UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE N.E., SUITE 1200
ATLANTA, GEORGIA 30303-1200

May 7, 2021

Mr. Don Moul
Executive Vice President, Nuclear Division and Chief Nuclear Officer
Florida Power & Light Company
Mail Stop: EX/JB
700 Universe Blvd.
Juno Beach, FL 33408

SUBJECT: TURKEY POINT UNITS 3 & 4 – INTEGRATED INSPECTION REPORT 05000250/2021001 AND 05000251/2021001 AND ASSESSMENT FOLLOW-UP LETTER

Dear Mr. Moul:

On March 31, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Turkey Point Units 3 & 4 and discussed the results of this inspection with Mr. Michael Pearce and other members of your staff. The results of this inspection are documented in the enclosed report.

One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. One Severity Level IV violation without an associated finding is documented in this report. We are treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violations or the significance or severity of the violations documented in this inspection report, 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; and the NRC Resident Inspector at Turkey Point Units 3 & 4 .

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region II; and the NRC Resident Inspector at Turkey Point Units 3 & 4 .

As a result of its quarterly review of plant performance, which was completed on March 31, 2021, the NRC updated its assessment of Turkey Point Nuclear Plant Unit 3. The NRC's evaluation consisted of a review of performance indicators and inspection results. This letter informs you of the NRC's assessment of your facility. This letter supplements, but does not supersede, the annual assessment letter issued on March 3, 2021.

The NRC's review of Turkey Point Nuclear Plant Unit 3 identified that the Unplanned Scrams per 7000 Critical Hours performance indicator has crossed the green-to-white threshold. This was due to four unplanned scams that occurred on August 17, 2020, August 19, 2020, August 20, 2020, and March 1, 2021. The NRC will be in contact to discuss specific planning and scheduling activities regarding this performance indicator and the anticipated 95001 inspection.

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 Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Please contact Mr. David Dumbacher at 404-997-4628 with any questions you have regarding this letter.

Sincerely,

/RA/

Mark S. Miller, Director,
Division of Reactor Projects

Docket Nos. 05000250 and 05000251
License Nos. DPR-31 and DPR-41

Enclosure:
As stated

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SUBJECT: TURKEY POINT UNITS 3 & 4 – INTEGRATED INSPECTION REPORT 05000250/2021001 AND 05000251/2021001 AND ASSESSMENT FOLLOW-UP LETTER dated May 7, 2021

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X SUNSI Review		X Non-Sensitive ☐ Sensitive		X Publicly Available ☐ Non-Publicly Available	
OFFICE	RII/DRP	RII/DRP	RII/DRP	RII/DRP	RII/DRP
NAME	R. Reyes	D. Orr	D. Dumbacher	J. Hamman	M. Miller
DATE	05/05/2021	05/05/2021	05/05/2021	05/05/2021	05/07/2021

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers:	05000250 and 05000251
License Numbers:	DPR-31 and DPR-41
Report Numbers:	05000250/2021001 and 05000251/2021001
Enterprise Identifier:	I-2021-001-0081
Licensee:	Florida Power & Light Company
Facility:	Turkey Point Units 3 & 4
Location:	Homestead, FL 33035
Inspection Dates:	January 01, 2021 to March 31, 2021
Inspectors:	C. Fontana, Emergency Preparedness Inspector D. Orr, Senior Resident Inspector R. Reyes, Resident Inspector S. Sanchez, Senior Emergency Preparedness Inspector J. Walker, Emergency Response Inspector
Approved By:	David E. Dumbacher, Chief Reactor Projects Branch 3 Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at Turkey Point Units 3 & 4 , in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to https://www.nrc.gov/reactors/operating/oversight.html for more information.

List of Findings and Violations

Failure to Maintain the Effectiveness of the Emergency Plan			
Cornerstone	Severity	Cross-Cutting Aspect	Report Section
Not Applicable	Severity Level IV NCV 05000250,05000251/2021001-01 Open	Not Applicable	71114.04
The inspectors identified a Severity Level IV (SL-IV) non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (CFR), Part 50.54(q)(2), for failure to maintain the effectiveness of the Turkey Point Nuclear Station (TPN) Emergency Plan (E-Plan). Specifically, the licensee had not revised the E-Plan for a change to the number of Alert and Notification System (ANS) sirens.			

