



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
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May 11, 2017

Mr. Mano Nazar
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700 Universe Blvd.
Juno Beach, FL 33408

**SUBJECT: TURKEY POINT NUCLEAR GENERATING STATION - NRC INTEGRATED
INSPECTION REPORT 05000250/2017001, 05000251/2017001**

Dear Mr. Nazar:

On March 31, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Turkey Point Nuclear Generating Station, Units 3 and 4. On April 7, 2017, the NRC inspectors discussed the results of the inspection with Mr. Tom Summers, Southern Regional Vice President and other members of your staff. The results of this inspection are documented in the enclosed report.

NRC inspectors documented one finding of very low safety significance (Green) in this report. The finding did not involve a violation of NRC requirements.

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 II; and the NRC resident inspector at the Turkey Point Nuclear Generating Station.

M. Nazar

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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 at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

LaDonna B. Suggs, Chief
Reactor Projects Branch 3
Division of Reactor Projects

Docket Nos.: 50-250, 50-251
License Nos.: DPR-31, DPR-41

Enclosure:
IR 05000250/2017001, 05000251/2017001
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-250, 50-251

License Nos: DPR-31, DPR-41

Report Nos: 05000250/2017001, 05000251/2017001

Licensee: Florida Power & Light Company

Facility: Turkey Point Nuclear Generating Station, Units 3 & 4

Location: 9760 SW 344th Street
Homestead, FL 33035

Dates: January 1, 2017 through March 31, 2017

Inspectors: J. Orr, Senior Resident Inspector
J. Reyes, Resident Inspector

Approved by: LaDonna B. Suggs, Chief
Reactor Projects Branch 3
Division of Reactor Projects

Enclosure

SUMMARY

IR 05000250/2017001, 05000251/2017001; 01/01/2017 – 03/31/2017; Turkey Point Nuclear Generating Station, Units 3 & 4; Problem Identification and Resolution.

The report covered a three-month period of inspection by the resident inspectors. One self-revealing finding was identified which was determined to not be a violation of regulatory requirements and was of very low safety significance. The significance of inspection findings are 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," (SDP) dated April 29, 2015. Cross-cutting aspects are determined using IMC 0310, "Components 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 November 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.

NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

- Green: A self-revealing finding was identified for the failure to adequately implement OP-AA-105-1000, "Operational Decision Making" (ODM) procedure that was used to establish plant conditions for the repair of the Unit 3 condensate tube leak in the 3B feedwater heater (FWH). The failure to implement all the steps of OP-AA-105-1000, "Operational Decision Making," to establish plant conditions for the repair of the Unit 3 condensate tube leak in the 3B FWH was a performance deficiency.

The performance deficiency was determined to be more than minor because it was associated with the configuration control and procedure quality attributes of the initiating events cornerstone and adversely affected the cornerstone's objective to limit the likelihood of events that upset plant stability. Specifically, not implementing the ODM procedure steps 2.3, "Rigorous Evaluation," and Steps 2.5, "Effective Implementation," of Attachment 3, resulted in an incorrect revision to procedure 3-ONOP-081.02 which led field operators to close the extraction steam to the 5B FWH too quickly and without due-precaution to prevent a rapid decrease in the 5B FWH shell pressure and caused significant water hammer and resulted in a fast load reduction and reactor trip. Using Inspection Manual Chapter (IMC) 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the inspectors determined that the issue had very low safety significance (Green) because the event did not cause both a reactor trip and a loss of mitigating equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition.

The finding was assigned a cross-cutting aspect of resources in the area of human performance, in that, leaders ensure that personnel, equipment, procedures, and other resources were available and adequate to support nuclear safety. Specifically, the ODM team did not ensure that the revised procedure was adequate to preclude water hammer. [H.1]. (Section 4OA2.3)

Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status

Unit 3 began the inspection period at 100 percent of rated thermal power (RTP). On March 18, 2017, at 1107, operators responded to a Unit 3 automatic reactor trip from 100 percent RTP when the 3A 4kV switchgear bus deenergized from an arcing fault in the reactor coil cubicle. The 3A reactor coolant pump (RCP) is powered from the 3A 4kV switchgear bus and the reactor automatically tripped in response to the deenergization of the 3A RCP. On March 19, 2017, operators cooled down Unit 3 and established Mode 5 conditions. Unit 3 remained shut down for the remainder of the inspection period and began its refueling outage.

Unit 4 began the inspection period at 100 percent of RTP where it remained through the end of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (IP 71111.01)

Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors reviewed and verified the status of actions taken by the licensee for winter readiness prior to the onset of cold weather. The inspectors reviewed licensee procedure OP-AA-102-1002, "Seasonal Readiness," Attachment 7, "Cold Weather Readiness Check List," and Attachment 14, "Turkey Point Site Specific Guidance." The inspectors reviewed system health reports and open corrective action program (CAP) action requests for the emergency diesel generators (EDGs) and auxiliary feedwater (AFW) pumps to determine if any deficiencies existed that could affect operation of the equipment. The inspectors performed walk downs of systems that could be affected by cold weather as outlined in the licensee site specific guidance including the following areas:

- Unit 3 and Unit 4 EDGs;
- AFW pumps;
- Unit 3 and Unit 4 component cooling water (CCW) pumps; and,
- Unit 3 and Unit 4 intake cooling water (ICW) pumps.

This inspection constitutes one sample under seasonal readiness for extreme/adverse weather.

b. Findings

No findings were identified.

1R04 Equipment Alignment (IP 71111.04).1 Partial Equipment Walk Downs (IP 71111.04)a. Inspection Scope

The inspectors conducted partial alignment verifications of the safety-related systems listed below. These inspections included reviews using plant lineup procedures, operating procedures, and piping and instrumentation drawings, which were compared with observed equipment configurations to verify that the critical portions of the systems identified and resolved equipment alignment problems that could cause initiating events Documents reviewed are listed in the Attachment. This inspection constitutes six samples.

- AFW train 1 and the A and B AFW pumps, while AFW train 2 and the C AFW pump was out of service (OOS) for maintenance;
- 3A, 3B, 4A, and 4B high head safety injection pumps, and 4A and 4B containment spray pumps, while the 4B EDG was OOS during maintenance on its support systems;
- Unit 4A and 4B EDGs and the Unit 3 start-up transformer while the Unit 4 start-up transformer was OOS for maintenance;
- 3A, D50, 4A, and 4B safety-related 125Vdc busses and associated battery chargers while the 3B 125Vdc battery was OOS for individual cell equalizer charges;
- 3B and 3C CCW heat exchangers, 3A, 3B, and 3C ICW pumps, and 3A and 3B ICW headers while the 3A CCW heat exchanger was OOS for maintenance; and,
- Unit 3 3B, Unit 4 4A and 4B safety-related 4kV switchgear busses while the 3A safety-related 4kV switchgear was unavailable due to the failure of its reactor coil.

b. Findings

No findings were identified.

