



UNITED STATES
NUCLEAR REGULATORY COMMISSION

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

February 1, 2021

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

SUBJECT: NRC INSPECTION REPORT NO. 05000289/2020005, EXELON GENERATION
CO., LLC, THREE MILE ISLAND NUCLEAR STATION UNIT 1

Dear Mr. Orth:

On December 31, 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 November 9-10, and November 12-13, 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 January 7, 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(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 05000289/2020005

cc w/ encl: Distribution via ListServ

NRC INSPECTION REPORT NO. 05000289/2020005, EXELON GENERATION CO., LLC
 THREE MILE ISLAND UNIT 1, MIDDLETOWN, PENNSYLVANIA DATED FEBRUARY 1, 2020.

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DATE	1/26/2021	02/01/2021					

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U.S. NUCLEAR REGULATORY COMMISSION
Region 1

Inspection Report

Inspection No. 05000289/2020005

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

Inspection Dates: October 1, 2020 to December 31, 2020

Inspectors: Stephen Hammann, Senior Health Physicist
Decommissioning, ISFSI, and Reactor HP Branch
Division of Nuclear Materials Safety, Region I

Eugene DiPaolo, Senior Reactor Inspector
Engineering Branch 2
Division of Reactor Safety, Region 1

Carey Bickett, Senior Reactor Inspector
Engineering Branch 2
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. 05000289/2020005

An announced decommissioning inspection of TMI-1 was performed from October 1, 2020, to December 31, 2020. A combination of on-site and remote inspection activities were performed over this period. Certain inspection activities (in-office reviews) were conducted remotely as a consequence of the COVID-19 public health emergency (PHE) during this inspection period. The inspection included a review of occupational exposure, maintenance, and fire protection. 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) 62801, 83750]

The inspectors observed activities, reviewed documentation, and interviewed personnel associated with occupational radiation exposure to evaluate the licensee's protection of worker health and safety. The inspectors conducted a site tour to examine and verify radiological postings and locked high radiation doors and gates, and toured instrument and sealed source storage locations to determine the adequacy of radiological instrumentation. The inspectors reviewed radiation work permits, and As Low As Reasonably Achievable (ALARA) work plans to determine if radiation work activities were pre-planned effectively to limit worker exposure. The inspectors observed radiation protection (RP) technicians performing work activities to determine if implementation of radiological work controls, training and skill level were sufficient for the activities being performed. The inspectors reviewed the site dosimetry program and radiological dose records to verify compliance with the regulations.

The inspectors performed a walkdown of the plant to evaluate housekeeping and to assess the material condition of structures, systems, and components (SSCs) associated with the safe storage of spent fuel. The inspectors met with Exelon management and discussed how routine maintenance and emergent work is requested, prioritized, scheduled, and tracked. The inspectors reviewed maintenance staffing and management oversight of the maintenance program. The inspectors reviewed maintenance procedures and work packages for maintenance performed on the spent fuel handling bridge to determine if the work was conducted in accordance with site procedures, completed as scheduled, and in accordance with regulatory requirements.

b. Observations and Findings

The inspectors verified that ALARA plans, work in progress, and post job reviews were performed as needed and were effective in limiting worker exposure and occupational dose was acceptable for the scope of the radiological activities performed. The inspectors determined that RP staff effectively controlled work activities, survey records were clear and complete, and RP technicians used appropriate instruments for the surveys. The inspectors verified technician training and qualifications were up-to-date. The inspectors determined the site dosimetry program was adequate and worker exposures were within regulatory limits.

The inspectors noted during the plant walk-down that housekeeping and plant material condition standards were being maintained. The inspectors verified that the maintenance and surveillance program for SSCs had been conducted in accordance with the regulations, established procedures, and completed as scheduled. The

inspectors determined the site had adequate staffing for the current phase of decommissioning and that management regularly reviewed maintenance issues.

c. Conclusions

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

3.0 Decommissioning Fire Protection Program Evaluation

a. Inspection Scope (IP 64704)

The inspectors performed an inspection at TMI-1 to determine if Exelon maintained the Fire Protection Program (FPP) in a state of operational readiness and whether changes made to the program continued to meet commitments, the NRC requirements, and had not negatively affected the overall state of the FPP. The inspection consisted of interviews with site personnel, a review of procedures and records, and plant walk-downs. The inspectors conducted the inspection to:

- Determine if the licensee had developed and implemented technically adequate procedures to implement the FPP;
- Determine if the licensee had proper installation, operability, and maintenance of fire protection systems and equipment; and
- Review the adequacy and implementation of the quality assurance program for the FPP.

