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

February 14, 2022

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

SUBJECT: ST LUCIE UNITS 1 & 2 – INTEGRATED INSPECTION REPORT 05000335/2021004 AND 05000389/2021004

Dear Mr. Coffey:

On December 31, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at St Lucie Units 1 & 2. On January 13, 2022, the NRC inspectors discussed the results of this inspection with Mr. Dan DeBoer, Site Vice President, 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. We are treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

A licensee-identified violation which was determined to be Severity Level IV is documented in this report. We are treating this violation as a non-cited violation (NCV) 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 St Lucie Units 1 & 2.

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 St Lucie Units 1 & 2.

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."

Sincerely,

/RA/

David E. Dumbacher, Chief
Reactor Projects Branch 3
Division of Reactor Projects

Docket Nos. 05000335 and 05000389
License Nos. DPR-67 and NPF-16

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV

SUBJECT: ST LUCIE UNITS 1 & 2 – INTEGRATED INSPECTION REPORT 05000335/2021004 AND 05000389/2021004 Dated February 14, 2022

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DATE	02/07/2022	02/08/2022	02/09/2022	02/14/2022	

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers:	05000335 and 05000389
License Numbers:	DPR-67 and NPF-16
Report Numbers:	05000335/2021004 and 05000389/2021004
Enterprise Identifier:	I-2021-004-0026
Licensee:	Florida Power & Light Company
Facility:	St Lucie Units 1 & 2
Location:	Jensen Beach, FL 34957
Inspection Dates:	October 01, 2021 to December 31, 2021
Inspectors:	D. Orr, Senior Resident Inspector B. Caballero, Senior Operations Engineer C. Fontana, Emergency Preparedness Inspector M. Kennard, Senior Operations Engineer K. Kirchbaum, Operations Engineer S. Roberts, 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 St Lucie Units 1 & 2, 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

Licensee Identified Violation for Failure to Report Permanent Change in Operator Medical Condition			
Cornerstone	Severity	Cross-Cutting Aspect	Report Section
Not Applicable	Severity Level IV NCV 05000335,05000389/2021004-01 Open/Closed	Not Applicable	71111.11B
The facility licensee identified a Severity Level IV non-cited violation (NCV) of 10 CFR 55.25, "Incapacitation Because of Disability or Illness," for their failure to notify the NRC within 30 days of a permanent change in a licensed operator's medical condition.			

2A Containment Spray System Header Rendered Inoperable by Foreign Material Exclusion Device			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000389/2021004-02 Open/Closed	[H.8] - Procedure Adherence	71153
A self-revealed Green finding and associated Non-cited Violation (NCV) of Technical Specification (TS) 6.8.1, "Procedures and Programs," was identified for the licensee's failure to remove a foreign material exclusion (FME) dam installed within the body of a containment spray isolation valve in support of seat lapping.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000389/2021002-00	LER 2021-002-00 for St. Lucie, Unit 2, Foreign Material Exclusion Device Found in Containment Spray System	71153	Closed

PLANT STATUS

Unit 1 began the inspection period at rated thermal power (RTP). On November 26, 2021, power was reduced to 95 percent RTP to support emergent issues associated with the 1A2 main condenser waterbox debris filter. Unit 1 was restored to RTP on November 29, 2021. On December 10, 2021, the reactor was manually tripped due to lowering level in the steam generators. The lowering steam generator water levels occurred due to a blown fuse that isolated a portion of heater drain system flow and subsequent lowering steam generator feedwater pump suction pressure. Unit 1 was restarted on December 11, 2021, and reached 98 percent RTP on December 13, 2021. Unit 1 operated at or near 98 percent RTP for the remainder of the inspection period.

Unit 2 began the inspection period at 93 percent RTP with power ascension in progress from the SL2-26 fall refuel outage. Unit 2 reached RTP on October 4, 2021. Unit 2 operated at or near RTP 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 activities described in IMC 2515, Appendix D, "Plant Status," conducted routine reviews using IP 71152, "Problem Identification and Resolution," observed risk significant activities, and completed on-site portions of IPs. 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.