.2 Complete System Walk Down (IP 71111.04S)a. Inspection Scope

The inspectors conducted a detailed walkdown and review of the alignment and condition of the Unit 3 and Unit 4 ICW systems to verify their capability to meet their design basis function. The inspectors utilized licensee procedures 3/4 – OSP-019.2, “Intake Cooling System Flow Path Verification,” as well as other licensing and design documents, to verify the system alignment was correct. During the walk downs, the inspectors verified that: (1) valves were correctly positioned and did not exhibit leakage that would impact their function; (2) electrical power was available as required; (3) major portions of the system and components were correctly labeled, cooled, and ventilated; (4) hangers and supports were correctly installed and functional; (5) essential support systems were operational; (6) ancillary equipment or debris did not interfere with system performance; (7) tagging clearances were appropriate; and, (8) valves were locked as required by the licensee’s locked valve program. Pending design and equipment issues were reviewed to determine if identified deficiencies significantly impacted the systems’ functions. Items included in this review were the operator workaround list, the temporary modification list, system health reports, system description, and outstanding maintenance work requests and work orders (WOs). In addition, the inspectors

reviewed the licensee's CAP to ensure that the licensee was identifying and resolving equipment alignment problems. Documents reviewed are listed in the Attachment. This inspection constitutes one sample.

b. Findings

No findings were identified.

1R05 Fire Protection (IP 71111.05)

Fire Area Walk Downs (IP 71111.05Q)

a. Inspection Scope

The inspectors walked down the following plant areas to evaluate conditions related to control of transient combustibles, ignition sources, material condition, and operational status of fire protection systems including fire barriers used to prevent fire damage and propagation. The inspectors reviewed these activities and compared them to the requirements in the licensee's procedure 0-ADM-016, "Fire Protection Program." The inspectors routinely reviewed the licensee's fire impairment lists and monitored the associated corrective actions for completion. The inspectors reviewed the action request report database to verify that fire protection problems were being identified and appropriately resolved in the CAP. The inspectors' tours of the selected areas verified the fire protection equipment was installed as shown on the applicable fire plan drawings and appeared functional and ready for use. This inspection constitutes six samples. The following areas were inspected:

- Units 3 and 4 auxiliary building roof;
- 3A and 3B EDG engine rooms;
- 4A and 4B EDG engine rooms;
- 3B, 4A, and 4B safety-related 4kV switchgear rooms;
- 4D safety-related 4kV switchgear room and 4B EDG control room; and,
- Units 3 and 4 spent fuel pit (SFP) pumps and heat exchanger rooms.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors selected the 3A CCW heat exchanger to verify that the licensee was performing periodic cleaning and testing following maintenance in accordance with associated procedures. The inspectors observed portions of the heat exchanger cleaning performed by the licensee under WO 40437824. The inspectors verified the cleaning and inspection following maintenance was performed and properly documented in accordance with completed maintenance procedure 0-PMM-030.01, "Component Cooling Water Heat Exchanger Cleaning and Inspection." The inspectors also reviewed completed licensee procedure 3-OSP-030.4, "Component Cooling Water Heat Exchanger Performance Test," and 3-OSP-019.4, "Component Cooling Water Heat Exchanger Performance Monitoring" to ensure the heat exchanger was restored, leak

tested, and returned to service with no deficiencies. The inspectors walked down portions of the cooling systems for integrity checks and to assess operational lineup and material condition. This inspection constitutes one sample.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program and Licensed Operator Performance

.1 Simulator Observation (IP 71111.11Q)

a. Inspection Scope

On January 17, 2017, the inspectors assessed licensed operator performance in the plant-specific simulator during a licensed operator continuing training evaluation. The scenario required control room operators to initiate a fast load reduction due to degrading RCP seals followed by an anticipated transient without a scram and a loss of coolant accident.

During this simulator observation, the simulator board configurations were compared with actual plant control board configurations reflecting recent plant changes or modifications. The inspectors specifically evaluated the following attributes related to operating crew performance and the licensee evaluation:

- Clarity and formality of communication;
- Ability to take timely action to safely control the unit;
- Prioritization, interpretation, and verification of alarms;
- Correct use and implementation of off-normal and emergency operating procedures and emergency plan implementing procedures;
- Control board operation and manipulation, including high-risk operator actions;
- Oversight and direction provided by shift supervisor, including ability to identify and implement appropriate Technical Specification (TS) actions and emergency plan classification and notification;
- Crew overall performance and interactions; and,
- Evaluator's control of the scenario and post scenario evaluation of crew performance.

This inspection constitutes one sample.

b. Findings

No findings were identified.

.2 Control Room Observations (IP 71111.11Q)

a. Inspection Scope

The inspectors performed daily assessments of licensed operators in the control room during their performance of routine operations. These observations included daily surveillance testing, log keeping, response to alarms, communications, shift turnovers, and coordination of plant activities and verified operator compliance with station operating guidelines, such as use of procedures, control and manipulation of components, and communications.

The inspectors also performed the following focused control room observations during periods of heightened activity or risk and verified operator compliance with station operating procedures and protocol and decorum as described in licensee procedure OP-AA-100-1000, "Conduct of Operations." The inspectors focused on the following conduct of operations attributes as appropriate:

- Operator compliance and use of procedures;
- Control board manipulations;
- Communication between crew members;
- Use and interpretation of plant instruments, indications and alarms;
- Use of human error prevention techniques;
- Documentation of activities, including initials and sign-offs in procedures; and,
- Supervision of activities including risk and reactivity management.

Specifically, the inspectors performed the following focused control room observations during periods of heightened activity or risk:

- On January 20, 2017, control room operators coordinated an off-normal response due to a trip of the Unit 3 SFP hoist motor variable frequency drive with an irradiated fuel assembly latched in the full up position;
- On February 2, 2017, control room operators responded to trips of both the 3A2 and D51 battery chargers;
- On March 3, 2017, control room operators transferred offsite power to the vital and non-vital buses from the Unit 4 start-up transformer (SUT) to the Unit 4 auxiliary transformer in preparation to complete the post maintenance testing on the Unit 4 SUT;
- On March 18, 2017, the Unit 3 control room operators responded to an automatic reactor trip when the safety-related 3A 4kV switchgear failed, both Units entered TS 3.0.3., and an emergency Alert classification was made;
- On March 19, 2017, Unit 3 control room operators performed a plant cooldown in Mode 4 and started the 3B loop of residual heat removal (RHR) cooling; and,
- On March 24, 2017, Unit 3 control room operators drained down the reactor coolant system (RCS) in preparation to enter Mode 6.

