



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION II  
245 PEACHTREE CENTER AVENUE NE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

April 30, 2014

EA-14-058

Mr. Mano Nazar  
Executive Vice President  
Nuclear and Chief Nuclear Officer  
Florida Power and Light Company  
P.O. Box 14000  
Juno Beach, FL 33408-0420

**SUBJECT: TURKEY POINT NUCLEAR GENERATING STATION - NRC INTEGRATED  
INSPECTION REPORT 05000250/2014002, 05000251/2014002 AND EXERCISE  
OF ENFORCEMENT DISCRETION**

Dear Mr. Nazar:

On March 31, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Turkey Point Nuclear Generating Station Units 3 and 4. On April 10, 2014, the NRC inspectors discussed the results of the inspection with Mr. Kiley and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented two findings of very low safety significance (Green) in this report. The findings involved violations of NRC requirements. The NRC is treating these violations as non-cited (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy.

In addition, the NRC is exercising enforcement discretion for two violations of very low safety significance that were not the result of performance deficiencies. Contrary to Technical Specification (TS) 3.7.3, "Intake Cooling Water System," Unit 3 operated in Mode 1 with the 3B intake cooling water pump inoperable for longer than the TS allowed outage time due to a loose fuse holder. Contrary to TS 3.7.2, "Component Cooling Water System," Unit 3 operated in Mode 1 with the 3A component cooling water pump inoperable for longer than the TS allowed outage time due to leakage from the pump casing vent. Although violations of the TS occurred, the violations were not attributable to equipment failures that were avoidable by reasonable licensee quality assurance measures or management controls. Therefore, the TS 3.7.3 and 3.7.2 violations were not associated with licensee performance deficiencies. The NRC concluded that the violations were of very low safety significance. Based on these facts, I have been authorized, after consultation with the Director, Office of Enforcement, and the Regional Administrator, to exercise enforcement discretion in accordance with Section 2.2.4.d of the Enforcement Policy and refrain from issuing enforcement for the violations. These violations will not be considered in the assessment process or the NRC's Action Matrix.

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 U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator Region II; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington DC 20555-0001; and the NRC Resident Inspector at Turkey Point Nuclear Generating Station Units 3 and 4.

If you disagree with a cross-cutting aspect assignment or the 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 Regional Administrator, Region II; and the NRC resident inspector at the Turkey Point Nuclear Generating Station Units 3 and 4.

Additionally, as we informed you in the most recent NRC integrated inspection report, cross-cutting aspects identified in the last six months of 2013 using the previous terminology were being converted in accordance with the cross-reference in Inspection Manual Chapter 0310. Section 4OA5 of the enclosed report documents the conversion of these cross-cutting aspects which will be evaluated for cross-cutting themes and potential substantive cross-cutting issues in accordance with IMC 0305 starting with the 2014 mid-cycle assessment review. If you disagree with the cross cutting aspect assigned, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II; and the NRC Resident Inspector at the Turkey Point Nuclear Generating Station.

In accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/William Jones RA for/**

Richard P. Croteau, Director  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000250/2014002, 05000251/2014002,  
w/Attachment: Supplemental Information

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Letter to Mano Nazar from Richard Croteau dated April 30, 2014.

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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: 05000250/2014002, 05000251/2014002

Licensee: Florida Power & Light Company (FP&L)

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

Location: 9760 S. W. 344th Street  
Homestead, FL 33035

Dates: January 1 to March 31, 2014

Inspectors: T. Hoeg, Senior Resident Inspector  
M. Endress, Resident Inspector  
M. Speck, Senior Emergency Preparedness Inspector (1EP2-5, 4OA1)  
S. Sanchez, Senior Emergency Preparedness Inspector (1EP2-5, 4OA1)  
C. Fontana, Emergency Preparedness Inspector (1EP2-5, 4OA1)  
R. Carrion, Senior Reactor Inspector (4OA5)

Approved by: Daniel W. Rich, Chief  
Reactor Projects Branch 3  
Division of Reactor Projects

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## SUMMARY OF FINDINGS

IR 05000250/2014002, 05000251/2014002; 01/01/2014 – 3/31/2014; Turkey Point Nuclear Plant, Units 3 & 4; Problem Identification and Resolution.

The report covered a three-month period of inspection by the resident inspectors and region-based specialist inspectors. Two Green non-cited violations were identified. The significance of inspection findings are indicated by their color (i.e., Green, White, Yellow, or Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," (SDP) dated June 2, 2011. The cross-cutting aspects were determined using IMC 0310, "Components Within the Cross-Cutting Areas," dated December 19, 2013. All violations of NRC requirements were dispositioned in accordance with the NRC's Enforcement Policy dated July 9, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

### NRC-Identified and Self-Revealing Findings

#### Cornerstone: Mitigating Systems

- Green: A self-revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, was identified when the licensee failed to implement corrective actions that addressed the low stress high cycle fatigue of component cooling water (CCW) relief valve (RV) 4-747B piping caused by flow induced vibration. As a result, CCW system flow induced vibration resulted in weld cracks and system pressure boundary leakage in January 2014. This issue was placed in the licensee's corrective action program (CAP) as action request (AR) 1931761. Corrective actions included performing a root cause evaluation, implementing special instructions to minimize the time that split header operation is performed, and developing a plan to replace the existing relief valve with an orifice or alternate relief valve.

The performance deficiency was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to implement adequate corrective actions to address CCW system flow induced vibration resulted in weld cracks and CCW system pressure boundary leakage in January 2014. The finding was screened using Exhibit 1, Mitigating Systems Screening Questions, found in Inspection Manual Chapter 0609, Significance Determination Process, Appendix A, Significance Determination Process (SDP) for Findings At-Power (June 19, 2012). The inspectors determined the finding was of very low safety significance (Green) because the finding did not affect design or qualification, did not represent a loss of system function, and did not represent an actual loss of function of a TS train of equipment. The finding was associated with a cross-cutting aspect in the evaluation component of the problem identification and resolution area because the licensee did not thoroughly evaluate issues and corrective actions from previous weld failures on CCW system RV-4-747B piping caused by flow induced vibration (P.2). (Section 4OA2.2)

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- Green: A self-revealing non-cited violation (NCV) of TS Section 3.3.2, "Engineered Safety Features Actuation Instrumentation," (ESF) was identified when the licensee failed to perform the channel calibration of Unit 3 ESF steam pressure protection channel III within the required 18-month frequency which resulted in operation with steam generator pressure transmitter PT-3-495 inoperable for approximately 10 months. This issue was placed in the licensee's CAP as AR 1938191. Corrective actions included replacing PT-3-495, performing an extent of condition on all other work orders completed during the extended power uprate (EPU) outage to ensure TS compliance, and revising the surveillance tracking program procedure to require verification that the required surveillance testing is completed prior to crediting non-dedicated work orders.

The performance deficiency was more than minor because it was associated with the human performance attribute of the mitigating systems cornerstone and affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to perform the channel calibration surveillance test procedure for transmitter PT-3-495 within the 18-month required frequency resulted in 10 months of channel inoperability. The finding was screened using Exhibit 1, Mitigating Systems Screening Questions, found in Inspection Manual Chapter 0609, Significance Determination Process, Appendix A, Significance Determination Process for Findings At-Power (June 19, 2012). The inspectors determined the finding was of very low safety significance (Green) because the finding did not affect design or qualification, did not represent a loss of system function, and did not represent an actual loss of function of a technical specification train of equipment. The finding was associated with a cross-cutting aspect in the work management component of the human performance area because the licensee failed to implement their process for planning, controlling, and executing required surveillance tests (H.5). (Section 4OA2.3)

#### Licensee Identified Violations

None

## REPORT DETAILS

### Summary of Plant Status

Unit 3 began this inspection period at 100 percent of rated thermal power (RTP) where it remained until March 17 when it was shut down for a planned refueling outage that continued through the end of this inspection period.

