



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

August 14, 2017

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

**SUBJECT: PILGRIM NUCLEAR POWER STATION – INTEGRATED INSPECTION
REPORT 05000293/2017002**

Dear Mr. Sullivan:

On June 30, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Pilgrim Nuclear Power Station (PNPS). On July 26, 2017, 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 five findings of very low safety significance (Green) in this report. Four findings involved violations of NRC requirements. Additionally, NRC inspectors documented one Severity Level IV violation with no associated finding. Further, inspectors documented a licensee-identified violation which was determined to be of very low safety significance in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violations or significance of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the 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 PNPS. In addition, if you disagree with a cross-cutting aspect assignment or a finding not associated with a regulatory requirement 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 PNPS.

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 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Arthur L. Burritt, Chief
Reactor Projects Branch 5
Division of Reactor Projects

Docket No. 50-293
License No. DPR-35

Enclosure:
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REPORT 05000293/2017002 dated August 14, 2017

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No. 50-293

License No. DPR-35

Report No. 05000293/2017002

Licensee: Entergy Nuclear Operations, Inc. (Entergy)

Facility: Pilgrim Nuclear Power Station (PNPS)

Location: 600 Rocky Hill Road
Plymouth, MA 02360

Dates: April 1, 2017 through June 30, 2017

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Approved By: Arthur L. Burritt, Chief
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Division of Reactor Projects

Enclosure

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SUMMARY

IR 05000293/2017002; 04/01/2017 – 06/30/2017; PNPS; Refueling and Other Outage Activities, and Follow-Up of Events and Notices of Enforcement Discretion.

This report covered a three-month period of inspection by resident inspectors and announced baseline inspections performed by regional inspectors. The inspectors identified five non-cited violations (NCVs) and one finding, all of which were of very low safety significance (Green and/or Severity Level (SL) IV). The significance of most findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated October 28, 2016. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated August 1, 2016. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

Cornerstone: Initiating Events

- Green. An NRC-identified Green NCV of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified because Entergy staff did not identify and correct a condition adverse to quality related to suppression pool water level indication when the 'A' suppression pool wide range instrument provided inaccurate level indication during the inadvertent suppression pool water level increase event on March 31, 2017. As corrective actions, Entergy entered Technical Specification (TS) 3.2.F, "Protective Instrumentation - Surveillance Information Readouts," and repaired the instrument. This issue was entered into Entergy's corrective action program (CAP) as condition report (CR) 2017-2965.

The performance deficiency is more than minor because if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern. Specifically, inaccurate level indication during off-normal changing level conditions in the suppression pool could result in operator actions not warranted by plant conditions. The finding is also associated with the Initiating Events cornerstone. Using IMC 0609, Appendix A, Exhibit 1, issued June 19, 2012, "The Significance Determination Process for Findings At-Power," the inspectors determined the finding was of very low safety significance (Green) because the finding did not cause a reactor trip and a loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution - Identification, because the Entergy organization did not demonstrate an appropriately low threshold for entering problems into their CAP. Specifically, Entergy's prompt investigation of the inadvertent suppression pool level increase event did not identify that the 'A' suppression pool wide range level instrument was not indicating properly and required corrective maintenance. [P.1] (Section 4OA3.1.1)

Cornerstone: Mitigating Systems

- Green. An NRC-identified Green finding was identified because Entergy personnel did not follow Procedure 1.3.135, "Control of Doors," to adequately control a condenser bay flood protection door. Specifically, on May 22, 2017, Entergy personnel failed to control door 25A, which is designed to mitigate condenser bay flooding to preclude adversely impacting the

important to safety instrument air system. Entergy's short-term corrective actions included closing the door and providing additional operator training. This issue was entered into the CAP as CR 2017-5746.

The performance deficiency is more than minor because it is associated with the configuration control attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was evaluated using IMC 0609, Appendix A, Exhibit 4, "External Events Screening Questions," issued June 19, 2012, with respect to the degraded safety function of the flood barrier door. The finding was determined to be of very low safety significance (Green) because the failure of the flood door was determined to not degrade the instrument air system ability to support the feedwater injection function or the alternate injection through the control rod drive system. This is because the backup diesel driven compressor was available to be started locally and supply the instrument air headers. The finding also did not involve the total loss of any safety function. The finding has a cross-cutting aspect in the area of Human Performance - Procedure Adherence, because Entergy personnel did not follow processes, procedures, and work instructions. Specifically, Entergy personnel did not follow procedural requirements to adequately control flood protection door 25A. [H.8] (Section 1R20)

- Green. A self-revealing Green NCV of TS 5.4.1.a, "Procedures," was identified on March 31, 2017, when operators did not follow procedures and caused an inadvertent increase in the suppression pool water level. The inspectors determined that the operators did not restore the core spray system valve line-up as prescribed in Attachment 11 of Entergy Procedure 2.2.20, "Core Spray," and the maintenance safety tag clearance sheet. Operator implementation of these documents is directed by Entergy Procedure EN-OP-102, "Protective Caution Tagging," section 5.19[4](b). As corrective actions, Entergy performed additional management oversight of control room operations and performed a root cause evaluation (RCE). This issue was entered into the CAP as CR-2017-2785.

The performance deficiency is more than minor because it is associated with the equipment reliability attribute of the Mitigating Systems cornerstone objective and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the out of specification conditions on March 31, 2017, impacted suppression pool reliability because the suppression pool was not maintained within parameters required to ensure operability. Additionally, significant analysis was necessary to show the suppression pool and associated supports remained functional when TS requirements were not met. Using IMC 0609, Appendix A, Exhibit 2, issued June 19, 2012, "The Significance Determination Process for Findings At-Power," the inspectors determined the finding was of very low safety significance (Green) because the finding did not affect the design or qualification of a mitigating structure, system, or component (SSC), the finding did not represent a loss of system and/or function, the finding did not represent an actual loss of a function of a single train for greater than the TS allowed outage time (AOT), and the finding did not represent an actual loss of a function of one or more non-TS trains of equipment. Specifically, the suppression pool, including downcomers and supports, remained functional following the influx of water. The finding has a cross-cutting aspect in the area of Human Performance - Procedure Adherence, because Entergy personnel did not follow processes, procedures, and work instructions. Specifically, Entergy personnel did not follow procedures and work instructions during the restoration of the core spray system. [H.8] (Section 4OA3.1.2)

Cornerstone: Barrier Integrity

- Green. A self-revealing Green NCV of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” and TS 3.7.C.2, “Containment Systems – Secondary Containment,” was identified because Entergy did not establish an appropriate interval to overhaul the secondary containment isolation dampers. As a result, the refueling floor supply isolation dampers were operated beyond the recommended overhaul interval and subsequently failed. Entergy’s corrective actions included cleaning, lubricating, and post-work testing the failed refueling floor supply isolation dampers. This issue was entered into the CAP as CR 2017-0494.

The performance deficiency is more than minor because it is associated with the SSC and barrier performance attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers (containment) protect the public from radionuclide releases caused by accidents or events. Specifically, Entergy’s preventative maintenance (PM) for the refueling floor supply isolation dampers was inadequate to ensure the availability and reliability of SSC’s required to maintain secondary containment operable. In accordance with IMC 0609.04, “Initial Characterization of Findings,” and Exhibit 3 of IMC 0609, Appendix A, “The Significance Determination Process for Findings At-Power,” 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 reactor building and standby gas treatment system (SBGTS). The finding has a cross-cutting aspect in the area of Problem Identification and Resolution - Resolution, in that Entergy personnel did not take effective corrective actions to address issues in a timely manner. Specifically, in 2016, Entergy personnel identified there were deficiencies in the PM program with technical justifications for deferring PMs. Entergy reasonably had the opportunity to identify which PMs were not performed within recommended guidelines and make appropriate changes as needed. [P.3] (Section 4OA3.2)

- Green. An NRC-identified Green NCV of 10 CFR Part 50, Appendix B, Criterion XI, “Test Control,” and TS 4.7.C, “Containment Systems – Secondary Containment,” was identified when Entergy performed a surveillance test requiring a refueling outage while online. Specifically, Entergy performed Procedure 8.7.3, “Secondary Containment Leak Rate Test,” TS Surveillance Requirement (SR) 4.7.C from February 27, 1997, to April 5, 2017. As corrective actions, Entergy re-performed the test during the April 2017 refueling outage prior to refueling. This issue was entered into the CAP as CR 2017-2900.

The performance deficiency is more than minor because it is associated with the configuration control attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protects the public from radionuclide releases caused by accidents or events. Specifically, Entergy intentionally removed the safety function of standby gas and secondary containment for operational convenience and did not comply with the requirements of TS SR 4.7.C which requires the test to be performed during a refueling outage before refueling. In accordance with IMC 0609.04, “Initial Characterization of Findings,” issued October 7, 2016, and Exhibit 3 of IMC 0609, Appendix A, “The Significance Determination Process for Findings At-Power,” issued June 19, 2012, the inspectors determined that the finding was of very low safety significance (Green), because the finding only represented a degradation of the radiological barrier function provided for the SBGTS. The inspectors determined that this finding had a

cross-cutting aspect in the area of Human Performance - Conservative Bias, in that Entergy personnel did not use decision making-practices that emphasize prudent choices over those that are simply allowable. Specifically, operators did not refer to the TSs to understand the required conditions for a secondary containment surveillance test. Operators followed an inadequate site procedure for the plant conditions at the time and did not question why removal of a safety function for operational convenience was acceptable. [H.14] (Section 4OA3.3.1)

Cornerstone: Miscellaneous

- Severity Level IV. An NRC-identified SL IV NCV of 10 CFR 50.72, "Immediate Notification Requirements for Operating Nuclear Power Reactors," was identified because both trains of the SBGTS were made inoperable during surveillance testing, and the condition was not reported to the NRC within eight hours of the occurrence, as required by 10 CFR 50.72(b)(3)(v), "Event or Condition that Could Have Prevented Fulfillment of a Safety Function." Specifically, on April 5, 2017, while performing TS SR 4.7.C, trains 'A' and 'B' of the SBGTS were made inoperable leading to the inoperability of the Secondary Containment System (SCS). As a corrective action, Entergy personnel performed a causal evaluation. This issue was entered into the CAP as CR 2017-7446.

The inspectors evaluated this performance deficiency in accordance with the traditional enforcement process because the issue impacted the regulatory process, in that a condition that could have prevented a safety function was not reported to the NRC within the required timeframe, thereby delaying the NRC's opportunity to review the matter. Using Example 6.9.d.9 from the NRC Enforcement Policy (the failure of a licensee to make a report as required by 10 CFR 50.72 or 10 CFR 50.73), the inspectors determined that the violation was a SL IV violation. Because this violation involves the traditional enforcement process and does not have an underlying technical violation, inspectors did not assign a cross-cutting aspect, in accordance with IMC 0612, Appendix B. (Section 4OA3.3.2)

Other Findings

A violation of very low safety significance that was identified by Entergy was reviewed by the inspectors. Corrective actions taken or planned by Entergy have been entered into Entergy's CAP. This violation and corrective action tracking number are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

The unit began the inspection period at 97 percent in end of fuel cycle power coast down. On April 9, 2017, operators commenced a shutdown for a planned refueling outage. On May 18, 2017, operators commenced a startup and reached 150 psig when the reactor core isolation cooling (RCIC) turbine steam supply valve experienced binding leading to an overload condition. On May 19, 2017, operators commenced a shutdown to repair the RCIC turbine steam supply valve. On May 21, 2017, RCIC repairs were completed and operators commenced a reactor startup. On May 25, 2017, operators brought the unit to full power. On June 23, 2017, operators down powered the unit to 50 percent power for a main condenser thermal backwash and returned the unit to full power on June 24, 2017. The unit remained at or near 100 percent power for the remainder of the inspection period. Documents reviewed for each section of this inspection report are listed in the Attachment.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 2 samples)

.1 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors reviewed Entergy's readiness for the onset of seasonal high temperatures. The review focused on the ventilation systems for the battery rooms, emergency diesel generators (EDGs), and reactor building. The inspectors reviewed the Final Safety Analysis Report (FSAR), TSs, control room logs, and the CAP to determine what temperatures or other seasonal weather could challenge these systems, and to ensure Entergy personnel had adequately prepared for these challenges. The inspectors reviewed station procedures, including Entergy's seasonal weather preparation procedure and applicable operating procedures. The inspectors performed walkdowns of the selected systems to ensure station personnel identified issues that could challenge the operability of the systems during hot weather conditions.

b. Findings

No findings were identified.

.2 Summer Readiness of Offsite and Alternate Alternating Current (AC) Power Systems

a. Inspection Scope

The inspectors reviewed plant features and procedures for the operation and continued availability of the offsite and alternate AC power system to evaluate readiness of the systems prior to seasonal high grid loading. The inspectors reviewed Entergy's procedures affecting these areas and the communications protocols between the transmission system operator and Entergy. This review focused on changes to the established program and material condition of the offsite and alternate AC power

equipment. The inspectors assessed whether Entergy established and implemented appropriate procedures and protocols to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system. The inspectors evaluated the material condition of the associated equipment by interviewing the responsible system engineer, reviewing CRs and open work orders (WOs), and walking down portions of the offsite and AC power systems including the 345 kilovolt (kV) and 23kV switchyards.

b. Findings

No findings were identified.

1R04 Equipment Alignment

.1 Partial System Walkdowns (71111.04 – 4 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- 'A' EDG partial system alignment while 'B' EDG was unavailable on April 13, 2017
- 'B' shutdown cooling (SDC) system alignment on April 24, 2017
- 'A', 'C', 'D', and 'E' salt service water (SSW) pumps during the 'B' SSW pump replacement on May 22-24, 2017
- Staging of backup fire pump due to loss of redundancy in fire water supply system on June 21, 2017

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the FSAR, TSs, WO, CRs, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted the system's performance of its intended safety functions. The inspectors also performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether Entergy staff had properly identified equipment issues and entered them into the CAP for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

.2 Full System Walkdown (71111.04S – 1 sample)

a. Inspection Scope

From May 22-25, 2017, the inspectors performed a complete walkdown of accessible portions of the residual heat removal (RHR) system to verify the existing equipment

lineup was correct. The inspectors reviewed operating procedures, surveillance tests, drawings, TSs, and the FSAR to verify the system was aligned to perform its required safety functions. The inspectors also reviewed electrical power availability, component lubrication, last quarterly system health report, equipment cooling, hanger and support functionality, and operability of support systems. The inspectors performed field walkdowns of accessible portions of the systems including equipment inside the torus room to verify as-built system configuration matched plant documentation, and that system components and support equipment remained operable. The inspectors confirmed that systems and components were aligned correctly, free from interference from temporary services or isolation boundaries, environmentally qualified, and protected from external threats. The inspectors also examined the material condition of the components for degradation and observed operating parameters of equipment to verify that there were no deficiencies. For identified degradation, the inspectors confirmed the degradation was appropriately managed by the applicable aging management program. Additionally, the inspectors reviewed a sample of related CRs and WOs to ensure that Entergy appropriately evaluated and resolved any deficiencies.

b. Findings

No findings were identified.