This inspection constitutes six samples.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (IP 71111.12Q)

Routine Maintenance Effectiveness Inspection

a. Inspection Scope

The inspectors reviewed the following equipment problems and periodic evaluation reports to verify that the licensee's maintenance effort met the requirements of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," and licensee procedure ER-AA-100-2002, "Maintenance Rule Program Administration." The inspectors focused on maintenance rule (MR) scoping, characterization of maintenance problems and failed components, risk significance,

determination of a (1) or a (2) performance criteria classification, corrective actions, and the appropriateness of established performance goals and monitoring criteria. The inspectors also interviewed responsible engineers and observed or reviewed corrective maintenance activities. The inspectors attended the MR expert panel meetings and observed the engineering presentations on the systems changing MR status. The inspectors verified that equipment problems were being identified and appropriately entered into the licensee's CAP. The inspectors used the licensee MR database, system health reports, MR unavailability status reports, and the CAP as sources of information on tracking and resolution of issues.

This inspection constitutes two samples.

- AR 2108256, Unit 3 Emergency Containment Coolers Returned to (a)(2)
- AR 2183537, 3A2 Battery Charger Input Breaker Tripped Open

1R13 Maintenance Risk Assessments and Emergent Work Control (IP 71111.13)

a. Inspection Scope

The inspectors completed in-office reviews and control room inspections of the licensee's risk assessment of emergent or planned maintenance activities. The inspectors verified the licensee's risk assessment and risk management activities using the requirements of 10 CFR 50.65(a)(4); the recommendations of Nuclear Management and Resource Council 93-01, "Industry Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Revision 4A; 0-ADM-225, "On Line Risk Assessment and Management;" and 0-ADM-051, "Outage Risk Assessment and Control." The inspectors also reviewed the effectiveness of the licensee's contingency actions to mitigate increased risk resulting from degraded equipment and the licensee assessment of aggregate risk using procedure OP-AA-104-1007, "Online Aggregate Risk." The inspectors discussed the on-line risk monitor (OLRM) results with the control room operators and verified all applicable out-of-service equipment was included in the OLRM calculation. The inspectors evaluated the following risk assessments during the inspection period, which constitutes six inspection samples:

- OLRM, Train 2 AFW and C AFW pump OOS;
- OLRM, Unit 3 AFW train 1 and 3C emergency containment cooler OOS, and issues with the McGregor substation during a lightning storm at the site which caused control room annunciators to alarm;
- OLRM, 3A ICW header OOS with the control room emergency ventilation system in recirculation, while a mobile heavy crane was performing a lift over the control room roof;
- OLRM, Unit 3 and Unit 4 while the Unit 4 SUT was OOS for maintenance;
- Plant aggregate risk review and risk management actions for heavy load lift of the A computer room chiller unit; and,
- Unit 3 shut down risk assessment and Unit 4 OLRM, with the 3A safety-related 4KV switchgear and the A train of RHR unavailable, while Unit 4 was in Mode 1 Green risk and Unit 3 was in Mode 3 Orange risk.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors evaluated the technical adequacy of the licensee's evaluations to ensure that TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred for the operability evaluations described in the ARs listed below. The inspectors reviewed applicable component remained available to perform its intended function. In addition, when affected equipment remained capable of performing its intended design function. The identifying and correcting any deficiencies associated with operability evaluations. This inspection constitutes six samples.

- AR 2179991, B ICW pump in-service test not completed due to ICW flowrate not meeting test conditions;
- AR 2182476, 4B emergency containment cooler inlet flow control valve failure during surveillance testing;
- ARs 2184466 and 2184991, Unit 3 containment tendon grease losses;
- AR 2189907, CCW head tank low level alarm;
- AR 2191208, RCS leakage due to 3B RCP seal third stage degradation; and,
- AR 2191993, 4-943G-boric acid accumulation on downstream pipe.

b. Findings

No findings were identified.

1R18 Plant Modifications

a. Inspection Scope

The inspectors reviewed two temporary modifications to Unit 3. The inspectors reviewed the 10 CFR 50.59 screening and technical evaluation to verify that the modification had not affected system operability or availability. The inspectors reviewed associated plant drawings, design analyses, and UFSAR documents impacted by this modification and discussed the changes with licensee personnel to verify that the modifications were consistent with the engineering change (EC) and associated documents. The inspectors observed portions of the modification and surrounding area to determine if conditions resulted in any potential unsafe conditions not described in the EC documentation. Additionally, the inspectors reviewed and verified that any conditions associated with the modification were being identified and entered into the CAP. This inspection constitutes two samples.

- EC 286465, Nitrogen isolated to the Unit 3 pressurizer relief tank and containment air bleed modification; and,
- EC 288658, Temporary modification to the 3A 4kV switchgear bus for electrical power restoration during the 29th Refueling Outage of Unit 3.

b. Findings

No findings were identified.

1R19 Post Maintenance Testing (IP 71111.19)a. Inspection Scope

For the post-maintenance tests and associated WOs listed below, the inspectors reviewed the test procedures and either witnessed the testing or reviewed test records to determine whether the scope of testing adequately verified that the work performed was correctly completed and demonstrated that the affected equipment was operable. The inspectors verified that the requirements in licensee procedure MA-AA-203-1000, "Maintenance Testing," were incorporated into the test requirements. The inspectors reviewed the following WOs which consisted of four inspection samples:

- WO 40343276-02, Inspect and overhaul MOV-6459C on the C AFW Pump;
- WO 40510105-02, 4A ICW pump lift due to increasing mechanical vibrations during inservice testing;
- WO 40487363, Replace 3A EDG air start solenoid valves SV-3-2023A and SV-3-2068A; and,
- WO 40471105, Change 4B containment spray pump discharge MOV 4-880B breaker setting to 49 Amps.