Specifically, the inspectors reviewed the updated fire protection plan and a sample of FPP implementation procedures to ensure compliance with the current FPP, to ensure that they reflected the current decommissioning status of the facility, and to ensure they had been appropriately implemented. Procedures reviewed included those controlling storage of combustibles and flammables, conduct of hot-work, ignition sources, and transient combustibles. Pre-fire plans were reviewed to ensure that the plans were updated and reflected the plant's decommissioning status. The inspectors reviewed changes to the FPP including decommissioning of systems and the implementation of the incipient fire brigade (offsite response as primary responder).

The inspectors conducted walk-downs of active plant detection systems, suppression systems, fire barriers, and fire pumps/water sources, including the B.5.b pump, to ensure that the material condition was maintained. This included a review of fire pump testing to ensure that an adequate water supply was available to the necessary systems and standpipes for fire suppression/ firefighting activities. The inspectors performed a focused review of the installed fire detection, suppression systems, and fire barriers in fire areas associated with the Spent Fuel Pool (SFP), SFP cooling equipment, SFP power supply, and SFP inventory to ensure that they were maintained, surveillances were performed on a periodic basis, and they were capable of performing their intended function.

The inspectors reviewed a sample of self-assessments and corrective action documents to determine if Exelon had identified FPP decommissioning deficiencies and had entered the issues into the corrective action program for resolution.

b. Observations and Findings

Based on the inspection results, the inspectors determined that Exelon maintained the FPP within NRC requirements and the fire protection plan. Required fire protection detection systems, suppression systems, barriers, and fire water supply systems (i.e., fire pumps and B.5.b pump) had been maintained and appropriately tested and were in a state of operational readiness. Proper FPP emphasis was placed on SFP systems, components, and support systems to minimize the potential for radiological releases in the event of a fire at the plant.

Exelon maintained the leadership, staffing, and training of the onsite incipient fire brigade. Agreements were appropriately established with the local fire department to be the primary responder for onsite fires and procedures for response and measures for coordination with offsite responders were appropriately established. The inspectors verified that Exelon conducted training with offsite responders on facility layout, fire hazards, fire pre-fire plans, firefighting equipment, radiological hazards, and health physics relevant to firefighting operations.

During the review of changes made or approved to the TMI FPP, the inspectors did not identify any issues which reduced the program's effectiveness. The inspectors noted that screenings and evaluations contained the appropriate level of detail and sufficient basis to support the changes.

c. Conclusions

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

4.0 Exit Meeting Summary

On January 7, 2021, the inspectors presented the inspection results to Mr. Trevor Orth, Site Decommissioning Director, and other members of Exelon'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
P. Bennett, Engineering Manager
B. Brady, Regulatory Assurance Manager
E. Carreras, Operations Manager
R. Holmes, Senior Manager RP/Chem/Environmental
D. Kenny, Security Manager
S. Minnick, Senior Manager Projects
G. Rodriguez, CAP/EP Specialist
B. Young, Engineering
K. Bissinger, Fire Marshal
W. McSorley, Fire Protection Engineer

State of Pennsylvania

S. Martin, BRP Site Professional

ITEMS OPEN, CLOSED, AND DISCUSSED

None

LIST OF DOCUMENTS REVIEWED

Audits and Reports

NOSA-TMI-20-14, Three Mile Island Unit 1 Audit Report (fire), dated 09/23/2020
Nuclear Electric Insurance Limited Loss Control Evaluation Report, dated 06/11/2020
Station ALARA Committee Meeting Minutes, 1/15/2020 and 9/29/2020
Three Mile Island Unit-1, 2020 Exposure by Month
Whole Body Count Analysis Report 016576, 005388, 128078

Evaluations/Engineering Changes (ECs)

EC 625506, Abandonment of DEG 811B: Fire Service Pump, FS-P-1, Revision 0
EC 630166, Fire Protection Changes for Incipient Fire Brigade Implementation, Revision 0
EC 632127, Abandonment of DEG 811C: Relay Room CO2 System, Revision 0
Evaluation 4368656-02, FS-H-21 and 22 Removed from Service
Technical Evaluation 4214871-15, TMI Incipient Fire Brigade Evaluation, dated 06/23/2020
TMI-19-005, Analysis of Dose Consequences Due to RCA Fire, dated 08/30/2019

Procedures

Administrative Controls 1038, Fire Protection Program
CC-DC-209, Rev. 1, Fire Protection Program Configuration Change Review for
Decommissioning Facilities
DC-TM-420-1001, Rev. 5, Abandoning Equipment during Decommissioning
DD-24, Rev. 2, Maintenance Department Description
ER-AA-200, Rev. 4, Preventive Maintenance Program
ER-AA-310, Implementation of the Maintenance Rule
ER-AA-310-1004, Rev. 14, Maintenance Rule - Performance Monitoring
ER-AA-310-1007, Rev. 5, Maintenance Rule - Periodic (a)(3) Assessment
MA-AA-1000, Rev.22, Conduct of Maintenance Manual
MA-AA-716-230, Rev. 11, Predictive Maintenance Program
OP-AA-201-001, Rev. 8, Fire Marshal Tours
OP-AA-201-004, Rev. 17, Fire Prevention for Hot Work
OP-AA-201-009, Rev. 25, Control of Transient Combustible Material