Failure to Correctly Verify the Component as Instructed in Work Order			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000250,05000251/2021001-02 Open/Closed	[H.12] - Avoid Complacency	71152
A self-revealed Green Non-Cited Violation (NCV) of 10 CFR, Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for the failure to correctly verify a component specified in a work order (WO). Specifically, instrument and control (I&C) technicians did not follow the proper verification steps in WO 40632818 and incorrectly conducted work on the 3C charging pump.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
URI	05000250/2021001-03	Unit 3 Automatic Reactor Trip due to Reactor Trip Breaker Cell Switch Malfunction	71153	Open
URI	05000250/2021001-04	Inadvertent Opening of 3A Steam Generator Feedwater Pump Recirculation Valves Causes a Rapid Decrease in Unit 3 Steam Generator Water Levels	71153	Open
LER	05000250/2020-002-00	LER 2020-002-00 for Turkey Point Unit 3 Manual Reactor Trip in Response to High	71153	Closed

		Steam Generator Level following Inadvertent Opening of Feedwater Heater Bypass Valve		
LER	05000250/2020-002-01	LER 2020-002-01 for Turkey Point, Unit 3, Manual Reactor Trip in Response to High Steam Generator Level following Inadvertent Opening of Feedwater Heater Bypass Valve (Rev 1)	71153	Closed
LER	05000250/2020-005-00	LER 2020-005-00 for Turkey Point Unit 3, Technical Specification Action Not Taken for Unrecognized Inoperable Source Range Channel	71153	Closed
LER	05000250/2020-005-01	LER 2020-005-01 for Turkey Point, Unit 3, Technical Specification Action Not Taken for Unrecognized Inoperable Source Range Channel (Rev 1)	71153	Closed

PLANT STATUS

Unit 3 began the inspection period at 55% of rated thermal power to facilitate main condenser water box tube repairs. Unit 3 was returned to rated thermal power on January 3, but was down-powered to 52% on February 2, due to high sodium concentrations recurring in all three steam generators. Unit 3 was returned to rated thermal power on February 9, after the licensee completed additional main condenser tube inspections and plugging to eliminate the source of sodium contamination in the condensate system. On March 1, Unit 3 experienced an automatic reactor trip at the conclusion of a routine test of the reactor protection system (RPS). The licensee determined a malfunction of the B-train reactor trip breaker cubicle cell switch during the RPS test restoration caused the reactor trip. The cell switch was replaced and Unit 3 returned to rated thermal power on March 5. On March 24, Unit 3 was down-powered to 85% when the 3A steam generator feedwater pump recirculation valves to the main condenser failed open in response to feedwater flow instruments being isolated to repair a steam leak. Unit 3 was returned to rated thermal power on March 25, and remained at, or near, rated thermal power for the remainder of the inspection period.

Unit 4 began the inspection period at rated thermal power. Unit 4 was down-powered to 82% on March 16, and to 72% on March 17, to replace the 4A condensate pump motor. Unit 4 was returned to rated thermal power on March 24, and remained at or near rated thermal power for the remainder of the inspection period.

INSPECTION SCOPES

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

Starting on March 20, 2020, in response to the National Emergency declared by the President of the United States on the public health risks of the Coronavirus Disease 2019 (COVID-19), resident inspectors were directed to begin telework and to remotely access licensee information using available technology. During this time, the resident inspectors performed periodic site visits each week; conducted plant status activities as described in IMC 2515, Appendix D, “Plant Status”; observed risk-significant activities; and completed on-site portions of IPs. In addition, resident and regional baseline inspections were evaluated to determine if all or portions of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In some cases, portions of an IP were completed remotely and on-site. The inspections documented below met the objectives and requirements for completion of the IP.

REACTOR SAFETY

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (4 Samples)

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

(1) 3B emergency diesel generator (EDG), and the 3A and 3B fuel oil transfer system alignment after fuel oil transfer operations and returning the 3B EDG back to an operable condition on January 11, 2021
(2) Unit 3 and Unit 4 auxiliary feedwater (AFW) systems, after testing train 1 and restoring systems back to an operable status with the A AFW pump aligned to train 1 and the B and C AFW pumps aligned to train 2 on January 19, 2021
(3) Unit 3 residual heat removal (RHR) system after 3-759A, 3A RHR heat exchanger outlet manual isolation valve, was cycled for 3-OSP-050.11, RHR/SI Manual Valve Operability Test, on February 16, 2021
(4) 3B intake cooling water (ICW) and component cooling water (CCW) headers while the 3A ICW and CCW headers were out of service for maintenance on February 25, 2021

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (7 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