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities.1 Unit 3 Refueling Outage PT3-29a. Inspection ScopeOutage Planning, Control and Risk Assessment

The inspectors examined the licensee implementation of shutdown safety assessments during the Unit 3 refuel outage PT3-29 in accordance with administrative procedure ADM-051, "Outage Risk Assessment and Control," to verify if a defense in depth concept was in place to ensure safe operations and avoid unnecessary risk. The inspectors regularly monitored outage planning and control activities in the outage control center, as well as work activities authorized from the work control center and main control room, and interviewed responsible outage control center management personnel and licensed operators during the outage to ensure system, structure, and component configurations, and work scope were consistent with TS requirements, site procedures, and outage risk controls.

Monitoring of Shutdown Activities

The inspectors performed walk downs of important systems and components used for RHR from the reactor core and SFP during the shutdown period including the ICW system, CCW system, and spent fuel pit cooling system.

Outage Activities

The inspectors examined outage activities to verify that they were conducted in accordance with TSs, licensee procedures, and the licensee's outage risk control plan.

Some of the more significant inspection activities accomplished by the inspectors were as follows:

- Verified operability of RCS pressure, level, flow, and temperature instruments during various modes of operation;
- Verified electrical systems availability and alignment;
- Verified shutdown cooling system and spent fuel pool cooling system operation;
- Evaluated implementation of reactivity controls;
- Reviewed control of containment penetrations; and,
- Examined foreign material exclusion controls put in place inside containment (e.g., around the refueling cavity, near sensitive equipment and RCS breaches) and around the SFP.

Refueling Activities and Containment Closure

The inspectors witnessed selected fuel handling operations being performed in accordance with TSs and applicable operating procedures from the main control room, the refueling bridge inside the containment building, and the fuel handling bridge in the spent fuel pit building. The inspectors also examined licensee activities to control and track the position of each fuel assembly. The inspectors evaluated the licensee's ability to close the containment equipment, personnel, and emergency hatches in a timely manner per procedure 0-ADM-051.

Corrective Action Program

The inspectors reviewed ARs generated during PT3-29 to evaluate the licensee's threshold for initiating ARs. The inspectors reviewed ARs to verify priorities, Mode holds, and significance levels were assigned as required. Resolution and implementation of corrective actions of several ARs were also reviewed for completeness. The inspectors routinely reviewed the results of quality assurance daily surveillances of outage activities as documented in the CAP.

This inspection constitutes a partial sample. Refueling outage PT3-29 was scheduled to complete in the second quarter of 2017. Therefore the remaining sample will be accounted for in Inspection Report 2017002.

b. Findings

No findings were identified.

1R22 Surveillance Testing (IP 71111.22)

a. Inspection Scope

The inspectors either reviewed or observed the following surveillance tests to verify that the tests met the TS requirements, the UFSAR description, the licensee's procedural requirements, and demonstrated the systems were capable of performing their intended safety functions and operational readiness. In addition, the inspectors evaluated the effect of the testing activities on the plant to ensure that conditions were adequately addressed by the licensee staff and that after completion of the testing activities, equipment was returned to the status required for the system to perform its safety function. The inspectors verified that any surveillance deficiencies were documented in the licensee's CAP.

The inspectors completed a vertical slice review of work activities on the ICW system to assess whether different aspects of the licensee's processes work effectively together. Associated samples for this slice included inspections described in this report using the Functionality Assessments;" 71111.19, "Post-Maintenance Testing;" and, IP 71152, "Problem Identification & Resolution."

The inspectors reviewed the following tests:

Surveillance Tests:

- 4-OSP-024.2, Emergency Bus Load Sequencer Manual Test (4A sequencer);
- 3-OSP-030.4, Component Cooling Water Heat Exchanger Performance Test;
- 3-OSP-023.1, 3A Diesel Generator Operability Test; and,
- Precision Surveillance Corporation, N1130-3, Turkey Point Nuclear Plant, Units 3 & 4, 45th Year Containment Building Tendon Surveillance.

Inservice Tests:

- 3-OSP-019.1, Intake Cooling Inservice Test

Reactor Coolant System (RCS) Leak Detection Test:

- 3-OSP-041.1, Unit 3 Reactor Coolant System Leak Rate

This inspection constitutes four surveillance test samples, one inservice test sample and one RCS leak detection sample.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness 1EP6

1EP6 Drill Evaluation (IP 71114.06)

Emergency Preparedness (EP) Quarterly Drill

a. Inspection Scope

On January 18, 2017, the inspectors observed the simulator control room, technical support center, and emergency operating facility staff during a drill of the site emergency response organization to verify the licensee was properly classifying emergency events, making the required notifications, and making appropriate protective action recommendations. The drill scenario consisted of an event which required an Alert and Site Area classifications, followed by a loss of coolant accident and an RCS depressurization and subsequent increased radiation levels which met the criteria for declaring a General Emergency. During the drill, the inspectors assessed the licensee's actions to verify that emergency classifications and notifications were made in accordance with licensee emergency plan implementing procedures (EIPs) and 10 CFR 50.72 requirements. The inspectors specifically reviewed that the Alert, Site Area Emergency and General Emergency classifications and notifications were made in accordance with licensee procedures 0-EPIP-20101, "Duties of Emergency Coordinator," and 0-EPIP-20101, Attachment 1, "Hot Conditions Table." The inspectors also observed whether the initial activation of the emergency response centers was timely and as specified in the licensee's emergency plan. The inspectors attended the

licensee's drill critiques and verified the identified critique items and drill weaknesses were captured in the licensee's CAP. This inspection constitutes one EP drill sample.

b. Findings

No findings were identified.

4OA1 Performance Indicator Verification (IP 71151)

Initiating Events Cornerstone

a. Inspection Scope

The inspectors reviewed licensee submittals for the Unit 3 and Unit 4 performance indicators (PI) listed below for the period January 1, 2016, through December 31, 2016, to verify the accuracy of the PI data reported during that period. Performance indicator definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," and licensee procedure 0-ADM-032, "NRC Performance Indicators Turkey Point," were used to check the reporting for each data element. The inspectors checked operator logs, plant status reports, condition reports, system health reports, and PI data sheets to verify that the licensee had identified the required data, as applicable. The inspectors interviewed licensee personnel associated with performance indicator data collection, evaluation, and distribution. Documents reviewed are listed in the attachment.

