief
Decommissioning, ISFSI, and Reactor HP Branch
Division of Nuclear Materials Safety, Region I

EXECUTIVE SUMMARY

Exelon Generation Co., LLC
Three Mile Island Unit 1
NRC Inspection Report No. 05000289/2020004

An announced decommissioning inspection was performed TMI-1 from July 1, 2020, to September 30, 2020. The inspection included a review of effluent and environmental monitoring, and emergency preparedness. 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 operation 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 findings of safety significance were identified.

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 certifying that the fuel had been permanently removed from the reactor. This met the requirements of 10 Code of Federal Regulations (CFR) 50.82(a)(1)(i) and 50.82(a)(1)(ii). TMI-1 is currently in the Post-Operation Transition phase of decommissioning as described in IMC 2561.

2.0 Post-Operation Transition Performance and Status Review

a. Inspection Scope [Inspection Procedures (IP) 84750]

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 reviewed procedures, diagrams of effluent systems, the annual radiological environmental monitoring program (REMP) report, the annual radioactive effluent report, and the Off-Site Dose Calculation Manual (ODCM). The inspectors reviewed liquid and gaseous discharge permits to verify 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 meets regulatory requirements. The inspectors also reviewed corrective actions related to the effluent release and environmental monitoring programs.

The inspectors accompanied operations and chemistry personnel on walkdowns of liquid and gaseous monitoring systems and discharge points to determine the material condition of equipment. The inspectors accompanied a chemistry technician during the collection and exchange of environmental air samples to verify sampling techniques are in accordance with procedures. The inspectors walked down selected dosimetry stations and monitoring wells to determine accessibility, material condition, and whether they were located as described in the ODCM.

b. Observations and Findings

The inspectors verified 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 verified the groundwater protection program had been adequately implemented. The inspectors determined that equipment was in good material condition and checked, calibrated and maintained as specified in the ODCM. The inspectors verified samples were taken in accordance with procedures and sampling stations were accessible and as described in the ODCM.

3.0 Decommissioning Emergency Preparedness Program Evaluation

a. Inspection Scope (IP 82501)

The inspectors reviewed Exelon's Emergency Preparedness (EP) program at TMI to determine whether the EP program had been maintained in a state of operational readiness. The inspection consisted of interviews with Exelon personnel and a review of procedures and records.

The inspectors reviewed the alert and notification system (ANS) procedures and the Federal Emergency Management Agency approved ANS design report to ensure compliance with design report commitments for system maintenance and testing.

The inspectors conducted a review of the TMI-1 Emergency Response Organization (ERO) augmentation staffing requirements and the process for notifying and augmenting the ERO to ensure the system was adequate to allow meeting ERO augmentation staffing and facility activation time commitments. The inspectors reviewed the ERO duty roster, applicable station procedures, augmentation test results, on-shift staffing analysis, and corrective action reports. The inspectors also reviewed a sample of ERO responder training records to determine if training and qualifications were up to date.

The inspectors reviewed 10 CFR 50.54(q) evaluations to determine whether changes made to the licensee's EP program continue to meet commitments, NRC requirements, and have not resulted in a reduction in effectiveness of the TMI-1 emergency plan.

b. Observations and Findings

The inspectors noted that Exelon maintained and tested the siren ANS in accordance with its design. The inspectors determined that the ERO staffing levels are sufficient to ensure augmentation can occur within the time requirements specified in the TMI-1 emergency plan.

The inspectors also noted that changes made to the TMI-1 emergency plan did not reduce its effectiveness and that screenings and evaluations contain the appropriate level of detail and basis to support the change. However, this review is not a formal safety evaluation and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety.

4.0 Exit Meeting Summary

On September 30, 2020, the inspectors presented the inspection results to Mr. Trevor Orth, Site Decommissioning Director, and other members of Exelon's staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

PARTIAL LIST OF PERSONS CONTACTED

T. Orth, Site Decommissioning Director
R. Bauman, Chemistry Technician Specialist, EIS
B. Brady, Licensing and Regulatory Affairs
E. Carreras, Emergency Preparedness Manager
R. Holmes, Radiation Protection Manager
D. Jordan, Decommissioning Specialist, Environmental
T. Fitting, Chemistry Technician
D. Musser, Environmental Specialist
J. Piazza, Sr. Decommissioning Project Manager
G. Rodriguez, Jr., Emergency Preparedness Specialist

ITEMS OPEN, CLOSED, AND DISCUSSED

None

LIST OF DOCUMENTS REVIEWED

Reports

2019 Annual Radiological Effluent Release Report
2019 Annual Radiological Environmental Operating Report
Monthly Siren Test Reports, dated 4/18 to 2/20
NOSA-TMI-18-03, 2018 Emergency Preparedness Audit Report, dated 4/18/18
NOSA-TMI-19-03, 2019 Emergency Preparedness Audit Report, dated 4/10/19
TMI 2018 Drill and Exercise Performance Evaluation Report, dated 7/11/18
TMI 2018 Medical Drill Evaluation Report, dated 12/11/18
TMI 2019 Emergency Exposure Drill Evaluation Report, dated 11/21/19
Three Mile Island U-1, Defueled Safety Analysis Report
Three Mile Island Nuclear Station Units 1 and 2, Annual Radiological Groundwater Protection Program Report, 1 January through 31 December 2019