1R05 Fire Protection

Resident Inspector Quarterly Walkdowns (71111.05Q – 5 samples)

a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that Entergy controlled combustible materials and ignition sources in accordance with administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan, and passive fire barriers were maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for out-of-service (OOS), degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Standby liquid control pump room on April 12, 2017
- Intake structure 'A' train service water (SW) pump room on April 14, 2017
- Drywell on April 20, 2017
- 'A' EDG building and day tank room on May 23-24, 2017
- 'B' EDG building and day tank room on May 23-24, 2017

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 2 samples)

.1 Internal Flooding Review

a. Inspection Scope

The inspectors reviewed the FSAR, the site flooding analysis, and plant procedures to identify internal flooding susceptibilities for the site. The inspectors review focused on the RCIC quad room. The inspectors verified the adequacy of equipment seals located below the flood line, floor and water penetration seals, common drain lines and sumps, sump pumps, level alarms, control circuits, and temporary or removable flood barriers. The inspectors assessed the adequacy of operator actions that Entergy had identified as necessary to cope with flooding in this area and also reviewed the CAP to determine if Entergy was identifying and correcting problems associated with both flood mitigation features and site procedures for responding to flooding.

b. Findings

No findings were identified.

.2 Annual Review of Cables Located in Underground Bunkers/Manholes

a. Inspection Scope

On April 28, 2017, the inspectors conducted an inspection of underground bunkers/manholes subject to flooding that contain cables whose failure could affect risk-significant equipment. The inspectors performed walkdowns of risk-significant areas, including manholes 26A and 28A, which contain cables to the 480 volt (V) B15 bus, which powers 'A' train reactor building component cooling water (RBCCW) and SSW pumps, to verify that the cables were not submerged in water, that cables appeared intact, and to observe the condition of cable support structures. The inspectors ensured that drainage was provided and functioning properly in areas where dewatering devices were not installed. For those cables found submerged in water, the inspectors verified that Entergy had conducted an operability evaluation for the cables and were implementing appropriate corrective actions.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (711111.07A – 2 samples)

a. Inspection Scope

The inspectors reviewed the readiness of the 'A' RHR and 'A' RBCCW heat exchangers, and availability to perform their safety functions. The inspectors reviewed the design basis for the components and verified Entergy's commitments to NRC Generic Letter 89-13, "Service Water System Requirements Affecting Safety-Related Equipment." The inspectors observed actual performance tests for the heat exchangers and reviewed the results of thermal performance tests. The inspectors discussed the results of the most recent inspections with engineering staff and reviewed pictures of the as-found and as-

left conditions. The inspectors verified that Entergy initiated appropriate corrective actions for identified deficiencies. The inspectors also verified that the number of tubes plugged within the heat exchangers did not exceed the maximum amount allowed.

b. Findings

No findings were identified.

1R08 In-Service Inspection (711111.08G – 1 sample)

a. Inspection Scope

From April 17-21, 2017, the inspectors conducted an inspection and review of in-service inspection (ISI) activities in order to assess the effectiveness of Entergy's program for monitoring degradation of the reactor coolant system boundary, risk-significant piping boundaries, and the containment system boundaries during the PNPS 1R21 refueling outage.

Non-destructive Examination and Welding Activities (IP Section 02.01)

The inspectors observed a sample of in-process non-destructive examinations (NDEs), reviewed completed documentation, and interviewed Entergy personnel to verify that the NDE activities performed as part of the fifth interval, first period, of the PNPS ISI program were conducted in accordance with the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, 2001 Edition with the 2003 Addenda. For augmented examinations, the inspectors verified that activities were performed in accordance with Entergy augmented inspection program and procedures, and with applicable industry guidance documents. The inspectors verified that indications and defects, if present, were dispositioned in accordance with the ASME Code or an NRC approved alternative, and verified that relevant indications were compared to previous examinations to determine if any changes had occurred.

Activities included a review of phased array ultrasonic testing (PAUT), ultrasonic testing (UT), and visual testing (VT). The inspectors reviewed certifications of the NDE technicians performing the examinations and verified that the inspections were performed in accordance with qualified NDE procedures and industry guidance. For UT activities, the inspectors also verified the calibration of equipment used to perform the examinations. The inspectors further verified that the test results were reviewed and evaluated by personnel with certifications that met or exceeded ASME Code requirements and that the parameters used in the test were in accordance with the limitations, precautions, and prerequisites specified in the test procedure.

ASME Code Required Examinations:

- Observation and documentation review of the manual PAUT of the N6B Core Spray Nozzle to Safe End Dissimilar Metal Weld (14-B-1)
- Documentation review of the manual PAUT of the Recirculation System Nozzle to Safe end Dissimilar Metal Weld (2R-N2B-1)
- Observation and documentation review of the manual UT of the Core Spray Injection Line Pipe to Valve Weld (14-A-19)

- Observation and documentation review of the manual UT of the Reactor Water Cleanup System Line Elbow to Penetration Weld (12R-0-23)
- Review of results of VT-2 inspection of annulus drains and independent walkdown of the drywell at all accessible floor elevations

Other Augmented, License Renewal or Industry Initiative Examinations:

Direct observation of the remote enhanced VT records of the reactor vessel internals during in-vessel visual inspection activities in accordance with BWRVIP-03. Specifically, the inspectors observed video capture of inspections of the steam dryer exterior tie bars, jet pump wedges and clamps, and core shroud wedges; interviewed the technicians and analysts; and reviewed documentation of the inspections.

Review of Previous Indications

The inspectors reviewed the VT of the steam dryer exterior tie bar #8 due to a crack in an attachment weld identified in the 1R20 refueling outage and required evaluation for continued service. The inspectors interviewed the Level III certified analysts, and observed video capture and still pictures of the VT examination. The data taken and analysis of that data during the current 1R21 outage showed no change to the indications and remained bounded by the evaluation performed to show acceptance of the indications for continued service.

Welding on Pressure Boundary Systems

There were no welding activities performed during this outage that met the inspection sample selection criteria.

Identification and Resolution of Problems (IP Section 02.05)

The inspectors reviewed a sample of PNPS corrective action reports, which were identified during the current outage. The inspectors verified that non-conforming conditions were properly identified, characterized, and evaluated, and that corrective actions were identified and entered into the CAP for resolution.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program and Licensed Operator Performance (71111.11Q – 2 samples)

.1 Quarterly Review of Licensed Operator Requalification Testing and Training

a. Inspection Scope

The inspectors observed licensed operator simulator training on June 7, 2017, which included the loss of a 4160 V safety bus and a small break loss of coolant accident with a loss of the high pressure coolant injection (HPCI) pump. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of abnormal and emergency operating

procedures (EOPs). The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the TS action statements entered by the shift control room engineer. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Room

a. Inspection Scope

The inspectors observed operators perform a controlled shutdown of the unit on April 9, 2017, and startups on May 19, 2017 and May 25, 2017. Inspectors also observed train swap during the refueling outage and the shifting of protected equipment trains on April 24, 2017, which included securing the 'A' train of SDC and starting the 'B' train of SDC. The inspectors observed infrequently performed test or evolution briefings, pre-shift briefings, and reactivity control briefings to verify that the briefings met the criteria specified in Entergy's Procedure EN-OP-115, "Conduct of Operations," Revision 16. Additionally, the inspectors observed operator performance to verify that procedure use, crew communications, and coordination of activities between work groups similarly met established expectations and standards.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 1 sample)

a. Inspection Scope

The inspectors reviewed the sample listed below to assess the effectiveness of maintenance activities on SSC performance and reliability. The inspectors reviewed system health reports, CAP documents, maintenance WOs, and Maintenance Rule (MR) basis documents to ensure that Entergy was identifying and properly evaluating performance problems within the scope of the MR. For each sample selected, the inspectors verified that the SSC was properly scoped into the MR in accordance with 10 CFR 50.65 and verified that the (a)(2) performance criteria established by Entergy staff was reasonable. As applicable, for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these structures, systems, and components to (a)(2). Additionally, the inspectors ensured that Entergy staff was identifying and addressing common cause failures that occurred within and across MR system boundaries.

- 'A' and 'B' EDGs the week of June 5, 2017

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 5 samples)

a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that Entergy performed the appropriate risk assessments prior to removing equipment for work. The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that Entergy personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When Entergy performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work and discussed the results of the assessment with the station's probabilistic risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the TS requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

- Elevated shutdown risk during planned A6 4160V bus, shutdown transformer, and station blackout diesel generator maintenance outages on April 11, 2017
- Elevated shutdown risk during planned A6 4160V bus and B2 480 V outage from April 14-23, 2017
- Elevated shutdown risk with 'A' SDC OOS on April 26, 2017
- Elevated shutdown risk with the shutdown transformer and station blackout diesel generator OOS for planned maintenance on May 5, 2017
- Elevated risk for planned maintenance on the shutdown transformer the week of May 29, 2017

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 5 samples)

a. Inspection Scope

The inspectors reviewed operability determinations for the following degraded or non-conforming conditions based on the risk significance of the associated components and systems:

- Main steam safety valves with incorrect relief valve blowdown settings on April 14-15, 2017
- 'B' source range monitor (SRM) high signal to noise ratio on April 18, 2017
- 'B' RHR torus cooling/spray block valve breaker contactor dropout time exceeded time limit on April 23, 2017

- 'B' EDG control power fuse replacement after original fuse failed due to low level current spikes on April 29, 2017
- HPCI operability following cyclone separator leak on May 22, 2017

The inspectors evaluated the technical adequacy of the operability determinations to assess whether TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TSs and FSAR to Entergy's evaluations to determine whether the components or systems were operable. The inspectors confirmed, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 – 3 samples)

.1 Temporary Modifications

a. Inspection Scope

The inspectors reviewed the temporary modification engineering change (EC) 71772, "Install Temporary Recorder to Monitor EDG 'B'," to determine whether the modification affected the safety function of systems that are important to safety. The inspectors reviewed 10 CFR 50.59 documentation and post-modification testing results, and conducted field walkdowns of the modifications to verify that the temporary modifications did not degrade the design bases, licensing bases, and performance capability of the affected systems.

b. Findings

No findings were identified.

.2 Permanent Modifications

a. Inspection Scope

The inspectors evaluated the following modifications implemented by ECs. The inspectors verified that the design bases, licensing bases, and performance capability of the affected systems were not degraded by the modification. In addition, the inspectors reviewed modification documents associated with the upgrade and design change. Inspectors performed field walkdowns during and after completion of modifications to ensure the as left condition matched the required design changes.

- EC 70603, EDG X-107A Gearbox Replacement
- EC 44839, Installation of 2-Stage Safety Relief Valve (SRV) Pilot Replacement with Platinum Coated Discs

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 7 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure were consistent with the information in the applicable licensing basis and/or design basis documents, and that the test results were properly reviewed and accepted and problems were appropriately documented. The inspectors also walked down the affected job site, observed the pre-job brief and post-job critique where possible, confirmed work site cleanliness was maintained, and witnessed the test or reviewed test data to verify quality control hold point were performed and checked, and that results adequately demonstrated restoration of the affected safety functions.

- 'B' SRM replacement on April 26, 2017
- Main steam isolation valve (MSIV) 1C and 2C maintenance on May 1, 2017
- B1 to B15 480V cable and splice replacements on May 1, 2017
- 'A' EDG gearbox replacement on May 2, 2017
- Core spray loop 'A' full flow test valve to torus (MO-1400-4A) overhaul to correct valve leak on May 4, 2017
- SRV 3A, 3B, 3C, and 3D solenoid replacements May 11-15, 2017
- Drywell personnel airlock repair and post-maintenance testing on May 30, 2017

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20 – 1 sample)

Refueling Outage

a. Inspection Scope

The inspectors reviewed the station's work schedule and outage risk plan for the maintenance and refueling outage (RFO21), conducted April 9, 2017, through May 21, 2017. The inspectors reviewed Entergy's development and implementation of outage plans and schedules to verify that risk, industry experience, previous site-specific problems, and defense-in-depth were considered. During the outage, the inspectors observed portions of the shutdown and cooldown processes and monitored controls associated with the following outage activities:

- Configuration management, including maintenance of defense-in-depth, commensurate with the outage plan for the key safety functions and compliance with the applicable TSs when taking equipment OOS

- Implementation of clearance activities and confirmation that tags were properly hung and that equipment was appropriately configured to safely support the associated work or testing
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication and instrument error accounting
- Status and configuration of electrical systems and switchyard activities to ensure that TSs were met
- Monitoring of decay heat removal operations
- Impact of outage work on the ability of the operators to operate the spent fuel pool cooling system
- Reactor water inventory controls, including flow paths, configurations, alternative means for inventory additions, and controls to prevent inventory loss
- Activities that could affect reactivity
- Maintenance of secondary containment as required by TSs
- Refueling activities, including fuel handling, fuel receipt inspections and core verification
- Fatigue management
- Tracking of startup prerequisites, walkdown of the drywell (primary containment) to verify that debris had not been left which could block the emergency core cooling system suction strainers, and startup and ascension to full power operation
- Identification and resolution of problems related to refueling outage activities

b. Findings

Introduction. An NRC-identified Green finding was identified because Entergy personnel did not follow Procedure 1.3.135, "Control of Doors," to adequately control a condenser bay flood protection door. Specifically, on May 22, 2017, Entergy personnel failed to control door 25A, which is designed to mitigate condenser bay flooding to preclude adversely impacting the important to safety instrument air system.

Description. During the 2011 NRC Component Design Bases Inspection, the inspectors identified a design control violation because Entergy had not verified the adequacy of the design with respect to ensuring that safety-related equipment would be adequately protected from a postulated flood originating in the condenser bay. Specifically, Entergy had not correctly evaluated a failure of seawater system piping or equipment that could challenge the doors separating the condenser bay from the reactor building auxiliary bay, which would require timely operator identification and action to secure the seawater pumps to prevent the common mode failure of redundant safety-related components (see NRC Component Design Bases Inspection Report 05000293/2011007).

Entergy developed EC 59063 to cover the installation of the three watertight doors (DR-11, DR-12, and DR-25A) and flood gate GT-1 installed at door DR-22 to mitigate issues related to condenser bay internal flooding. Door 25A directly communicates with two of three instrument air compressors on site (K-110 and K-111). Instrument air supports the feedwater and control rod drive system's ability to serve as injection sources. The loss of two of three instrument air compressors degrades the reliability of these injection sources to perform their function during an internal flooding event.

At approximately noon on May 22, 2017, during a post-refueling outage plant start-up configuration control walkdown, the inspectors identified that condenser bay outer door

25A (DR-25A) and inner door 25 were propped open providing a direct path between the condenser bay and important to safety equipment (instrument air compressors and dryers) in the radiological waste (radwaste) building. At the time of the observation, reactor power was approximately 20 percent, both seawater pumps were in service, and door 25A was unattended. The inspectors promptly informed the shift manager, who was unaware that the doors were open. At approximately 2:00 PM on May 22, operators closed door 25 and closed and latched door 25A. On the morning of May 23, with no apparent CR on the occurrence in the system, the inspectors followed up with operations. The operations staff informed the inspectors that door 25A was open to allow removal of material from the condenser bay and that they were in a tracking limiting condition for operation (LCO) for the door. Additional discussions revealed that there was an associated fire watch but that the tracking LCO had no assigned compensatory measures or approved AOT. The inspectors expressed a concern that Entergy's actions did not appear appropriate for an inoperable flood barrier. Later on May 23, 2017, the operations staff initiated CR 2017-5612 to document NRC inspector questions and stated "doors were correctly entered into the appropriate LCO and had a watch established." On May 24, 2017, the inspectors informed the shift manager and operations management that door 25A contained a clear white placard with black lettering stating "Controlled barrier (PRO 1.3.135)/Do not disable or prop open."