- Unit 3 Unplanned Scrams per 7000 Critical Hours
- Unit 4 Unplanned Scrams per 7000 Critical Hours
- Unit 3 Unplanned Scrams With Complications
- Unit 4 Unplanned Scrams With Complications
- Unit 3 Unplanned Power Changes per 7000 Critical Hours
- Unit 4 Unplanned Power Changes per 7000 Critical Hours

This inspection constitutes a total of 6 inspection samples.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (IP 71152)

.1 Daily Review

a. Inspection Scope

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," and to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a screening of items entered daily into the licensee's CAP. This review was accomplished by reviewing daily printed summaries of ARs and by reviewing the licensee's electronic AR database. Additionally RCS unidentified leakage was checked on a daily basis to verify no substantive or unexplained changes occurred.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review: Inadequate 10 CFR 50.65 (a)(4) Maintenance Rule Risk Assessments

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review focused on repetitive equipment issues, but also considered the plant status reviews, plant tours, licensee trending efforts, and the results of daily inspector CAP item screenings discussed in section 4OA2.1. The inspectors' review nominally considered the six month period of October 2016 through March 2017, although some examples expanded beyond those dates when the scope of the issue warranted.

The inspectors reviewed several licensee procedures and a software program used by control room operators to assess on-line risk for compliance with section (a)(4) of 10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants." Those procedures included:

- 0-ADM-225, "On Line Risk Assessment and Management"
- OP-AA-100-1000, "Conduct Of Operations"
- OP-AA-102-1003, "Guarded Equipment"

The OLRM is a software program used by control room operators to assess on-line risk based on plant configuration and unavailable SSCs. The inspectors used the OLRM for selected plant configurations to independently verify risk results.

The inspectors reviewed the following ARs associated with this trend review:

- AR 2165181, OLRM May Not Have Been Updated Following Changes to the Background Documents
- AR 2160354, Risk Significant Heating Ventilation and Air Conditioning (HVAC) Unit for 3D 4kv Switchgear Room was Worked Without Appropriate Update to the OLRM
- AR 2159331, 0-ADM-225 – On-line Risk Assessment and Management
- AR 2165177, MR Availability Not Consistently Documented in the Narrative Logs
- AR 2188718, Untimely Entry of Out-Of-Service Equipment in the OLRM

The inspectors verified that the ARs were dispositioned in accordance with the CAP as specified in licensee procedure PI-AA-104-1000, "Corrective Action."

b. Findings and Observations

No findings were identified. Several ARs described issues identified by the inspectors related to the licensee not entering unavailable SSCs into the OLRM for a risk assessment. The licensee acknowledged an adverse trend identified by the inspectors for not entering unavailable SSCs into the OLRM for a risk assessment. The licensee rolled up individual examples of this trend into AR 2188718 to document the adverse trend and provide for corrective actions. Specific example issues included unavailable SSCs such as: (1) auxiliary feed water; (2) emergency containment coolers; (3) safety-related battery chargers; (4) safety-related 4kV switchgear room chiller units, and (5)

ICW pumps and associated ICW supply headers. The activities not assessed for increased risk included planned and emergent maintenance and surveillance testing.

For each example identified, the licensee had entered the appropriate TS action statement for the SSC being out of service but had failed to enter the SSC into the OLRM, and therefore no on-line risk assessment had been completed as required by 10 CFR 50.65 (a)(4) and the licensee's procedures which govern on-line risk assessment. However, had the SSC been entered into the OLRM for the associated plant configuration, the OLRM results remained in the green band, and there were no increased risk color changes and no additional risk management actions required. The inspectors judged that each example was a performance deficiency and a violation of 10 CFR 50.65 (a)(4) for not assessing and managing the increase in risk before performing maintenance on SSCs. Because the OLRM results remained in the green band for each example, the inspectors determined that each violation was not more-than-minor as described in the NRC Inspection Manual Chapter 0612, Appendix B, Issue Screening, and Appendix E, Examples of Minor Issues, examples 7e, 7f, and 7g. The licensee had taken actions to restore compliance and the failure to complete the risk assessments as required by 10 CFR 50.65 (a)(4) constitutes a minor violation that is not subject to enforcement action in accordance with the NRC's Enforcement Policy.

Additional observations made by the inspectors included taking credit for operator actions to declare safety-related SSCs as available without having fully validated timelines in order to demonstrate availability when the safety function was needed. The inspectors also noted that in some cases the licensee was not documenting when SSCs were declared unavailable or returned to available status in control room narrative logs.

At the completion of the inspection period the licensee had not completed the investigation for the adverse trend documented in AR 2188718. This inspection constitutes one semi-annual trend sample.

.3 Annual Sample: Inadequate Operational Decision-Making (ODM) Procedure Implementation Results in Water Hammer in the Feedwater Heater System

a. Inspection Scope

The inspectors performed an in-depth review of AR 2146943, that documented a root cause evaluation (RCE) associated with a Unit 3 fast load reduction and manual reactor trip. The fast load reduction and manual reactor trip were initiated by control room operators on July 30, 2016, in response to water hammer in the FWH system. The inspectors reviewed the associated corrective actions to verify they were completed as prescribed and that open actions were scheduled to be completed commensurate with the safety significance of the activity. The inspectors interviewed licensed operators that were on-shift during the Unit 3 plant transient and the engineering supervisor that led the RCE investigation. The inspectors walked down the Unit 3 FWH system to verify selected corrective actions were complete and that pipe supports were repaired. The inspectors additionally reviewed ARs that were generated during the RCE and evaluated the licensee's disposition of these ARs to verify the licensee's actions were in accordance with licensee procedure, PI-AA-104-1000, "Corrective Action," and PI-AA-100-1005, "Root Cause Analysis."

b. Findings and observations

Introduction: A Green self-revealing finding was identified for the failure to adequately implement OP-AA-105-1000, "Operational Decision-Making" procedure. Specifically, the licensee failed to establish appropriate plant conditions for the repair of the Unit 3 condensate tube leak.

Description: On July 27, 2016, control room operators reduced Unit 3 RTP from 100 percent to 84 percent to repair a tube leak on the 3B FWH. Adequate tube-side isolation was not successful because the condensate valves at the 3B FWH leaked by. The licensee entered the ODM procedure OP-AA-105-1000, and expanded the clearance to remove the entire B FWH train from service at 50 percent RTP. Procedure 3-NOP-081.02, "Feedwater Heaters, Extraction Steam Component Removal and Restoration," was revised to include a new section to isolate the remainder of the B train FWH system. While executing the clearance, during isolation of extraction steam to the 5B FWH by closing valve 3-10-052, field operators reported loud banging noises and pipe movement from the FWH system. Additionally, field operators noted pipe insulation shaking loose. Operators determined that the FWH system was undergoing significant water hammer and immediately stopped execution of the clearance for personnel and equipment safety reasons, and evacuated the area. Control room Operators made several attempts to remotely isolate other water sources into the 5B FWH but were not successful in stopping the water hammer. Operators entered procedure 3-GOP-100, "Fast Load Reduction," and reduced Unit 3 RTP to 14 percent and manually tripped the reactor. There were no equipment complications resulting from the reactor trip. Plant personnel subsequently identified several secondary pipe supports that were damaged due to the water hammer.

