



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

November 13, 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  
05000293/2018003 AND INDEPENDENT SPENT FUEL STORAGE  
INSTALLATION INSPECTION REPORT 07201014/2018001**

Dear Mr. Sullivan:

On September 30, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Pilgrim Nuclear Power Station (Pilgrim). On October 24, 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.

NRC inspectors documented one finding of very low safety significance (Green) in this report. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violation or significance of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement; and the NRC Resident Inspector at Pilgrim. In addition, if you disagree with the cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U. S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC, 20555-0001; with copies to the Regional Administrator, Region I, and the NRC Resident Inspector at Pilgrim.

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 05000293/2018003 and  
07201014/2018001

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SUBJECT: PILGRIM NUCLEAR POWER STATION – INTEGRATED INSPECTION REPORT  
 05000293/2018003 AND INDEPENDENT SPENT FUEL STORAGE  
 INSTALLATION INSPECTION REPORT 07201014/2018001 DATED  
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**U.S. NUCLEAR REGULATORY COMMISSION  
Inspection Report**

Docket Number: 50-293

License Number: DPR-35

Report Numbers: 05000293/2018003 and 07201014/2018001

Enterprise Identifier: I-2018-003-0061

Licensee: Entergy Nuclear Operations, Inc. (Entergy)

Facility: Pilgrim Nuclear Power Station (Pilgrim)

Location: Plymouth, Massachusetts

Inspection Dates: July 1, 2018 to September 30, 2018

Inspectors: E. Carfang, Senior Resident Inspector  
B. Pinson, Resident Inspector  
P. Boguszewski, Project Engineer  
B. DeBoer, Health Physicist  
O. Masnyk Bailey, Health Physicist  
K. Mangan, Senior Resident Inspector  
S. Wilson, Health Physicist  
M. Hardgrove, Project Engineer  
Z. Hollcraft, Senior Resident Inspector  
J. Dolecki, Resident Inspector

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

Enclosure

## SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring Entergy's performance at Pilgrim 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. NRC-identified and self-revealing findings, violations, and additional items are summarized in the table below.

### List of Findings and Violations

Failure to Identify an Adverse Condition Associated with Elevated Standby Gas Treatment System Accumulator Leakage			
Cornerstone	Significance	Cross-Cutting Aspect	Inspection Results Section
Barrier Integrity	Green NCV 05000293/2018003-01 Closed	H.9 – Human Performance – Training	71111.19
The inspectors identified a Green non-cited violation (NCV) of Technical Specifications 3.7.B.1.c because Entergy exceeded the TS allowed outage time for the standby gas treatment system (SBGT) when the station did not identify an adverse condition associated with elevated air accumulator leakage in the system.			

### Additional Tracking Items

Type	Issue number	Title	Inspection Results Section	Status
SLIV NOV	05000325/2018014-01	Surveillance Test on the Reactor Core Isolation Cooling System	Other Activities – Temporary Instructions, Infrequent and Abnormal	Closed
LER	05000293/2017-001-01	Reactor Building Isolation Dampers Failed to Isolate	71153	Closed
LER	05000293/2017-002-00	Isolation of HPCI	71153	Closed
LER	05000293/2017-003-01	Supplement to Suppression Pool Declared Inoperable Due to High Water Level	71153	Closed

LER	05000293/2018-001-00	Manual Reactor Scram Due To Loss of One Offsite Transmission Line	71153	Closed
LER	05000293/2018-004-00	Automatic Emergency Diesel Generator System Actuation Caused by Loss of Offsite Power	71153	Closed
LER	05000293/2018-005-00	Condition Prohibited by Technical Specifications Involving Standby Gas Treatment System Pneumatic Leakage Rate	71153	Closed