Procedure 1.3.135, "Control of Doors," Section 6.3 requires shift manager authorization to hold open or disable a door barrier function and references Procedure 8.C.42 for barrier control. Procedure 8.C.42, "Subcompartment Barrier Control Surveillance," Section 4.6 states:

"Flood doors DR-11, DR-12, and DR-25A may be propped open when the tide is below +6' mean sea level (MSL) and the seawater pumps are secured. The worst-case flood scenario during power operations assumes an unisolatable guillotine rupture of a circulating water line with both seawater pumps in service, at high tide, during a storm. Under these conditions floodwater would pump into the Condenser Bay at a rate of 400,000 GPM; water would rise at a rate of 1 foot every 20 seconds. Flood doors DR-11, DR-12, and DR-25A are to remain closed unless someone is walking through them, during which, if these doors are propped open, a "watch" is required."

After the inspector's questions, on May 30, 2017, the operations staff initiated CR 2017-5746 to document that door 25 was covered by a fire watch and tracking LCO but that they had failed to include door 25A in the fire watch or LCO paperwork. The inspectors noted that door 25A was designated as a flood protection barrier and not a fire door (as door 25 is a fire door only) and provided additional feedback to the operations staff regarding the specific requirements of Procedure 8.C.42 regarding door 25A barrier control. On May 31, 2017, the operations staff initiated a detailed required reading on proper flood barrier control to all plant operators referencing the applicable sections of procedures 1.3.135 and 8.C.42 and clearly defined "watch" as continuous.

Analysis. The inspectors determined that Entergy personnel's failure to follow Procedure 1.3.135, "Control of Doors," to adequately control a condenser bay flood protection door was a performance deficiency that was within Entergy's ability to foresee and correct and should have been prevented. Specifically, failure to control flood doors with the seawater pumps in service and at power could adversely affect feedwater and

control rod drive injection paths required during condenser bay internal flooding. The performance deficiency is more than minor because it is associated with the configuration control attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was evaluated using IMC 0609, Appendix A, Exhibit 4, "External Events Screening Questions," issued June 19, 2012, with respect to the degraded safety function of the flood barrier door. The finding was determined to be of very low safety significance (Green) because the failure of the flood door was determined to not degrade the instrument air system ability to support the feedwater injection function or the alternate injection through the control rod drive system. This is because the backup diesel driven compressor was available to be started locally and supply the instrument air headers. The finding also did not involve the total loss of any safety function. This finding has a cross-cutting aspect of Human Performance - Procedure Adherence, because Entergy personnel did not follow processes, procedures, and work instructions. Specifically, Entergy personnel did not follow procedural requirements to adequately control flood protection door 25A. [H.8]

Enforcement. This finding does not involve enforcement action because the performance deficiency was associated with a non-safety-related flood protection door and non-safety-related instrument air compressors and no violation of a regulatory requirement was identified. Entergy entered the issue into the CAP as CR 2017-5612 and CR 2017-5746. Entergy's short-term corrective actions also included closing the door and providing additional operator training. Because this finding did not involve a violation and is of very low safety significance, it was identified as a finding. **(FIN 05000293/2017002-01, Failure to Follow Procedure Requirements for the Control of a Flood Protection Barrier)**

1R22 Surveillance Testing (71111.22 – 5 samples)

a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied TSs, the FSAR, and Entergy procedure requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied.

Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following surveillance tests:

- 8.M.2-2.40.2-27, Low pressure coolant injection loop select logic system test on March 30, 2017
- 8.9.8.2, 'B' 125V DC battery performance test on April 13, 2017
- 8.7.1.6, Local leak rate testing of the MSIVs from April 14-16, 2017 (containment isolation valves)
- 8.M.2-8.1, Calibration and functional testing of ATS transmitters on April 22, 2017

- 8.M.3-1, Simulated loss of offsite power with loss of coolant accident special test on April 26, 2017 (in-service test)

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06 – 1 sample)

Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine Entergy emergency drill on June 29, 2017, to identify any weaknesses and deficiencies in the classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator and emergency operations facility to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the station drill critique to compare inspector observations with those identified by Entergy staff in order to evaluate Entergy's critique and to verify whether the Entergy staff was properly identifying weaknesses and entering them into the CAP.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Public Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01 – 7 samples)

a. Inspection Scope

The inspectors reviewed Entergy's performance in assessing and controlling radiological hazards in the workplace. The inspectors used the requirements contained in 10 CFR Part 20, TSs, Regulatory Guide (RG) 8.38, and the procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors reviewed the performance indicators (PIs) for the occupational exposure cornerstone, radiation protection program audits, and reports of operational occurrences in occupational radiation safety since the last inspection.

Radiological Hazard Assessment (1 sample)

The inspectors conducted independent radiation measurements during walkdowns of the facility and reviewed the radiological survey program, air sampling and analysis, continuous air monitor use, recent plant radiation surveys for radiological work activities, and any changes to plant operations since the last inspection to verify survey adequacy of any new radiological hazards for onsite workers or members of the public.

Instructions to Workers (1 sample)

The inspectors reviewed high radiation area (HRA) work permit controls and use, and observed containers of radioactive materials and assessed whether the containers were labeled and controlled in accordance with requirements.

The inspectors reviewed several occurrences where a worker's electronic personal dosimeter alarmed. The inspectors reviewed Entergy's evaluation of the incidents, documentation in the CAP, and whether compensatory dose evaluations were conducted when appropriate. The inspectors verified follow-up investigations of actual radiological conditions for unexpected radiological hazards were performed.

Contamination and Radioactive Material Control (1 sample)

The inspectors observed the monitoring of potentially contaminated material leaving the radiological controlled area and inspected the methods and radiation monitoring instrumentation used for control, survey, and release of that material.

Radiological Hazards Control and Work Coverage (1 sample)

The inspectors evaluated in-plant radiological conditions and performed independent radiation measurements during facility walkdowns and observation of radiological work activities. The inspectors assessed whether posted surveys; radiation work permits (RWPs); worker radiological briefings and radiation protection job coverage; the use of continuous air monitoring, air sampling, and engineering controls; and dosimetry monitoring were consistent with the present conditions. The inspectors examined the control of highly activated or contaminated materials stored within the spent fuel pools and the posting and physical controls for selected HRAs, locked HRAs, and very high radiation areas (VHRAs) to verify conformance with the occupational PI.

Risk-Significant HRA and VHRA Controls (1 sample)

The inspectors reviewed the procedures and controls for HRAs, VHRAs, and radiological transient areas in the plant.

Radiation Worker Performance and Radiation Protection Technician Proficiency (1 sample)

The inspectors evaluated radiation worker performance with respect to radiation protection work requirements. The inspectors evaluated radiation protection technicians in performance of radiation surveys and in providing radiological job coverage.

Problem Identification and Resolution (1 sample)

The inspectors evaluated whether problems associated with radiation monitoring and exposure control (including operating experience) were identified at an appropriate threshold and properly addressed in the CAP.

b. Findings

No findings were identified.

2RS2 Occupational ALARA Planning and Controls (71124.02 – 4 samples)

a. Inspection Scope

The inspectors assessed Entergy's performance with respect to maintaining occupational individual and collective radiation exposures as low as is reasonably achievable (ALARA). The inspectors used the requirements contained in 10 CFR Part 20, RGs 8.8 and 8.10, TSs, and procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors conducted a review of Pilgrim's collective dose history and trends, ongoing and planned radiological work activities, previous post-outage ALARA reviews, radiological source term history and trends, and ALARA dose estimating and tracking procedures.

Radiological Work Planning (1 sample)

The inspectors selected the following radiological work activities based on exposure significance for review:

- PNPS-RWP-2017-0481, Scaffolding RFO-21
- PNPS-RWP-2017-0602, Disassemble RPV/Reassemble RPV RFO-21
- PNPS-RWP-2017-0511, Drywell MSIVs RFO-21
- PNPS-RWP-2017-0507, Drywell SRV Pilot Modification RFO-21

For each of these activities, the inspectors reviewed: ALARA work activity evaluations, exposure estimates, exposure reduction requirements, results achieved (dose rate reductions), dose estimates, and person-hour estimates.

Verification of Dose Estimates and Exposure Tracking Systems

The inspectors reviewed the current annual collective dose estimate, basis methodology, and measures to track, trend, and reduce occupational doses for ongoing work activities.

Implementation of ALARA and Radiological Work Controls (1 sample)

The inspectors observed radiological work activities and evaluated the in-plant use of shielding and other engineering work controls based on the radiological controls and

ALARA plans for those activities. The inspectors reviewed licensee activities associated with ALARA reviews of work-in-progress. The inspectors verified that the ALARA staff are involved with emergent work activities and for revising associated RWPs/ALARA plans during the outage.

Radiation Worker Performance (1 sample)

The inspectors observed radiation worker and radiation protection technician performance during radiological work to evaluate worker ALARA performance according to specified work controls and procedures. Workers were interviewed to assess their knowledge and awareness of planned and/or implemented radiological and ALARA work controls.

Problem Identification and Resolution (1 sample)

The inspectors evaluated whether problems associated with ALARA planning and controls were identified at an appropriate threshold and properly addressed in the CAP.

b. Findings

No findings were identified.

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03 – 3 samples)

a. Inspection Scope

The inspectors reviewed the control of in-plant airborne radioactivity and the use of respiratory protection devices in these areas. The inspectors used the requirements in 10 CFR Part 20, RGs 8.15 and 8.25, NUREG/CR-0041, TSs, and procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors reviewed the FSAR to identify ventilation and radiation monitoring systems associated with airborne radioactivity controls and respiratory protection equipment. The inspectors also reviewed respiratory protection program procedures and current PIs for unintended internal exposure incidents.

Engineering Controls (1 sample)

The inspectors reviewed operability and use of both permanent and temporary ventilation systems, and the adequacy of airborne radioactivity radiation monitoring in the plant based on location, sensitivity, and alarm set-points.

Use of Respiratory Protection Devices (1 sample)

The inspectors reviewed the adequacy of Entergy's use of respiratory protection devices in the plant to include applicable ALARA evaluations, respiratory protection device certification, respiratory equipment storage, air quality testing records, and individual qualification records.

Problem Identification and Resolution (1 sample)

The inspectors evaluated whether problems associated with the control and mitigation of in-plant airborne radioactivity were identified at an appropriate threshold and addressed by Entergy's CAP.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04 – 5 samples)

a. Inspection Scope

The inspectors reviewed the monitoring, assessment, and reporting of occupational dose. The inspectors used the requirements in 10 CFR Part 20, RGs, TSs, and procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors reviewed: radiation protection program audits, National Voluntary Laboratory Accreditation Program (NVLAP) dosimetry testing reports, and procedures associated with dosimetry operations.

Source Term Characterization (1 sample)

The inspectors reviewed the plant radiation characterization (including gamma, beta, alpha, and neutron) being monitored. The inspectors verified the use of scaling factors to account for hard-to-detect radionuclides in internal dose assessments.

External Dosimetry (1 sample)

The inspectors reviewed: dosimetry NVLAP accreditation, onsite storage of dosimeters, the use of "correction factors" to align electronic personal dosimeter results with NVLAP dosimetry results, dosimetry occurrence reports, and CAP documents for adverse trends related to external dosimetry.

Internal Dosimetry (1 sample)

The inspectors reviewed: internal dosimetry procedures, whole body counter measurement sensitivity and use, adequacy of the program for whole body count monitoring of plant radionuclides or other bioassay technique, adequacy of the program for dose assessments based on air sample monitoring and the use of respiratory protection, and internal dose assessments for any actual internal exposure.

Special Dosimetric Situations (1 sample)

The inspectors reviewed: Entergy's worker notification of the risks of radiation exposure to the embryo/fetus, the dosimetry monitoring program for declared pregnant workers, external dose monitoring of workers in large dose rate gradient environments, and dose

assessments performed since the last inspection that used multi-badging, skin dose, or neutron dose assessments.

Problem Identification and Resolution (1 sample)

The inspectors evaluated whether problems associated with occupational dose assessment were identified at an appropriate threshold and properly addressed in the CAP.

b. Findings

No findings were identified.

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation (71124.08 – 6 samples)

a. Inspection Scope

The inspectors verified the effectiveness of Entergy's programs for processing, handling, storage, and transportation of radioactive material. The inspectors used the requirements of 49 CFR 170-177; 10 CFR Parts 20, 61, and 71; applicable industry standards; RGs; and procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors conducted an in-office review of the solid radioactive waste system description in the FSAR, the process control program, and the recent radiological effluent release report for information on the types, amounts, and processing of radioactive waste disposed. The inspectors reviewed the scope of quality assurance audits performed for this area since the last inspection.

Radioactive Material Storage (1 sample)

The inspectors observed radioactive waste container storage areas and verified the postings and controls and that Entergy had established a process for monitoring the impact of long-term storage of the waste.

Radioactive Waste System Walkdown (1 sample)

The inspectors walked down the following:

- Accessible portions of liquid and solid radioactive waste processing systems to verify current system alignment and material condition
- Abandoned in place radioactive waste processing equipment to review the controls in place to ensure protection of personnel
- Changes made to the radioactive waste processing systems since the last inspection
- Processes for mixing and transferring radioactive waste resin and/or sludge discharges into shipping/disposal containers
- Current methods and procedures for dewatering waste

Waste Characterization and Classification (1 sample)

The inspectors identified radioactive waste streams and reviewed radiochemical sample analysis results to support radioactive waste characterization. The inspectors reviewed the use of scaling factors and calculations to account for difficult-to-measure radionuclides.

Shipment Preparation (1 sample)

The inspectors reviewed the records of shipment packaging, surveying, labeling, marking, placarding, vehicle checks, emergency instructions, disposal manifest, shipping papers provided to the driver, and licensee verification of shipment readiness.

Shipping Records (1 sample)

The inspectors reviewed selected non-accepted package shipment records.

Problem Identification and Resolution (1 sample)

The inspectors assessed whether problems associated with radioactive waste processing, handling, storage, and transportation were identified at an appropriate threshold and properly addressed in Entergy's CAP.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES4OA1 Performance Indicator Verification (71151)Unplanned Scrams, Unplanned Power Changes, and Unplanned Scrams with Complications (3 samples)a. Inspection Scope

The inspectors reviewed Entergy's submittals for the following Initiating Events Cornerstone PIs for the period of July 1, 2016, through June 30, 2017.

- Unplanned scrams
- Unplanned power changes
- Unplanned scrams with complications

To determine the accuracy of the PI data reported during those periods, inspectors used definitions and guidance contained in Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7. The inspectors reviewed Entergy's operator narrative logs, CRs, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

b. Findings

Introduction. The inspectors identified an unresolved item (URI) associated with Entergy's reporting of Unplanned Scrams with Complications PI data for the third quarter of 2016.

Description. On September 6, 2016, PNPS operators initiated a manual reactor scram based on oscillating feed flow as a result of a malfunction with feedwater regulating valve (FRV) 'A'. As a result of high reactor vessel water level, all of the reactor feed pumps tripped, the HPCI and RCIC systems isolated, and a Group 1 isolation signal was present, initiating closure of the MSIVs. In order to maintain pressure control of the reactor, SRV 3B was manually cycled.