The direct cause of the water hammer was a result of the isolation of extraction steam to the 5B FWH shell-side, which caused a rapid depressurization and cooldown of the 5B FWH shell-side. This in turn caused a reverse flow of water from the heater drain tank (HDT), which was at a higher temperature and pressure, to the 5B FWH. The result was hot water traveling in a reverse direction than normal through the 5B FWH drain line. The water expanded upon entering the shell and then immediately condensed upon contact with the cooler FWH tubes which resulted in water hammer.

The licensee's RCE determined the root cause was failure to ensure adherence to the ODM process, including attributes of rigorous evaluation and effective implementation. The investigation found that the ODM team was too narrowly focused on specific parameters such as feedwater pump suction pressure and did not address the thermal dynamic system impacts associated with the manipulation of specific FWH valves. The ODM team used a computer model that did not take into consideration the sequence of the isolation and only analyzed the static results of having the 5B FWH isolated. Additionally, the program did not model the potential thermal dynamic issues associated with the common line between the 5B FWH and the HDT and a transient analysis was not completed for the online clearance, only the end states of the clearance were reviewed.

The ODM procedure OP-AA-105-1000, "Operational Decision-Making," Attachment 3, "Attributes for Effective Operational Decision Making," was not reviewed by the ODM team. Specifically, procedure steps 2.3, for attribute #3, Rigorous Evaluation, and procedure steps 2.5 for attribute #5, Effective Implementation, were not used by the ODM team to make appropriate conclusions for the repair. Attribute #3 provides for freely challenging assumptions, facts, and conclusions, and attribute #5 provides for

ensuring management involvement and follow-up to ensure actions are carried out as planned. Additionally, the investigation found that the ODM team did not perform the action items developed from the ODM fleet challenge meeting, which included: (1) using the simulator to model the equipment response, and (2) engineering provide expected changes in parameters with specific valves being opened.

A contributing cause included imprecise wording provided on the revised procedure in section 5.9 of 3-NOP-081.02, which led to individual interpretation of the method of control of the steam extraction valve. Specifically, the rate of closure of the extraction steam valve, throttle valve 3-10-052, was not specified. During this event, operators closed the valve too quickly, which caused an unexpected rapid decrease in the 5B FWH shell pressure, from 75 psig to 16 psig, within two minutes.

Analysis: The failure to implement all the steps of OP-AA-105-1000, ODM procedure to establish plant conditions for the repair of the Unit 3 condensate tube leak in the 3B FWH was a performance deficiency. Specifically, not implementing the ODM procedure steps 2.3, Rigorous Evaluation, and Steps 2.5, Effective Implementation, of Attachment 3, resulted in an incorrect revision to procedure 3-ONOP-081.02 which led field operators to close the extraction steam to the 5B FWH too quickly and without due-precaution to prevent a rapid decrease in the 5B FWH shell pressure and caused significant water hammer.

The performance deficiency (PD) was determined to be more than minor because it was associated with the configuration control and procedure quality attributes of the initiating events cornerstone. The PD adversely affected the cornerstone's objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown, as well as power operations, because the failure resulted in the water hammer, and caused control room operators to complete a fast load reduction and manually trip the reactor. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Initiating Events Cornerstone. In accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the inspectors determined that the issue had very low safety significance (Green) because it only caused a reactor trip and did not cause the loss of mitigating equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition.

The finding was assigned a cross-cutting aspect of resources in the area of human performance, in that, leaders ensure that personnel, equipment, procedures, and other resources are available and adequate to support nuclear safety. Specifically, the ODM team did not ensure that the revised procedure was adequate to preclude water hammer in the 5B FWH [H.1].

Enforcement: The inspectors did not identify a violation of regulatory requirements associated with this finding. This finding was entered into the licensee's CAP as AR 2146943. (FIN 05000250/2017001-01, "Inadequate Operational Decision-Making Procedure Implementation Results in Feedwater Heater Water Hammer").

- .4 Annual Sample: (Opened) Unresolved Item (URI): Failure of Battery Chargers Due To Conductive Dust / Particulate Foreign Material Exclusion

a. Inspection Scope:

The inspectors performed an in-depth review of AR 2183537 that documented an equipment apparent cause evaluation (EACE) associated with three Unit 3 battery chargers that tripped while in service. Thermo-Lag was being installed in support of fire protection modifications for Turkey Point's transition to a risk-informed fire protection program, i.e. NFPA 805. The inspectors reviewed the associated corrective actions to verify they were completed as prescribed and that open actions were scheduled to complete commensurate with the safety significance of the activity. The inspectors walked down the battery chargers to verify selected corrective actions were completed and walked down the modification to HVAC unit V78 that was installed to prevent air from blowing directly into the battery charger ventilation louvers. The inspectors reviewed ARs that were generated during the EACE and evaluated the licensee's disposition of these ARs to verify the licensee's actions were in accordance with licensee procedure, PI-AA-104-1000, "Corrective Action."

During this inspection, on March 18, 2017, in a separate location of the plant, the 3A 4kV switchgear bus arc flashed in the reactor coil cubicle causing the 3A 4kV switchgear bus protective relay circuits to automatically deenergize the bus. The inspectors attended the licensee's RCE failure investigation team meetings on this issue to obtain updates and gather facts on the arc flash and failed switchgear. The licensee's RCE related to the 3A 4kV switchgear failure was in process at the end of this inspection period. The 3A 4kV switchgear room was undergoing Thermo-Lag passive fire barrier installation which was similar to the work in the new electrical equipment room (NEER) that housed the battery chargers. Documents reviewed are listed in the Attachment. This inspection constitutes one sample.

b. Findings:

Introduction: A URI was opened to determine if there is a performance deficiency related to the battery charger trips in the NEER and failure of the 3A 4kV switchgear bus.

Description: On February 2, 2017, the 3A2 vital battery charger input breaker and motor control center (MCC) supply breaker tripped. Four minutes later, the D51 battery charger input breaker tripped. Subsequently, on February 8, 2017, the 3B2 vital battery charger input breaker and MCC supply breaker tripped, and a loud bang and possible flash were reported to have occurred in the lower level near the 4D MCC which supplies 480 Vac to the 3B2 charger. On February 13, the 4A2 and 4B2 battery chargers had difficulty load sharing with redundant battery chargers operating on their associated battery busses. The ARs associated with these separate issues include: AR 2184506, AR 2183540, AR 2183773, and AR 2185218. The licensee initiated an EACE on these issues, AR 2183537.