REACTOR SAFETY

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (2 Samples)

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

(1) 1B low pressure safety injection (LPSI) train while 1A LPSI pump was out of service (OOS) for maintenance on October 15, 2021
(2) 1A intake cooling water (ICW) train, while the 1B ICW train was OOS for maintenance on October 26, 2021

Complete Walkdown Sample (IP Section 03.02) (1 Sample)

(1) The inspectors evaluated system configurations during a complete walkdown of the 1A and 1B emergency diesel generators (EDG) on November 30, 2021

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (4 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) Fire Zone (FZ) 5, Unit 1 component cooling water (CCW) area on October 20, 2021
(2) FZ 6, 1A EDG room on November 3, 2021
(3) FZ 3, Unit 2 CCW on December 5, 2021
(4) FZ 16, Unit 2 emergency core cooling system (ECCS) pump rooms on December 21, 2021

71111.06 - Flood Protection Measures

Inspection Activities - Internal Flooding (IP Section 03.01) (1 Sample)

The inspectors evaluated internal flooding mitigation protections in the:

(1) Unit 2 ECCS pump rooms on November 19, 2021

71111.07A - Heat Sink Performance

Annual Review (IP Section 03.01) (1 Sample)

The inspectors evaluated readiness and performance of:

(1) 2B CCW heat exchanger on December 29, 2021

71111.11A - Licensed Operator Requalification Program and Licensed Operator Performance

Requalification Examination Results (IP Section 03.03) (1 Sample)

(1) The licensee completed the annual requalification operating examinations required to be administered to all licensed operators in accordance with Title 10 of the *Code of Federal Regulations* 55.59(a)(2), "Requalification Requirements," of the NRC's "Operator's Licenses." During the week of November 29, 2021, the inspector performed an in-office review of the overall pass/fail results of the individual operating examinations and the crew simulator operating examinations in accordance with Inspection Procedure (IP) 71111.11, "Licensed Operator Requalification Program." These results were compared to the thresholds established in Section 3.03, "Requalification Examination Results," of IP 71111.11.

The inspectors reviewed and evaluated the licensed operator examination failure rates for the requalification annual operating exam completed on December 1, 2021.

71111.11B - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Requalification Program (IP Section 03.04) (1 Sample)

The inspectors completed an inspection to verify the licensee's ability to evaluate the performance of their licensed operators during the conduct of examinations, to assess their ability to properly develop and administer requalification annual operating tests and biennial written examinations, to evaluate the performance of the control room simulator and their testing and maintenance of the simulator, to ensure that licensed individuals satisfy the conditions of their licenses, and to assess their effectiveness in ensuring that operator license conditions are satisfied.

(1) Biennial Requalification Written Examinations

The inspectors evaluated the quality of the licensed operator biennial requalification written examination administered on February 28, 2020.

Annual Requalification Operating Tests

The inspectors evaluated the adequacy of the facility licensee’s annual requalification operating test.

Administration of an Annual Requalification Operating Test

The inspectors evaluated the effectiveness of the facility licensee in administering requalification operating tests required by 10 CFR 55.59(a)(2) and that the facility licensee is effectively evaluating their licensed operators for mastery of training objectives.

Requalification Examination Security

The inspectors evaluated the ability of the facility licensee to safeguard examination material, such that the examination is not compromised.

Remedial Training and Re-examinations

The inspectors evaluated the effectiveness of remedial training conducted by the licensee, and reviewed the adequacy of re-examinations for licensed operators who did not pass a required requalification examination.

Operator License Conditions

The inspectors evaluated the licensee’s program for ensuring that licensed operators meet the conditions of their licenses.

Control Room Simulator

The inspectors evaluated the adequacy of the facility licensee’s control room simulator in modeling the actual plant, and for meeting the requirements contained in 10 CFR 55.46.

Problem Identification and Resolution

The inspectors evaluated the licensee’s ability to identify and resolve problems associated with licensed operator performance.

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 Unit 1 control room during a reactor startup on December 11, 2021.

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

(1) The inspectors observed a licensed operator continuing training evaluation in the control room simulator on November 9, 2021.