(1) Unit 3 and Unit 4 EDG buildings, (fire zones (FZs) 072, 073, 133 and 138) on January 05, 2021
(2) 3B, 4A and 4B RHR pump rooms (FZs 013, 015 and 016) on January 11, 2021
(3) Unit 3 and Unit 4 refueling water storage tank areas (FZ 123) on January 19, 2021
(4) 3A RHR pump room, Unit 3 10’ access to RHR pits and RHR heat exchanger pit (FZs 011, 012, and 013) on January 26 and February 16, 2021
(5) Safety-related 3A, 3B, 4A, and 4B 125Vdc station batteries (FZs 103,110, 109,102); D-52 safety-related spare station battery (FZ 025A); Unit 3 and Unit 4 cable spreading room (FZ 098); and, the Unit 3 and Unit 4 reactor protection system motor generator set rooms (FZs 104 and 101) on February 04, 2021
(6) Unit 3 and Unit 4 high head safety injection pump rooms, (FZs 052 and 053) on February 25, 2021
(7) Unit 3 and Unit 4 charging pump (FZs 045 and 055) and containment spray pump rooms (FZs 031 and 038) on March 01, 2021

Fire Brigade Drill Performance Sample (IP Section 03.02) (1 Sample)

(1) The inspectors evaluated the onsite fire brigade training and performance during an announced fire drill in the Unit 4 hydrogen seal oil system area, FZ 081, on March 01, 2021

71111.06 - Flood Protection Measures

Cable Degradation (IP Section 03.02) (1 Sample)

The inspectors evaluated cable submergence protection in:

(1) Manholes 303, 304, 405, and 423 while the licensee implemented engineering change 294356, flood protection improvements, on February 02, 2021

71111.07A - Heat Sink Performance

Annual Review (IP Section 03.01) (1 Sample)

The inspectors evaluated readiness and performance of:

(1) The Unit 4 CCW heat exchangers on February 1, 2021, and the Unit 3 CCW heat exchangers on February 19, 2021

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

(1) The inspectors observed and evaluated licensed operator performance in the Control Room during:
- 3-GOP-100, Fast Load Reduction, and 3-ONOP-071.1, Secondary Chemistry Deviation from Limits, for a sodium intrusion originating in the 3AS main condenser hotwell on February 2, 2021
- 3-EOP-E-0, Reactor Trip or Safety Injection, 3-EOP-ES-0.1, Reactor Trip Response, and 3-GOP-103 Power Operation to Hot Standby, for an automatic reactor trip on March 1, 2021
- A reactor startup using 3-GOP-301, Hot Standby to Power Operation, on March 4, 2021
- Main control room turnover and Unit 4 down power to 83% for the 4A condensate pump motor replacement using 4-GOP-103, Power Operation to Hot Standby, on March 16, 2021

Licensed Operator Requalification Training/Examinations (IP Section 03.02) (1 Sample)

(1) The inspectors observed and evaluated a requalification training simulator scenario administered to an operating crew on February 15, 2021

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (1 Sample)

The inspectors evaluated the effectiveness of maintenance to ensure the following structures, systems, and components (SSCs) remain capable of performing their intended function:

(1) Action Request (AR) 2379162, Main Condenser Maintenance Rule (a)(1) Evaluation on March 30, 2021

Quality Control (IP Section 03.02) (1 Sample)

The inspectors evaluated the effectiveness of maintenance and quality control activities to ensure the following SSC remained capable of performing its intended function:

(1) WO 40713743-08, install watertight seals at manhole 301, observed appropriate level of qualification of materials in use, and at the jobsite, to effect flood protection improvements on March 25, 2021

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (7 Samples)

The inspectors evaluated the accuracy and completeness of risk assessments for the following planned and emergent work activities to ensure configuration changes and appropriate work controls were addressed:

