



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

November 2, 2020

Docket No. 07200077

License No. DPR-50

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

**SUBJECT: THREE MILE ISLAND NUCLEAR STATION, UNIT 1 – NRC INSPECTION  
REPORT NO. 07200077/2020001**

Dear Mr. Orth:

On September 23, 2020, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection of the Three Mile Island Nuclear Station, Unit 1 Independent Spent Fuel Storage Installation (ISFSI) pre-operational activities. The purpose of the inspection was to determine whether ISFSI activities were conducted safely and in accordance with NRC requirements. On-site inspections were performed on July 1, 2020. Additional inspection activities (in-office reviews of information supplied by Exelon) were conducted remotely as a consequence of the COVID-19 public health emergency (PHE) during the inspection period from January 22, 2020 to September 23, 2020. The inspection consisted of observations by the inspectors, interviews with site personnel, and a review of procedures and records. The results of this inspection were discussed with Stephen Minnick, Senior Manager, Site Project Management, and other members of your staff on October 14, 2020, and are described in the enclosed report. No findings of safety significance were identified.

In accordance with 10 Code of Federal Regulations (CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter and 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 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).

T. Orth

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No reply to this letter is required. Please contact Elizabeth Andrews at 610-337-5117 if you have any questions regarding this matter.

Sincerely,

*/RA/*

Anthony Dimitriadis, Chief  
Decommissioning, ISFSI, and Reactor Health  
Physics Branch  
Division of Nuclear Materials Safety  
Region 1

Docket No: 07200077

License No: DPR-50

Enclosure: Inspection Report 07200077/2020001  
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

DOCUMENT NAME: G:\DIRHP\ISFSI\TMI\TMI Pad Report 2020001.docx

**SUNSI Review Complete:** EAndrews

**ML20307A598**

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No: 07200077

License No: DPR-50

Report No: 07200077/2020001

Licensee: Exelon Generation Co., LLC (Exelon)

Facility: Three Mile Island Nuclear Station, Unit 1

Location: Middletown, Pennsylvania 17057

Dates: January 22, 2020 to September 23, 2020

Inspectors: E. Andrews, Health Physicist  
Decommissioning, ISFSI, and Reactor HP Branch  
Division of Nuclear Materials Safety, Region I

M. Henrion, Health Physicist  
Decommissioning, ISFSI, and Reactor HP Branch  
Division of Nuclear Materials Safety, Region I

R. Rodriguez, Structural Engineer  
Materials and Structural Branch  
Division of Fuel Management  
Office of Nuclear Materials Safety and Safeguards

K. Warner, Senior Health Physicist  
Decommissioning, ISFSI, and Reactor HP Branch  
Division of Nuclear Materials Safety, Region I

Approved by: Anthony Dimitriadis, Chief  
Decommissioning and ISFSI, and Reactor HP Branch  
Division of Nuclear Materials Safety, Region I

Enclosure

## EXECUTIVE SUMMARY

Exelon Generation Company, LLC  
Three Mile Island Nuclear Station, Unit 1  
NRC Inspection Report No. 07200077/2020001

This report covered on-site inspections and in-office reviews by Nuclear Regulatory Commission regional based inspectors of activities related to Three Mile Island Nuclear Station, Unit 1 (TMI-1) pre-operational activities of dry cask storage of spent fuel during the inspection period from January 22, 2020 to September 23, 2020. 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 the structural analysis and observation of the construction of an independent spent fuel storage installation (ISFSI) storage pad at TMI-1. The inspection consisted of observations by the inspectors, interviews with site personnel, a review of procedures, calculations and records, and ISFSI pad walk-downs. The NRC's program for overseeing the safe operation of dry storage of spent fuel at an ISFSI is described in Inspection Manual Chapter 2690, "Inspection Program for Dry Storage of Spent Reactor Fuel at Independent Spent Fuel Storage Installations and for 10 CFR Part 71 Transportation Packagings."