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (2 Samples)

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

(1) AR 2404422, found foreign material exclusion device upon inspection of V07162, isolation valve for outlet containment feed from 2A shutdown heat exchanger, reviewed on December 11, 2021
(2) 1B ICW train exceeding unavailability time performance criteria evaluation, EVAL-PSL-21a-02583, reviewed on December 21, 2021

Aging Management (IP Section 03.03) (1 Sample)

The inspectors evaluated the effectiveness of the aging management program by reviewing the following:

(1) AR 2407701, quarterly review of license renewal internal operating experience - third quarter 2021, reviewed on November 10, 2021

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (2 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) Elevated online risk while the 1B ICW and 1B CCW trains were OOS for planned maintenance from October 25–27, 2021
(2) Elevated online risk for the 1B and 2B startup transformers planned critical maintenance management activities from November 15–19, 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 2406475, Unit 2 CCW hanger 2998-CW-3003-7141 is degraded and required repair, reviewed on October 28, 2021
(2) AR 2402156, LB12 (2B LPSI pump discharge piping) ultrasonic testing evaluation identified a 12.0" arc length gas void, reviewed on November 10, 2021
(3) AR 2410311, update to prompt operability determination for Unit 1 core barrel flaw indications, reviewed on November 30, 2021
(4) AR 2412232, 1A charging pump primary leakage greater than 1 inch/hour, reviewed on November 30, 2021
(5) AR 2412742, PIA-1102D is reading approximately 75 psi lower than the other three reactor protection channels of thermal margin low pressure, reviewed on December 15, 2021
(6) CY-SL-104-0112, Determination of Process Radiation Monitor Setpoints, air ejector monitor setpoint methodology, reviewed on December 16, 2021

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (3 Samples)

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

(1) WO 40793523, 1B atmospheric dump valve (ADV) position indicator failed, reviewed on October 8, 2021
(2) WO 40703002, 1A high pressure safety injection (HPSI) pump motor inspection, reviewed on December 2, 2021
(3) WO 40718251, 2A CCW heat exchanger clean/inspect/eddy current test, reviewed on December 14, 2021

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Surveillance Tests (other) (IP Section 03.01) (2 Samples)

(1) 2-SMI-09.40, Auxiliary Feedwater Actuation System Actuation System Relay Test, reviewed on October 8, 2021
(2) 1-OSP-69.01, Nuclear and Delta T Power Calibration, reviewed on December 12, 2021

71114.01 - Exercise Evaluation

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

(1) The inspectors evaluated a beyond design basis event (BDBE) exercise during the week of November 8, 2021. The scenario began with a simulated tornado striking the site and causing a loss of offsite power. Three of four emergency diesel generators (EDG) had various failure mechanisms and did not start, with the fourth EDG starting but shutting down after two minutes. Subsequently, an extended loss of alternating current (AC) power was declared, allowing the emergency response organization to demonstrate the site's capability to cope with a BDBE.

71114.08 - Exercise Evaluation Scenario Review

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

(1) Prior to November 10, 2021, the inspectors reviewed and evaluated the proposed scenario for the beyond design basis event exercise.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

MS06: Emergency AC Power Systems (IP Section 02.05) (2 Samples)

(1) Unit 1 (October 1, 2020–September 30, 2021)
(2) Unit 2 (October 1, 2020–September 30, 2021)

MS07: High Pressure Injection Systems (IP Section 02.06) (2 Samples)

(1) Unit 1 (October 1, 2020–September 30, 2021)
(2) Unit 2 (October 1, 2020–September 30, 2021)

MS08: Heat Removal Systems (IP Section 02.07) (2 Samples)

(1) Unit 1 (October 1, 2020–September 30, 2021)
(2) Unit 2 (October 1, 2020–September 30, 2021)

MS09: Residual Heat Removal Systems (IP Section 02.08) (2 Samples)

(1) Unit 1 (October 1, 2020–September 30, 2021)
(2) Unit 2 (October 1, 2020–September 30, 2021)

MS10: Cooling Water Support Systems (IP Section 02.09) (2 Samples)

(1) Unit 1 (October 1, 2020–September 30, 2021)
(2) Unit 2 (October 1, 2020–September 30, 2021)

71152 - Problem Identification and Resolution (PI&R)

Semiannual Trend Review (IP Section 02.02) (1 Sample)

(1) The inspectors reviewed AR 2408004, SL2-26 outage critique, for potential adverse trends in operational performance or equipment issues identified during the Unit 2 fall refuel outage that might be indicative of a more significant safety issue.

