



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

May 14, 2018

Mr. Brian Sullivan
Site Vice President
Pilgrim Nuclear Power Station
Entergy Nuclear Operations, Inc.
600 Rocky Hill Road
Plymouth, MA 02360-5508

SUBJECT: PILGRIM NUCLEAR POWER STATION – INTEGRATED INSPECTION
REPORT 05000293/2018001

Dear Mr. Sullivan:

On March 31, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Pilgrim Nuclear Power Station (PNPS). On April 25, 2018, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspectors did not identify any finding or violation of more than minor significance.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Part 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Anthony Dimitriadis, Chief
Reactor Projects Branch 5
Division of Reactor Projects

Docket Number: 50-293
License Number: DPR-35

Enclosure:
Inspection Report 05000293/2018001

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REPORT 05000293/2018001 DATED MAY 14, 2018

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**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Number: 50-293

License Number: DPR-35

Report Number: 05000293/2018001

Enterprise Identifier: I-2018-001-0047

Licensee: Entergy Nuclear Operations, Inc. (Entergy)

Facility: Pilgrim Nuclear Power Station (PNPS)

Location: Plymouth, Massachusetts

Inspection Dates: January 1, 2018 to March 31, 2018

Inspectors: E. Carfang, Senior Resident Inspector
J. Krafty, Acting Senior Resident Inspector
B. Pinson, Resident Inspector
J. Pflingsten, Project Engineer
E. DiPaolo, Senior Reactor Inspector

Approved By: A. Dimitriadis, Chief
Reactor Projects Branch 5
Division of Reactor Projects

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring Entergy's performance at PNPS by conducting the baseline inspections described in this report in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

No findings or more-than-minor violations were identified.

PLANT STATUS

The unit began the inspection period at rated thermal power. On January 4, 2018, operators scrambled the unit based on an anticipated loss of offsite power during a winter storm. The unit was returned to rated thermal power on January 11, 2018. On January 25, 2018, operators down powered the unit to 45 percent for a planned repair to a drain valve in the moisture separator drain tank. The operators returned the unit to rated thermal power the same day. On March 4, 2018, operators lowered power to 50 percent to perform a thermal backwash of the main condenser after the March 2, 2018 nor'easter. Operators returned the unit to rated thermal power on March 5, 2018. On March 6, 2018, operators shutdown the unit to perform repairs to the fifth point feedwater heater. On March 13, 2018, the site lost all offsite alternating current power during a nor'easter while the unit was in cold shutdown, and the startup transformer experienced an electrical fault during the storm. The unit remained in cold shutdown for the remainder of the inspection period to address issues in the switchyard.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures in effect at the beginning of the inspection unless otherwise noted. Currently approved inspection procedures with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the inspection procedure requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors performed plant status activities described in Inspection Manual Chapter 2515, Appendix D, "Plant Status," and conducted routine reviews using Inspection Procedure 71152, "Problem Identification and Resolution." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess Entergy's performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

REACTOR SAFETY

71111.01 - Adverse Weather Protection

Impending Severe Weather (4 Samples)

The inspectors evaluated readiness for impending adverse weather conditions for the following:

- (1) Severe cold weather on January 2, 2018
- (2) Blizzard conditions on January 3, 2018
- (3) Nor'easter on March 2–3, 2018
- (4) Blizzard conditions on March 12–13, 2018

External Flooding (1 Sample)

The inspectors evaluated readiness to cope with external flooding the week of February 26, 2018.

71111.04 - Equipment Alignment

Partial Walkdown (4 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) Reactor core isolation cooling system walkdown with high pressure coolant injection system out of service for planned maintenance on February 7, 2018
- (2) Control rod drive system 'B' walkdown with control rod drive system 'A' out of service for planned maintenance on February 26, 2018
- (3) Emergency diesel generators 'A' and 'B' during loss of offsite power from March 13–16, 2018
- (4) Offsite power backfeed alignment on March 22–23, 2018

Complete Walkdown (1 Sample)

The inspectors evaluated system configurations during a complete walkdown of the station blackout diesel generator system on March 1, 2018.

71111.05A/Q - Fire Protection Annual/Quarterly

Quarterly Inspection (5 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

- (1) High pressure coolant injection on February 13, 2018
- (2) Main condenser bay on March 10, 2018
- (3) Condensate pump on March 21, 2018
- (4) Radioactive waste control corridor on March 21, 2018
- (5) Turbine building truck lock and hydrogen seal oil area on March 22, 2018

Annual Inspection (1 Sample)

The inspectors evaluated fire brigade performance on January 23, 2018.

71111.11 - Licensed Operator Requalification Program and Licensed Operator Performance

Operator Requalification (1 Sample)

The inspectors observed and evaluated licensed operator requalification training, in accordance with 10 CFR 55.59, at PNPS on February 8, 2018.

Operator Performance (1 Sample)

The inspectors observed and evaluated licensed operator performance in the control room during plant startup following a forced outage on January 10, 2018.