This event was reported under Licensee Event Report (LER) 05000293/2016-007-00. During the scram response, PNPS operators were required to use an SRV to maintain reactor pressure control, but Entergy's submittal of PI data for the third quarter of 2016 does not count the scram as an Unplanned Scram with Complications, which is required by EN-LI-114, "Regulatory Performance Indicator Process."

This URI is being opened to determine if a performance deficiency exists pending resolution of the differing interpretation of guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guidance," Revision 7, at the next scheduled Reactor Oversight Process Working Group Meeting. **(URI 05000293/2017002-02, Reporting of Unplanned Scrams with Complications Performance Indicator for Feedwater Regulating Valve Scram)**

4OA2 Problem Identification and Resolution (71152 – 1 sample)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify Entergy entered issues into the CAP at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the CAP and periodically attended CR screening meetings. The inspectors also confirmed, on a sampling basis, that, as applicable, for identified defects and non-conformances, Entergy performed an evaluation in accordance with 10 CFR Part 21.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a semi-annual review of site issues to identify trends that might indicate the existence of more significant safety concerns. As part of this review, the inspectors included repetitive or closely-related issues documented by Entergy in trend reports, site PIs, major equipment problem lists, system health reports, MR assessments, and maintenance or CAP backlogs. The inspectors also reviewed Entergy's CAP database for the first and second quarters of 2017 to assess CRs written in various subject areas (equipment problems, human performance issues, etc.), as well as individual issues identified during the NRCs daily CR review (Section 4OA2.1). The inspectors reviewed Entergy's last completed trend report for the period of October 2016 through January 2017, conducted under EN-LI-121, to verify that Entergy personnel were appropriately evaluating and trending adverse conditions in accordance with applicable procedures. Inspectors also reviewed maintenance backlogs, PMs in grace, operator workarounds, and site staffing in response to the planned decommissioning of the unit in 2019.

b. Findings and Observations

No findings were identified.

The inspectors evaluated a sample of CRs generated over the course of the past two quarters by departments that provide input to the trimester trend reports. The inspectors determined that while Entergy, in general, identifies issues in the CAP, significant gaps remain in the areas of procedure use and adherence, equipment reliability, and NRC reporting requirements.

Equipment Reliability

Inspectors identified a negative trend in self-revealing equipment reliability issues during the first and second quarters of 2017. Each of the issues were individually addressed in the CAP, however, Entergy did not identify the need for an assessment to understand if a common cause was contributing to the increased equipment reliability issues. In response to inspectors' concerns, Entergy entered the issue into the CAP as CR 2017-7468. Impacted equipment includes:

- Fuse failure that prevented the auto-start of the 'B' EDG
- 'B' SSW spider bearing failure
- HPCI cyclone separator leak
- RCIC injection valve binding
- 'E' SSW pump motor high vibrations
- Multiple failed 10 CFR Part 50, Appendix J leak rate tests
- Unit auxiliary transformer oil leak requiring operator compensatory actions
- F-15 switcher hotspot that impacted the shutdown transformer
- Agastat time delay relay failure that impacted the 480V bus powering the low pressure coolant injection injection valves
- 'B' and 'D' SRV leakage
- 'B' SRM and 'F' intermediate range monitor failures

The first quarter equipment reliability review was not performed due to refueling outage activities and the second quarter review had not commenced at the finish of this inspection period. In addition, Entergy has a slowly increasing backlog of critical online PMs in the second half of grace from January 2017 through June 2017, however, the workload remains within the capacity of the site.

Procedure Use and Adherence

Inspectors continue to identify issues not being identified by station staff indicating a continuing negative trend in the aspect of procedure use and adherence. Specifically:

- Inspectors reviewed several maintenance WOs regarding the installation of new SRV solenoids and splices and MSIV rebuilds. Inspectors identified issues regarding maintenance and test equipment traceability, procedure steps not performed as required, supervisor approval not given on unperformed procedure steps, testing performed outside of the WO process, and work performed by unqualified personnel on splice that was eventually replaced before restoration to service. Inspectors did not identify any specific procedure compliance issue that indicated the SRVs were inoperable, however, work practices are not indicative of a nuclear safety culture that values procedure use and adherence during maintenance activities on safety-related components. Inspectors also identified issues with not checking the 'B' SBGT fan belts after replacement before returning the system to service, as required by procedure. The issue was minor because when belts were checked, no re-tensioning of the belts was required.
- Inspectors identified several procedure use and adherence issues by Operations. The Inspectors identified that that surveillance testing for the SBGTS was not performed as required by the TSs. Inspectors identified that operators had not met all pre-requisites for the reactor cavity fill with the core spray system prior to issuing the order to commence the cavity fill. The activity was stopped and all prerequisites were met prior to filling the cavity. Inspectors identified that during core spray system flushes, that a procedure requirement to station an operator in the vicinity of the valve was not performed. Inspectors identified that operators were not following procedural requirements to shut down the unit when required by site procedures due to extensions of maintenance activities.

Entergy has recognized procedure use and adherence as a top station gap in the cognitive trending program that is continuing from 2016 issues. The site has agreed that 2017 procedure use and adherence issues are not limited to "reference use only" but include "continuous use" procedures, which led to the torus fill event on March 31, 2017 (see Section 4OA3.1). Inspectors determined that significant actions are required to address station wide procedure use and adherence issues, particularly in response to the torus fill event on March 31, 2017, since station recovery actions did not prevent a potentially significant operational events from occurring. Entergy entered the issue into the CAP as CR 2017- 7570. Operations is conducting additional training focused on operator fundamentals to reemphasize expectations of safe plant operation and a causal evaluation is being performed on maintenance WO standards.

Reportability Requirements

Inspectors continue to identify challenges in complying with reporting requirements for 10 CFR 50.72, "Immediate Notification Requirements for Operating Nuclear Reactors," and 10 CFR 50.73, "Licensee Event Report System," as demonstrated by the following three NRC-identified SL IV violations in 2017:

- March 15, 2017 – SL IV NCV issued for the failure to submit a LER (10 CFR 50.73) within 60 days of discovery of the 'A' EDG inoperable for greater than the time allowed by TS 3.5.F (NRC IR 05000293/2016011 ML17129A217)
- March 31, 2017 – SL IV NCV issued for a missed 10 CFR 50.72 notification for a TS required shutdown not reported within four hours of the occurrence (NRC IR 05000293/2017001 Section 4OA3.1 ML17136A015)
- June 30, 2017 – SL IV NCV issued for a missed 10 CFR 50.72 notification for condition that could have prevented fulfillment of a safety function when both trains of the SBGTS were removed from service (Section 4OA3.3.2)

Inspectors also identified minor issues with LERs that required updates to LERs submitted to the NRC. Inspectors have determined that corrective actions to address a similar theme in 2015 (IR 05000293/2016001 Section 4OA5 ML16133A433) were not effective in addressing reportability requirements (CR 2017-7446).

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 3 samples)

.1 Plant Events

a. Inspection Scope

For the plant events listed below, the inspectors reviewed and/or observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant events to appropriate regional personnel, and compared the event details with criteria contained in IMC 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of potential reactive inspection activities. As applicable, the inspectors verified that Entergy made appropriate emergency classification assessments and properly reported the event in accordance with 10 CFR 50.72 and 50.73. The inspectors reviewed Entergy's follow-up actions related to the events to assure that Entergy implemented appropriate corrective actions commensurate with their safety significance.

- Pressure suppression pool declared inoperable due to high water level on March 31, 2017

b. Findings

.1 Inaccurate Suppression Pool Water Level Instrument Not Identified during Post-Event Prompt Investigation

Introduction. An NRC-identified Green NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified because Entergy staff did not identify and correct a condition adverse to quality related to suppression pool water level indication when the 'A' suppression pool wide range instrument provided inaccurate level indication during the inadvertent suppression pool water level increase event on March 31, 2017.

Description. On March 31, 2017, following a pre-refueling outage flush of the 'A' core spray system piping, operators positioned a valve (MO-1400-3A) out of sequence while aligning the system for standby operation. The mis-positioned valve allowed approximately 55,000 gallons of water to gravity drain due to the height difference between the condensate storage tank (CST) and the suppression pool. This resulted in the suppression pool water level rising by approximately 10 inches. The increase in suppression pool water level exceeded the suppression pool water level limits and operators entered TS 3.7.A.1.b for being above the maximum suppression pool water volume above 94,000 cubic feet. Operators also entered TS 3.7.A.8.a, "Drywell and Suppression Chamber Differential Pressure," for the differential pressure being below 1.17 pounds per square inch between the drywell and suppression chamber. The operators took actions to close valve MO-1400-3A and stop the flow of water from the CST into the suppression pool, declared the suppression pool to be inoperable, entered TS Action Statement TS 3.7.A.1.5, for the conditions above, and restored the suppression pool to proper operating parameters.

As part of the response to this event, Entergy staff performed a prompt Investigation using the guidance in Procedure EN-FAP-OM-012, "Prompt Investigations and Notifications." Section 3.3[2](c) directed that appropriate data be collected pertinent to the event and listed strip charts from recorders, automatic data acquisition system transient history, and printouts from sequence of events recorders as examples of data to be collected to assist in the prompt investigation. The inspectors observed that the suppression pool wide range level instrument was included in the post-accident monitoring system. In addition to alarm and indication functions, the wide range level instrument is relied upon in the EOPs to direct specific operator actions such as scrambling the reactor and emergency depressurization of the reactor vessel.

The inspectors determined that Entergy staff conducted a prompt investigation and documented their results on April 2, 2017, using EN-FAP-OM-012 attachments 7.2, "Event Outline," and 7.5, "Prompt Investigation Report Out Form." In attachment 7.2, Entergy staff documented that the suppression pool drain down "Appears to be HU (human performance), no equipment malfunction." The inspectors performed an independent review of the event from April 4, 2017, to April 6, 2017. The inspectors examined data from the plant process computer, the alarm recorder, and the operations logs to develop an integrated event timeline. Additionally, the inspectors plotted plant process computer data to evaluate the response of relevant plant parameters and operator actions. When the 'A' and 'B' suppression pool wide range data was plotted, the inspectors identified that the response of these instruments diverged significantly during the level transient, but converged when the level was not changing. The expected response would have been that the two level instruments tracked together at

approximately the same value. The largest difference between the two instruments was 14.75 inches, with the 'A' level instrument indicating the greater value. The inspectors provided these observations to Entergy staff on April 6, 2017. Entergy staff entered the issue into the CAP as CR 2017-02965. Entergy staff evaluated the observations, declared the 'A' wide suppression pool wide range instrument inoperable, and entered TS 3.2.F. As a corrective action, Entergy staff performed an equipment failure evaluation and concluded that the cause of the response of the 'A' instrument was air trapped in the sensing line. Entergy technicians performed a calibration and fill maintenance activity of the sensing line and returned the instrument to service on April 10, 2017.

Analysis. The inspectors determined that Entergy staff did not identify the 'A' suppression pool wide range instrument provided inaccurate level indications during the inadvertent suppression pool water level increase event on March 31, 2017, in accordance with their Procedure EN-LI-102. As a result, operators declared the 'A' suppression pool level wide range instrument inoperable on April 6, 2017, and performed corrective maintenance to restore the instrument to operability. The inspectors determined that this was a performance deficiency reasonably within Entergy's ability to foresee and correct and that the condition should have been identified as part of Entergy's prompt investigation into the event. The performance deficiency is more than minor because if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern. Specifically, inaccurate level indication during off-normal changing level conditions in the suppression pool would result in operator actions not warranted by plant conditions. The finding is also associated with the Initiating Events cornerstone. In accordance with IMC 0609.04, "Initial Characterization of Findings," issued October 7, 2016, and IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," issued June 19, 2012, the inspectors determined that the finding was of very low safety significance (Green) because the finding did not cause a reactor trip and a loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The finding has a cross-cutting aspect in the area of Problem Identification and Resolution - Identification, because the Entergy organization did not demonstrate an appropriately low threshold for entering problems into their CAP. Specifically, Entergy's prompt investigation of the inadvertent suppression pool level increase event did not identify that the 'A' suppression pool wide range level instrument was not indicating properly and required corrective maintenance. [P.1]

Enforcement. 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected. Contrary to the above, from March 31, 2017, to April 6, 2017, Entergy did not identify and correct the cause of the inaccurate indications provided by the 'A' suppression pool wide range water level instrument during a transient in suppression pool water level on March 31, 2017, leading to the instrument being declared inoperable on April 6, 2017, following a review of the instrument's performance by the NRC inspectors. Entergy's corrective actions included performance of an equipment failure evaluation to determine the cause of the inaccurate instrument response and completion of a sensing line fill and instrument calibration maintenance activity. Because this violation was of very low safety significance (Green) and was entered into Entergy's CAP as CR 2017-02965, the NRC is treating this as an NCV, consistent with Section 2.3.2.a of the NRC Enforcement

Policy. (NCV 05000293/2017002-03, Inaccurate Suppression Pool Water Level Instrument Not Identified during Post-Event Prompt Investigation)

.2 Improper System Restoration Results in Suppression Pool Inoperability

Introduction. A self-revealing Green NCV of TS 5.4.1.a, “Procedures,” was identified on March 31, 2017, when operators did not follow procedures and caused an inadvertent increase in the suppression pool water level. The inspectors determined that the operators did not restore the core spray system valve line-up as prescribed in Attachment 11 of Procedure 2.2.20, “Core Spray,” and the maintenance safety tag clearance sheet. Operator implementation of these documents is directed by Entergy Procedure EN-OP-102, “Protective Caution Tagging,” section 5.19[4](b).

Description. On March 31, 2017, during full power operations, Entergy operators performed a planned pre-refueling outage flush of the ‘A’ core spray piping. The flush was performed utilizing attachment 8 of Procedure 2.2.20, “Core Spray,” and involved pumping water via the ‘A’ core spray pump from the CST to the suppression pool. This involved closing valve MO-1400-3A (normally open), which isolated the core spray pump suction from the suppression pool, and opening valve 1400-2A (normally locked closed) which aligned the pump suction to the CST. The procedure further provided direction to return the valves to their normal position in a specific order after pipe flushing to prevent initiating an unintended direct flow path from the CST to the suppression pool since the CST is at a higher level than the suppression pool and a flow path would result in flow by gravity due to the height difference.

After completing the core spray pipe flush, operators were removing maintenance safety tags and preparing to realign the pump suction to the suppression pool and return the ‘A’ core spray system to standby operation. A pre-job brief was performed by the control room staff prior to removing the tags to discuss the sequence of tag removal and returning the system to service. The tag out sheet restoration instructions section stated “Position components as required when restoring ‘A’ Core Spray per 2.2.20 att. 11.” Following the pre-job brief, equipment operators removed tags and closed circuit breakers to the associated valve motor operators as had been discussed during the pre-job brief. The maintenance safety tag removal sheet was returned to the control room for final alignment of the system.

At 1150 hours, operators positioned valve MO-1400-3A to its normally open position; however, they did so without consulting the system restoration instructions in Procedure 2.2.20 attachment 11. This attachment included instructions to close valve 1400-2A prior to opening valve MO-1400-3A. As valve 1400-2A was still open, a direct flow path between the CST and suppression pool was initiated which allowed water to gravity drain into the suppression pool. Immediately after opening the valve, the operators documented the opening of the valve in the clearance computer. Subsequently, the operators observed indication of increasing and high water level in the suppression pool and entered EOP-3, “Primary Containment Control,” at 1153. At 1155, the suppression pool high level alarm was received. Operators closed valve MO-1400-3A to stop the flow of water. Valve MO-1400-3A indicated shut at 1157. The operators declared the suppression pool inoperable because the suppression pool water level and volume was higher than allowed by TS 3.7.A.1.b and the suppression pool to drywell differential pressure did not meet TS 3.7.A.8.a requirements. These conditions increased the height of water in the suppression pool downcomers and increased the loads that would

result during a postulated limiting reactor coolant pipe break and clearing of the downcomers.