(1) Unit 3 and Unit 4 on-line risk monitor (OLRM) with 3A ICW pump, 4CM motor-driven instrument air compressor, 4S231A 4A EDG control panel room air conditioner, and MOV-4-1403, AFW turbine steam supply from the A steam generator, out of service (OOS) on January 5, 2021
(2) Unit 3 and Unit 4 OLRM with 4B emergency containment cooler, 3B CCW heat exchanger, and PCV-4-456, pressurizer power operated relief valve OOS on January 21, 2021
(3) Unit 3 and Unit 4 OLRM with Unit 3 train 2 AFW feedwater flow control valves, 4C CCW heat exchanger, 4A EDG control panel room air conditioner unit 4S231A, and PCV-4-456, pressurizer power operated relief valve, OOS on January 27, 2021
(4) Unit 3 and Unit 4 OLRM with 3CM, motor-driven instrument air compressor, E233 water chiller unit for electrical equipment room AHU-78, and PCV-4-456, pressurizer power operated relief valve OOS on February 19, 2021
(5) Unit 3 and Unit 4 OLRM during the 3B CCW pump motor high risk heavy load lift over safety-related systems on February 18, 2021
(6) Unit 3 and Unit 4 OLRM with 3A ICW and CCW headers, 3C motor-driven instrument air compressor, E233 water chiller unit for electrical equipment room AHU-78, 4A charging pump, and PCV-4-456, pressurizer power operated relief valve OOS on February 26, 2021
(7) Unit 3 and Unit 4 OLRM with 3B ICW pump, 4B charging pump, Unit 4 train 1 AFW flow control valves, E233 water chiller unit for electrical equipment room AHU-V78, and PCV-4-456, pressurizer power operated relief valve OOS on March 10, 2021

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (6 Samples)

The inspectors evaluated the licensee's justifications and actions associated with the following operability determinations and functionality assessments:

(1) AR 2380722, 2327425, and 1864215 Steam Leak from Upstream Side of Check Valve 3-10-398 During AFW Pump Testing on January 14, 2021
(2) AR 2377269, 3B ICW Pump Low Discharge Flow Rate on February 03, 2021
(3) AR 2382650, Unit 3 TC-432C1, Overtemperature Trip, and TC-432C2, Overtemperature Rod Stop, Setpoint and Reset Minimum Unsatisfactory on February 12, 2021
(4) AR 2382952, 3A CCW Pump Inboard Bearing Water Shield Found Backwards on February 18, 2021
(5) AR 2380012, Turkey Point Cooling Canal Silt Deposits on February 19, 2021
(6) AR 2386577, 3B ICW Pump Sole Plate Inspection Identified Degradation on March 24, 2021

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (1 Sample)

(1) Engineering Change 295954, Install Permanent Unit 3 Reactor Trip and Bypass Breakers Contacts Test Points to Support RPS Testing, reviewed on March 4, 2021

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (6 Samples)

The inspectors evaluated the following post-maintenance test activities to verify system operability and functionality:

(1) Work Order (WO) 40673626, 40806 Reverse Starter Maintenance for AFW Pump Steam Supply from 4B Steam Generator, MOV-4-1404, post-maintenance test (PMT) performed within WO standard and reviewed on February 04, 2021
(2) WO 40746281, Replace PCV-4-1705, Nitrogen (N2) Backup Pressure Control Valve to Train 2 Unit 4 AFW Flow Control Valve, PMT performed using section 4.3 of 4-OSP-075.7, Auxiliary Feedwater Train 2 Backup Nitrogen Test and reviewed on March 15, 2021
(3) WO 40755945, 3B ICW Pump Replacement, PMT performed using 3-OSP-019.1, Intake Cooling Water Inservice Test and reviewed on March 16, 2021
(4) WO 40679187, MOV-3-1405, AFW Pump Steam Supply from 3C Steam Generator, Stem Lubrication and Actuator Gearbox Grease Inspection, PMT performed within WO standard and reviewed on March 22, 2021
(5) WO 40698263, Replace PT-4-484, 4B Main Steam Line Pressure Transmitter, PMT performed using 4-SMI-072.01, P-4-468, P-4-474, P-4-484 and P-4-494 Steam Pressures Channel Calibration, Protection Channel II and reviewed on March 22, 2021
(6) WOs 40766915 and 40686024, Unit 3 B Reactor Trip Breaker and Cell Switch Replacements, PMT performed using 3-SMI-049.01B, Train B Reactor Protection System Logic Test and reviewed on March 24, 2021

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Surveillance Tests (other) (IP Section 03.01) (3 Samples)

(1) 3-OSP-023.1, Diesel Generator Operability Test (3A EDG Normal Start Test) on January 15, 2021
(2) 4-OSP-075.2, Auxiliary Feedwater Train 2 Operability Verification and 4-OSP-075.9, C AFW Overspeed Test on January 20, 2021
(3) 4-OSP-068.2, Containment Spray Gas Accumulation Management Program; 0-OSP-202.3, Safety Injection Pump and Piping Venting; and, 4-OSP-202.2, RHR Pump and Piping Venting on January 22, 2021

Inservice Testing (IP Section 03.01) (2 Samples)