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

## REPORT DETAILS

### 1.0 Independent Spent Fuel Storage Installation

#### 1.1 Onsite Fabrication of Components and Construction of an ISFSI (Inspection Procedure 60853)

##### a. Inspection Scope

The inspectors conducted a review of licensee and vendor activities in preparation for the concrete placement #1 for the Independent Spent Fuel Storage Installation (ISFSI) which will store spent fuel previously generated by the licensee. The inspectors walked down the construction area of the ISFSI pad and examined the rebar installation to verify that the rebar size, spacing, splice length, and concrete coverage on each side complied with licensee-approved drawings, specifications, procedures, and other associated documents. Additionally, the inspectors evaluated the pad to determine if compliance with applicable codes, the Certificate of Compliance, and Technical Specifications was met. The inspectors also evaluated the concrete formwork installation for depth, straightness, and horizontal bracing to verify the overall dimensions and orientation for compliance with the licensee-approved drawings. The inspectors interviewed licensee and contract personnel to verify knowledge of the planned work. The inspectors observed the actual concrete placement and vibration for the ISFSI slab, and observed tests for concrete slump and air content, temperature measurements, and the collection and preparation of cylinder samples for compression tests, to verify that the work was implemented in accordance with the approved specifications and procedures. The inspectors verified that the pad was being finished in accordance with approved specifications and Code requirements. Following completion of the 7-day and 28-day compression tests by an independent laboratory, the inspectors reviewed the results to verify that the acceptance criteria were met. The inspectors noted that all tested samples for concrete placement #1 satisfied the acceptance criteria.

##### b. Findings

No findings of significance were identified.

#### 1.2 Review of 10 CFR 72.212(b) Evaluations (Inspection Procedure 60856)

##### a. Inspection Scope

The inspectors performed an in-office review of ISFSI pad design documentation to determine if the storage pad would adequately support both static and dynamic loads, as required by 10 CFR 72.212(b)(5)(ii). The inspectors reviewed and verified that the assumptions the licensee used in the seismic and liquefaction analyses for the storage pad were appropriate. The inspectors verified that the analysis and design methodology used for the TMI-1 ISFSI pad complied with applicable standards consistent with recommendations of NUREG 1536 and Inspection Procedure 60856 "Review of 10 CFR 72.212(b) Evaluations," as appropriate. The inspectors also determined that the various design loads were in accordance with TMI-1's Final Safety Analysis Report.

b. Findings

No findings of significance were identified.

**2.0 Exit Meeting**

The inspection results were discussed with Stephen Minnick, Senior Manager, Site Project Management, and other members of the Exelon staff, on October 14, 2020. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTARY INFORMATION**

### **PARTIAL LIST OF PERSONS CONTACTED**

S. Minnick, Senior Manager, Site Project Management  
R. Brady, TMI DO Regulatory Assurance Manager  
P. Mullens, Manager, ISFSI Engineering Lead  
J. Troiano, Project Manager

### **ITEMS OPENED, CLOSED, AND DISCUSSED**

None

### **LIST OF DOCUMENTS REVIEWED**

#### Procedures

30076-P-05, ISFSI Storage Pad Construction Work Record and Inspection Forms at Three Mile Island Unit 1, Revision 1  
30076-P-07, ISFSI Pad Site Preparation Work Record and Inspection Form at Three Mile Island, Revision 0

#### Condition Reports

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#### Miscellaneous

2020-TMI-014, Report of Concrete Compression Test Results, dated August 3, 2020  
C-1101-114-003, ISFSI Storage Pad Design, Revision 001  
C-1101-114-004, ISFSI Bearing Capacity and Settlement, Revision 0  
C-1101-114-005, ISFSI Liquefaction Potential Evaluation, Revision 0  
C-1101-114-006, ISFSI static/Dynamic Soil Properties, Revision 0  
EC 625301, Geotechnical Investigation, Revision 1  
EC 625303, ISFSI Site Preparation, Revision 0  
EC 625304, ISFSI Storage Pad, Revision 0  
EXLNTM110-CALC-001, Time Histories for SSI of the ISFSI, Revision 0  
EXLNTM110-CALC-002, Soil Properties for SSI of the ISFSI, Revision 0  
EXLNTM110-CALC-003, Soil Structure Interaction Analysis of the ISFSI, Revision 0  
NAC International Certificate of Personnel Qualification, dated February 27, 2020  
Penny Supply – Concrete Quality Requirement, Attachment A  
Penny Supply Concrete – Landisville Annual On-Line Verification, dated February 25, 2020  
Penny Supply Concrete – Paxton Street Annual On-Line Verification, dated May 29, 2020  
RCA CAR 20-02, TMI ISFSI Pad – In-Process Reinforcing Steel Placed out of Tolerance, Revision 2  
Rebar Certificate of Compliance, dated June 2020  
Rebar Receipt Inspection Forms, dated June 2020  
Reinforcing Steel Purchase Order, dated February 10, 2020  
SP-1101-43-030, ISFSI Pad/Heavy Haul Path Excavation and Fill, Revision 0  
SP-1101-43-031, Cast-in-Place Concrete – ISFSI, Revision 0



## LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access and Management System
CFR	Code of Federal Regulations
ISFSI	Independent Spent Fuel Storage Installation
NRC	U.S. Nuclear Regulatory Commission
PHE	public health emergency
TMI-1	Three Mile Island Nuclear Station, Unit 1