Inspectors responded to the control room and observed the operators restoring proper suppression pool operating parameters at 1207 by draining water from the suppression pool to the radioactive waste system and by operation of the SBGTS with addition of nitrogen into the containment to restore proper differential pressure. The suppression pool to drywell differential pressure was returned to within TSs at 1427. The suppression pool high level alarm cleared at 1242 and compliance with TS suppression pool level was achieved at 1540. Operators exited EOP-3 and declared the suppression pool operable at 1540.

Entergy staff entered this problem into their CAP as CR 2017-02785. Additionally, Entergy staff performed an evaluation which assessed the capability of the suppression pool, including downcomer components and supports to perform their intended safety functions to remain intact during limiting postulated pipe breaks in containment with the increased suppression pool water inventory and decreased suppression pool to drywell differential pressure conditions. The evaluation was performed using guidance contained in ASME Section III, Non-mandatory Appendix F, "Rules for Evaluation of Service Loadings with Level D Service Limits." Entergy staff concluded the suppression pool remained functional throughout the event. The evaluation was independently reviewed by NRC Region I inspectors, with assistance from NRC's Office of Nuclear Reactor Regulation, Division of Engineering and the Division of Safety Systems staff, to determine the evaluation was technically supported and that the conclusions were appropriate. The inspectors noted the application of Level D Service limits was consistent with guidance in NRC IMC 0326, Appendix C.11, "Piping and Pipe Support Requirements."

Analysis. The inspectors determined the operators did not implement attachment 11 of Procedure 2.2.20 to restore the core spray system as directed in the maintenance safety tag clearance sheet and therefore not in accordance with Entergy Procedure EN-OP-102, "Protective Caution Tagging," section 5.19[4](b). This was a performance deficiency that was within Entergy's ability to foresee and correct and should have been prevented. The performance deficiency is more than minor because it is associated with the equipment reliability attribute of the Mitigating Systems cornerstone objective and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the out of specification conditions on March 31, 2017, impacted suppression pool reliability because the suppression pool was not maintained within parameters required to ensure operability. Additionally, significant analysis was necessary to show the suppression pool and associated supports remained functional when TS requirements were not met. This is consistent with example 3.j from IMC 0612, Appendix E, "Examples of Minor Issues." Using IMC 0609, Appendix A, Exhibit 2, issued June 19, 2012, "The Significance Determination Process for Findings At-Power," the inspectors determined the finding was of very low safety significance (Green) because the finding did not affect the design or qualification of a mitigating SSC, the finding did not represent a loss of system and/or function, the finding did not represent an actual loss of a function of a single train for greater than the TS AOT, and the finding did not represent an actual loss of a function of one or more non-TS trains of equipment. Specifically, the suppression pool, including downcomers and supports, remained functional following the influx of water. The finding has a cross-cutting aspect in the area

of Human Performance - Procedure Adherence because Entergy personnel did not follow processes, procedures, and work instructions. Specifically, Entergy personnel did not follow procedures and work instructions during the restoration of the core spray system. [H.8]

Enforcement. TS 5.4.1.a, "Procedures," requires, in part, that written procedures shall be established, implemented, and maintained covering the procedures recommended in RG 1.33, Revision 2, Appendix A, dated February 1978. RG 1.33, Revision 2, Appendix A, Section 1.c lists that instructions for equipment control (e.g. locking and tagging) are a typical safety-related activity that should be covered by written procedures. Contrary to the above, on March 31, 2017, while performing a system restoration of the 'A' core spray system, Entergy did not implement the procedure specified by the maintenance safety tag removal sheet causing an unplanned transfer of 55,000 gallons of water from the CST into the suppression pool and resulting in an entry into EOP-3 due to high suppression pool level and an unplanned inoperability of the suppression pool. Following the unplanned transfer of water, Entergy operators took actions to restore suppression pool parameters to within TS requirements. Entergy staff took corrective actions related to operator performance and subsequently completed a prompt investigation which involved their Human Performance review board. Because this violation was of very low safety significance (Green) and it was entered into the Entergy's CAP as CR 2017-02785, this violation is being treated as an NCV, consistent with Section 2.3.2.a of the NRC Enforcement Policy. **(NCV 05000293/2017002-04, Improper System Restoration Results in Suppression Pool Inoperability)**

.2 (Closed) LER 05000293/2017-001-00: Reactor Building Isolation Dampers Failed to Isolate

a. Inspection Scope

On January 16, 2017, during a surveillance test, secondary containment isolation dampers failed to fully close when tested, which resulted in a loss of safety function and exceeding the AOT of TS LCO 3.7.C.2.a, "Containment Systems – Secondary Containment." The inspectors documented one violation of NRC requirements. This LER is closed.

b. Findings

Introduction. A self-revealing Green NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," and TS 3.7.C.2, "Containment Systems – Secondary Containment," was identified because Entergy did not establish an appropriate interval to overhaul the secondary containment isolation dampers. As a result, the refueling floor supply isolation dampers were operated beyond the recommended overhaul interval and subsequently failed.

Description. On January 16, 2017, PNPS was performing surveillance testing of Reactor Building Isolation System secondary containment isolation dampers under PNPS 8.7.3, "Secondary Containment Leak Rate Test," when dampers AO-N-82 and AO-N-83, refueling floor supply isolation dampers, failed to fully close on demand. This was identified through observation of dual indication, indicative of incomplete closure, for damper position in the Main Control Room. Upon identifying the dual indication, secondary containment was declared inoperable, TS LCO 3.7.C.2.a was entered, and

the dampers were manually closed. The scheduled PM was then performed for the dampers before successfully performing the surveillance test as the post work test.

Entergy fleet Procedure EN-DC-335, "Preventive Maintenance Basis Template," establishes the process to utilize internal and external operating experience and component history to develop recommended PM activities. Section 5.2 requires the PM basis templates to be periodically reviewed and, when applicable, updated based on Electric Power Research Institute (EPRI) guidance, internal and external operating experience, and vendor recommendations as necessary.

The inspectors reviewed Entergy's RCE under CR 2017-0494 for this event. The evaluation determined the root cause to be that the PM program for the dampers was not sufficiently structured to prevent repetitive failures of high critical components, and thus was not adequate to properly maintain the dampers, resulting in a loss of safety function for secondary containment. The RCE identified that the overhaul PM for the damper actuators was performed on an inadequate frequency and inadequate procedural requirements were provided in PNPS 3.M.4-125, "Inspection and Maintenance of Secondary Containment Dampers – Critical Maintenance," concerning the cleaning of blade and edge seals of the dampers and duct work, as well as specific cleaning techniques to implement. Additionally, the Failure Modes and Effects Analysis identified the direct cause of the failure of the dampers to fully close was the actuator's output was insufficient to overcome the required torque to fully close the dampers.

The inspectors reviewed the vendor manual for the secondary containment ventilation dampers, V-1014, "Bettis Actuator Operating & Maintenance Instructions," which details the need for a five year overhaul PM in which the actuator must be disassembled, cleaned, wear inspected, and all worn parts replaced, re-lubricated, and all seals/gaskets replaced. On November 14, 1994, PNPS established a 5-year PM to rebuild the actuators for the secondary containment isolation dampers in accordance with the vendor manual. In October 2001, the repetitive task to rebuild the damper actuators in accordance with the vendor manual was deactivated based on good performance of the actuators and overhauls not being considered necessary except on an as-needed basis. However, no evidence could be found that consideration was given to the fact that these PMs were established as corrective actions from RCEs for similar events in 1994 and 1995. On December 18, 2008, the site reinstated the overhaul PM but with a frequency change from the five year vendor recommended periodicity to 8 years based on what was deemed relatively infrequent cycling of the dampers and vendor permission to "consider" a frequency change in 1994.

The actuators for the 18 secondary containment dampers were replaced in spring 2009, between online work and Refueling Outage 17. With the PM frequency established at 8 years, WO 52659576 was generated to refurbish the actuator on AO-N-82 with a due date of July 5, 2018, with a PM early date of April 5, 2017, and late date of October 4, 2019. AO-N-83 was removed and replaced under WO 00470598 on March 28, 2017.

The inspectors reviewed the RCE associated with this issue and determined that Entergy has taken or planned appropriate corrective actions; however, the failure could have been prevented if Entergy had completed the actuator overhauls on the secondary containment isolation dampers at the vendor recommended interval of five years. Additionally, the Entergy PM basis template for HVAC dampers, EN-HVAC-Dampers & Ducting, recommends damper actuator inspections and damper internal inspections at 6

year intervals. In CR 2016-2061, which addresses issues identified in Engineering Programs, a general concern was identified in the PM program regarding PM deferrals lacking adequate technical justification. The lack of an adequate technical justification to delay vendor recommended PM frequency led to the failure of the dampers and an inoperable secondary containment.

Entergy's corrective actions included cleaning, lubricating, and post-work testing the failed refueling floor supply isolation dampers. Additionally, compensatory measures were used to restore the dampers to operable status. Additionally, Entergy is in the process of revising the PM strategy for secondary containment supply and exhaust isolation dampers as follows: Refurbish the damper actuators at a frequency of once every five years in accordance with vendor recommendations; perform annual inspections and maintenance of secondary containment dampers; and bench test and record torque values to verify the adequacy of the actuators prior to installation and after they have been removed and replaced. Entergy entered this issue into their CAP as CR 2017-0494.

Analysis. The inspectors determined that Entergy established an inadequate PM interval for the refueling floor supply isolation dampers. This was a performance deficiency that was reasonably within their ability to foresee and correct and should have been prevented. The performance deficiency is more than minor because it is associated with the SSC and barrier performance attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers (containment) protect the public from radionuclide releases caused by accidents or events. Specifically, Entergy's PM for the refueling floor supply isolation dampers was inadequate to ensure the availability and reliability of SSC's required to maintain secondary containment operable. In accordance with IMC 0609.04, "Initial Characterization of Findings," issued October 7, 2016, and IMC 0609, Appendix A, Exhibit 3, "The Significance Determination Process for Findings At-Power," issued June 19, 2012, the inspectors determined that the finding was of very low safety significance (Green) because the performance deficiency only represented a degradation of the radiological barrier function provided by the reactor building and SBGTS. The finding has a cross-cutting aspect of Problem Identification and Resolution - Resolution, because Entergy did not take effective corrective actions to address issues in a timely manner. Specifically, Entergy identified in 2016 that there were deficiencies in the preventive maintenance program with the technical justification for deferring PMs. Entergy reasonably had the opportunity to identify which PMs were not performed within recommended guidelines and make appropriate changes as needed. [P.3]

Enforcement. 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states in part that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Entergy fleet Procedure EN-DC-335, "PM Basis Template," requires that the PM basis templates are periodically reviewed and, when applicable, updated based on EPRI guidance, internal and external operating experience, and vendor recommendations as necessary. Contrary to the above, on December 18, 2008, Entergy did not establish an appropriate interval to overhaul the secondary containment isolation dampers. As a result, the safety-related secondary containment isolation dampers AO-N-82 and AO-N-83 were operated beyond the vendor and fleet recommended overhaul interval and subsequently failed.

TS 3.7.C.2 states, in part, that with secondary containment inoperable when in the Run Mode, restore secondary containment to operable status within 4 hours or be in Hot Shutdown in 12 hours and Cold Shutdown within 36 hours. Contrary to the above, from September 7, 2016, to January 16, 2017, secondary containment was inoperable when in the Run Mode for greater than 4 hours and the unit was not placed in Cold Shutdown within 36 hours.

Entergy's corrective actions included cleaning, lubricating, and post-work testing the failed refueling floor supply isolation dampers. Because this violation was of very low safety significance (Green) and was entered into Entergy's CAP as CR-PNP-2017-00494, this violation is being treated as an NCV, consistent with Section 2.3.2.a of the NRC Enforcement Policy. **(NCV 05000293/2017002-05, Damper Failure Causes Loss of Secondary Containment)**

.3 (Closed) LER 05000293/2017-004-00: Secondary Containment Testing Led to Loss of Safety Function to Both Trains of Standby Gas Treatment System

a. Inspection Scope

On April 5, 2017, both trains of the SBGTS were made inoperable during the performance of a surveillance test of secondary containment prior to the refueling outage. As a result, secondary containment was inoperable during plant conditions that required it to be operable. Entergy identified the test was performed during incorrect plant conditions 11 times from February 27, 1997, through April 5, 2017. The inspectors identified two violations of NRC requirements. This LER is closed.

b. Findings

.1 Secondary Containment Testing not performed per Technical Specifications

Introduction. An NRC-identified Green NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," and TS 4.7.C, "Containment Systems – Secondary Containment," was identified when Entergy performed a surveillance test requiring a refueling outage while online. Specifically, Entergy performed Procedure 8.7.3, "Secondary Containment Leak Rate Test," with the unit at power, rather than during a refueling outage prior to refueling, as specified by TS SR 4.7.C from February 27, 1997 to April 5, 2017.

Description. On April 5, 2017, inspectors identified that operators performed a refueling outage surveillance test, 8.7.3, "Secondary Containment Leak Rate Test," while at 97 percent power that removed the safety function of the SBGTS and rendered the secondary containment inoperable. PNPS TSs include SR 4.7.C, which states "each refueling outage, prior to refueling, secondary containment capability shall be demonstrated to maintain ¼ inch of water vacuum under calm wind (5 mph) conditions with a filter train flow rate of not more than 4000 cfm." Contrary to the above, Entergy scheduled the test while the unit was online on April 5, 2017. Procedure 8.7.3, step 8.6 places both SBGTS in "OFF" simultaneously, which results in both trains of the SBGTS being inoperable at the same time, due to removal of the automatic start of the system. This rendered secondary containment inoperable, because at least one train of the SBGTS is required for secondary containment. The timing designated in TSs "each refueling outage, prior to refueling" identifies a plant condition when secondary

containment is no longer required, and directs testing of the system prior to fuel movement, to ensure the system is operable in the case of a fuel handling accident.

Operators did not recognize or verify the requirements of the TS surveillance prior to performing the test. Entergy Procedure 1.8.1, "Administration of Station Predefine," step 5.3.2.3, states that credit cannot be taken for early completion of refueling outage TS surveillance prior to the outage. On February 13, 1997, in an effort to reduce outage scope, Pilgrim determined that the secondary containment surveillance test 8.7.3 could be moved from the refueling outage to online before the refueling outage, contrary to SR 4.7.C. From February 27, 1997, to April 5, 2017, Entergy performed the SR while online 11 times, creating a loss of safety function for SBTG and secondary containment. In addition, operators did not recognize that secondary containment was inoperable during the test when both trains of SBTGS were inoperable.