## PLANT STATUS

The unit began the inspection period at full power. On August 14, 2018, operators lowered power to approximately 40 percent to perform a thermal backwash of the main condenser, and returned the unit to full power on August 15, 2018. On August 17, 2018, operators lowered power to approximately 40 percent as a result of degrading main condenser parameters and elevated ultimate heat sink temperatures. On August 18, 2018, the unit was returned to approximately 90 percent. On August 19, 2018, operators lowered power to approximately 45 percent due to elevated ultimate heat sink temperatures, and returned the unit to approximately 90 percent on August 24, 2018. On August 27, 2018, operators lowered power to approximately 40 percent due to elevated ultimate heat sink temperatures, and returned the unit to approximately 90 percent on August 28, 2018. On August 30, 2018, operators lowered power to approximately 40 percent due to elevated ultimate heat sink temperatures, and returned the unit to approximately 95 percent power on September 6, 2018. On September 7, 2018, operators lowered power to approximately 70 percent due to elevated ultimate heat sink temperatures, and returned the unit to approximately 90 percent power on September 11, 2018. On September 12, 2018, operators lowered power to approximately 45 percent due to elevated ultimate heat sink temperatures, and returned the unit to full power on September 25, 2018. The unit remained at or near full power for the remainder of the inspection period.

## INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs 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 IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors performed plant status activities described in IMC 2515, Appendix D, "Plant Status," and conducted routine reviews using IP 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

### 71111.04 - Equipment Alignment

#### Partial Walk down (4 Samples)

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

- (1) 'A' SBGT system with 'B' SBGT system out-of-service for emergent maintenance on July 18, 2018
- (2) 'A' residual heat removal system pump with 'B' residual heat removal system pump unavailable due to surveillance testing on August 16, 2018
- (3) Instrument air during K-117 (diesel air compressor) system outage on August 23, 2018
- (4) High pressure coolant injection valve alignment verification on August 30, 2018.

71111.05A/Q - Fire Protection Annual/QuarterlyQuarterly Inspection (5 Samples)

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

- (1) Diesel driven fire pump on August 6, 2018
- (2) Turbine generator auxiliaries and turbine truck lock on August 16, 2018
- (3) 'A' and 'B' reactor building closed cooling water pump rooms on August 21, 2018
- (4) Trash compacting facility on September 26, 2018
- (5) Reactor core isolation cooling quadrant on September 27, 2018

71111.07 - Heat Sink PerformanceHeat Sink (1 Sample)

The inspectors evaluated Entergy's monitoring and maintenance of reactor building closed cooling water heat exchanger fouling evaluations performed on August 10, 2018.

71111.11 - Licensed Operator Requalification Program and Licensed Operator PerformanceOperator Requalification (1 Sample)

The inspectors observed and evaluated the following:

- (1) The inspectors observed a simulator evaluation that involved an inadvertent initiation of high pressure coolant injection, a leak inside of containment, a manual scram, lockout of the A-1 Bus, a loss of feedwater injection, and emergency depressurization on September 12, 2018
- (2) The inspectors observed a simulator evaluation that involved the failure of a control rod drive flow control valve, a malfunction of pressure regulation leading to oscillations, a failed open safety relief valve, an anticipated transient without scram, and standby liquid control initiation on September 12, 2018

Operator Performance (1 Sample)

The inspectors observed and evaluated activities associated with the following licensed operator performance in the control room:

- (1) Main condenser thermal backwash with degraded condenser parameters on August 14, 2018
- (2) Power ascension following degraded ultimate heat sink temperatures on August 28, 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) SBT system
- (2) Intake and emergency diesel generator roofs structural inspection
- (3) Emergency switchgear ventilation system

#### 71111.13 - Maintenance Risk Assessments and Emergent Work Control (5 Samples)

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

- (1) Emergent corrective maintenance on 4160 volt bus A8 battery that resulted in station blackout diesel generator unavailability on July 30, 2018
- (2) Elevated risk during 'B' emergency diesel generator logic system functional testing on August 13, 2018
- (3) Elevated risk for planned surveillance testing of the residual heat removal system on August 14, 2018
- (4) Elevated risk during shutdown transformer and station blackout diesel generator planned maintenance on August 20, 2018
- (5) Emergent corrective maintenance resulting in the unavailability of the standby liquid control system on September 14, 2018

#### 71111.15 - Operability Determinations and Functionality Assessments (7 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) 'B' emergency diesel generator elevated lube oil temperature (CR 2018-5698) on July 11, 2018
- (2) SBT system operable with compensatory measures on July 23, 2018
- (3) Outboard main steam isolation valve terminal blocks in J623, J624, J625, and J626 environmental qualification service life extension after missed planned maintenance on July 30, 2018
- (4) Shutdown transformer operability with degraded A8 battery on August 1, 2018
- (5) 'B' emergency diesel generator operability following high jacket water temperatures on August 6, 2018
- (6) Station blackout diesel generator functionality with A8 battery degraded on August 9, 2018
- (7) Primary containment operability following leak on feedwater check valve 62B on September 10, 2018