Unit 4 began this inspection period at 100 percent of RTP where it remained throughout this inspection period.

#### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity (R)

#### 1R04 Equipment Alignment

##### .1 Partial Equipment Walk Downs (Quarterly)

###### a. Inspection Scope

The inspectors conducted three 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 were correctly aligned to support operability. The inspectors also verified that the licensee had identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers by entering them into the CAP. Documents reviewed are listed in the Attachment.

- 3B EDG while 3A EDG was out of service (OOS)
- 3B High Head Safety Injection (HHSI) while the 3A HHSI was OOS
- Auxiliary Feedwater (AFW) Train II while Train I was OOS

###### b. Findings

No findings were identified.

##### .2 Equipment Alignment (Semi-annual)

###### a. Inspection Scope

The inspectors conducted a detailed review of the alignment and material condition of the A standby feed water system train to verify its capability to meet its design basis function while the B standby feed water system was OOS for troubleshooting and repair. The inspectors utilized licensee procedure 0-OSP-074.3, "Standby Steam Generator Feedwater Pumps Availability" and Drawings 5610-M-3074, "Feedwater System," Sheets 1 and 2, to verify the system alignment was correct. During the walkdown, the inspectors verified, as appropriate, that: 1) valves were correctly positioned and did not

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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. Other items reviewed included the operator workaround list, the temporary modification list, system health reports, system description, and open maintenance work orders. In addition, the inspectors reviewed the licensee's CAP to ensure that the licensee was identifying and resolving associated equipment problems.

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Fire Area Walk downs

a. Inspection Scope

The inspectors toured the following five 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 using provisions in the licensee's procedure 0-ADM-016, "Fire Protection Plan" and 10 CFR Part 50, Appendix R. The licensee's fire impairment lists were routinely reviewed. In addition, the inspectors reviewed the condition report database to verify that fire protection problems were being identified and appropriately resolved. The inspectors accompanied fire watch roving personnel on a tour of fire protection impairments and risk significant fire areas to assure monitoring of area status and to verify proper identification and handling of transient combustibles. The following areas were inspected:

- DC Equipment Room 4B Fire Zone 101
- DC Equipment Room 3A Fire Zone 104
- 3B EDG Fuel Oil Day Tank Room Fire Zone 74
- Auxiliary Building Electrical Equipment Room Fire Zone 25
- 3B 4kV Switchgear Room Fire Zone 70

b. Findings

No findings were identified.

## 1R07 Heat Sink Performance

### a. Inspection Scope

The inspectors selected the 3A component cooling water heat exchanger to verify the licensee was performing periodic cleaning and inspections to ensure its tubes remained clear and unobstructed. The inspectors observed portions of the heat exchanger cleaning and inspection performed by the licensee under WO 40295368. The inspectors verified the cleaning and inspection 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-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.

### b. Findings

No findings were identified.

## 1R11 Licensed Operator Requalification Program

### Resident Inspector Quarterly Review

## .1 Simulator Observations

### a. Inspection Scope

The inspectors performed the following two inspection samples of simulator observations and assessed licensed operator performance while training. These observations included procedural use and adherence, response to alarms, communications, command and control, and coordination and control of the reactor plant operations.

On February 6, 2014, the inspectors assessed licensed operator performance in the plant-specific simulator during an emergency preparedness drill scenario. The training scenario was started with the unit at 100 percent power and steady state conditions. Event simulations consisted of damage to an irradiated fuel assembly in the spent fuel pit, a large break loss of coolant accident (LOCA), and anticipated transient without scram (ATWS). Operators responded to the simulation using off-normal procedures 3-ONOP-067, Radioactive Effluent Release, and 3-ONOP-041.4, Excessive Reactor Coolant System Activity. Emergency procedures used by the crew to safely mitigate the events included 3-EOP-E-0, Reactor Trip and 3-EOP-FR-S-1, Response to Nuclear Power Generation ATWS. The inspectors specifically checked that the simulated emergency classifications of Alert and General Emergency were done in accordance with licensee procedure, 0-EPIP-20101, Duties of the Emergency Coordinator.

On March 12, 2014, the inspectors observed and assessed operator training associated with an upcoming refueling outage on Unit 3 scheduled for March 17, 2014. The licensed operators participated in “just in time training” for collapsing a pressurizer bubble and transition to solid pressure control in accordance with procedure 3-NOP-041.02, Pressurizer Operation.

During these simulator observations, the simulator board configurations were compared with actual plant control board configurations concerning recent power up rate 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 TS actions and emergency plan classification and notification
- Crew overall performance and interactions
- Evaluator’s control of the scenario and post scenario evaluation of crew performance

b. Findings

No findings were identified.

.2 Control Room Observations

a. Inspection Scope

The inspectors performed the following focused control room observations and assessed licensed operator performance in the control room. These observations included daily routine surveillance testing, response to alarms, communications, shift turnovers, and coordination of plant activities. These observations were conducted to verify operator compliance with station operating guidelines, such as use of procedures, control and manipulation of components, and communications. On March 5, 2014, the inspectors did a focused observation on Unit 4 consisting of a reactor coolant system primary water dilution per 0-OP-046, Enclosure 6, “Chemical Volume Control System Boron Concentration Control.” Specifically, the inspectors observed the reactor operators performing the pre-job brief per 0-ADM-200, Attachment 7, “Planned Reactivity Manipulations for Maintaining Steady State Plant Conditions” and verified the operators complied with the applicable procedure during the evolution.

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
- Supervision of activities, including risk and reactivity management

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed known equipment problems associated with the 4C component cooling water pump and the R-4-11 containment radiation monitor affecting the maintenance rule program and equipment performance history trends associated with the equipment. The inspectors reviewed the licensee's activities to meet the requirements of 10 CFR 50.65, Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants, and licensee procedure NAP-415, "Maintenance Rule Program Administration." The inspectors focused on maintenance rule 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 verified that equipment problems were being identified and appropriately entered into the licensee's CAP. The inspectors used the licensee maintenance rule data base, system health reports, maintenance rule unavailability status reports, and the CAP as sources of information on tracking and resolution of issues.

- 4C Component Cooling Water Pump Unavailability, AR 01942801
- R-4-11 Containment Radiation Monitor Unavailability, AR 01946565

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors completed in-office reviews and control room inspections of the licensee's risk assessment of four emergent or planned maintenance activities. The inspectors verified the licensee's risk assessment and risk management activities using

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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 3; and procedures 0-ADM-068, "Work Week Management;" WM-AA-1000, "Work Activity Risk Management;" and O-ADM-225, "On Line Risk Assessment and Management." The inspectors also reviewed the effectiveness of the licensee's contingency actions to mitigate increased risk resulting from the 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 four risk assessments during the inspection period:

- 3B Intake Cooling Water (ICW) pump, 4A High Head Safety Injection (HHSI) pump, and Auxiliary Feed Water (AFW) Train 2 OOS
- 3A Component Cooling Water (CCW) Heat Exchanger, 3B CCW Pump, and 3C Coolant Charging Pump OOS
- 4B CCW Pump, 4C Coolant Charging Pump, A Standby Steam Generator Feed Pump, and 4C CCW Heat Exchanger OOS
- C AFW Pump, B Standby Steam Generator Feed Pump, Unit 3 RWST OOS

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments

a. Inspection Scope

The inspectors evaluated the technical adequacy of licensee 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 five operability evaluations described in the ARs listed below. The inspectors reviewed applicable sections of the UFSAR to determine if the system or component remained available to perform its intended function. In addition, when applicable, the inspectors reviewed compensatory measures implemented to verify that the affected equipment remained capable of performing its design function. The inspectors also reviewed a sampling of condition reports to verify that the licensee was routinely identifying and correcting any deficiencies associated with operability evaluations.