(1) 3-OSP-019.1, Intake Cooling Water Inservice Test (Sections 7.2 ICW Pump 3B and Discharge Check Valve Test) quarterly tests that were performed on June 04, 2020, August 08, 2020, and December 03, 2020. Review completed on February 02, 2021.
(2) 3-OSP-068.5B, 3B Containment Spray Pump Inservice Test on February 04, 2021

71114.01 - Exercise Evaluation

Inspection Review (IP Section 02.01-02.11) (1 Sample)

(1) The inspectors evaluated the biennial emergency plan exercise during the week of February 8, 2021. The simulated scenario began with an explosion and fire that caused damage to the 3B intake cooling water pump motor. This met the conditions for declaring an Alert. Subsequently, a reactor coolant system (RCS) leak slowly increased until charging pumps were unable to maintain RCS inventory, thus meeting the conditions for manually shutting down the reactor & initiating safety injection. With four control rods stuck out of the reactor core and radiation monitors increasing (indicative of fuel clad damage), the conditions for declaring a Site Area Emergency were met. When a containment purge exhaust valve seal deteriorated and began to leak by, conditions for a General Emergency were met, and the Offsite Response Organizations were able to demonstrate their ability to implement emergency actions.

71114.04 - Emergency Action Level and Emergency Plan Changes

Inspection Review (IP Section 02.01-02.03) (1 Sample)

(1) The inspectors reviewed and evaluated Emergency Action Level, Emergency Plan, and Emergency Plan Implementing Procedure changes during the week of February 8, 2021. This evaluation does not constitute NRC approval.

71114.06 - Drill Evaluation

Drill/Training Evolution Observation (IP Section 03.02) (1 Sample)

The inspectors evaluated:

(1) Emergency classification and notification to local counties and Florida State during licensed operator continuing training in the control room simulator on February 15, 2021

71114.08 - Exercise Evaluation Scenario Review

Inspection Review (IP Section 02.01 - 02.04) (1 Sample)

(1) The inspectors reviewed and evaluated in-office, the proposed scenario for the biennial emergency plan exercise at least 30 days prior to the day of the exercise.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

EP01: Drill/Exercise Performance (IP Section 03.12) (1 Sample)

(1) Unit 3 January 1, 2020, through December 31, 2020
Unit 4 January 1, 2020, through December 31, 2020

IE01: Unplanned Scrams per 7000 Critical Hours Sample (IP Section 03.01) (2 Samples)

(1) Unit 3 January 1, 2020 through December 31, 2020
(2) Unit 4 January 1, 2020 through December 31, 2020

EP02: ERO Drill Participation (IP Section 03.13) (1 Sample)

(1) Unit 3 January 1, 2020, through December 31, 2020
Unit 4 January 1, 2020, through December 31, 2020

IE03: Unplanned Power Changes per 7000 Critical Hours Sample (IP Section 03.02) (2 Samples)

(1) Unit 3 January 1, 2020 through December 31, 2020
(2) Unit 4 January 1, 2020 through December 31, 2020

EP03: Alert & Notification System Reliability (IP Section 03.14) (1 Sample)

(1) Unit 3 January 1, 2020, through December 31, 2020
Unit 4 January 1, 2020, through December 31, 2020

IE04: Unplanned Scrams with Complications Sample (IP Section 03.03) (2 Samples)

(1) Unit 3 January 1, 2020 through December 31, 2020
(2) Unit 4 January 1, 2020 through December 31, 2020

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

Event Follow-up (IP Section 03.01) (2 Samples)

(1) The inspectors responded to the main control room and evaluated a Unit 3 automatic reactor trip from an automatic turbine trip that occurred during restoration from a routine test of the reactor protection system on March 1, 2021.
(2) The inspectors evaluated a Unit 3 manual turbine runback to 85% in response to unexpected and rapid steam generator water level decrease in all three steam generators which was caused by a rapid reduction in steam generator feedwater flow due to the unanticipated opening of the 3A steam generator feedwater pump recirculation to condenser flow control valves, CV-3-1415 and CV-3-1416, on March 24, 2021. CV-3-1415 and CV-3-1416, which were earlier placed in manual operation to facilitate isolating feedwater flow instruments FT-3-1416A/B/and C, transferred to automatic control and fully opened when FT-3-1416A/B/and C indicated zero feedwater flow.