#### 71111.18 - Plant Modifications (2 Samples)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Temporary modification (EC 78705) to de-energize SV-L-58 and SV-L-67 to change the pressure boundary in the SBT system on July 23, 2018
- (2) A8 battery replacement (EC 78963) on August 20, 2018

71111.19 - Post Maintenance Testing (6 Samples)

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

- (1) SGBT system compressed air system leak repairs on July 24, 2018
- (2) Cathodic protection installation on August 7, 2018
- (3) A8 battery replacement on August 20, 2018
- (4) F15 vacuum switch replacement on August 21, 2018
- (5) Main steam isolation valve 2D limit switch repair on September 4, 2018
- (6) 'B' standby liquid control squid valve cartridge replacement on September 14, 2018

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Routine (3 Samples)

- (1) 8.M.2-3.6.5, Neutron Monitoring System Flow Converter Functional and Calibration Test on July 10, 2018
- (2) 3.M.3-47.1, 'A' Emergency Diesel Generator Turbo Assist Air Compressor Load Shed Functional Test on August 27, 2018
- (3) 8.M.2-2.10.1, Core Spray Pump 'A' Logic System Functional Test on September 5, 2018

In-service (1 Sample)

- (1) 'A' core spray pump quarterly operability test on September 4, 2018

71114.06 - Drill EvaluationDrill/Training Evolution (1 Sample)

The inspectors observed a simulator training evolution drill, and exercise performance evaluation for licensed operators on September 12, 2018.

**RADIATION SAFETY**71124.02 - Occupational As Low As Reasonably Achievable (ALARA) Planning and ControlsVerification of Dose Estimates and Exposure Tracking Systems (1 Sample)

The inspectors reviewed the current annual collective dose estimate, basis methodology, and measures to track, trend, and reduce occupational doses for ongoing work activities. The inspectors evaluated the adjustment of exposure estimates, or re-planning of work. The inspectors reviewed post-job ALARA evaluations. The inspectors reviewed the whole body counter calibration and weekly quality control records.

Implementation of ALARA and Radiological Controls (1 Sample)

The inspectors reviewed radiological work controls and ALARA practices during the observation of in-plant work activities. The inspectors verified use of shielding,

contamination controls, airborne controls, radiation work permit controls, and other work controls were consistent with ALARA plans. The inspectors ensured that work-in-progress reviews were performed in a timely manner and adjustments made to the ALARA estimates when appropriate. The inspectors reviewed the results achieved against the intended ALARA estimates to confirm adequate implementation and oversight of radiological work controls. The inspectors also verified that the ALARA staff was involved with emergent work activities and were revising both dose estimates and ALARA controls in the associated radiation work permits and ALARA plans, as appropriate. The inspectors reviewed ALARA Committee Meeting Minutes, station dose exposure estimates for 2017-2018, radiation work permit planning and dose estimates, dose estimate adjustments, source term reduction efforts, and total effective dose equivalent ALARA evaluations for activities in airborne areas.

#### Radiation Worker Performance (1 Sample)

The inspectors observed radiation worker and radiation protection technician performance during radiological work in the Radwaste Truck Lock area while workers removed the resin fill head and performed radiological surveys. The observations were conducted to evaluate worker ALARA performance according to specified work controls and procedures.

### 71124.03 - In-Plant Airborne Radioactivity Control and Mitigation

#### Engineering Controls (1 Sample)

The inspectors evaluated the airborne controls and monitoring. The inspectors observed temporary ventilation system setups and portable airborne radioactivity monitoring systems, and verified the station's established alarm set points for evaluating levels of airborne for both beta and alpha emitting radionuclides. The inspectors also observed the required ventilations systems associated with safe shutdown of the plant. The systems and system health report were reviewed with the system engineer.