- AR 1931750, Missed Technical Specification Surveillances
- AR 1931761, Unit 4 CCW Piping Failure
- AR 1933512, 3D Inverter Swapped Leads
- AR 1940683, Uncertainty Calculation for BAST Level
- AR 1930745, PT-3-495 Found Out of Calibration During 3-SMI-072.2

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b. Findings

No findings were identified.

1R18 Plant ModificationsTemporary Plant Modificationsa. Inspection Scope

The inspectors reviewed a temporary plant modification technical evaluation for leaving a robot in the containment building 14 foot elevation while at full power. The robot became stuck when one of its tracks became dislodged from its wheels while being used in an attempt to identify secondary plant leakage inside the containment bio-wall. 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 and UFSAR documents impacted by this modification and discussed the changes with licensee personnel to verify that the installation was consistent with the modification documents. The inspectors reviewed photographs of the robot location to determine if conditions resulted in any potential unsafe conditions not described in the engineering change documentation. Additionally, the inspectors verified that problems associated with modifications were being identified and entered into the CAP.

- EC 281021, Irretrievable Robot in U4 Containment

b. Findings

No findings were identified.

1R19 Post Maintenance Testinga. Inspection Scope

For the five post maintenance tests and associated work orders (WO) 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 0-ADM-737, "Post Maintenance Testing," were incorporated into the test requirements. The inspectors reviewed the following WOs consisting of three inspection samples:

- WO 40166635, 3A EDG on line maintenance
- WO 40288777, Unit 4 RV-4-747B pipe repair
- WO 40296179, 4B component cooling water pump realignment
- WO 40297152, Unit 4 N-4-41 trouble shooting
- WO 40067989, Unit 3 MOV-3-843A MOV maintenance

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b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities

Unit 3 Refueling Outage PT3-27

a. Inspection Scope

Outage Planning, Control and Risk Assessment

During daily outage planning activities by the licensee, the inspectors reviewed the risk reduction methodology employed by the licensee during various refueling outage (RFO) PT3-27 meetings including outage control center (OCC) morning meetings, operations daily team meetings, and schedule performance update meetings. The inspectors examined the licensee implementation of shutdown safety assessments during PT3-27 in accordance with administrative procedure ADM-51, "Outage Risk Assessment and Control," to verify if a defense in depth concept was in place to ensure safe operations and avoid unnecessary risk. In addition, the inspectors regularly monitored outage planning and control activities in the OCC, and interviewed responsible OCC management personnel during the outage to ensure system, structure, and component configurations, and work scope were consistent with TS requirements, site procedures, and outage risk controls.

Shutdown, Cooldown, and Transition to Mode 5 Activities

The inspectors observed selected Unit 3 shutdown, cooldown, and mode transition activities starting on March 17, 2014. The inspectors verified that activities were performed in accordance with the outage plan and associated plant procedures. The inspectors evaluated specific performance attributes including operator performance, communications, and risk management. The inspectors evaluated the following activities:

- Monitored decay heat removal system performance, lineups, and cooldown rates.
- Verified that the plant cooldown was conducted in accordance with licensee procedure 3-OSP-041.7, Reactor Coolant System Heatup and Cooldown Temperature Verification

Monitoring of Shutdown Activities

The inspectors performed walkdowns of important systems and components used for decay heat removal from the spent fuel pool during the shutdown period including the intake cooling water system, component cooling water system, and spent fuel pool cooling system.

### Outage Activities

The inspectors examined outage activities to verify that they were conducted in accordance with TS, licensee procedures, and the licensee's outage risk control plan. Some of the more significant inspection activities accomplished by the inspectors were as follows:

- Walked down selected safety-related equipment clearance orders
- Verified operability of reactor coolant system 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
- Examined foreign material exclusion (FME) controls put in place inside containment (e.g., around the refueling cavity, near sensitive equipment and RCS breaches) and around the spent fuel pool (SFP)
- Verified workers fatigue rule was properly managed

### Refueling Activities and Containment Closure

The inspectors witnessed selected fuel handling operations being performed in accordance with TS and applicable operating procedures from the main control room, refueling cavity inside containment, and the spent fuel pool bridge. 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 2-MMP-68.02, Containment Closure.

### Corrective Action Program

The inspectors reviewed ARs generated during PT3-27 to evaluate the licensee's threshold for initiating ARs. The inspectors reviewed CRs 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 (QA) daily surveillances of outage activities.

b. Findings

No findings were identified.

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## 1R22 Surveillance Testing

### a. Inspection Scope

The inspectors either reviewed or observed the following five 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 surveillance issues were documented in the licensee's CAP. The inspectors reviewed the following tests:

#### Surveillance Test:

- 3-OSP-023.1, 3A EDG monthly test
- 4-OSP-059.1, Unit 4 quadrant power tilt ratio (QPTR)
- 4-OSP-023.1, 4B EDG monthly test

#### In-Service Tests:

- 4-OSP-055.1, 4C emergency containment cooler (ECC) quarterly valve in-service test (IST)

#### RCS Leak Detection Test:

- 3-OSP-041.1, Unit 3 reactor coolant system leak rate calculation

### b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness (EP)

## 1EP2 Alert and Notification System Evaluation

### a. Inspection Scope

The inspectors evaluated the adequacy of the licensee's methods for testing the alert and notification system in accordance with NRC Inspection Procedure 71114, Attachment 02, Alert and Notification System (ANS) Testing. The applicable planning standard, 10 CFR Part 50.47(b)(5) and its related 10 CFR Part 50, Appendix E, Section IV.D requirements were used as reference criteria. The criteria contained in NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Revision 1, were also used as a reference.

The inspectors reviewed various documents which are listed in the Attachment. Inspectors interviewed personnel involved with siren system maintenance and observed annual siren maintenance field activities. This inspection activity satisfied one inspection sample for the alert and notification system on a biennial basis.

b. Findings

No findings were identified.

1EP3 Emergency Preparedness Organization Staffing and Augmentation System

a. Inspection Scope

The inspectors reviewed the licensee's Emergency Response Organization (ERO) augmentation staffing requirements and process for notifying the ERO to ensure the readiness of key staff for responding to an event and timely facility activation. The qualification records of key position ERO personnel were reviewed to ensure all ERO qualifications were current. A sample of problems identified from augmentation drills or system tests performed since the last inspection was reviewed to assess the effectiveness of corrective actions.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 03, Emergency Preparedness Organization Staffing and Augmentation System. The applicable planning standard, 10 CFR 50.47(b)(2), and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the ERO staffing and augmentation system on a biennial basis.

b. Findings

No findings were identified.

1EP4 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

Since the last NRC inspection of this program area, no changes have been made to the Radiological Emergency Plan or Emergency Action Levels. The licensee did make several changes to emergency plan implementing procedures and determined that, in accordance with 10 CFR 50.54(q), the changes made in these revisions resulted in no reduction in the effectiveness of the Plan, and that the Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The inspectors conducted a sampling of the implementing procedure changes made between September 1, 2013, and January 15, 2014, to evaluate for potential reductions in the

effectiveness of the Plan. However, this review was not documented in a Safety Evaluation Report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 04, Emergency Action Level and Emergency Plan Changes. The applicable planning standards of 10 CFR 50.47(b), and its related requirements in 10 CFR 50, Appendix E, were used as reference criteria.

The inspectors reviewed various documents that are listed in the Attachment to this report. This inspection activity satisfied one inspection sample for the emergency action level and emergency plan changes on an annual basis.

b. Findings

No findings were identified.