Annual Follow-up of Selected Issues (IP Section 02.03) (2 Samples)

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

(1) AR 2405582, 1A fire pump failed to start
(2) AR 2405136, 2A containment spray pump ran with suction valve closed and AR 2405431, shift manager target observation of procedure use and adherence

71153 - Follow Up of Events and Notices of Enforcement Discretion

Event Report (IP Section 03.02) (1 Sample)

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

(1) LER 05000389/2021-002-00, Foreign Material Exclusion Device Found in Containment Spray System, (ADAMS Accession No. ML21314A023). The inspection conclusions associated with this LER are documented in this report under Inspection Results Section 71153.

INSPECTION RESULTS

<table>
<tr><td colspan="4">Licensee Identified Violation for Failure to Report Permanent Change in Operator Medical Condition</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 05000335,05000389/2021004-01
Open/Closed</td><td>Not Applicable</td><td>71111.11B</td></tr>
<tr><td colspan="4">The facility licensee identified a Severity Level IV non-cited violation (NCV) of 10 CFR 55.25, "Incapacitation Because of Disability or Illness," for their failure to notify the NRC within 30 days of a permanent change in a licensed operator's medical condition.</td></tr>
<tr><td colspan="4">Description: On August 1, 2018, during a biennial physical examination for a licensed senior reactor operator (SRO), the designated medical examiner (DME) determined that the SRO required corrective lenses for reading, i.e., the SRO did not meet the near vision requirement in ANSI/ANS-3.4-1983, “Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants.” Therefore, on August 1, 2018, the DME added the lenses restriction to the SRO’s Learning Management System (LMS) qualification requirements. Additionally, during the August 1, 2018, examination, the DME further determined that a temporary administrative restriction of the SRO performing licensed duties was required to evaluate an unrelated physical examination abnormality.
On December 14, 2018, the evaluation of the abnormality was completed satisfactory and the</td></tr>
</table>

temporary administrative restriction for the SRO to perform licensed operator duties was removed; however, the SRO still required reading glasses.

On November 2, 2021, the facility licensee identified that the NRC had not been notified, via Form 396, “Certification of Medical Examination by Facility Licensee,” about the permanent change in the SRO’s vision. The facility licensee failed to notify the NRC within 30 days after August 1, 2018, when they learned about the SRO’s permanent vision change.

The inspectors verified each of the following items to ensure that the SRO subsequently complied with the lenses restriction after August 1, 2018, while he performed licensed duties. The facility licensee’s LMS was updated to require the SRO to have lenses, including a self-contained-breathing-apparatus (SCBA) with lenses readily available. Procedure OP-AA-100-1000, Conduct of Operations, Attachment 8, Shift Relief and Turnover required each oncoming shift member to ensure LMS restrictions were met. When the SRO was observed at the site medical office on August 1, 2018, July 3, 2019, June 18, 2020, and May 26, 2021, he signed an acknowledgment that corrective lenses were required. The SRO had committed no errors while on shift or been involved in any operational mishaps or near misses.

Corrective Actions: On November 2, 2021, the facility licensee initiated Action Request 2410080 to document the failure to notify the NRC, and on November 17, 2021, the facility licensee provided an updated Form 396 to the NRC with the lenses restriction.

Corrective Action References: Corrective Action Reference: AR 2410080

Performance Assessment: None

Enforcement: The ROP’s significance determination process does not specifically consider the regulatory process impact in its assessment of licensee performance. Therefore, it is necessary to address this violation which impedes the NRC’s ability to regulate using traditional enforcement to adequately deter non-compliance.

Severity: The inspectors determined the violation to be a Severity Level IV violation similar to Example 6.4.d.1.a in the NRC Enforcement Policy. Specifically, the facility licensee (non-willfully) failed to inform the NRC of a change in an operator’s medical condition, which did not contribute to the NRC making an incorrect regulatory decision. In addition, the SRO adhered to the ANSI 3.4 requirements for the changes in his vision while performing licensed duties.