#### Use of Respiratory Protection Devices (1 Sample)

The inspectors evaluated the respiratory protection program. The inspectors reviewed the stations ALARA reviews and the storage, selection, and use of respiratory protection devices and verified that air used in supplied air devices meets or exceeds "Grade D" quality. The inspectors also reviewed the qualifications of several individuals to ensure the individuals were qualified to use respiratory protections devices.

#### Self-Contained Breathing Apparatus for Emergency Use (1 Sample)

The inspectors evaluated the self-contained breathing apparatus program. The inspectors verified that selected personnel who are required to use self-contained breathing apparatus were trained and qualified and that the control room was stocked with an adequate variety of respirator face pieces.

### 71124.05 – Radiation Monitoring Instrumentation

#### Walk Downs and Observations (1 Sample)

The inspectors evaluated radiation monitoring instrumentation during plant walk downs to include the following:

- (1) Portable survey instruments
- (2) Radiation area monitors and continuous air monitors
- (3) Personnel contamination monitors, portal monitors, and small article monitors
- (4) High range monitors

#### Calibration and Testing Program (1 Sample)

The inspectors evaluated Entergy's calibration and testing program. The inspectors specifically assessed the following instruments and equipment:

- (1) Laboratory instrumentation
- (2) Post-accident monitoring instrumentation
- (3) Portal monitors, personnel contamination monitors, and small article monitors
- (4) Portable survey instruments, area radiation monitors, and air samplers/continuous air monitors
- (5) Instrument calibrators
- (6) Calibration and check sources
- (7) Electronic alarming dosimeters

### **OTHER ACTIVITIES – BASELINE**

#### 71151 - Performance Indicator Verification

The inspectors verified Entergy's performance indicators submittals listed below for the period from July 1, 2017 through June 30, 2018. (3 Samples)

- (1) High pressure injection systems
- (2) Heat removal systems
- (3) Residual heat removal systems

#### 71152 - Problem Identification and Resolution

##### Annual Follow-up of Selected Issues (3 Samples)

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

- (1) Condition Reports CR-PNP-2018-2144, Loss of Offsite Power during March 14, 2018 blizzard and CR-PNP-2018-2393, Startup Transformer Oil Analysis
- (2) Condition Report CR-PNP-2016-08657, High Pressure Coolant Injection inoperable, high vibrations on P4H
- (3) Condition Reports CR-PNP-2017-8678 and CR-PNP-2017-9140, NRC cross-cutting aspects exceeding the threshold in problem identification and resolution areas

## 71153 - Follow-up of Events and Notices of Enforcement Discretion

### Licensee Event Reports (5 Samples)

The inspectors evaluated the following licensee event reports (LERs):

- (1) LER 05000293/2017-001-01, Reactor Building Isolation Dampers Failed to Isolate (ADAMS Accession No. ML17220A065). The inspectors reviewed the updated LER submittal. The circumstances surrounding this LER are documented in Inspection Report 05000293/2017002, Section 4OA3.2.
- (2) LER 05000293/2017-002-00, Isolation of HPCI (ADAMS Accession No. ML17163A179). The circumstances surrounding this LER are documented in EA-17-143 (ADAMS Accession No. ML18052B084)
- (3) LER 05000293/2017-003-01, Supplement to Suppression Pool Declared Inoperable Due to High Water Level (ADAMS Accession No. ML17325A984). The inspectors reviewed the updated LER submittal. The circumstances surrounding this LER are documented in Inspection Report 05000293/2017002, Section 4OA3.1.
- (4) LER 05000293/2018-001-00, Manual Reactor Scram Due To Loss of One Offsite Transmission Line (ADAMS Accession No. ML18079A105). The inspectors determined that it was not reasonable to foresee or correct the cause discussed in the LER therefore no performance deficiency was identified. The inspectors also concluded that no violation of NRC requirements occurred.
- (5) LER 05000293/2018-004-00, Automatic Emergency Diesel Generator System Actuation Caused by Loss of Offsite Power (ADAMS Accession No. ML18152A864). The inspectors determined that it was not reasonable to foresee or correct the cause discussed in the LER therefore no performance deficiency was identified. The inspectors also concluded that no violation of NRC requirements occurred.
- (6) LER 05000293/2018-005-00, Condition Prohibited by Technical Specifications Involving Standby Gas Treatment System Pneumatic Leakage Rate (ADAMS Accession No. ML18260A084). The circumstances surrounding this LER are documented in the Inspection Results section of this report.