1EP5 Maintenance of Emergency Preparedness

a. Inspection Scope

The inspectors reviewed the corrective actions identified through the Emergency Preparedness program to determine the significance of the issues, the completeness and effectiveness of corrective actions, and to determine if issues were recurring. The licensee's post-event action reports, self-assessments, and audits were reviewed to assess the licensee's ability to be self-critical, thus avoiding complacency and degradation of their emergency preparedness program. Inspectors reviewed the licensee's 10 CFR 50.54(q) change process, personnel training, and selected screenings and evaluations to assess adequacy. The inspectors toured facilities and reviewed equipment and facility maintenance records to assess licensee's adequacy in maintaining them. The inspectors evaluated the capabilities of selected radiation monitoring instrumentation to adequately support Emergency Action Level (EAL) declarations.

The inspection was conducted in accordance with NRC Inspection Procedure 71114.05, Maintenance of Emergency Preparedness. The applicable planning standards, related 10 CFR 50, Appendix E requirements, and 10 CFR 50.54(q) and (t) were used as reference criteria.

The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the maintenance of emergency preparedness on a biennial basis.

## 1EP6 Drill Evaluation

### Emergency Preparedness Drill

#### a. Inspection Scope

On February 6, 2014, the inspectors observed an emergency preparedness drill and the performance of the licensee's emergency response organization. The drill included a simulated damaged irradiated fuel assembly in the spent fuel pit of Unit 3, a failed steam pressure transmitter resulting in a transient that resulting in a fuel barrier failure. The fuel barrier failure required a site area emergency declaration and notification to state and local county officials, and the NRC per licensee procedure 0-EPIP-20101, Duties of the Emergency Coordinator. The scenario progressed to the loss of the reactor coolant pressure boundary barrier after a large break loss of coolant accident occurred requiring a general emergency declaration and an additional notification. The inspectors observed the crew in the plant simulator including simulated implementation of emergency procedures. The inspectors observed the emergency response organization staff in the technical support center (TSC) and emergency operations facility (EOF) while they implemented the event classification guidelines and emergency response procedures. The inspectors determined that the emergency classification and notifications were made in accordance with the licensee emergency plan implementing procedure 0-EPIP-20101. The inspectors attended the licensee's post drill critique, reviewed the licensee's critique items, and discussed inspector observations with the licensee to verify that drill issues were identified and captured in the licensee's corrective action program.

#### b. Findings

No findings were identified.

## 4. OTHER ACTIVITIES

### 4OA1 Performance Indicator Verification (IP 71151)

#### .1 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, 2013, through December 31, 2013, 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.

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- 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

b. Findings

No findings were identified.

.2 Emergency Preparedness Cornerstone

a. Inspection Scope

The inspectors sampled licensee submittals relative to the PIs listed below for the period April 1, 2013, through September 30, 2013. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used to confirm the reporting basis for each data element.

- Emergency Response Organization (ERO) Drill/Exercise Performance
- ERO Drill Participation
- Alert and Notification System Reliability

For the specified review period, the inspectors examined data reported to the NRC, procedural guidance for reporting PI information, and records used by the licensee to identify potential PI occurrences. The inspectors verified the accuracy of the PI for ERO drill and exercise performance through review of a sample of drill and event records. The inspectors reviewed selected training records to verify the accuracy of the PI for ERO drill participation for personnel assigned to key positions in the ERO. The inspectors verified the accuracy of the PI for alert and notification system reliability through review of a sample of the licensee's records of periodic system tests. The inspectors also interviewed the licensee personnel who were responsible for collecting and evaluating the PI data. Licensee procedures, records, and other documents reviewed within this inspection area are listed in the Attachment. This inspection satisfied three inspection samples for PI verification on an annual basis.

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 corrective action program. 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. Documents reviewed are listed in the Attachment.

###### b. Findings

No findings were identified.

##### .2 Annual Sample: Root Cause Evaluation Associated With Component Cooling Water to Residual Heat Removal Weld Leak on Piping for RV-4-747B

###### a. Inspection Scope

The inspectors selected the root cause evaluation for AR 01931761, "CCW Pipe Leak Upstream of RV-4-747B, 4B RHR Heat Exchanger Return Relief Valve," for a more in-depth review of the circumstances and the corrective actions that followed. The root cause report was reviewed to ensure that an appropriate evaluation was performed and corrective actions were specified and prioritized in accordance with the licensee's program. Other attributes checked included disposition of operability and resolution of the problem including cause determination and corrective actions. The inspectors evaluated the condition report in accordance with the requirements of the licensee's corrective actions process as specified in licensee's procedures PI-AA-204, Condition Identification and Screening Process, and PI-AA-205, Condition Evaluation and Corrective Action.

###### b. Findings and Observations

Introduction: A Green self-revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, was identified when the licensee failed to implement corrective actions that addressed the low stress high cycle fatigue of component cooling water (CCW) relief valve RV-4-747B piping caused by flow induced vibration. As a result, CCW system flow induced vibration resulted in weld cracks and system pressure boundary leakage in January 2014.

Description: On November 18, 2012, plant personnel identified a weld leak of 5 to 10 drops per minute at the relief valve RV-4-747B piping branch connection on the 16 inch CCW piping. This leak was at the same location where the weld had been previously repaired in November 2011. The licensee entered the leak into the CAP as AR 1824939

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and performed an apparent cause evaluation which concluded that there was significant movement of the Unit 4 CCW relief valve RV-4-747B piping while residual heat removal (RHR) was in service. Failure of the weld was due to low stress high cycle fatigue caused by flow induced vibration. In February 2013, the licensee repaired the branch connection weld leak while Unit 4 was in a refueling outage. A corrective action was assigned to engineering to evaluate the need for pipe supports to reduce the effects from the flow induced vibration on the piping. A pipe support was installed in June 2013 at RV-4-747B under engineering change (EC) 278231; however, the analysis used to design the support did not validate the effectiveness of the support to reduce vibration effects to an acceptable level. On January 8, 2014, plant operations identified a 0.0024 gallon per minute leak on the toe of the weld on the half coupling connection between the 1 inch piping upstream of RV-4-747B and 16 inch CCW discharge pipe of the 4B RHR heat exchanger. This leak location was in the same location as the previous leaks identified in 2011 and 2012. The licensee entered the leak into the CAP as AR 1931761 and performed a root cause evaluation which concluded the failure mechanism of the cracked weld was the same as the previous weld failure in 2012 and 2011 which was low stress high cycle fatigue. The cause of the fatigue was determined to be elevated system pressure transients during pump in-service tests combined with potentially degraded relief valve operation which resulted in excessive vibration in the 1 inch relief valve inlet line.

Analysis: The failure to implement corrective actions that reduced low stress high cycle fatigue of CCW relief valve RV-4-747B piping caused by flow induced vibration was a performance deficiency. The performance deficiency was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to implement adequate corrective actions to address CCW system flow induced vibration resulted in weld cracks and CCW system pressure boundary leakage in January 2014. The finding was screened using Exhibit 1, Mitigating Systems Screening Questions, found in Inspection Manual Chapter 0609, Significance Determination Process, Appendix A, Significance Determination Process for Findings At-Power (June 19, 2012). The inspectors determined the finding was of very low safety significance (Green) because the finding did not affect design or qualification, did not represent a loss of system function, and did not represent an actual loss of function of a technical specification train of equipment. The finding was associated with a cross-cutting aspect in the evaluation component of the problem identification and resolution area because the licensee did not thoroughly evaluate issues and corrective actions from previous weld failures on CCW system RV-4-747B piping caused by flow induced vibration (P.2).