OP-TM-108-117-1001, Rev. 7, Three Mile Island Protected Equipment Program
OP-TM-201-003, Rev. 1, Incipient Fire Brigade Drills
OP-TM-251-901, Rev. 9, High Capacity Fire Service Makeup to Spent Fuel Pool
OP-TM-251-902, Rev. 9, Spent Fuel Pool Spray
OP-TM-251-904, Rev. 6, Spent Fuel Pool Building (External) Spray
OP-TM-811-912, Rev. 7, Startup, Operation and Shutdown of FX-P-3A or FX-P-3B when taking
Suction from the River
OP-TM-AOP-035, Rev 10A, Loss of Spent Fuel Cooling
RP-AA-203, Rev. 5, Exposure Control and Authorization
RP-AA-210, Rev. 29, Dosimetry Issue, Usage, and Control
RP-AA-210-10001, Rev. 13, Dosimetry Logs and Forms
RP-AA-220, Rev. 15, Bioassay Program
RP-AA-222, Rev. 6, Methods for Estimating Internal Exposure From In Vivo and In Vitro
Bioassay Data
RP-AA-301, Rev. 12, Tritium Air Sampling
RP-AA-400, Rev. 17, ALARA Program
RP-AA-401, Rev. 27, Operational ALARA Planning and Controls
RP-AA-460, Rev. 37, Controls for High and Locked High Radiation Areas
RP-AA-700, Rev. 8, Controls for Radiation Protection Instrumentation
SY-AA-101-117, Rev. 32, Processing and Escorting of Personnel and Vehicles

Corrective Action Documents

4382451, 43111113, 4311497, 4311819, 4311885, 4331986, 4342866, 4356942, 4368656,
4370096, 4369182, 4385848

Miscellaneous

ALARA Plan 20-003
ALARA Plan 20-005
ALARA Post Job Review, 20-003
ALARA Work-In-Progress Review, 20-003, 10/27/20 and 11/7/20
ALARA Work-In-Progress Review, 20-005, 3/16/20 and 3/17/20
Inventory and Leak Testing of Radioactive Sources, August 2020 (Work Order 05005389)
Letter of Agreement between Londonderry Volunteer Fire Company and Exelon Ensures
Support of the Three Mile Island Nuclear Generating Station Radiological Emergency Plan,
dated 05/19/2020
Letter of Agreement between Londonderry Volunteer Fire Company, Exelon Generation, LLC
and GPU Nuclear, Inc. as Primary Responder and Incident Commander for all Confirmed Fires
at Three Mile Island, dated 08/30/2019
Letter of Agreement between Middletown Volunteer Fire Company and Exelon Ensures Support
of the Three Mile Island Nuclear Generating Station Radiological Emergency Plan, dated
02/12/2020
N-TM-SA-INCIPIENT-FIRE-PRAC, Incipient Fire Extinguisher Practical, dated 01/29/2020
NISP-RP-006, Rev. 12, Personnel Contamination Monitoring Log
NVLAP Certificate of Accreditation to ISO/IEC 17025:2005, 2020
RWP 20-903, 905, 906
SAM-12 Calibration Data Sheet, 4/2/20
Survey #'s 2020 – 079594, 081321, 081322, 083386, 084112, 084781
U.S. NRC Regulator Guide 1.191, Fire Protection Program for Nuclear Power Plants During
Decommissioning and Permanent Shutdown, dated May 2001

Work Orders and Completed Surveillances

Station Surveillance Procedure 3303-M1, Fire Pump Periodic Operation (performed on FS-P-2), completed on 10/09/2020

Station Surveillance Procedure 3303-A3, Fire Pump Capacity Testing (performed on FS-P-3), completed on 09/15/2020

WO 4352969, 4356008, 4709911, 4709914, 4776886, 4797475, 4798348, 4833884, 4961311

LIST OF ACRONYMS USED

ADAMS	Agency Documentation and Management System
ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
EXELON	Exelon Generation Co., LLC
FPP	Fire Protection Program
IMC	Inspection Manual Chapter
IP	Inspection Procedure
NRC	U.S. Nuclear Regulatory Commission
PHE	Public Health Emergency
RP	Radiation Protection
SFP	Spent Fuel Pool
SSCs	Structures, Systems, and Components
TMI-1	Three Mile Island, Unit 1