Event Report (IP Section 03.02) (2 Samples)

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

(1) LER 05000250/2020-002-00 and -01, Manual Reactor Trip in Response to High Steam Generator Level following Inadvertent Opening of Feedwater Heater Bypass Valve, (ADAMS Accession Nos. ML20267A235 and ML21064A212). The inspection conclusions associated with Revision 00 and 01 of this LER are documented in Inspection Report 05000250/2020050 and 05000251/2020050 (ADAMS Accession No. ML20344A126).
(2) LER 05000250/2020-005-00 and -01, Technical Specification Action Not Taken for Unrecognized Inoperable Source Range Channel, (ADAMS Accession Nos. ML20289A294 and ML21064A218). The inspection conclusions associated with Revision 00 and 01 of this LER are documented in Inspection Report 05000250/2020050 and 05000251/2020050 (ADAMS Accession No. ML20344A126).

INSPECTION RESULTS

<table>
<tr><td colspan="4">Failure to Maintain the Effectiveness of the Emergency Plan</td></tr>
<tr><td>Cornerstone</td><td>Severity</td><td>Cross-Cutting Aspect</td><td>Report Section</td></tr>
<tr><td>Not Applicable</td><td>Severity Level IV
NCV 05000250,05000251/2021001-01
Open/Closed</td><td>Not Applicable</td><td>71114.04</td></tr>
<tr><td colspan="4">The inspectors identified a Severity Level IV (SL-IV) non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (CFR), Part 50.54(q)(2), for failure to maintain the effectiveness of the Turkey Point Nuclear Station Emergency Plan (E-Plan). Specifically, the licensee had not revised the E-Plan for a change to the number of Alert and Notification System (ANS) sirens.</td></tr>
<tr><td colspan="4">Description: While performing a detailed review of a corrective action program document (AR 02344404) generated from the last emergency preparedness inspection, the inspectors identified that the licensee had not updated their E-Plan to correctly reflect the number of ANS sirens in-place at TPN. The inspectors determined that Section 5.2.8 of the E-Plan states the ANS network consists of 45 pole mounted sirens and two indoor sirens. After reviewing siren performance indicator data, the inspectors noted that there are a total of 48</td></tr>
</table>

sirens. The inspectors also determined that an additional pole mounted siren (siren 50) was added in December 2015, but the licensee failed to update the E-Plan ANS network description to reflect the most current information. From December 2015 to present, there were several opportunities for the licensee to identify and revise the E-Plan with the updated ANS information. Although maintenance and testing of the sirens continued, and proper functionality of the ANS was maintained, the inspectors determined that this issue was a violation for failure to maintain the effectiveness of the TPN E-Plan.

Corrective Actions: The licensee entered the issue into the corrective action program on February 11, 2020.

Corrective Action References: AR 02384000

Performance Assessment: The licensee's failure to maintain the effectiveness of the TPN E-Plan was determined to impede the NRCs ability to perform its regulatory function and is dispositioned using the Traditional Enforcement process.

Enforcement: This finding is a violation of NRC requirements, and because it has the potential for impacting the NRC's ability to perform its regulatory function, traditional enforcement is applicable in accordance with Inspection Manual Chapter 0611 and 0612, Appendix B, Figure 2. This finding is determined to be a SL-IV violation in accordance with Section 6.6.d.1 of the Enforcement Policy because it involves the licensee's ability to meet or implement a regulatory requirement not related to assessment or notification such that the effectiveness of the emergency plan is reduced.

Violation: Title 10 of the CFRs, Part 50.54(q)(2) states, in part, that a licensee shall follow and maintain the effectiveness of an E-Plan that meets the requirements in Appendix E to this part. Contrary to the above, the licensee failed to maintain the E-Plan, which is a higher tier document that must be maintained up-to-date and accurate at all times. Specifically, from December 2015 until February 2021, the TPN E-Plan had not been revised after a change was made to the number of ANS sirens.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Failure to Correctly Verify the Component as Instructed in Work Order			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000250,05000251/2021001-02 Open/Closed	[H.12] - Avoid Complacency	71152

A self-revealed Green Non-Cited Violation (NCV) of 10 CFR, Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for the failure to correctly verify a component specified in a work order (WO). Specifically, Instrument and Control (I&C) technicians did not follow the proper verification steps in WO 40632818 and incorrectly conducted work on the 3C charging pump.

Description: On July 10, 2019, Unit 4 plant conditions were established to facilitate maintenance on the 4C charging pump. I&C technicians were authorized to complete WO 40632818 and calibrate pressure switch PS-4-201C, which provides a low oil pressure trip signal to the 4C charging pump. The I&C technicians did not follow the proper verification

steps and incorrectly conducted work on the 3C charging pump. The Unit 3 chemical volume and control system was in a normal alignment with only the 3C charging pump, operating to maintain programmed reactor coolant system (RCS) pressurizer level and reactor coolant pump (RCP) seal injection.