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, requires in part that measures shall be established to assure conditions adverse to quality are promptly identified and corrected. Contrary to the above, in November 2011 and November 2012, the licensee identified that the 4B CCW relief valve piping to the 4B RHR heat exchanger experienced system pressure boundary leakage due to low stress high cycle fatigue caused by flow induced vibration on the line, but failed to implement corrective actions that addressed the flow induced vibration. The failure to correct the flow induced

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vibration resulted in a weld failure in the CCW relief valve piping in January 2014. The licensee repaired the weld failures, implemented special instructions to minimize the time that split header operation was performed, and developed a plan to replace the existing relief valve with an orifice or alternate relief valve. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy, because it was of very low safety significance and was entered in the licensee's corrective action program as AR 1931761 to address recurrence. (NCV 05000251/2014002-01 Failure to Take Adequate Corrective Actions to Correct Flow Induced Vibration Leads to CCW Piping Weld Failure).

.3 Annual Sample: Root Cause Evaluation Associated with PT-3-495 Out of Calibration

a. Inspection Scope

The inspectors selected root cause evaluation for AR 01930745, "PT-3-495 found out of calibration during 3-SMI-072.02," for a more in-depth review of the circumstances and the corrective actions that followed. The root cause report was reviewed to ensure that an appropriate evaluation was performed and corrective actions were specified and prioritized in accordance with the licensee's program. Other attributes checked included disposition of operability and resolution of the problem including cause determination and corrective actions. The inspectors evaluated the condition report in accordance with the requirements of the licensee's corrective actions process as specified in licensee's procedures PI-AA-204, Condition Identification and Screening Process, and PI-AA-205, Condition Evaluation and Corrective Action.

b. Findings and Observations

Introduction: A Green self-revealing non-cited violation (NCV) of TS Section 3.3.2, "Engineered Safety Features Actuation Instrumentation," (ESF) was identified when the licensee failed to perform the channel calibration of Unit 3 ESF steam pressure protection channel III within the required 18-month frequency. When the surveillance was performed, the licensee determined that steam generator pressure transmitter PT-3-495 needed to be replaced due to excessive drift. The licensee considered PT-3-495 to have been inoperable for approximately 10 months going back to the original due date of the channel calibration.

Description: On December 13, 2013, during the performance of a functionality review for an unrelated issue, it became readily apparent to the licensee that channel calibration procedure 3-SMI-072.2, "P-3-466, P-3-475, P-3-485, and P-3-495 Steam Pressure Channel Calibration, Protection Channels," had not been performed for approximately 31 months. Technical Specification 3.3.2 and Table 4.3-2 required that a channel calibration be performed on channels with input to ESF every 18 months. On April 15, 2013, during the Unit 3 extended power uprate (EPU) outage, the licensee credited completion of the Unit 3 main steam line pressure transmitter channel calibration for P-3-495 in the surveillance tracking program (STP) in error. The licensee normally tracked completion of TS surveillance requirements by completion of dedicated work orders, but in this case a partial performance of the channel calibration was imbedded in a larger work order. On discovery of the missed channel calibration, the licensee applied the

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provision of TS 4.0.3 for a missed TS surveillance test of P-3-495. Accordingly, the licensee performed a risk evaluation which determined that completion of the surveillance could be delayed up to the specified 18-month surveillance interval for the test without a significant increase in risk to the plant. In October 2013, the licensee performed 'loss of fill oil' preventive maintenance (PM) check 003PM095033, "U3 Rosemount Transmitter Surveillance Program," for P-3-495 and identified that the transmitter needed to be calibrated or replaced as soon as possible based on increasing drift. The licensee generated an AR to track replacement of the transmitter, but the AR was canceled and scheduled by maintenance to be replaced the next time the instrument was removed from service. The inspectors observed that the licensee's missed surveillance risk evaluation for P-3-495 did not consider the degradation identified during this October PM task. On January 3, 2014, while performing 3-SMI-072.2 for Unit 3 steam break protection channel III, main steam line pressure transmitter PT-3-495 was found outside of the procedural acceptance criteria due to pressure transmitter drift. Transmitter PT-3-495 provides the 'C' steam generator channel III pressure signal used for the ESF steam line isolation signal to mitigate a steam break design basis accident. Transmitter PT-3-495 was replaced, calibrated successfully, and returned to service on January 4, 2014. The licensee determined that the transmitter and associated instrument channel were inoperable from March 9, 2013 (the time of the due date for the missed surveillance), until the date of repair. The licensee concluded that the overall ESF steam pressure protection signal was operable since both redundant steam pressure protection channels II and IV remained available and were demonstrated to be operable by the successful performance of their respective surveillances. During the period of inoperability, the instrument channel associated with PT-3-495, Channel III remained in service and exceeded the allowed outage time of 6 hours to place the channel in the tripped condition and the shutdown actions of TS 3.0.3 were not entered. As a result, the licensee submitted LER 05000250/2014-001-00 in accordance with 10CFR50.73(a)(2)(i)(B) as a condition prohibited by TS. The inspectors determined that the issue was self-revealing because the condition became readily apparent to the licensee during the performance of a functionality review for an unrelated issue. Additionally, the inspectors concluded that the licensee had missed an opportunity to address degradation of the instrument following the completion of the October 2013 PM.

The licensee's root cause evaluation (RCE) determined the cause of this event to be the deviation from the normal process of using a dedicated work order (WO) to satisfy surveillance requirements. This created a situation where there was no second verifier to ensure that surveillance test requirements had been satisfactorily completed. This issue was placed in the licensee's CAP as AR 1938191. Corrective actions completed (or planned) included: (1) replacing PT-3-495, (2) performing an extent of condition on all other work orders completed during the extended power uprate (EPU) outage to ensure TS compliance and (3) revising the surveillance tracking program procedure to verify that a surveillance test has been completed when crediting non-dedicated work orders.

Analysis: The failure to perform the channel calibrations associated with 3-SMI-072.2 within the 18-month TS requirement was a performance deficiency. The performance deficiency was more than minor because it was associated with the human performance

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attribute of the mitigating systems cornerstone and affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to perform the channel calibration surveillance test procedure for transmitter PT-3-495 within the 18-month required frequency resulted in 10 months of channel inoperability. The finding was screened using Exhibit 1, Mitigating Systems Screening Questions, found in Inspection Manual Chapter 0609, Significance Determination Process, Appendix A, Significance Determination Process for Findings At-Power (June 19, 2012). The inspectors determined the finding was of very low safety significance (Green) because the finding did not affect design or qualification, did not represent a loss of system function, and did not represent an actual loss of function of a TS train of equipment. The finding was associated with a cross-cutting aspect in the work management component of the human performance area because the licensee failed to implement their process for planning, controlling, and executing required surveillance tests (H.5).

Enforcement: Turkey Point Nuclear Plant Unit 3 TS surveillance requirement 3.3.2, "Engineered Safety Features Actuation Instrumentation," Table 4.3-2 requires in part that instrument operability be demonstrated by successful completion of a channel calibration of the ESF steam line pressure protection channel every 18 months. If the instrument channel is determined to be inoperable, TS 3.3.2 allows continued operation until the next required performance of the analog channel operational test provided that the inoperable channel is placed in trip within six hours. Contrary to the above, from April 25, 2011, to January 3, 2014, Turkey Point failed to perform the required channel calibration of Unit 3 steam line protection channel III, and failed to perform the required actions of TS LCO 3.3.2 when operability was no longer supported on March 9, 2013. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. The violation was entered into the licensee's CAP as AR 1938191 (NCV 05000250/2014002-02 TS Channel Calibration of ESF Steam Line Protection Channel III Not Performed).

#### 4OA3 Follow-up of Events and Notice of Enforcement Discretion (IP 71153)

##### .1 (Closed) Licensee Event Report (LER) 05000250/2013-009-00, Loose Breaker Control Power Fuse Holder Caused 3B ICW Pump to be Inoperable Longer than Allowed Outage Time

###### a. Inspection Scope

The LER documented that the 3B Intake Cooling Water (ICW) pump was inoperable for a period of time that was greater than allowed by TS. The licensee determined that the total OOS time for the 3B ICW pump was 4 days which exceeded the TS allowed outage time of 72 hours.