For the battery charger trips that occurred on February 2, the licensee noted that Thermo-Lag work was in progress near the chargers in the NEER. At the time of the breaker trips, several employees were in the NEER performing cleanup from the Thermo-Lag activities. The licensee discovered a notable level of dust on horizontal surfaces in the NEER as well as inside the 3A2 and D51 battery charger cabinets. The licensee concluded the dust was conductive. The 3A2, D51 and 3B2 chargers, which were all located near each other and in the same room elevation, were cleaned and returned to service. The 4A2 and 4B2 battery chargers were also cleaned but it was noted those

chargers were in the same room but at a lower elevation. On February 8, the 3B2 charger tripped, despite it having been previously cleaned. It was noted at the time of the 3B2 charger trip that there were several employees installing Thermo-Lag in the NEER.

The licensee concluded that the apparent cause of the breaker trips was conductive dust/particulate that may have been created by Thermo-Lag passive fire barrier installation in the vicinity of the battery chargers. The dust/particulate became airborne and settled on charger components. Corrective actions included cleaning all the chargers in the room and installing a modification which provided a sheet metal barrier on top of the D51, 3A2 and 3B2 battery chargers to deflect air from HVAC Unit V78 being blown directly into the louvered charger electrical cabinets.

On March 18, 2017, in a separate location of the plant, the Unit 3A 4kV switchgear room, the 3A 4kV switchgear bus arc flashed in the reactor coil cubicle. The arc flash resulted in an explosion and the 3A 4kV switchgear bus was automatically deenergized by protective relay circuits. Similar to the NEER that housed the battery chargers, the 3A 4kV switchgear room was undergoing Thermo-Lag passive fire barrier installation. The deenergized 3A 4kV switchgear bus resulted in a Unit 3 automatic reactor trip. This event and NRC follow-up is described in section 4OA3 of this report.

The licensee promptly chartered an RCE team to investigate the failure of the 4kV bus. The licensee noted that prior to the arc flash there were several employees in the 3A 4kV switchgear room performing similar Thermo-Lag installation. As an immediate corrective action, the licensee stopped all Thermo-Lag installation work in the entire fleet. The licensee's RCE plan included determining if there were any common causes with the battery charger trips and the 4kV switchgear failure due to Thermo-Lag installations.

A URI was identified because additional review is needed to determine if there were any common causes between the battery charger trips and anomalies and the 3A 4kV switchgear bus arc flash and to determine if this issue of concern constitutes a violation. Specifically, the inspectors will review the licensee's RCE of the failed 4kV switchgear to determine if there are causes and corrective actions which were not identified during the investigation of the battery charger trip EACE, and if corrective actions could have prevented the 3A 4kV switchgear bus arc flash. (URI 05000250/2017001-02, Failure of Vital Battery Chargers Due to Conductive Dust / Particulate Foreign Material)

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (IP 71153)

Plant Events

a. Inspection Scope

On March 18, 2017, at 1107 operators responded to a Unit 3 automatic reactor trip from 100 percent RTP when the 3A 4kV switchgear bus deenergized from an arcing fault in the reactor coil cubicle. The 3A RCP is powered from the 3A 4kV switchgear bus and the reactor tripped in response to the deenergization of the 3A RCP. At 1119, the shift manager classified the event in accordance with the Emergency Action Levels and declared an Alert. The shift manager classified the event based on reports of a fire or explosion affecting the 3A 4kV switchgear room and the loss of the 3A 4kV switchgear bus. The inspectors responded to the site to review reactor plant parameters and operator response to this event. The licensee cooled down the reactor plant and established Mode 5 conditions with one loop of residual heat removal system in operation on March 19, 2017.

b. Findings and Observations

No findings were identified.

4OA5 Other Activities

.1 Review of World Association of Nuclear Operators Evaluation Report

The inspectors reviewed the most recent World Association of Nuclear Operators evaluation report for an evaluation and assessment performed in December, 2016. The inspectors reviewed the report to ensure that issues identified were consistent with NRC perspectives of licensee performance and to determine if any safety issues were identified that require further NRC inspection or discussion.

.2 Temporary Instruction (TI) 2515/192, Inspection of Licensee's Interim Compensatory Measures Associated with the Open Phase Condition Design Vulnerabilities in Electric Power Systems

a. Inspection Scope

The objective of this performance-based TI is to verify implementation of interim compensatory measures associated with an open phase condition design vulnerability in electric power system for operating reactors. The inspectors conducted an inspection to determine if the licensee had implemented the following interim compensatory measures. These compensatory measures are to remain in place until permanent automatic detection and protection schemes are installed and declared operable for open phase condition design vulnerability. The inspectors verified the following:

- The licensee identified and discussed with plant staff the lessons learned from the open phase condition events at U.S. operating plants including the Byron Station open phase condition and its consequences. This included conducting operator training for promptly diagnosing, recognizing consequences, and responding to an open phase condition.
- The licensee updated plant operating procedures to help operators promptly diagnose and respond to open phase conditions on offsite power sources credited for safe shutdown of the plant.
- The licensee established and implemented periodic walkdown activities to inspect switchyard equipment such as insulators, disconnect switches, and transmission line and transformer connections associated with the offsite power circuits to detect a visible open phase condition.
- The licensee ensured that routine maintenance and testing activities on switchyard components have been implemented and maintained. As part of the maintenance and testing activities, the licensee assessed and managed plant risk in accordance with 10 CFR 50.65(a) (4) requirements.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On April 7, 2017, the resident inspectors presented their inspection results to Mr. Tom Summers, Southern Regional Vice President, and other members of licensee management. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary information. The licensee did not identify any proprietary information.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel:

T. Summers, Southern Regional Vice-President
C. Cashwell, Training Manager
P. Czaya, Licensing Engineer
B. Stamp, Plant General Manager
O. Hernandez, Security Manager
M. Guth, Licensing Manager
O. Hanek, Licensing Engineer
G. Melin, Operations Site Director
S. Mihalakea, Licensing Engineer
K. O'Hare, Performance Improvement Manager
M. Downs, Emergency Preparedness Manager
J. Pallin, Engineering Director
E. Neville, Assistant Operations Manager, Shift Operations
D. Barrow, Maintenance Director
R. Hess, General Operations Training Supervisor
W. Hinson, Radiation Protection Manager
J. Chamy, Chemistry Manager