## **OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT, AND ABNORMAL**

### 60855.1 - Operation of an Independent Spent Fuel Storage Installation

The inspectors evaluated Pilgrim's independent spent fuel storage installation cask loadings on July 9–18, 2018. Specifically, the inspectors observed the following activities:

- Fuel selection and fuel loading
- Heavy load movement of HI-TRAC and loaded multi-purpose canister
- Closure welding and non-destructive weld evaluations
- Transfer and transport evolutions
- Radiological field surveys

92702 - Follow Up on Traditional Enforcement Actions Including Violations, Deviations, Confirmatory Action Letters, Confirmatory Orders, and Alternate Dispute Resolution Confirmatory Orders

During the week of July 9, 2018, the inspectors performed an onsite review of Pilgrim's records related to corrective actions taken in response to a Severity Level IV Notice of Violation (NOV) issued to Entergy. On February 27, 2018, the NRC issued a Severity Level IV NOV of a condition of its NRC license as specified in the facility technical specifications (VIO 05000293/2018014, NRC Office of Investigation Report 1-2017-011, ADAMS Accession No. ML18052B084). Specifically, the inspectors reviewed procedures, corrective action program documents, and casual evaluations. The inspectors also conducted interviews with Entergy staff within Maintenance and Operations discussing the high pressure coolant injection isolation event and the corrective actions taken by Entergy.

**INSPECTION RESULTS**

Observation	71152 Annual Follow-up of Selected Issues
<p>The inspectors reviewed two adverse condition analyses performed on the March 13, 2018, loss of offsite power due to the startup transformer failure. The startup transformer lockout was the result of an internal arc from three high impedance faults. The inspectors reviewed the corrective actions taken to address the issues and concluded that both analyses were of sufficient technical depth to understand adverse weather challenges to the switchyard. The corrective action to replace the startup transformer addressed concerns of potential transformer degradation caused by the faults, and a review of past storm conditions validated Pilgrim's severe weather procedure requirements.</p>	

Observation	71152 Annual Follow-up of Selected Issues
<p>The inspectors reviewed the root cause analysis and corrective actions taken to address increased vibrations on the high pressure coolant injection main pump outboard bearing in the horizontal direction. The inspectors concluded that the analysis was of sufficient technical depth to identify the causes of the increased vibration and that the corrective actions to add mass to change the resonance frequency of the pump addressed the problem and reduced vibrations to within the expected range.</p>	

Observation	71152 Annual Follow-up of Selected Issues
<p>The inspectors evaluated two of Entergy's common cause analysis (CR-PNP-2017-8678 and CR-PNP-2017-9140) to review corrective actions to address exceeding the NRC threshold for cross-cutting aspects in the area of Problem Identification and Resolution. Inspectors reviewed corrective actions, conducted interviews, and reviewed a sampling of condition reports and work orders to verify the corrective action program was being implemented as required by EN-LI-102, "Corrective Action Program."</p>	

Inspectors reviewed the causal factors related to site prioritization of work and management practices to focus resources on the correct items. As part of the backlog reduction plan, extensive walk downs of systems were performed by operators and engineers, as well as review of condition reports for adverse conditions. Inspectors identified that Entergy, in an effort to reduce the backlog numbers, incorrectly categorized several condition reports as “non-adverse.” Inspectors sampled 19 random condition reports from a list of over 500 condition reports downgraded from adverse to non-adverse, and identified nine as being adverse conditions per EN-LI-102. EN-LI-102, Section 3.0.2, defines an adverse condition as affecting a) design basis, b) licensing basis, c) regulations and commitments, and f) equipment required to support safety-related equipment as defined by the functionality process in EN-LI-104, “Self-Assessment and Benchmark Process.” By placing condition reports in a less significant category, less stringent controls are in place to ensure timely corrective actions are made, in accordance with EN-LI-102. Corrective actions 5, 6, and 7 of CR-PNP-2017-8678 directed the cancellation of non-adverse corrective actions greater than 180 days old, unless completion is deemed appropriate by the responsible manager.