71111.12 - Maintenance EffectivenessRoutine Maintenance Effectiveness (3 Samples)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety significant functions:

- (1) Instrument air system on February 2, 2018
- (2) Reactor protection system on February 2, 2018
- (3) Reactor building 23' level structural monitoring the weeks of March 19 and March 26, 2018

71111.13 - Maintenance Risk Assessments and Emergent Work Control (6 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

- (1) Decay heat removal short time to boil on January 5, 2018
- (2) Testing of the station blackout diesel generator halon system on January 19, 2018
- (3) Logic system functional testing of emergency diesel generator 'A' on January 23, 2018
- (4) Station blackout diesel generator and instrument air compressor unavailability on February 21, 2018
- (5) Low pressure core injection diagnostic valve testing on March 8, 2018
- (6) Movement of the spare startup transformer into the switchyard on March 29, 2018

71111.15 - Operability Determinations and Functionality Assessments (4 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Safety relief valve 3B elevated tailpipe temperature on January 11, 2018
- (2) Control room high efficiency air filtration system train 'B' filter testing identified bypass around the downstream high efficiency particulate air filter on February 6, 2018
- (3) Reactor water cleanup valve, MO-1201-5, following discovery of a never performed surveillance on February 20, 2018
- (4) Low pressure core injection diagnostic and stem rotation testing on March 8, 2018

71111.18 - Plant Modifications (1 Sample)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Temporary heating to fire water storage tanks on March 15, 2018

71111.19 - Post Maintenance Testing (5 Samples)

The inspectors evaluated post maintenance testing for the following maintenance/repair activities:

- (1) Safety relief valve 3B pilot valve replacement on January 10, 2018
- (2) K-111 instrument air compressor motor replacement on January 30, 2018

- (3) High pressure coolant injection steam line drain line level control switch replacement on February 8, 2018
- (4) Salt service water pump 'E' baseplate injection performed on February 8, 2018
- (5) K-110 instrument air compressor motor replacement performed on February 22, 2018

71111.20 - Refueling and Other Outage Activities (2 Samples)

The inspectors evaluated Entergy's forced outage activities from:

- (1) January 4 to January 10, 2018
- (2) March 6 to March 31, 2018

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Routine (4 Samples)

- (1) 8.M.2-3.6.5, Neutron Monitoring System Flow Converter Functional and Calibration Test on January 19, 2018
- (2) 8.M.2-2.10.8.1, Diesel Generator 'A' Initiation by Residual Heat Removal Logic on January 23, 2018
- (3) 7.1.30, HEPA Filter and Charcoal Performance Test on February 6, 2018
- (4) 8.M.2-1.5.8.3, Logic System Functional Test of System A Standby Gas Treatment Initiation - Reactor Building Isolation and Inboard Drywell Isolation Valves on February 22, 2018

Reactor Coolant System Leak Detection (1 Sample)

- (1) 2.1.15, Daily Surveillance Log on February 27, 2018

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified Entergy's performance indicators submittals listed below for the period from January 1, 2017 through December 31, 2017. (3 Samples)

- (1) Reactor coolant system specific activity
- (2) Reactor coolant system leak rate
- (3) Safety system functional failures

71152 - Problem Identification and Resolution

Annual Follow-up of Selected Issues (1 Sample)

The inspectors reviewed Entergy's implementation of its corrective action program related to the following issues:

- (1) 23 kilovolt offsite power supply to shutdown transformer circuit switcher (X-15) deficiencies discovered during thermography

71153 - Follow-up of Events and Notices of Enforcement DiscretionPersonnel Performance (2 Sample)

The inspectors evaluated response during the following non-routine evolutions or transients:

- (1) Reactor scram due to loss of one offsite power line on January 4, 2018
- (2) Loss of offsite alternating current power on March 13, 2018

INSPECTION RESULTS

Observation	71152 Annual Follow-up of Selected Issues
The inspectors reviewed the apparent cause analysis, the corrective actions taken, and the past operability regarding the deficiencies discovered on the 23 kilovolt offsite power supply to shutdown transformer circuit switcher during thermography. The inspectors concluded that the cause analysis was thorough, the extent of condition was reasonable, and the corrective actions were timely.	

EXIT MEETINGS AND DEBRIEFS

Inspectors verified no proprietary information was retained or documented in this report.

- On January 11, 2018, the inspectors debriefed the inspection of the annual problem identification and resolution sample associated with the 23 kilovolt power offsite supply deficiencies with Mr. R. Byrne.
- On April 25, 2018, the inspectors presented the quarterly resident inspector inspection results to Mr. Brian Sullivan, Site Vice President, and other members of Entergy staff.

THIRD PARTY REVIEWS

Inspectors reviewed Institute of Nuclear Power Operations reports that were issued during the inspection period.

DOCUMENTS REVIEWED

71111.15

Procedure

EN-OP-104, Operability Determination Process, Revision 15

71111.18

Procedures

EN-LI-100, Process Applicability Determination, Revision 22

EN-DC-136, Temporary Modifications, Revision 17

71111.19

Procedure

EN-WM-107, Post Maintenance Testing, Revision 5

71152

Procedures

EN-LI-102, Corrective Action Program, Revision 33

EN-LI-118, Cause Evaluation Process, Revision 26