Since the 1997 scheduling change occurred, Entergy had several opportunities to identify the issue. On October 1, 2009, a PM change request was created to explicitly change the work to online in the PM database, with a scheduling note to perform 4 to 6 days prior to the outage. The SR was explicitly quoted in the change request and Entergy did not identify the conflict. On April 19, 2016, Entergy identified in CR 2016-2735 that FSAR required functional testing of relays had been changed from outage to online work and removed the safety function of the offsite and onsite AC power sources (LER 2016-002-00). The inspectors determined that during the RCE for CR 2016-2735, Entergy limited the review of procedures to only electrical maintenance procedures, which was inadequate to identify procedures that voluntarily removed an entire safety function or were scheduled in conditions contrary to TSs. The inspectors also determined the corrective actions in 2016-2735 were not adequate to address senior reactor operator (SRO) training, because every functional test required SRO authorization to perform the test. SROs did not recognize that removing both trains of the SBTGS created a loss of safety function at any time since the scheduling change occurred in 1997. Additionally, operators are expected to understand the requirements in TSs and implement those requirements, which was not done for every occurrence of the test starting in 1997. Operators reasonably should have referred to the TS to ensure the SRs were implemented as written in the TSs. Entergy entered this issue into the CAP as CR 2017-2900 and performed a RCE, in addition to re-performing the test during the April 2017 refueling outage prior to refueling. Corrective actions included re-performing the surveillance test during the refueling outage and the WO was changed to reflect appropriate plant conditions for testing.

Analysis. The inspectors determined that Entergy did not implement the TS SR 4.7.C as required, which led to secondary containment being declared inoperable due to both trains of the SBTGS being inoperable, in a mode in which they were required. The inspectors determined that this was a performance deficiency within Entergy's ability to foresee and correct and should have been prevented. The performance deficiency is more than minor because it is associated with the configuration control attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protects the public from radionuclide releases caused by accidents or events. Specifically, Entergy intentionally removed the safety function of standby gas and secondary containment for operational convenience and did not comply with the requirements of TS SR 4.7.C which requires the test to be performed during a refueling outage before refueling. In accordance with IMC 0609.04, "Initial

Characterization of Findings,” issued October 7, 2016, and Exhibit 3 of IMC 0609, Appendix A, “The Significance Determination Process for Findings At-Power,” issued June 19, 2012, the inspectors determined that the finding was of very low safety significance (Green) because the finding only represented a degradation of the radiological barrier function provided for the SBGTS. The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance - Conservative Bias, in that individuals use decision making-practices that emphasize prudent choices over those that are simply allowable. Specifically, operators did not refer to the TSs to understand the required conditions for a secondary containment surveillance test. Operators followed an inadequate site procedure for the plant conditions at the time and did not question why removal of a safety function for operational convenience was acceptable. [H.14]

Enforcement. 10 CFR Part 50, Appendix B, Criterion XI, “Test Control,” states, in part, “that a test program shall be established to assure that all testing required to demonstrate that SSCs will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents. Test procedures shall include provisions for assuring that all prerequisites for the given test have been met, that adequate test instrumentation is available and used, and that the test is performed under suitable environmental conditions.” Contrary to the above, from February 27, 1997, to April 5, 2017, Entergy did not incorporate the requirements contained in applicable design documents. The TS SR 4.7.C.1 test procedure did not include provisions for assuring all prerequisites for the given test had been met prior to performance.

TS SR 4.7.C, states, in part, “each refueling outage, prior to refueling, secondary containment capability shall be demonstrated to maintain ¼ inch of water vacuum under calm wind (5 mph) conditions with a filter train flow rate of not more than 4000 cfm.” Contrary to the above, Entergy scheduled the test while the unit was online on April 5, 2017.

Entergy re-performed the test during the April 2017 refueling outage as required by the SR and performed a RCE. Because this violation was of very low safety significance (Green) and was entered into Entergy’s CAP as CR 2017-2900, the NRC is treating this as an NCV in accordance with Section 2.3.2.a of the NRC Enforcement Policy. (**NCV 05000293/2017002-06, Secondary Containment Testing not performed per Technical Specifications**)

.2 Untimely 10 CFR 50.72 Notification of a Secondary Containment System Inoperable

Introduction. An NRC-identified SL IV NCV of 10 CFR 50.72, “Immediate Notification Requirements for Operating Nuclear Power Reactors,” was identified because both trains of the SBGTS were made inoperable during surveillance testing and the condition was not reported to the NRC within eight hours of the occurrence, as required by 10 CFR 50.72(b)(3)(v), “Event or Condition that Could Have Prevented Fulfillment of a Safety Function.” Specifically, on April 5, 2017, while performing a TS required surveillance, trains ‘A’ and ‘B’ of the SBGTS were made inoperable leading to the inoperability of the SCS.

Description. The SCS at PNPS is comprised of four subsystems: (1) the Reactor Building, (2) the Reactor Building Isolation Control System, (3) the SBGTS, and (4) the Main Stack. The safety function of the SCS is to limit the release of radioactive material during normal plant operations within the limits of 10 CFR Part 20, and to limit the release of radioactive material so that off-site doses from accident conditions do not surpass the values in 10 CFR Part 100. The safety function of the SBGTS is to reduce the Reactor Building pressure to a minimum sub-atmospheric pressure of 0.25 inch of water vacuum to limit the ground level release of environs of airborne radioactive material.

On April 5, 2017, between 0030 and 0230, PNPS personnel entered TS LCO 3.7.B.1 and commenced with Procedure 8.7.3, "Secondary Containment Leak Rate Test." As part of the procedure, both trains of the SBGTS were made inoperable for a period of 49 minutes. TS LCO 3.7.B.1 states, in part, that "both trains of the standby gas treatment shall be operable when in the Run, Startup, and Hot Shutdown MODES" or "the reactor shall be in cold shutdown within the next 36 hours." Procedure 8.7.3 was being performed in order to satisfy the requirements of TS surveillance 4.7.C.1, which states, in part, that "Each refueling outage prior to refueling, secondary containment shall be demonstrated to maintain 0.25 inch of water vacuum."

During routine inspection on the morning of April 5, 2017, inspectors identified in the operator logs that both trains of the SBGTS were made inoperable, and questioned Entergy personnel on the loss of safety function. For reporting purposes, Entergy considered the time at which NRC inspectors questioned the loss of safety function to be the time of determination. Entergy's position was that the condition (both trains of the SBGTS inoperable) no longer existed, and so it did not constitute "a condition that at the time of discovery could have prevented the fulfillment of a safety function" as stated in 10 CFR 50.72. However, Entergy personnel should have known, based upon actions in Procedure 8.7.3, that the safety function of the SBGTS, and therefore secondary containment, was removed. Operators documented the removal of both trains of SBGTS in the narrative logs, indicating they understood both trains were inoperable during the test. Additionally, the eight hour reporting window had not yet expired when inspectors questioned the loss of safety function.

The inspectors concluded that the inoperability of both trains of the SBGTS, and therefore secondary containment, constituted a reportable condition under 10 CFR 50.72(b)(3)(v). As a corrective action, Entergy personnel entered the issue into the CAP to perform a causal evaluation under CR 2017-7446.

Analysis. The inspectors determined that the failure to inform the NRC of the SCS inoperability within eight hours in accordance with 10 CFR 50.72(b)(3)(v) was a performance deficiency that was reasonably within Entergy's ability to foresee and correct and should have been prevented. The inspectors evaluated this performance deficiency in accordance with the traditional enforcement process because the issue impacted the regulatory process, in that a condition that could have prevented a safety function was not reported to the NRC within the required timeframe, thereby delaying the NRC's opportunity to review the matter. Using Example 6.9.d.9 from the NRC Enforcement Policy (the failure of a licensee to make a report as required by 10 CFR 50.72 or 10 CFR 50.73), the inspectors determined that the violation was a SL IV violation. Because this violation involves the traditional enforcement process and does

not have an underlying technical violation, inspectors did not assign a cross-cutting aspect, in accordance with IMC 0612, Appendix B.

Enforcement. 10 CFR 50.72(b)(3)(v)(C) requires, in part, that licensees shall notify the NRC within eight hours of the occurrence of any event or condition that at the time of discovery could have prevented the fulfillment of a safety function of structures or systems that are needed to control the release of radioactive material. Contrary to the above, on April 5, 2017, Entergy did not notify the NRC within eight hours of the occurrence of a condition that at the time of discover could have prevented the fulfillment of structures or systems that are needed to control the release of radioactive material. Entergy removed both trains of the SBGTS, rendering secondary containment inoperable, which required an eight hour notification to the NRC. Entergy personnel did not recognize that this constituted a reportable condition, and did not report the condition to the NRC within the required eight hours per 10 CFR 50.72. Because this SL IV violation was of very low safety significance (Green), was not repetitive or willful, and was entered into Entergy's CAP as CR 2017-7446, it is being treated as an NCV, consistent with Section 2.3.2.a of the Enforcement Policy. **(NCV 05000293/2017002-07, Untimely 10 CFR 50.72 Notification of a Secondary Containment System Inoperable)**

40A6 Meetings, Including Exit

On July 26, 2017, the inspectors presented the inspection results to Mr. Brian Sullivan, Site Vice President, and other members of the Entergy staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

40A7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by Entergy and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as a NCV.

- 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires in part, that activities affecting quality shall be accomplished in accordance with documented procedures. Entergy Procedure EN-OP-104, "Operability Determination Process," requires that operators have a reasonable expectation of operability when determining the operability of a component. On April 15, 2017, operators did not have a reasonable expectation of operability, as required by EN-OP-104, and incorrectly declared the 'B' SRM operable without reasonable assurance. This resulted in a violation of TS 3.10.B, "Core Alterations," which requires, during core alterations, when fuel is in the vessel, at least 2 SRMs shall be operable, one in the quadrant where fuel or control rods are being moved and one in an adjacent quadrant. Entergy entered this issue into the CAP as CRs 2017-3541, 2017-3952, 2017-5294, and 2017-6724. Entergy repaired the 'B' SRM, and performed a causal evaluation on the equipment failure that includes the late inoperability determination by the operators. The inspectors evaluated this finding using IMC 0609.04, "Initial Characterization of Findings," and IMC 0609, Appendix G, Attachment 1, Exhibit 3, "Mitigating Systems Screening Questions." The inspectors determined that the finding was of very low safety significance (Green) because the finding did not affect the design or qualification of a system, and did not represent a

loss of safety function of a train or system, and did not degrade a functional auto-isolation of RHR on low reactor vessel level.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION**KEY POINTS OF CONTACT**Licensee Personnel

B. Sullivan, Site Vice President
 J. Dent, Jr., Site Vice President
 J. MacDonald, General Plant Manager
 C. Baker, Receipt Inspector
 D. Benza, Maintenance Supervisor
 A. Berkobein, Reactor Operator
 G. Bratton, Entergy LIII examiner
 K. Bienvenue, ISI Program Owner
 B. Chenard, Director of Engineering
 F. Clifford, Operations Support
 B. Coolidge, SRO
 S. Das, Senior Engineer
 P. Doody, Senior Staff Engineer
 J. Falconeri, Electrical Engineer
 G. Flynn, Operations Manager
 D. Greenwood, Non-Licensed Operator
 P. Harizi, Senior Staff Engineer
 J. Hayhurst, Reactor Operator
 M. Jacobs, Nuclear Oversight Manager
 C. Julius, Senior Reactor Operator
 D. Labun, Electrical System Engineer
 C. Littleton, Risk Analyst
 P. Miner, Licensing Engineer
 K. Murphy, Operations Trainer
 D. Noyes, Recovery Manager
 R. O'Neil, Senior Reactor Operator
 R. Pardee, IVVI Program Engineer
 E. Perkins, Regulatory Assurance Manager
 A. Phillips, GE IVVI LIII Examiner
 J. Sabina, Senior Systems Engineer
 E. Simpson, Work Week Manager
 B. Sullivan, Site Vice President
 G. Zavaski, RP Supervisor
 A. Zelig, Radiation Protection Manager

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATEDOpened/Closed

05000293/2017002-01	FIN	Failure to Follow Procedure Requirements for the Control of a Flood Protection Barrier (Section 1R20)
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05000293/2017002-03	NCV	Inaccurate Suppression Pool Water Level Instrument not Identified during Post-event Prompt Investigation (Section 4OA3.1.1)
05000293/2017002-04	NCV	Improper System Restoration Results in Suppression Pool Inoperability (Section 4OA3.1.2)
05000293/2017002-05	NCV	Damper Failure Causes Loss of Secondary Containment (Section 4OA3.2)
05000293/2017002-06	NCV	Secondary Containment Testing not performed per Technical Specifications (Section 4OA3.3.1)
05000293/2017002-07	NCV	Untimely 10 CFR 50.72 Notification of a Secondary Containment System Functional Failure (Section 4OA3.3.2)

Opened

05000293/2017002-02	URI	Reporting of Unplanned Scrams with Complications Performance Indicator for Feedwater Regulating Valve Scram (Section 4OA1)
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Closed

05000293/2017-001-00	LER	Reactor Building Isolation Dampers Failed to Isolate (Section 4OA3.2)
05000293/2017-004-00	LER	Secondary Containment Testing Led to Loss of Safety Function to Both Trains of Standby Gas Treatment System (Section 4OA3.3)

LIST OF DOCUMENTS REVIEWED**Section 1R01: Adverse Weather Protection**Procedures

- 1.3.142, Critical Decision Process, Revision 7
- 1.4.4, New England Power Grid Operations/Interfaces, Revision 28
- 2.2.1, 345kV System, Revision 42
- 2.2.108, Diesel Generator Cooling and Ventilation System, Revision 47
- 2.4.144, Degraded Voltage, Revision 45
- 5.3.31, Station Blackout, Revision 22
- 5.9.1, Extended Loss of AC Power (ELAP), Revision 2
- 8.C.40, Warm Weather Surveillance, Revision 40

Condition Reports

2006-2870 2015-4694 2015-5768

Maintenance Orders/Work Orders

329669	362937	370053	417539	426937	443044
448526	461042	52374132	52672513		

Miscellaneous

EC 66852

System Health Report 345kV system, dated June 2017

System Health Report 23kV system, dated June 2017

System Health Report 416kV system, dated June 2017

Section 1R04: Equipment AlignmentProcedures

EN-FAP-OP-023, Operations Performance Indicators. Revision 0

2.2.19, Residual Heat Removal, Revision 113

2.2.19.1, Residual Heat Removal System – Shutdown Cooling Mode of Operation, Revision 42

2.2.32, Salt Service Water System, Revision 95

2.2.85.1, Augmented Fuel Pool Cooling (With Shutdown Cooling) Mode 1, Revision 17

2.2.108, Diesel Generator Cooling and Ventilation System, Revision 47

2.4.54, Loss of All Fire Suppression Pumps or Loss of Redundancy in the Fire Water Supply System, Revision 26

Condition Reports2017-03449 2017-05476 2017-05573 2017-05608 2017-05613 2017-05617
2017-05618Miscellaneous

8.5.2.10, RHR Piping Temperature and Pressure Monitoring, performed 5/22/17

8.C.43, Monthly System Valve Lineup Surveillance, performed 5/19/17

RHR System Health Report, Q4-2016

Salt Service Water System Health Report, Q4-2016

Standardized Operations Metrics, Revision 2 Tagout 10-13-SDC Loop B, dated 4/24/17