The inspectors reviewed the LER and the associated corrective action document (AR 1929130) to verify the accuracy and completeness of the LER and the appropriateness of the licensee's corrective actions. The inspectors also reviewed the LER and AR to identify any licensee performance deficiencies associated with the issue.

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b. Findings

On September 28, 2013, while Unit 3 was in Mode 1, operators discovered that power to the 3B intake cooling water (ICW) pump breaker closing circuit and charging springs was lost. The under current (UC) fuse holder was noted to be slightly backed out and not firmly in place which resulted in the loss of breaker control power. Control power was restored after the fuse holder was pressed back in place on September 29, 2013. The licensee performed an investigation that determined that the 3B ICW pump had been inoperable for approximately four days (the time the pump was last started until the fuse holder was fully re-inserted), which was longer than the allowed TS 3.7.3, "Intake Cooling Water System," outage time of 72 hours. Although operators performed a daily verification that the breaker control power available white indicating light was lit on the breaker cubicle, the licensee determined that reasonable assurance could not be established that the fuses had enough contact with the base to ensure power to the closing spring even though the white control power light was lit. Therefore, the licensee concluded that the 3B ICW pump was inoperable for four days prior to discovery of the fuse holder condition. The inspectors determined the ICW system would have been able to perform its function even with the 3B ICW pump inoperable. The 3A and 3C ICW pumps were available and only one ICW pump is needed to remove design basis heat loads. Based on the availability of the ICW system to perform its heat removal function; and the relatively short duration of the condition prior to its discovery on September 28, the inspectors concluded that the event was of very low safety significance.

The inspectors determined that a violation of TS limiting condition for operation (LCO) 3.7.3, "Intake Cooling Water System," occurred since Unit 3 was in Mode 1 and the 3B ICW pump was not returned to an operable status within 72 hours or the unit shut down and placed in hot standby within the next six hours. Although a violation of the TS LCO occurred, the violation was not attributable to an equipment failure that was avoidable by reasonable licensee quality assurance measures or management controls. The inspectors concluded that the violation would normally be characterized as Severity Level IV based on its very low safety significance. The NRC exercised enforcement discretion (Enforcement Action (EA)-14-058) in accordance with Section 2.2.4.d of the Enforcement Policy because the violation was not associated with a licensee performance deficiency; and therefore, it will not be considered in the assessment process or the NRC's Action Matrix. This issue is documented in the licensee's CAP as AR 1929130. Corrective actions included an investigation of the material condition of the fuse holder and base assembly, and a revision to the breaker operation procedure to include additional guidance on validating proper installation of the fuse holder when racking in a four kilovolt breaker. The LER is closed.

.2 (Closed) LER 05000250/2013-008-00, Through-Wall Leak in 3A CCW Pump Threaded Fitting Caused Pump to be Inoperable Longer than Allowed Outage Time

a. Inspection Scope

The LER documented that the 3A component cooling water (CCW) pump was inoperable for a period of time that was greater than allowed by TS. The licensee

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determined that the total out of service time for the 3A CCW pump was 12 days which exceeded the TS allowed outage time of 72 hours.

The inspectors reviewed the LER and the associated corrective action documents (AR 1880602 and 1880576) to verify the accuracy and completeness of the LER and the appropriateness of the licensee's corrective actions. The inspectors also reviewed the LER and ARs to identify any licensee performance deficiencies associated with the issue.

b. Findings

On June 7, 2013, Unit 3 was at 100 percent reactor power when the licensee identified a small leak of approximately 100 drops per minute at a threaded pipe connection on the 3A component cooling water pump casing. The licensee considered the pump to be operable because the leakage was within the make-up capacity of the CCW filling system. On June 19, the small leak had worsened to a steady stream of water and the pump was declared inoperable and taken out of service for repair. Upon removal and examination of the pipe, the licensee determined the pipe had a through-wall crack requiring replacement. The licensee's root cause analysis for the piping failure was documented in action request 1880602 and was previously reviewed by the inspectors. The inspectors determined that the licensee had failed to identify and correct a flaw that resulted in through-wall pressure boundary leakage. The enforcement aspects of that issue were documented in NRC inspection report 2013003 (ADAMS accession number ML13211A151).

Based on information gained from forensic examination of the failed pipe, the licensee determined that the pump would have been inoperable from the time the leak first became apparent on June 7, 2013. Although the pipe flaw size did not exceed acceptance criteria and the 3A CCW pump remained capable of performing its function, the licensee could not establish a reasonable degree of assurance that the flaw would not have increased in size during the mission time of the pump. TS limiting condition of operation (LCO) 3.7.2, "Component Cooling Water," requires three CCW pumps be operable in Modes 1 through 4, and with one inoperable pump, the two remaining pumps must be powered from independent power supplies within 72 hours or the unit shut down and placed in hot standby within six hours. Contrary to this requirement, the operable 3B and 3C CCW pumps were powered from the 3B safety related electrical bus for approximately 12 days with the 3A CCW pump in an inoperable condition. The inspectors utilized available risk-informed tools to assess the safety significance of the 3A CCW pump inoperability. Based on the availability of the 3B and 3C CCW pumps and the relatively short amount of time that the 3A CCW pump would have been considered inoperable, the inspectors concluded this event was of very low safety significance.

The inspectors determined in this case that there was no performance deficiency associated with the TS violation because the licensee monitored the leak for degradation and took action to declare the pump inoperable when it worsened. Additionally, the information obtained from forensic examination of the pipe flaw to assess the historical operability of the pump was not available to the licensee until after the condition had

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been repaired. The inspectors concluded that the violation would normally be characterized as Severity Level IV based on its very low safety significance. Although a violation of TS occurred, the violation was not attributable to an equipment failure that was avoidable by reasonable licensee quality assurance measures or management controls. The NRC exercised enforcement discretion (EA-14-058) in accordance with Section 2.2.4.d of the Enforcement Policy because the violation was not associated with a licensee performance deficiency. Therefore, it will not be considered in the assessment process or the NRC's Action Matrix. This violation was documented in the licensee's CAP as AR 1883690. Licensee corrective actions included: (1) replacement of the leaking pipe on 3A CCW pump, (2) evaluations to replace similar CCW pump casing schedule 40 pipe nipples with schedule 80 and, (3) formal evaluations of existing leaks at threaded connections on Class 1, 2, and 3 systems to consider the potential for through-wall flaws. The LER is closed.

.3 (Closed) LER 05000250/2014-001-00, Missed Surveillance Test Resulted in a Steam Generator Pressure Instrument Channel to be Inoperable Longer than Allowed Outage Time

On January 3, 2014, Unit 3 was in Mode 1 at 100 percent reactor power when the instrument channel associated with Main Steam Line Pressure Transmitter PT-3-495 was found outside procedural acceptance criteria due to pressure transmitter (PT) drift. The surveillance for this instrument was considered a missed surveillance at the time of performance since it had not been completed for approximately 32 months and it had an 18-month TS requirement. The channel associated with PT-3-495 was considered inoperable from the time of replacement, January 3, 2014, back to the due date of the missed surveillance, March 9, 2013. PT-3-495 was replaced, calibrated successfully, and returned to service on January 4, 2014. The licensee determined the root cause of the event to be the deviation from the normal process of using a dedicated work order (WO) to satisfy surveillance requirements. Corrective actions included replacing PT-3-495, performing an extent of condition on all other work orders completed during the extended power uprate (EPU) outage to ensure TS compliance, and revising the surveillance tracking program procedure to verify that a surveillance test has been completed when crediting non-dedicated work orders. This event was associated with a violation of very low safety significance. The enforcement aspects associated with this LER are discussed in Section 4OA2 of this report. The LER is closed.