The I&C technicians conducted a pre-job brief prior to performing the work order and discussed the work that was intended to be completed on the Unit 4C charging pump. The I&C technicians proceeded to the work area with the correct WO that described the work to be performed on Unit 4. However, the I&C technicians informed radiation protection (RP) of their intention to perform work on Unit 3. Despite being advised by RP that the charging pump maintenance outage was being performed on Unit 4, the I&C technicians still proceeded to the 3C charging pump.

Step 4.1 of WO 40632818 is listed as a critical step and instructs the performer to verify the intended component before starting the work. However, the I&C technicians did not recognize the appropriate Unit color identifiers, or the absence of a clearance boundary, did not properly match component identification numbers with the number listed in the WO, and did not recognize that the 3C charging pump was running. As a result, the I&C technicians manipulated an isolation valve for pressure switch PS-3-201C and loosened the test cap causing oil to flow out on the 3C charging pump. This result caused the I&C technicians to review the WO and to recognize that they were working on Unit 3 and not Unit 4.

The 3C charging pump trip on low oil pressure at about 10:09 a.m. was a silent trip. There are no local or control room alarms or annunciators associated with the low oil pressure condition. The reactor operator attempted to restart the 3C charging pump within twenty seconds, but it tripped again on low oil pressure because PS-3-201C was still vented. Within a minute, the reactor operator started the 3B charging pump restoring RCS makeup and RCP seal injection. An equipment operator reported to the Unit 3 charging pump room and it was recorded that the 3C charging pump did not appear to have anything obviously wrong with it. The I&C technicians had already left the area prior to the arrival of the equipment operator.

At 11:08 a.m., control room operators initiated an action request, AR 2320506, to investigate and correct, the anomalous 3C charging pump trip. At about 11:30 a.m., the I&C department head informed the maintenance director and site director that the 3C charging pump trip was the result of a human performance error. At 2:08 p.m., the control room operators returned the 3C charging pump to an operable condition.

Corrective Actions: FPL promptly initiated a human performance incident investigation and AR 2320534.

Corrective Action References: AR 2320534 and AR 2320506

Performance Assessment:

Performance Deficiency: The I&C technicians' failure to verify the correct component to be worked on before starting work, as instructed in Step 4.1 of WO 40632818, was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Human Performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable

consequences. Specifically, I&C technicians failed to use the appropriate human performance tools to prevent working on the wrong component. The human performance error caused an unplanned unavailability of the Unit 3C charging pump.

Significance: The inspectors assessed the significance of the finding using Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The inspectors screened this finding using IMC 0609, Attachment 4, "Initial Characterization of Findings," for Mitigating Systems, and IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," and determined the finding to be of very low safety significance (Green) because the finding did not represent a loss of the PRA function of one or more non-TS trains of equipment designated as risk-significant in accordance with the licensee's maintenance rule program for greater than 3 days.

Cross-Cutting Aspect: H.12 - Avoid Complacency: Individuals recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Individuals implement appropriate error reduction tools. The inspectors reviewed this performance deficiency for cross-cutting aspects as required by IMC 0310, "Aspects Within the Cross-Cutting Areas." The I&C technicians did not implement the appropriate error reduction tools, despite multiple barriers and opportunities to prevent work on the wrong component.

Enforcement:

Violation: 10 CFR 50 Appendix B, Criterion V, states that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings.

The maintenance being performed on the safety-related charging pump was being directed by WO 40632818. Step 4.1 of WO 40632818 instructed the worker to "Verify the component to be worked has been properly identified: PS-4-201C; Charging Pump 4P201C Interlock Control Pressure Switch in Charging Pump Room."

Contrary to the above, on July 10, 2019, the licensee failed to accomplish Step 4.1 of WO 40632818, when the correct component was not properly identified. The I&C technicians failed to verify work was being accomplished on pressure switch PS-4-201C, causing a trip of the 3C charging pump when work was performed on pressure switch PS-3-201C.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Unresolved Item (Open)	Unit 3 Automatic Reactor Trip due to Reactor Trip Breaker Cell Switch Malfunction URI 05000250/2021001-03	71153

Description: On March 1, 2021, at 1108 hours, Unit 3 experienced an unplanned reactor trip from 100% power. Restoration from a routine test of the reactor protection system (RPS) was in progress when the reactor trip occurred. All equipment required for the immediate reactor trip response functioned normally. The licensee determined a malfunction of the B-train reactor trip breaker cubicle cell switch during the RPS test restoration caused the reactor trip. An unresolved item (URI) is opened for additional review to determine if the cubicle cell switch malfunction and subsequent reactor trip was reasonably foreseeable and preventable

and to also determine if appropriate regulatory requirements or self-imposed standards were followed for maintenance of the reactor trip breakers and associated cell switches (i.e. to determine if a performance deficiency exists).