Tagout 10-035-SDC Loop A, dated 5/24/17

Drawings

M212, Service Water System P & ID, Revision 96

M219, P&ID Diesel Generator Air Start System, Revision 24

M223, P&ID Diesel Oil Storage & Transfer System, Revision 33

M241, Residual Heat Removal System P & ID, Revision 88

M241, Residual Heat Removal System P & ID, Revision 49

M259, P&ID Diesel Generator Turbo Air Assist System, Revision E10

M272, P&ID Emergency Diesel Generator Jacket Water Cooling System, Revision 9

Section 1R05: Fire ProtectionProcedures

1.3.135, Control of Doors, Revision 9

5.5.2, Special Fire Procedure, Revision 56

5.5.2 Attachment 21, Diesel Generator, Revision 56
EN-DC-161, Control of Combustibles, Revision 17

Condition Reports

2017-03960 2017-03961 2017-03962 2017-03965 2017-05552

Miscellaneous

8.B.3.2 Attachment 2, Hydrant Hose House Inspection, performed 5/16/17
Fire Hazards Analysis – Fire Area 1.9, Fire Zone 1.15, Standby Liquid Control Pumps & Equipment
Fire Hazards Analysis – Fire Area 1.30, Fire Zone 1.30, Drywell
Fire Hazards Analysis – Fire Area 4.3, Fire Zone 4.3, 'A' Train Service Water Pump Room Report PS-32, Appendix R Safe Shutdown Analysis Report, Revision 6

Transient Combustibles Evaluations

17-23	17-33	17-55	17-52	17-53	17-54
17-62	17-63				

Section 1R06: Flood Protection Measures

Procedures

2.4.143.1, Shutdown with a fire in Reactor Building East (Fire Area 1.9) and Affected "A" Division Fire Areas (1.21, 2.2, 2.16, 3.3, 4.3), Revision 27

Condition Reports

2017-4460 2017-4264

Maintenance Orders/Work Orders

418825

Miscellaneous

Calculation M1737, Internal Flooding Calculation with Safe Shutdown Evaluation for PNPS Reactor Building, Revision 0
S&SA 60, Flooding due to ECCS Leakage Outside of Containment, Revision 0
S&SA 61, Flood Level Calculations, Revision 1
TDBD-109, Topical Design Basis Document for Internal and External Flooding, Revision 0

Section 1R07: Heat Sink Performance

Procedures

8.5.3.14.1, RBCCW Heat Exchanger Thermal Performance Test, Revision 8
8.5.3.14.2, RHR Heat Exchanger Thermal Performance Test, Revision 9
8.E.30, RBCCW System Instrumentation Calibration, Revision 47

Condition Reports

2016-5368

Maintenance Orders/Work Orders

386372	454618	52332612	52638563	52646964
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Section 1R08: In-service InspectionProcedures

CEP-NDE-0111, Certification of Ultrasonic Examination Personnel in Accordance with ASME Section XI, Appendix VII, Revision 4
 CEP-NDE-0110, Certification of NDE Personnel, Revision 7
 CEP-NDE-0423, Manual Ultrasonic Examination of Austenitic Piping Welds (ASME XI), Revision 7
 EPRI-DMW-PA-1, Procedure for Manual Phased Array Ultrasonic Examination of Dissimilar Metal Welds, Revision 6
 GEH-VT-203, Procedure for In-Vessel Visual Inspection (IVVI) of BWR 3 RPV Internals, Revision 24
 PDI-UT-2, Generic Procedure for the Ultrasonic Examination of Austenitic Pipe Welds, Revision G

Condition Reports

2017-03501 2017-03545 2017-04002 2017-04004 2017-04006 2017-24005

Miscellaneous

CAL-012, GE Hitachi Ultrasonic Calibration Sheet USN-60-SW (Piping), dated April 19, 2017
 CAL-003, GE Hitachi Ultrasonic Calibration Sheet USN-60-SW (Piping), dated April 14, 2017
 CAL-004, GE Hitachi Ultrasonic Calibration Sheet USN-60-SW (Piping), dated April 14, 2017
 CAL-005, GE Hitachi Ultrasonic Calibration Sheet USN-60-SW (Piping), dated April 14, 2017
 CAL-PA-21, GE Hitachi Manual Phased Array Ultrasonic Calibration Sheet GEIT Phasor XS, dated April 22, 2017
 CAL-PA-13, GE Hitachi Manual Phased Array Ultrasonic Calibration Sheet GEIT Phasor XS, dated April 16, 2017
 CAL-PA-14, GE Hitachi Manual Phased Array Ultrasonic Calibration Sheet GEIT Phasor XS, dated April 16, 2017
 CAL-PA-15, GE Hitachi Manual Phased Array Ultrasonic Calibration Sheet GEIT Phasor XS, dated April 16, 2017
 CAL-PA-16, GE Hitachi Manual Phased Array Ultrasonic Calibration Sheet GEIT Phasor XS, dated April 16, 2017
 CAL-PA-22, GE Hitachi Manual Phased Array Ultrasonic Calibration Sheet GEIT Phasor XS, dated April 22, 2017
 CAL-PA-23, GE Hitachi Manual Phased Array Ultrasonic Calibration Sheet GEIT Phasor XS, dated April 22, 2017
 CAL-PA-24, GE Hitachi Manual Phased Array Ultrasonic Calibration Sheet GEIT Phasor XS, dated April 22, 2017
 EC 71480, Steam Dryer Tie Bar #6, Revision 0
 EH-7480-318997-HK1-ISI, ISI Final Report – Pilgrim Nuclear Power Station, RFO20 Outage – May 2015, dated May 14, 2015
 Entergy Letter: Notification for Information Only – Pilgrim Deviation from EPRI Report 3002000091 Rev. 1, dated April 10, 2017 (ML17108A812)
 EPRI Report 3002000091, Nondestructive Evaluation: Guideline for Conducting Ultrasonic Examinations of Dissimilar Metal Welds, Revision 1
 GE Hitachi Certificate of Qualification, Certification Number 0904, Ultrasonic Testing, Level II, dated September November 12, 2016
 GE Hitachi Certificate of Qualification, Certification Number 0718, Ultrasonic Testing, Level III, dated September August 3, 2015

GE Hitachi Certificate of Qualification, Certification Number 2084, Visual Testing (VT-1, VT-3),
 Level III, dated March 18, 2016
 GE Hitachi Visual Acuity Record - 2084, dated February 1, 2017
 GE Hitachi Certificate of Qualification, Certification Number 1454, Visual Testing (VT-1, VT-3),
 Level III, dated June 18, 2015
 GE Hitachi Visual Acuity Record - 1454, dated September 26, 2016
 GE Hitachi Certificate of Qualification, Certification Number 1445, Visual Testing (VT-1, VT-3),
 Level III, dated May 21, 2015
 GE Hitachi Visual Acuity Record - 1445, dated September 22, 2016
 GE Hitachi Certificate of Qualification, Certification Number 0193, Visual Testing (VT-1, VT-3),
 Level III, dated July 30, 2014
 GE Hitachi Visual Acuity Record - 0193, dated March 27, 2017
 GE Hitachi Certificate of Qualification, Certification Number 0502, Visual Testing (VT-1, VT-3),
 Level III, dated July 30, 2014
 GE Hitachi Visual Acuity Record - 0502, January 12, 2017
 GE Hitachi Certificate of Qualification, Certification Number 1774, Visual Testing (VT-1, VT-3),
 Level III, dated September 13, 2016
 GE Hitachi Visual Acuity Record - 1774, June 24, 2016
 GE Hitachi Certificate of Qualification, Certification Number 0059, Visual Testing (VT-1, VT-3),
 Level II, dated September 24, 2015
 GE Hitachi Visual Acuity Record - 0059, March 2, 2017
 GE Hitachi Certificate of Qualification, Certification Number 2138, Visual Testing (VT-1, VT-3),
 Level II, dated January 29, 2017
 GE Hitachi Visual Acuity Record - 2138, January 19, 2017
 GEH Report 004N1818, Pilgrim Nuclear Station (PNPS) Steam Dryer Tie Bar #8 Indication
 Evaluation, Revision 0
 GE Hitachi Certificate of Qualification, Certification Number 1900, Ultrasonic Testing, Level II,
 dated October 7, 2015
 GE Hitachi Visual Acuity Record - 1900, March 6, 2017
 GE Hitachi Certificate of Qualification, Certification Number 0752, Ultrasonic Testing, Level II,
 dated September 14, 2015
 GE Hitachi Visual Acuity Record - 0752, September 20, 2016
 GE Hitachi Certificate of Qualification, Certification Number 0735, Ultrasonic Testing, Level II,
 dated December 9, 2015
 GE Hitachi Visual Acuity Record - 0735, February 3, 2017
 GE Hitachi Certificate of Qualification, Certification Number 0735, Ultrasonic Testing, Level II,
 GE Hitachi Visual Acuity Record - 0735, February 13, 2017
 ISI-VT-17-002, Visual Examination System Leakage (VT2) Annulus Drains at 80 AZ, dated
 April 17, 2017
 ISI-VT-17-005, Visual Examination System Leakage (VT2) Annulus Drains at 350 AZ, dated
 April 17, 2017
 ISI-VT-17-004, Visual Examination System Leakage (VT2) Annulus Drains at 260 AZ, dated
 April 17, 2017
 ISI-VT-17-003, Visual Examination System Leakage (VT2) Annulus Drains at 170 AZ, dated
 April 17, 2017
 INR P1R21 IVVI 17-01, Jet Pump JP03 IN-5 Bolting, dated April 16, 2017
 INR P1R21 IVVI 17-06, Wedge & Wedge Bearing Surface JP05 WD-1 and JP11 WD-1, dated
 April 16, 2017
 INR P1R21 IVVI 17-02, Steam Dryer Exterior Tie Bar Assembly Welds (TB06-CD-C1, TB08-
 CD-C3), dated April 19, 2017
 ISI-VT-15-092, General Visual Walkdown (IWE-GVWD-01), dated May 7, 2015

LO-PNPLO-2015-00020, ASME Programs (ISI, CISI, PT, R/R) Focused Self-Assessment, dated November 30, 2015

LO-PNPLO-2015-00205, Pre-NRC RFO21 ISI Activities Self-Assessment Report, dated November 7, 2016

NDE Vendor Documentation Review and Approval Form, GEH IVVI Procedures for Pilgrim Nuclear Power Station, RFO-21-Spring 2017, dated April 11, 2017

NDE Vendor Documentation Review and Approval Form, dated March 29, 2017

NRC Letter, "Pilgrim Nuclear Power Station Re: Request for Alternative (PRR)-26, Fifth 10 Year In-service Inspection Interval (TAC No. ME5432)(ML15166A401)," dated June 19, 2015

OE-NOE-2016-00145 CA-00018, NRC-RIS-2016-07 Containment Shell or Liner Moisture Barrier Inspection

PNP-025-0094, Final Report Data Sheet for Core Plate Wedge CPW-01, dated April 16, 2017

PNP-025-0101, Final Report Data Sheet for Core Plate Wedge CPW-02, dated April 16, 2017

PNP-139-0122, Final Report Data Sheet for Steam Dryer Exterior Tie Bar Assembly Welds SD TB06-CD-C1, dated April 14, 2017

PNP-139-0079, Final Report Data Sheet for Steam Dryer Exterior Tie Bar Assembly Welds SD TB08-CD-C3, dated April 14, 2017

PNPS1-JP05 WD-1, Final Report Data Sheet for Wedge JP05 WD-1, dated April 16, 2017

PNP-041-0073, Final Report Data Sheet for Inlet Nozzle to Mixer Bolted Connection JP03 IN-5, dated April 16, 2017

PNPS-RPT-15-00003, PNPS Owners Activity Report (OAR-1) for Cycle 20, Revision 0

PNP-ISI-H11-000, Final Report Data Sheet for Shroud Support Baffle Plate to RPV Wall Horizontal Weld SHD OD H-11 000-022, dated April 17, 2017

Performance Demonstration Initiative Qualification for Technician 564, Procedure for Phased Array Ultrasonic Examination of Dissimilar Metal Welds, dated May 13, 2014

Performance Demonstration Initiative Qualification for Technician 564, Generic Procedure for Ultrasonic Examination of Dissimilar Metal Welds, dated September 9, 2006

Performance Demonstration Initiative Qualification for Technician 34, Generic Procedure for Ultrasonic Examination of Dissimilar Metal Welds, dated January 1, 1996

Performance Demonstration Initiative Qualification for Technician 434, Procedure for Phased Array Ultrasonic Examination of Dissimilar Metal Welds, dated September 16, 2008

Performance Demonstration Initiative Qualification for Technician 554, Procedure for Phased Array Ultrasonic Examination of Dissimilar Metal Welds, dated February 23, 2009 dated December 9, 2015

RFO21-MNL-08, GE Hitachi Examination Summary Sheet for Recirculation System Safe End to Nozzle 2R-N2B-1 Weld, dated April 19, 2017

RFO21-MNL-15, GE Hitachi Examination Summary Sheet for Core Spray Safe End to Nozzle Weld (14-B-1), dated April 21, 2017

RFO21-MNL-02, GE Hitachi Examination Summary Sheet for Reactor Water Cleanup Elbow to Penetration Weld (12R-0-23), dated April 14, 2017

RDC0014, Video Capture of Resolution Demonstration Check of RJ-2110 Color Camera, dated April 15, 2017

RDC0014, Video Capture of Resolution Demonstration Check of D40 Black and White Camera Camera, dated April 16, 2017

RFO21-MNL-03, GE Hitachi Examination Summary Sheet for Core Spray 14-A-19 Weld, dated April 19, 2017

Video Capture of IVVI VT3 of Core Shroud Wedge CPW-01, dated April 16, 2017

Video Capture of IVVI VT3 of Core Shroud Wedge CPW-02, dated April 16, 2017

Video Capture of IVVI VT1 of Jet Pump Wedge JP05 WD-1, dated April 15, 2017

Video Capture of IVVI VT3 of Jet Pump Clamp JP03 IN-1, dated April 15, 2017

Video Capture of IVVI VT1 of Steam Dryer Tie Bar TB-08-CD-C3, dated April 14, 2017
 Video Capture of IVVI VT1 of Steam Dryer Tie Bar TB-06-CD-C1, dated April 14, 2017

Section 1R11: Licensed Operator Requalification Program

Miscellaneous

O-RQ-06-02-166, LOR HIT Scenario 6, Revision 0
 O-RQ-06-02-600, Scenario #3, 2017 HIT As-Left Evaluation, Revision 1

Section 1R12: Maintenance Effectiveness

Procedures

1.5.16, Emergency Diesel Generator Reliability Program, Revision 1R
 3.M.3-61.5, Emergency Diesel Generator Two-Year Overhaul Preventive Maintenance – Critical Maintenance, Revision 67
 EN-DC-198, Emergency Diesel Generator Reliability Program, Revision 3
 EN-DC-205, Maintenance Rule Monitoring, Revision 6
 EN-OP-104, Operability Determination Process, Revision 11

Condition Reports

2012-5504	2015-1581	2015-6011	2016-2537	2016-2735	2016-3844
2016-7443	2017-2133	2017-4563	2017-5780	2017-6213	2017-6366

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 3.M.4-23, In-core Flux Monitors Removal and Installation, Revision 42
 8.9.16.2, Manual Start and Loading of Station Blackout Diesel Generator via Safety Bus A5 or A6, Revision 11
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52642270