4OA5 Other Activities

.1 (Closed) Temporary Instruction 2515/182 – Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks

a. Inspection Scope

The inspectors conducted a review of records and procedures related to the licensee's program for buried piping and underground piping and tanks in accordance with Phase II of Temporary Instruction (TI) 2515-182 to confirm that the licensee's program contained attributes consistent with Sections 3.3.A and 3.3.B of Nuclear Energy Institute (NEI) 09-14, "Guideline for the Management of Buried Piping Integrity,"

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Revision 3, and to confirm that these attributes were scheduled to be completed by the NEI 09-14, Revision 3, deadlines. The inspectors interviewed licensee staff responsible for the buried piping program and reviewed activities related to the buried piping program to determine if the program was managed in a manner consistent with the industry's buried piping initiative.

The licensee's buried piping and underground piping and tanks program was inspected in accordance with paragraph 03.02.a of the TI and it was confirmed that activities which correspond to completion dates specified in the program which have passed since the Phase I inspection was conducted, have been completed. The licensee's buried piping and underground piping and tanks program was inspected in accordance with paragraph 03.02.b of the TI and responses to specific questions found in <http://www.nrc.gov/reactors/operating/ops-experience/buried-pipe-ti-phase-2-insp-req-2011-11-16.pdf> were submitted to the NRC headquarters staff.

b. Findings

No findings were identified. Based upon the scope of the review described above, Phase II of TI-2515/182 was completed.

.2 Cross-Cutting Aspect Cross-Reference

The table below provides a cross-reference from the 2013 third and fourth quarter findings and associated cross-cutting aspects to the new cross-cutting aspects resulting from the common language initiative. These aspects and any others identified since January 2014 will be evaluated for cross-cutting themes and potential substantive cross-cutting issues in accordance with Inspection Manual Chapter (IMC) 0305 starting with the 2014 mid-cycle assessment review.

Finding	Old Cross-Cutting Aspect	New Cross-Cutting Aspect
05000250/2013004-01	H.2(c)	H.7
05000250/2013004-02	H.4(c)	H.2
05000250/2013004-03	H.3(a)	H.5
05000251/2013004-04	H.4(b)	H.8
05000250/2013004-05	H.2(c)	H.7
05000251/2013005-01	H.3(a)	H.5

4OA6 Meetings

The resident inspectors presented the inspection results to Mr. Kiley and other members of licensee management on April 10, 2014. 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.

ATTACHMENT: SUPPLEMENTAL INFORMATION

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## KEY POINTS OF CONTACT

### Licensee Personnel:

F. Banks, Quality Manager  
H. Benitez, PTN Engineering – Underground Piping Program Manager  
G. Bowen, EP staff  
C. Cashwell, Radiation Protection Manager  
T. Conboy, Plant General Manager  
P. Czaya, Licensing  
D. Dell, EP Staff  
C. Domingos, Engineering Director  
M. Downs, EP staff  
T. Eck, Security Manager  
K. Ellmers, Sr. Siren Technician  
M. Epstein, Emergency Preparedness Manager  
D. Funk, Operations Manager  
O. Hanek, Licensing Engineer  
M. Jones, System Engineering Manager  
M. Katz, Maintenance Manager  
M. Kiley, Site Vice-President  
S. Mihalakea, Licensing  
D. Mothena, Emergency Preparedness Corporate Functional Area Manager  
N. Rios, Chemistry Manager  
D. Sluzka, Work Controls Manager  
B. Stamp, Training Manager  
R. Tomonto, Licensing Manager  
M. Wayland, Operations Director  
J. Wingate, EP staff

### NRC Personnel:

C. Evans, Region II Legal Counsel and Enforcement Officer  
J. Hanna, Senior Risk Analyst, Division of Reactor Safety  
S. Sandal, Senior Project Engineer  
T. Su, Reactor Engineer

## LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

### Opened and Closed

05000250/2014002-01	NCV	Failure to Take Adequate Corrective Actions to Correct Flow Induced Vibration Leads to CCW Piping Weld Failures. (Section 4OA2.2)
05000250/2014002-02	NCV	TS Channel Calibration of ESF Steam Line Protection Channel III Not Performed (Section 4OA2.3)

Attachment

Closed

05000250/2013-009-00	LER	Loose Breaker Control Power Fuse Holder Caused 3B ICW Pump to be Inoperable Longer than Allowed Outage Time (Section 4OA3.1)
05000250/2013-008-00	LER	Through-Wall Leak in 3A CCW Pump Threaded Fitting Caused Pump to be Inoperable Longer than Allowed Outage Time (Section 4OA3.2)
05000250/2014-001-00	LER	Missed Surveillance Test Resulted in a Steam Generator Pressure Instrument Channel to be Inoperable Longer than Allowed Outage Time (Section 4OA3.3)
05000250, 251/2515/182	TI	Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks (Section 4OA5.1)

**LIST OF DOCUMENTS REVIEWED**Action Requests:

01939933	01946565	01939548
01944754	01946589	01933839
01940963	01942544	01938704
01941033	01942618	01945528
01944767	01946385	01938123
01947210	01945663	01937543
01947219	01945746	01937722
01947489	01947747	01935879
01946040	01947063	01935975
01946270	01947139	01936028
01946324	01946076	01933286
01946524	01946078	01933231
01946660	01946217	01932528
01945718	01946225	01942421
01945773	01946303	
01945968	01942398	



**Section 1R04: Equipment Alignment**

P&ID 5610-M-3075, Auxiliary Feedwater (AFW) System Turbine Drive for AFW Pumps  
 Turkey Point System Description 117, Auxiliary Feedwater System  
 P&ID 5613-M-3022, Emergency Diesel Engine and Oil System  
 3-OP-023, Emergency Diesel Generator  
 3-NOP-022, Emergency Diesel Generator Fuel Oil System  
 4-OSP-075.5, Auxiliary Feedwater System Flow Path Verification  
 3-OSP-075.5, Auxiliary Feedwater System Flow Path Verification  
 P&ID 5613-M-3062, Safety Injection System

**Section 1R05: Fire Protection**

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

**Section 1R06: Flood Protection Measures**

Drawing 5610-C-1695, Network of Barriers for External Flood Protection  
 0-SMM-102.1, Flood Protection Stop Log and Penetration Seal Inspection

**Section 1R15: Operability Evaluations**

EN-AA-203-1001, Operability Determinations and Assessments  
 0-ADM-226, Operability Screening and Condition Reports  
 0-ADM-213, Technical Specification Related Equipment Out of Service Logbook

**Section 1R18: Plant Modifications**

0-ADM-009, Containment Closeout Inspection

**Section 1R19: Post Maintenance Testing**

0-ADM-737, Post Maintenance Testing  
 4-SMI-059.08A, Power Range Nuclear Instrumentation Protection Channel N-4-41 Calibration  
 0-CMP-102.01, Troubleshooting and Repair Guidelines  
 0-CMI-059.10, Excore Neutron Detector Post Installation Inspection and Testing

**Section 1R20: Refueling and Other Outage Activities**

3-GOP-103, Power Operation to Hot Standby  
 3-GOP-305, Hot Standby to Cold Shutdown  
 3-OSP-041.7, Reactor Coolant System Heatup and Cooldown Temperature Verification  
 0-NOP-038.10, Manipulator Crane Operating Instruction  
 3-NOP-38.23, Fuel Transfer System Operations  
 3-NOP-040.02, Refueling Core Shuffle  
 0-ADM-035, Limitations and Precautions for Handling Fuel Assemblies  
 MA-AA-101-1000, Foreign Material Exclusion Procedure  
 3-OP-038.1, Preparation of Refueling Activities