Inspectors then validated that the items categorized incorrectly as non-adverse had valid work orders in the work management system. Forty of approximately 500 work orders were reviewed, and only two items were found incorrectly classified as non-adverse with cancelled work orders. One was for a non-safety-related fire protection valve that would not completely isolate and the other for a high energy line break barrier that was degraded. For both items the inspectors determined that the equipment was degraded but remained functional. Therefore, in accordance with IMC 0612, “Issue Screening,” these performance deficiencies were not considered more-than-minor because, each cancelled work order, by itself, did not adversely affect a cornerstone objective, could not be considered a precursor to a significant event, did not affect a performance indicator result, and if left uncorrected would not have the potential to lead to a more significant safety concern. Entergy entered the items into the corrective action program and inspectors verified valid work orders were written.

<p>Observation</p>	<p>92702 Follow Up on Traditional Enforcement Actions Including Violations, Deviations, Confirmatory Action Letters, Confirmatory Orders, and Alternate Dispute Resolution Confirmatory Orders</p>
<p>The inspectors concluded that Entergy staff completed a timely and adequate evaluation to identify the causes of the traditional enforcement violation. Entergy’s corrective actions included additional observations by management of the Maintenance department, disciplinary action against the three Nuclear Controls Technicians involved in the event, and the Pilgrim Leadership Team developed and implemented a Human Performance Events Response Plan in April 2017. The Human Performance Events Response Plan consisted of four focus areas: Organizational Alignment, Reinforcement of Expectations, Field Presence, and Culpability. The inspectors concluded that Entergy’s actions were timely, appropriate, and sufficient to address the identified deficiency.</p>	

Failure to identify an Adverse Condition associated with elevated Standby Gas Treatment System accumulator leakage			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Barrier Integrity	Green NCV 05000293/2018003-01 Closed	H.9 – Human Performance – Training	71111.19
<p>The inspectors identified a Green non-cited violation of Technical Specifications 3.7.B.1.c because Entergy exceeded the TS allowed outage time for the standby gas treatment system when the station did not identify an adverse condition associated with elevated air accumulator leakage in the system.</p> <p><u>Description:</u> On June 26, 2018, the 'B' train of SBGT was declared inoperable following a System Engineer's identification of elevated air accumulator leakage above the calculated design limit of 1.99 psi/day, and Limiting Condition for Operation (LCO) 3.7.B.1.c was entered (CR-PNP-2018-5428). During plant operation, adequate air pressure must be available in the SBGT accumulators to reposition dampers and to maintain dampers in the correct position following cycling. If air pressure is reduced below the required limit, there may not be enough force to reposition and maintain the required position of dampers for the system's full mission time of 30 days. The 'B' train was declared inoperable because when accumulator pressure is lost, dampers fail to a closed position. The 'A' train of SBGT was not affected because the 'A' train dampers that are required to maintain operability fail in the open position. As a result, the 'A' train of SBGT maintains its ability to perform its specified safety function when accumulator pressure is lost. The leakage was addressed through the corrective action program and an Operations standing order (Standing Order 18-09) was developed as a corrective action, and made effective on June 29, 2018. The standing order stated that "Operations has been tasked with real time evaluation of SBGT accumulator pressure drop tracking," and a spreadsheet for data entry and calculation was provided to the Operations Department.</p> <p>On July 17, 2018, the 'B' train of SBGT was again declared inoperable following identification of air accumulator leakage above the design limit contained in calculation M896, "Capacity Increase Evaluation for SBGT Receivers," and LCO 3.7.B.1.c was entered. A seven day action statement to restore the inoperable train of SBGT to operable was also initiated. On July 23, 2018, day five of the seven day LCO action statement, while reviewing the Operations' spreadsheet used for tracking and evaluating SBGT air accumulator leakage, NRC inspectors determined that, as directed by Standing Order 18-09, operators did not properly evaluate and identify an adverse condition: SBGT air accumulator leakage was elevated above the calculated design leakage limit on July 14, 2018, and a condition report had not been initiated to identify the condition.</p> <p>During subsequent review of historical data, it was determined that the leak rate in the SBGT system exceeded the allowable rate on July 2, 2018. Therefore, the seven day LCO action statement was exceeded on July 9, 2018.</p> <p>Entergy procedure EN-LI-102, "Corrective Action Program," defines adverse condition as, in part, "a general term which includes Conditions Adverse to Quality plus undesirable conditions" related to design basis, licensing basis, and equipment required to support safety related equipment, among other things. EN-LI-102 also states that "Employees and contractors are required to initiate CRs for Adverse Conditions."</p>			