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Risk Assessment Review Checklist for Outage Risk Period 4
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EN-MA-125, Troubleshooting Control of Maintenance Activities, Revision 20
M6-22-14, Diesel Generator B x107B Engine Control, Revision 37
M6-46-6, Static Exciter and Voltage Regulator Diesel Generator B, Revision 8
M6-45-6, Diesel Generator B Automatic Voltage Control, Revision 87
3.M.2-5.1.4, SRM Discriminator Setting, Revision 17
8.M.1-1.2, SRM Neutron Flux response Functional Channel Check, Revision 2
8.M.2-3.3, Source Range Monitor, Revision 54
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2017-3038	2017-3642	2017-4182	2017-4563	2017-5542	2017-5801
2017-3541	2017-3659	2017-3660	2017-3661	2017-3662	2017-3682
2017-3731	2017-3773	2017-3785	2017-3927	2017-3952	

Maintenance Orders/Work Orders

474136	474217	472917	472772	52642348	52754211
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Condition Reports

2016-7443 2017-3939 2017-4563 2017-4607

Maintenance Orders/Work Orders

435309 435311 435314 435316 471135 474136
 474136

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 3.M.4-8, Main Steam Isolation Valve Maintenance – Critical Maintenance, Revision 52
 3.M.4-10, Valve Maintenance, Revision 46
 8.7.1.5, Local Leak Rate Testing of Primary Containment Penetrations, Isolation Valves, and Inspection of Containment Structure, Revision 65
 8.M.1-1.2, SRM Neutron Flux Response Functional Channel Check
 8.M.2-3.3, Source Range Monitor, Revision 54
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2015-9156 2016-0201 2017-3184 2017-3217 2017-4407 2017-4452
 2017-4554 2017-5067

Maintenance Orders/Work Orders

0418825 0435308 0435311 0435314 0435316 0471135
 0472321 0472772 0472917 5536403

Miscellaneous

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1.3.135, Control of Doors, Revision 9
 2.1.1, Startup from Shutdown, Revision 197
 2.1.4, Approach to Critical and Plant Heatup, Revision 41
 2.1.49, Flex Equipment Prestaging Prior to Reactor Head Detensioning and Retensioning, Revision 2
 2.2.85.1, Augmented Fuel Pool Cooling (with Shutdown Cooling) Mode 1, Revision 17
 3.M.2-40, Refuel Outage Temporary Modification Reactor Shutdown/Floodup Level Indication, Revision 14
 3.M.1-45, Outage Shutdown Risk Assessment, Revision 21
 3.M.4-23, In-Core Flux Monitors Removal and Installation, Revision 42
 3.M.4-48.3, Opening and Closing of Reactor Pressure Vessel, Reassembly, Revision 43
 8.C.42, Subcompartment Barrier Control Surveillance, Revision 27
 2.1.4, Approach to Critical and Plant Heatup, Revision 41
 2.2.94, Seawater System, Revision 121
 5.3.8, Loss of Instrument Air, Revision 44
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2017-3183	2017-3315	2017-3584	2017-3586	2017-3588	2017-3589
2017-3590	2017-3800	2017-3897	2017-3939	2017-4314	2017-4316
2017-4331	2017-4384	2017-4439	2017-4673	2017-4674	2017-4733
2017-4785	2017-4877	2017-4892	2017-4998	2017-5217	2017-5331
2017-5365	2017-5369	2017-5372	2017-5390	2017-5612	2017-5616
2017-5624	2011-4503	2015-3736	2017-3378	2017-5612	2017-5616
2017-5624	2017-5746				

Maintenance Orders/Work Orders

430990	472721	52642270	412556	412557	412558
412561	52642214				

Miscellaneous

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 8.B.14 Attachment 1, Hourly Fire Watch (Fire Door 25), dated 4/10/17
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- 8.7.1.6, Local Leak Rate Testing of the Main Steam Isolation Valves, Revision 31
- 8.9.8.2, B 125v DC Battery Performance Test, Revision 26
- 8.C.14, Weekly Pilot Cell Overall Battery Check and Battery Charger Test, Revision 61
- 8.C.16.3, 125v DC Battery Quarterly Inspection/Surveillance, Revision 11
- 8.M.2-2.10.2-27, LPCI Loop Selection Initiation Logic System Test, Revision 39
- 8.M.2-8.1, Calibration of ATS Transmitters Rack C2205 – Critical Maintenance, Revision 26
- 8.M.3-1, Special Test for Automatic ECCS Load Sequencing of Diesels and Shutdown Transformer with Simulated Loss of Off-Site Power and Special Shutdown Transformer Load Test – Critical Maintenance, Revision 60

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2017-2726	2017-3531	2017-3532	2017-4359	2017-4359	2017-4382
2017-4456	2017-4501	2017-4767	2017-5849		

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436926	436929	472778	472820	52606023	52629280
52647905	52648878				

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- M1H8-10 Elementary Diagram, Residual Heat Removal System, Revision 20
- M1H9-12 Elementary Diagram, Residual Heat Removal System, Revision 21
- M1H10-10 Elementary Diagram, Residual Heat Removal System, Revision 16

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- EN-RP-103, Radiation Protection Protective Clothing, Revision 1
- EN-RP-105, Radiological Work Permit, Revision 16
- EN-RP-106, Radiological Survey Documentation, Revision
- EN-RP-106-01, Radiological Survey Guidelines, Revision 3
- EN-RP-108, Radiation Protection Posting, Revision 18
- EN-RP-121, Radioactive Material Control, Revision 13
- EN-RP-121-01, Receipt of Radioactive Material, Revision
- EN-RP-122, Alpha Monitoring, Revision 9
- EN-RP-143, Radioactive Source Control, Revision
- EN-RP-100, Radiation Worker Expectations, Revision 11
- EN-RP-210, Area Monitoring Program, Revision 1
- EN-RP-301, Radiation Protection Instrument Control, Revision 10

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2017-3232 2017-3286 2017-3371 2017-3439 2017-3833 2017-4365

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EN-LI-104 Attachment 9.4 Snapshot, Assessment and Benchmark Report Template, INPO Performance Test of RP Instruments: Detection Capabilities, October 31, 2016

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2017 Count Room Air Sample Tracking Log, April 24, 2017

EN-RP-131 Attachment 9.2 - Air Sampling, AS # 2017-006RFF, Refuel Floor in Cavity, April 10, 2017

EN-RP-131 Attachment 9.2 - Air Sampling, AS # 2017-005RFF, Refuel Floor next to North side CAM, April 10, 2017

LHRA Key Inventory, April 6, 2017

PNPS-1704-0078, Reactor Building 117' Refuel Floor Radiological Survey, April 10, 2017

PNPS Radiological Survey Form Map #21 DW EI 74' 270 deg N6B Nozzle – Post Shielding, April 19, 2017

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Radiation Protection Outage Success Plan RFO 21, March 19, 2017

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EN-RP-109, Hot Spot Program, Revision 5

EN-RP-110, ALARA Program, Revision 14

EN-RP-110-03 Collective Radiation Exposure Reduction Guidelines, Revision

EN-RP-110-04, Radiation Protection Risk Assessment Process, Revision 7

EN-RP-141-01, Job Coverage Using Remote Monitoring Technology, Revision 6

MCSB03.101 Criteria for Evaluation, Review and Approval of Radiation Shielding, Revision 6

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EN-RP-105 Radiological Work Permit Attachment 9.8 - RWP Revision/In Progress Review, 2017-0602, Disassembly RPV /Reassemble RPV RFO-21 40%, April 16, 2017
EN-RP-105 Radiological Work Permit Attachment 9.8 - RWP Revision/In Progress Review, 2017-506, I&C Undervessel RFO-21 50%, April 16, 2017
EN-RP-105 Radiological Work Permit Attachment 9.8 - RWP Revision/In Progress Review, 2017-0511, Drywell MSIVs RFO-21 80%, April 23, 2017
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Pilgrim Station 2.5 Year Exposure Reduction Plan, January 2017

Section 2RS3: In-Plant Airborne Radioactivity Controls and Mitigation

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EN-RP-122, Alpha Monitoring, Revision 9
EN-RP-503, Selection, Issue, and Use of Respiratory Protection Equipment, Revision 7
EN-RP-505, PortaCount Respirator Fit Testing, Revision 7
PNPS 5.8.2, Emergency Facilities and Equipment Audits, Revision 39
PNPS 6.7.1-200, Operation of Biosystems Posichek, Revision 11

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2017-3156 2017-3172 2017-3173 2017-3307

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Pilgrim Performance Review Meeting Report, Radiation Protection November – December 2016

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EN-RP-503 Attachment 9.3 TEDE ALARA Evaluation 17-011 DW 23' and TB Steam Tunnel Valve Work, March 28, 2017
EN-RP-503 Attachment 9.3 TEDE ALARA Evaluation 17-012 RX Disassembly/Reassembly, March 28, 2017
EN-RP-404 Attachment 9.7 HEPA/ Vacuum Issue Log, April 28, 2017

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EN-RP-203, Dose Assessment, Revision 9
EN-RP-204, Special Monitoring Requirements, Revision 11

EN-RP-204-01, Effective Dose Equivalent (EDEX) Monitoring, Revision 2
EN-RP-206, Dosimeter of Legal Record Quality Assurance, Revision 6
EN-RP-208, Whole Body Counting and In-Vivo Bioassay, Revision 7

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2017-3471 2017-3841 2017-4435

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EN-RP-131 Attachment 9.2 - Air Sampling, AS # 2017-042RFF, Refuel Floor EI 117' during Removal of RPV O-rings, April 15, 2017
EN-RP-131 Attachment 9.2 - Air Sampling, AS # 2017-041RFF, Refuel Floor EI 117' during Cleaning of Stud Holes in RPV Head, April 15, 2017
EN-RP-201 Attachment 9.1 Radiation Exposure Guideline Extension Authorization, Badge # 3156, April 5, 2017
EN-RP-201 Attachment 9.1 Radiation Exposure Guideline Extension Authorization, Badge # 3622, April 7, 2017
EN-RP-201 Attachment 9.1 Radiation Exposure Guideline Extension Authorization, Badge # 3576, April 10, 2017
EN-RP-201 Attachment 9.1 Radiation Exposure Guideline Extension Authorization, Badge # 2670, April 7, 2017
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PNPS Radiological Engineering Evaluation Number 16-026, Evaluation of Minimum Reportable Dosimetry Results, March 31, 2016
PNPS Air Sample Log for Refueling Floor during RFO-21, April 28, 2017
Quality Control Chart Worksheet for Canberra FASTSCAN, April 24, 2017

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EN-RW-105, Process Control Program, Revision 5

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GEL Laboratories 10 CFR Part 50/61 Certificates of Analysis for: Spent Fuel Pool Demin; Rx 117 SFP Material; RWCU Powdex Resin; DAW

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2015-8058	2015-8163	2015-8368	2015-8389	2016-2814	2016-3213
2016-3334	2016-3379	2016-3449	2016-5713	2016-8897	2016-9931
2017-0418	2017-0527	2017-1267	2017-2389	2017-2408	2017-2454
2017-3911					

Training

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17-06; 16-18; 16-14; 16-12; 16-10

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Survey Maps, Spent Resin Tank Room (RW -13') January – May 2017

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Condition Reports

2016-2056 2017-6460

Maintenance Orders/Work Orders

435308	52652402	475267	435311	475268	435314
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Miscellaneous

PNPS APRM Trend data dated July 13, 2017

Devonway Key Performance Indicators for 2Q17

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2.2.20, Core Spray, Revision 87

2.2.125, Containment and Reactor Vessel Isolation Systems, Revision 33

3.M.4-125, Inspection and Maintenance of Secondary Containment Dampers – Critical Maintenance, Revision 3

5.3.35.2, Operations Emergency and Transient Response Strategies, Revision 7

8.E.65-2, Suppression pool Water Level Monitoring System Calibration – Critical Maintenance, Revision 28

8.7.3, Secondary Containment Leak Rate Test, Revision 67

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EN-DC-324, Preventive Maintenance Program, Revision 17

EN-DC-335, PM Basis Template, Revision 7

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EN-FAP-OM-012, Prompt Investigations and Notifications, Revision 17

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EN-LI-102, Corrective Action Program, Revision 29

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Condition Reports

2017-0494 2017-2785 2017-2854 2017-2965 2017-3014 2017-6362

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472055 52609779 52625079 52659576

52670549

Miscellaneous

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Licensed Operator Peer Checker Completed Remediation Training Plan, dated April 4, 2017

O-RO-02-08-01, Lesson Plan Primary Containment Structure, Revision 9

PNPS Control Room Log for March 31, 2017

Plant Process Computer Data for "A" Core Spray Suction Valve 1400-3A Position, March 31, 2017

Primary Containment Structure Reference Text, Revision 5

Plant Process Computer Plot for Suppression pool and Drywell Pressure for 1100-1500, March 31, 2017

Plant Process Computer Plot for A and B Condensate Storage Tank Level for 1100-1500, March 31, 2017

Plant Process Computer Plot for A and B Wide Range Suppression pool Level and Suppression pool Narrow Range Water Level for 1100-1500, March 31, 2017

Primary Containment Structure Reference Text, Revision 5

Recording Chart of Suppression pool Narrow Range Recorder LR-5038, dated March 31, 2017

Root Cause Evaluation, "Pressure Suppression Pool Declared Inoperable (CR-PNP-2017-2785)", Revision 0

SDBD-50, System Design Basis Document: Primary Containment Structure (PCS) System, Revision 2

V-1014, Bettis Actuator Operating & Maintenance Instructions, Revision 37

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C338, Sheet 1, Miscellaneous Structures Condensate Tank, Revision E3
 M209, Sheet 1, P&ID Condensate & Demineralized Water Storage & Transfer System, Revision 68
 M242, Sheet 1, P&ID Core Spray System, Revision 53
 C153, Sheet 1, Reactor Building Containment Vessel-Requirements Suppression Chamber Plan, Sections 7 Penetrations, Revision 9
 M263, Sheet 115, Level Setting Diagram Water Level in Suppression pool Switches and Transmitters, Revision E2

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Condition Reports

2017-3541 2017-3952 2017-6724

LIST OF ACRONYMS

AC	alternating current
ALARA	as low as is reasonably achievable
AOT	allowed outage time
ASME	American Society of Mechanical Engineers
CAP	corrective action program
CFR	<i>Code of Federal Regulations</i>
CR	condition report
CST	condensate storage tank
EC	engineering change
EDG	emergency diesel generator
EOP	emergency operating procedure
EPRI	Electric Power Research Institute
FRV	feedwater regulating valve
FSAR	Final Safety Analysis Report
HPCI	high pressure coolant injection
HRA	high radiation area
IMC	Inspection Manual Chapter
ISI	in-service inspection
kV	kilovolt
LCO	limiting condition for operation
LER	licensee event report
MR	Maintenance Rule
MSIV	main steam isolation valve
NCV	non-cited violation
NDE	non-destructive examination
NRC	Nuclear Regulatory Commission
NVLAP	National Voluntary Laboratory Accreditation Program
OOS	out-of-service

PAUT	Phased Array Ultrasonic Testing
PI	performance indicator
PM	preventative maintenance
PNPS	Pilgrim Nuclear Power Station
RBCCW	reactor building component cooling water
RCE	root cause evaluation
RCIC	reactor core isolation cooling
RFO	maintenance and refueling outage
RG	regulatory guide
RHR	residual heat removal
RWP	radiation work permits
SBGTS	standby gas treatment system
SCS	secondary containment system
SR	surveillance requirement
SRM	source range monitor
SRO	senior reactor operator
SRV	safety relief valve
SSC	structure, system, and component
SSW	salt service water
SW	service water
TS	technical specification
URI	unresolved item
UT	ultrasonic testing
VHRA	very high radiation area
V	volt
VT	visual testing
WO	work order