NRC Personnel:

L. Pressley, Senior Project Engineer

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

<u>Opened and Closed</u> 05000250/2017001-01	FIN	Inadequate Operational Decision-Making Procedure Implementation Results in Feedwater Heater Water Hammer (Section 4OA2.3)
<u>Opened</u> 05000250/2017001-02	URI	Failure of Vital Battery Chargers Due to Conductive Dust / Particulate Foreign Material Exclusion (Section 4OA2.4)
<u>Closed</u> 2515/192	TI	Inspection of Licensee's Interim Compensatory Measures Associate with the Open Phase Condition Design Vulnerabilities in Electric Power Systems (Section 4OA5.2)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

0-ONOP-103.2, Cold/Hot Weather Conditions

Section 1R04: Equipment Alignment

3-OSP-019.1, Intake Cooling Water In-service Test

4-OSP-019.1, Intake Cooling Water In-service Test

3-NOP-030, Component Cooling Water System

4-NOP-030, Component Cooling Water System

3-NOP-075, Auxiliary Feedwater System

4-NOP-075, Auxiliary Feedwater System

3-NOP-062, Safety Injection

4-NOP-062, Safety Injection

5613-M-3019, Intake Cooling Water System

0-NOP-003.1, 125V Vital DC System

0-OSP-205.1, Startup Transformers and Onsite A.C. Power Distribution Verification

0-PME-003.16, Individual Cell Equalizing Charge for Vital Batteries 3A, 3B, 4A and D52

0-SME-003.3, 125 VDC Station Battery Quarterly Maintenance

3-NOP-005, 4kV Buses A, B, and D

4-NOP-005, 4kV Buses A, B, and D

3-NOP-022, Emergency Diesel Generator Fuel Oil System

5610-T-E-1592, Sh. 1, 125V D.C. & 120V Instrument A.C. Electrical Distribution

5613-M-3075, Sh. 1, Auxiliary Feedwater System Steam to Auxiliary Feedwater Pump
Turbines

5613-M-3075, Sh. 2, Auxiliary Feedwater System Auxiliary Feedwater to Steam Generators

5613-M-3075, Sh. 3, Auxiliary Feedwater System Nitrogen Supply to AFW Control Valves

WO 40422467

Section 1R05: Fire Protection

PFP-3-FHB-18, Pre-Fire Plan Unit 3 Fuel Handling Building Elevation 18

PFP-4-FHB-18, Pre-Fire Plan Unit 4 Fuel Handling Building Elevation 18

0-ONOP-016.20, Pre – Fire Plans

0-ONOP-016.10, Pre – Fire Plan Guidelines and Safe Shutdown Manual Actions

Hourly Rove Route Log for 2/15/17

Section 1R07: Heat Sink Performance

0-PMM-030.01 CCW Heat Exchanger Cleaning and Inspection

3-OSP-019.4, "Component Cooling Water Heat Exchanger Performance Monitoring

3-OSP-030.4, Component Cooling Water Heat Exchanger Performance Test

WO 40437824

WO 40466049

Section 1R11: Licensed Operator Regualification Process

3-ONOP-038.1, Loss of Refueling Equipment or Support Function

LOCT Evaluation: LT-3-497 Failure / LT-3-112 Failure / RCP Seal Leak / SBLOCA

AR 02180756

WO 40514873

Section 1R12: Maintenance Effectiveness

AR 02183537AR 02183540

AR 02183773

AR 02184506
 AR 02185101
 WO 40517048

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

ER-AA-100-2002, Maintenance Rule Program Administration
 OP-AA-104-1007, Online Aggregate Risk
 WM-AA-100-1000, Work Activity Risk Management
 WM-AA-100-1001, Support Organization Risk Management
 EC 285297

Section 1R15: Operability Evaluations

0-ADM-213, Technical Specification Related Equipment Out of Service Logbook
 EN-AA-203-1001, Operability Determinations / Functionality Assessments
 FPL Letter to NRC dated 3/22/17, Fifth Ten-Year Inservice Inspection Interval Relief Request
 No. 5 with Enclosure and Attachment

Section 1R18: Plant Modifications

3-NOP-041.03, Pressurizer Relief Tank

Section 1R19: Post-Maintenance Testing

AR 02148281
 AR 02178331

Section 1R20: Refueling and Other Outage Activities

3-OSP-051.12, Refueling Containment Penetration Alignment
 WO 40433335

Section 1R22: Surveillance Testing

AR 02178077
 AR 02178078

Section 4OA1: Performance Indicator Verification

0-ADM-032, NRC Performance Indicators Turkey Point
 AR 2146943, Rapid Power Reduction Due To FWH Transient

Section 4OA3: Follow-up of Events and Notice of Enforcement Discretion

AR 2192198

Section 4OA5: Other Activities

0-ADM-216, PTN and PTF Shared System Work Control and Switchyard Access
 AR 01733887
 AR 01735210
 AR 01745021
 AR 01789479
 AR 02034290
 Operations Night Orders dated 2/7/12 and 8/2/12

LIST OF ACRONYMS

AFW	Auxiliary Feedwater
AR	Action Request
CAP	Corrective Action Program
CCW	Component Cooling Water
CFR	Code of Federal Regulations
EACE	Equipment Apparent Cause Evaluation
EC	Engineering Change
EDG	Emergency Diesel Generator
EPIP	Emergency Plan Implementing Procedure
FWH	Feedwater Heater
HDT	Heater Drain Tank
HVAC	Heating, Ventilation, and Air Conditioning
IMC	Inspection Manual Chapter
IP	Inspection Procedure
kV	Kilo-Volt
MCC	Motor Control Center
MR	Maintenance Rule
NEER	New Electrical Equipment Room
NEI	Nuclear Energy Institute
NFPA	National Fire Protection Association
NRC	Nuclear Regulatory Commission
OCC	Outage Control Center
ODM	Operational Decision Making
OLRM	Online Risk Monitor
OOS	Out of Service
PI	Performance Indicator
RHR	Residual Heat Removal
RCE	Root Cause Evaluation
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
RTP	Rated Thermal Power
SDP	Significance Determination Process
SFP	Spent Fuel Pit
SSC	Structures, System, or Component
SUT	Start-up Transformer
TI	Temporary Instruction
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
Vac	Volts Alternating Current
Vdc	Volts Direct Current
WO	Work Order