Corrective Actions: Instructions detailing the evaluation of SBGT air accumulator leakage have been incorporated into station procedure 2.2.50, "Standby Gas Treatment," Revision 76, and Entergy performed an Adverse Condition Analysis. Additionally, Licensee Event Report 2018-005-00, "Condition Prohibited by Technical Specifications Involving Standby Gas Treatment System Pneumatic Leakage Rate," was submitted on September 12, 2018.

Corrective Actions Reference: CR-PNP-2018-6103

Performance Assessment:

Performance Deficiency: Entergy personnel failed to identify an adverse condition associated with elevated air accumulator leakage in the SBGT system when readily available information indicated system degradation.

Screening: This performance deficiency is more than minor because it is associated with the Human Performance attribute of the Barrier Integrity cornerstone, and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events.

Significance: The inspectors assessed the significance of the finding using IMC 0609.04, "Initial Characterization of Findings," and IMC 0609, Appendix A, Exhibit 3, "Barrier Integrity Screening Questions." The inspectors determined that this finding was of very low safety significance (Green) because the performance deficiency only represented a degradation of the radiological barrier function provided by the SBGT system.

Cross-Cutting Aspect: The cause of the finding was assigned a cross-cutting aspect of Human Performance – Training because the organization was not provided adequate training regarding the conduct of the additional monitoring directed for the SBGT system performance. [H.9]

Enforcement:

Violation: Technical Specifications 3.7.B.1, "Standby Gas Treatment System," requires, in part, that when "one train of the Standby Gas Treatment System is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding seven days providing that within 2 hours all active components of the other standby gas treatment train are verified to be operable and the diesel generator associated with the operable train is operable". Additionally, Technical Specification 3.7.B.1.c states that "if the system is not made fully operable within 7 days, reactor shutdown shall be initiated and the reactor shall be in cold shutdown within the next 36 hours."

Contrary to the above, on July 14, 2018, Entergy personnel failed to identify elevated air accumulator leakage and evaluate its effects on the SBGT system operability. Specifically, on July 14, 2018, a Senior Reactor Operator did not identify that the SBGT air accumulator leakage was elevated above the limits specified in design calculation M896, "Capacity Increase Evaluation for SBGT Receivers." As a result, Entergy did not evaluate the operability of the system, and did not enter Technical Specification 3.7.B.1.c for one train of the SBGT system inoperable due to elevate system air accumulator leakage and did not take action to restore the system to service within seven days or to initiate a reactor shutdown and place the reactor in cold shutdown within 36 hours. On July 21, 2018, Entergy did not initiate a reactor shutdown, and the reactor was not in cold shutdown within 36 hours.

Disposition: This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy.
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## **EXIT MEETINGS AND DEBRIEFS**

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

- On July 12, 2018, the inspectors presented the inspection results to Mr. Drayton Pitts, General Manager of Plant Operations, and other members of Entergy's staff.
- On July 18, 2018, the inspectors presented Independent Spent Fuel Storage Installation inspection results to Mr. Brian Sullivan, Site Vice President, and other members of Entergy's staff.
- On August 30, 2018, the inspectors presented the inspection results to Mr. Brian Sullivan, Site Vice President, and other members of Entergy's staff.
- On October 24, 2018, the inspectors presented the results associated with the resident inspector quarterly baseline inspection results to Mr. Brian Sullivan, Site Vice President, and other members of Entergy's staff.