Planned Closure Actions: The NRC inspectors intend to review the licensee and vendor failure analysis of the B-train reactor trip breaker and associated cell switches. Additionally, the NRC inspectors intend to review the licensee's root cause analysis and other associated investigation documents and interview plant personnel.

Licensee Actions: Prior to reactor startup, the licensee replaced the B-train reactor trip breaker and cubicle cell switches. The A-train reactor trip breaker and A and B-train bypass breaker cubicles and cell switches were inspected, cleaned, and tested for proper operation. A modification to detect for a standing trip signal from cell switch contacts was installed in the Unit 3 reactor trip and bypass breakers. A similar modification to detect for a standing trip signal is intended for the Unit 4 breakers during the next Unit 4 refueling outage. The licensee contracted with the reactor trip breaker vendor to perform a failure analysis of the previously installed B-train reactor trip breaker and associated cubicle cell switches.

Corrective Action References: AR 2385529

Unresolved Item (Open)	Inadvertent Opening of 3A Steam Generator Feedwater Pump Recirculation Valves Causes a Rapid Decrease in Unit 3 Steam Generator Water Levels URI 05000250/2021001-04	71153

Description: On March 24, 2021, main control room operators performed a manual turbine runback on Unit 3 from 100% power to 85% in response to a rapid decrease in steam generator water levels. The unexpected and rapid water level decrease was caused by an equally unexpected and rapid reduction in steam generator feedwater flow due to the unanticipated opening of the 3A steam generator feedwater pump recirculation to condenser flow control valves, CV-3-1415 and CV-3-1416. CV-3-1415 and CV-3-1416 were placed in manual operation to facilitate isolating flow instruments, FT-3-1416A/B/and C. Plant operators recently identified a steam leak at a common process connection to all three flow transmitters. Plant engineers and operators assumed CV-3-1415 and CV-3-1416 would remain in manual operation but the distributed control system (DCS) logic by design overrode and fully opened CV-3-1415 and CV-3-1416. A URI is opened for additional review to determine if the DCS override function for CV-3-1415 and CV-3-1416 was reasonably foreseeable and the transient preventable, and to also determine if appropriate regulatory requirements or self-imposed standards were followed for isolating FT-3-1416A/B/and C (i.e. to determine if a performance deficiency exists).

Planned Closure Actions: The NRC inspectors intend to review the licensee human performance learning opportunity reviews and interview plant personnel. The inspectors also intend to review the DCS logic diagrams to understand the plant information available to engineers involved in the decision to isolate FT-3-1416A/B/and C.

Licensee Actions: The licensee completed a human performance investigation to understand the learning opportunities with those involved and the quality of the reviews that occurred prior to the isolating FT-3-1416A/B/and C. The licensee also completed an extent of condition review for other DCS controllers that can be overridden by process control logic to

automatic control from manual control and verified the logic was appropriate and operating procedures were adequate.

Corrective Action References: AR 2387840

EXIT MEETINGS AND DEBRIEFS

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

- On February 12, 2021, the inspectors presented the Emergency Preparedness Exercise Inspection results to Michael Pearce, Site Vice President and other members of the licensee staff.
- On April 13, 2021, the inspectors presented the Resident Inspector Quarterly Exit inspection results to Michael Pearce, Site Vice President and other members of the licensee staff.
- On April 22, 2021, the inspectors presented the Resident Inspector Quarterly Re-exit to Include Finding Related to 2019 Charging Pump Trip Issue inspection results to Michael Pearce, Site Vice President.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71114.04	Corrective Action Documents	AR 02344324,	NRC EP inspection identified potential violation	
	Corrective Action Documents Resulting from Inspection	AR 02384000	NRC identified potential SL-IV NCV	
	Procedures		Turkey Point Radiological Emergency Plan	66
		EP-AA-100-1007	Evaluation of Changes to the Emergency Plan, Supporting Documents, & Equipment (10 CFR 50.54(q))	Rev. 9