Procedures

CY-AA-130-201, Rev. 8, Radiochemistry Quality Control
CY-AA-170-100, Rev. 2, Radiological Environmental Monitoring Program
CY-AA-170-300, Rev. 3, Offsite Dose Calculation Manual Administration
CY-AA-170-1000, Rev. 11, Radiological Environmental Monitoring Program and Meteorological Program Implementation
CY-AA-170-1100, Rev. 4, Quality Assurance for Radiological Monitoring Programs
CY-ES-237, Rev. 1, Air Iodine and Air Particulate Sample Collection for Radiological Analysis
CY-ES-239, Rev. 0, Collection/Exchange of Field Dosimeters for Radiological Analysis
CY-ES-244-F-03, Rev. 2, Radiological Environmental Monitoring Program Site Specific Sample Collection Information for Three Mile Island Nuclear Station
CY-TM-170-203, Rev. 8, Unit Vent (RM-A-8 and RM-A-9) Sampling
CY-TM-170-1001, Rev. 2, Radiological Environmental Monitoring Program (REMP) Data Review
CY-TM-170-2001, Rev. 2, Releasing Radioactive Liquid Waste
CY-TM-170-2005, Rev. 1, Dose Calculations For Liquid And Gas Effluents
CY-TM-170-2007, Rev. 2, Non-Routine Effluent Releases
CY-TM-170-2011, Rev. 3, Releasing Radioactive Gaseous Effluents Waste Gas Tanks A (B) (C)
CY-TM-170-2012, Rev. 3, Releasing Radioactive Gaseous Effluents Reactor Building Purges-TMI-1

CY-TM-170-2020, Rev. 3, Radiological Abnormal Release or Discharge
EN-AA-407, Rev. 10, Response to Inadvertent Releases of Licensed Material to Groundwater
EN-AA-408, Rev. 1, Radiological Groundwater Protection Program, Revision 0
EN-AA-408-4000, Rev. 10, Radiological Groundwater Protection Program Implementation
EP-AA-120-1001, 10 CFR 50.54(q) Change Evaluation, Revision 10
EP-MA-124-1001-F-03, Technical Support Center Inventory, Revision J
EP-TM-111, Emergency Classification and Protective Action Recommendations, Revision 0
EP-TM-112-200, TSC Activation and Operation, Revision 0
EP-TM-112-300, Operations Support Center Activation and Operation, Revision 0
EP-TM-112-300-F-01, Operations Support Center Director Checklist, Revision A
EP-TM-114-100, TMI State/Local Notifications, Revision 0
OP-AA-102-102, General Area Checks and Operator Field Rounds, Revision 18

Corrective Action Documents

04135885, 04142392, 04185118, 04185145, 04204017, 04224446, 04232824, 04240530,
04247356, 04247436, 04274041, 04279199, 04287902, 04302446, 04307523, 04323922,
04365238, 04365505

Miscellaneous

10CFR 50.54(q)(2) Evaluation for EP-AA-1009, Exelon Nuclear Radiological Emergency Plan
Annex for Three Mile Island Station (TMI), Revisions 28 and 29
10CFR 50.54(q)(2) Evaluation for EP-TM-1000, Exelon Nuclear Three Mile Island Stations
EN-TM-408-4160, Rev. 4, RGPP Reference Material for Three Mile Island
Equipment Changeout Form, Radeco AVS-28, 5/7/2020
EP-AA-1009, Addendum 1, TMI On-Shift Staffing Technical Basis, Revision 3
EP-AA-1009, Addendum 2, Evacuation Time Estimates for Three Mile Island Plume Exposure
Pathway Emergency Planning Zone, Revision 1
EP-AA-1009, Addendum 3, Emergency Action Levels for TMI Station, Revision 2
EP-AA-1009, Radiological Emergency Plan Annex for TMI Station, Revision 30
EP-TM-1000, TMI Station Radiological Emergency Plan, Revision 2
Offsite Dose Calculation Manual (ODCM), Rev. 6
Radiological Emergency Plan, Revisions 0 and 1
Release Permits: L-20190422-656-B, G-20191223-472-C, G-20190913-443-C

LIST OF ACRONYMS USED

ADAMS	Agency Documentation and Management System
ANS	Alert and Notification System
CFR	Code of Federal Regulations
ERO	Emergency Response Organization
EP	Emergency Preparedness
EXELON	Exelon Generation Co., LLC
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