**Section 1EP2: Alert and Notification System Evaluation****Procedures and Reports**

Turkey Point Radiological Emergency Plan, Rev. 60  
 EP-SR-102-1000, Nuclear Division Florida Alert and Notification System Guideline, Rev. 8  
 Siren Maintenance Procedure No. 6.80.02, Rev. I

WPS-4000 Series High Power Voice and Siren System Operating and Troubleshooting Manual  
 PI-AA-204, Condition Identification and Screening Process, Rev. 22  
 PI-AA-205, Condition Evaluation and Corrective Actions, Rev. 23

#### Records and Data

Documentation of Quarterly siren maintenance for 2012 and 2013  
 Documentation of bi-weekly siren tests and maintenance for 2012 and 2013

#### Corrective Action Documents

1903495; Siren S-5 Lightning damage  
 1899615; Siren S-12 Lightning damage  
 1889287; Siren S-38 loss of communications  
 1886797; Siren S-28 pole damage  
 1935265; 2012 annual maintenance data hard drive failure  
 1935171; Admin errors on ANS documentation

### **Section 1EP3: Emergency Preparedness Organization Staffing and Augmentation System**

#### Procedures

EPLAN, Turkey Point Plant Radiological Emergency Plan, Rev. 60  
 EP-AA-100-1000-1007, Conducting EP Regulatory Reviews, Rev. 1  
 0-EPIP-20101, "10CFR50.54(q) Screen and Evaluation (ARs: 1892310, Rev. 1, 1901378, and 1892294)  
 EP-AD-006, Maintaining the Emergency Response Directory (ERD) & Requirements for Manual Callout Surveillance, Rev. 14  
 EP-AD-011, "Instructions for Maintaining the Emergency Preparedness NRC Performance Indicators"  
 EP-AD-012, Autodialer Maintenance and Testing Instructions, Rev. 7  
 EP-AD-015, Emergency Preparedness ERO Staffing Advisory Committee and Training Committee, Rev. 14  
 EP-AA-01, Emergency Preparedness Expectations, Rev. 0

#### Records and Data

2013 and 2014 ERO Team Staff Assignments  
 2013 off-hour augmentation test reports  
 Auto-dialer records: 1/8/2014 – 1/22/2014

#### Corrective Action Documents

1746619; EOF ST/CO Comm. potential to drop below 3  
 1746623; EOF Fuels Eng. potential to drop below 3  
 1746630; OSC Dose Recorder potential to drop below 3  
 1746635; OSC Doc. Control potential to drop below 3  
 1746638; Duty Call Supervisor potential to drop below 3  
 1746644; EOF RP Manager potential to drop below 3  
 1801659; EOF Recovery Manager potential to drop below 3  
 1898914; EOF RP Manager dropped below 3

#### **Section 1EP4: Emergency Action Level and Emergency Plan Changes**

##### **Procedures**

Emergency Plan, Rev. 60

0-EPIP-20101, 10CFR50.54(q) Screen and Evaluation, Rev. 1

##### **Change Packages**

0-HPS-090, Inventory of Radiation Protection Emergency Equipment, Rev. 2

0-EPIP-20132, "Technical Support Center (TSC) Activation and Operation," Rev. 7

##### **Corrective Action Documents**

1935172; RCS sampling procedure has no high rad precautions/limitation statements

1908087; Editorial Change to Emergency Coordinator Duties

1908448; Excessive RCS Activity word deletion

1927976; Actions if Plant Site Inaccessible

#### **Section 1EP5: Maintenance of Emergency Preparedness**

##### **Procedures**

EP-AA-100-1001, Guidelines for Maintaining Emergency Preparedness, Rev. 5

0-EPIP-20126, Off-Site Dose Calculations – Extended Power Uprate, Rev.7

0-NCZP-041.1, Obtaining a Reactor Coolant Sample, Rev. 1

EP-AA-105-1000, Equipment Important to Emergency Response, Rev. 0

0-EPIP-20101, Duties of the Emergency Coordinator, Rev. 14

##### **Records and Data**

Turkey Point 2014 Emergency Planning public brochure

PTN-12-010, Turkey Point Nuclear Oversight Report

PTN-13-009, Turkey Point Nuclear Oversight Report

AT-01.16, Single AR Report for DEP Opportunity Evaluation for NOUE Declared on 4/2/12

AT-01.16, Single AR Report for Unit 4 Reactor Trip

AT-01.16, Single AR Report for Critique of Notifications during Unusual Event on 4/19/13

2012 10/25 Drill report

2013 August Drill Report

2013 December Drill Report

2013 Ingestion Pathway Evaluation Exercise Report

2013 May Practice Evaluation Exercise Report

##### **Corrective Action Documents**

1750814; DEP opportunity had different results than lesson package

1751998; DEP opportunity evaluation for NOUE declared at PTN on 4/2/12

1761448; TSC backup power did not function during loss of normal power

1772978; Concrete ramps located where flood stop logs get installed

1817868; General rollup during EP drill

1867707; Unit 4 Unusual Event – 4/19/13

1869299; Critique of notifications during Unusual Event on 4/19/13

1876973; EP indicator dropped below green

1883638; Dual roles for ERO responders

1884141; EP NRC inspection observations  
 1891427; EP DEP indicator showing a declining trend in EOF/TSC  
 1934762; Review E-Plan 5.1.2 regarding post-accident sampling

**Section 40A1: Performance Indicator Verification**

Procedures

0-ADM-032, NRC Performance Indicators Turkey Point, Rev. 5

Records and Data

Documentation of DEP opportunities for 2nd -3rd quarter 2013  
 Documentation of ANS tests for 2nd quarter – 3th quarter 2013  
 Documentation of drill and exercise participation for 2nd quarter – 3rd quarter 2013  
 Various ERO Personnel Qualification and Participation records

Corrective Action Documents

1682047, EP self-assessment - NRC drill participation performance indicator improvement  
 570387, Drill and exercise participation affecting NRC PI  
 472365, Seven SROs had not participated in a qualified opportunity in 8 quarters

**Section 40A5: Other Activities**

Procedures

ER-AA-102, Underground Piping and Tanks Integrity Program, Rev. 6  
 ER-AA-102-1000, Underground Piping and Tanks Integrity Examination Procedure, Rev. 2

Corrective Action Program Documents

AR 1678662, Generated to Track Actions Associated with Meeting Milestones of NEI 09-14, Rev. 3  
 AR 01802204, QHSA for NRC Buried Piping Inspection (TI 2515/182)  
 AR 1915405, QHSA for NRC Buried Piping Inspection (TI 2515/182 Phase 2)  
 AR 1915405-01, PTN Response to Enclosure 2 “TI-182 Phase 2 Questions”

Other Documents

Buried Piping Program Health Report (7/1/2013 - 9/30/2013)  
 Drawing 5610-C13, Utility Piping – Main Plant Area, Rev. 27  
 PTN Buried Piping Program Basis Document, Revision 1  
 Turkey Point Nuclear Station Underground Piping and Tanks Condition Assessment Plan, Rev. 2  
 Unit 3 Circulating Water Pipe NDE Inspection, Turkey Point Nuclear Station, by Pure Technologies, US, August 2012

## **LIST OF ACRONYMS**

AR	Action Request
CAP	Corrective Action Program
CCW	Component Cooling Water
CFR	Code of Federal Regulations
EAL	Emergency Action Level
EDG	Emergency Diesel Generator
IST	Inservice Testing
NAP	Nuclear Administrative Procedure
NRC	Nuclear Regulatory Commission
PI	Performance Indicator
P&ID	Piping and Instrumentation Drawing
RCE	Root Cause Evaluation
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
TS	Technical Specifications
U3	Unit 3
U4	Unit 4
UFSAR	Updated Final Safety Analysis Report
WO	Work Order
GOP	General Operating Procedure
ONOP	Off Normal Operating Procedure