**DOCUMENTS REVIEWED****71111.11**Procedures

EN-OP-115, Conduct of Operations

Miscellaneous

Simulator Scenario SES-2010-09, Revision 4

Simulator Scenario SES-2014-03, Revision 3

**71111.12**Procedures

EN-DC-205, Maintenance Rule Monitoring, Revision 5

**71111.13**Procedures

EN-WM-104, On-line Risk Assessment, Revision 16

**71111.15**Procedures

EN-OP-104, Operability Determination Process, Revision 16

**71111.18**Procedures

EN- DC-115, Engineering Change Process, Revision 25

EN- DC-136, Temporary Modifications, Revision 17

Maintenance Orders/Work Orders

506016

**71111.19**Procedures

3.M.4-121, GH-Bettis Actuator Refurbishment, Revision 28

8.M.2-7.1.19, Leak rate Test of Air Supply for Standby Gas Treatment System Dampers, Revision 6

Condition Reports

2018-6047    2018-6103

Maintenance Orders/Work Orders

505808    506016    508933

**71124.02**Procedures

6.5-337, Pilgrim Nuclear Power Station Calibration of the Telepole Survey Meter, Revision 9  
 EN-RP-105, Radiological Work Permits, Revision 18  
 EN-RP-110, ALARA Program, Revision 14  
 EN-RP-110-03, Collective Radiation Exposure (CRE) Reduction Guidelines, Revision 4  
 EN-RP-110-04, Radiation Protection Risk Assessment Process, Revision 7  
 EN-RP-301, Radiation Protection Instrument Control, Revision 11

Condition Reports

2018-0318    2018-0440    2018-1615    2018-3664    2018-4631    2018-4643  
 2018-5899

ALARA Reviews and Reports

PNPS Radiological Support Group 1<sup>st</sup> Quarter 2018 Self-Assessment Report, dated April 1, 2018  
 RWP 2018064, THERMEX System Operations, Training, Repairs, Adjustments, and Filter Changes. Includes HRA's, Revision 00

**71124.03**Procedures

EN-RP-501, Respiratory Protection Program, Revision 5

**71124.05**Procedures

6.5-170, Calibration of Ventilation System Radiation Monitors Using ARM Type Sensor/Converters, Revision 31  
 6.5-307, Calibration of the Eberline RO-2/RO-2A or RO-20 Ion Chamber, Revision 20  
 6.5-341, Calibration of Electronic Dosimeters, Revision 18  
 6.6-001, Use of the Technical Operations Model 682 and Model 773 Gamma Instrument Calibrators, Revision 5  
 6.6-002, Use of the GE Gamma Calibrator for the ARMS, Revision 4  
 6.6-113, Source Calibration, Revision 12  
 6.6-116, Source Calibration of the Containment High Radiation Monitoring System, Revision 22  
 6.69-003, Use of the Shepherd Model 28, Model 78, and Model 423 Gamma Calibrators, Revision 5  
 8.M.2-4.6, Offgas Post-Treatment Radiation Monitors Functional Test, Revision 12

Condition Reports

2018-2547    2018-2793    2018-5787    2018-6870

Miscellaneous

2018 RP FSA – Pre-NRC Inspection, IP 71124.05, Radiation Monitoring Instrumentation, dated July 12, 2018

**71152**Procedures

2.1.42, Operation during Severe Weather, Revision 39

SEP-PNPS-IST-001, PNPS In-service Pump and Valve Testing Program, Revision 6

Condition Reports

2013-1066	2013-6088	2013-6620	2013-8334	2013-8338	2014-0243
2014-0899	2014-1877	2014-4342	2014-5404	2014-6585	2015-0619
2015-0952	2015-4218	2015-6009	2015-6287	2015-6701	2015-6773
2015-7572	2015-8845	2016-10039	2016-10386	2016-2609	2016-2657
2016-3315	2016-3349	2016-3598	2016-3922	2016-4140	2016-5856
2016-7625	2016-8657	2016-8657	2017-0301	2017-10030	2017-1512
2017-1625	2017-2609	2017-4162	2017-4910	2017-6616	2017-7871
2017-8481	2017-8678	2018-4183	2018-6254		

Maintenance Orders/Work Orders

00468389    52520927    52510846

Miscellaneous

8.5.4.1, High Pressure Coolant Injection System Pump and Valve Quarterly and Biennial Comprehensive Operability, performed 8/11/18

MSI TR-161881, Entergy – Pilgrim Nuclear Plant Station High Pressure Coolant Injection Pump Vibration Testing, Revision 0

**60855.1**Procedures

12.2, Multi-Purpose Canister Loading, Revision 4

12.4, Multi-Purpose Canister Stack up and Transfer, Revision 4