Violation: Title 10 CFR 55.25 requires, in part, that if a licensed senior operator develops a permanent physical condition that causes the licensee to fail to meet the requirements of 10 CFR 55.21, the facility shall notify the Commission within 30 days of learning of the diagnosis. For conditions where a license condition is required, the facility licensee must provide medical certification on NRC Form 396, "Certification of Medical Examination by Facility Licensee."
Contrary to the above from August 1, 2018, to November 17, 2021, the facility licensee failed to notify the Commission, within 30 days of learning the diagnosis, of a change in medical condition of a licensed senior operator that developed a permanent physical condition that caused the licensed senior operator to fail to meet the requirements of 10 CFR 55.21. Specifically, on August 1, 2018, during a required biennial physical examination for the senior reactor operator, the facility licensee’s designated medical examiner determined that the senior operator required a condition on his license for

corrective lenses, but the NRC did not receive the revised NRC Form 396 until November 17, 2021.

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

2A Containment Spray System Header Rendered Inoperable by Foreign Material Exclusion Device

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000389/2021004-02 Open/Closed	[H.8] - Procedure Adherence	71153

A self-revealed Green finding and associated Non-cited Violation (NCV) of Technical Specification (TS) 6.8.1, "Procedures and Programs," was identified for the licensee's failure to remove a foreign material exclusion (FME) dam installed within the body of a containment spray isolation valve in support of seat lapping.

Description: On September 16, 2021, with Unit 2 in Mode 6 during a refueling outage, a FME device was found within V07162, isolation valve for penetration P-35B outside containment feed from 2A shutdown cooling heat exchanger. V07162 is a normally locked open and provides a flow path to the 2A containment spray header. V07162 was being inspected due to seat leakage identified during a reactor auxiliary building fluids test prior to the start of refuel outage SL2-26. The internal FME device consisted of a twelve-inch foam circle with a six foot rope lanyard. The FME device was removed by maintenance personnel and this issue was entered into the licensee's corrective action program as AR 2404422.

The licensee performed a past operability review to assess the impact the FME device had on the capability of the containment spray system to perform its safety related functions for the period of concern. The licensee determined the FME device was left in the system following maintenance on V07162 that was performed during refuel outage SL2-25 in March 2020. The maintenance on V07162 completed on March 10, 2020, and was performed under work order 40624924-01. The period of concern for past operability was assessed and determined to be from March 17, 2020–August 28, 2021. Containment spray is required to be operable by TS Limiting Condition for Operation (LCO) 3.6.2.1 and is applicable above Mode 3 with pressurizer pressure equal or greater than 1750 psia. The licensee further concluded that the 2A containment spray header would not meet the TS LCO 3.6.2.1 operability requirements for the containment spray system for the period of concern.

The NRC inspectors reviewed the licensee organizational effectiveness investigation review in AR 2404422. The licensee concluded that the technicians and supervisor failed to perform a proper FME closeout and validate removal of the FME devices. Also contributing to the error, maintenance technicians failed to use an FME internal closure device log during valve repairs. Additionally, the working procedure, 0-GMM-81.07, Inspection and Maintenance of Pacific Gate and Globe Valves, Revision 0, although it included steps (attachment 7, step 10) for technician and supervisor to sign their initials indicating the inlet and outlet FME dams were removed, it did not include separate signoff steps for each FME dam. The licensee assessed that the technicians removed the outlet FME device, became distracted, thought they removed the inlet device, and then initialed the single procedure step as complete for both inlet and outlet dams.

Corrective Actions: The licensee initiated AR 2411062 to revise 0-GMM-81.07, Inspection and Maintenance of Pacific Gate and Glove Valves, to include two independent steps for FME device installation and two independent steps for removal.

Corrective Action References: ARs 2404422 and 2411062

Performance Assessment:

Performance Deficiency: The licensee's failure to remove a foreign material exclusion (FME) dam installed within the valve body of V07162, isolation valve for penetration P-35B outside containment feed from 2A shutdown cooling heat exchanger, was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Equipment 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, the FME device rendered the 2A containment spray header inoperable and unavailable from March 17, 2020–August 28, 2021.

Significance: The inspectors assessed the significance of the finding with Attachment 4 to Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," and IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using Exhibit 2 of Appendix A for evaluation of the impact to the mitigating systems cornerstone, the inspectors determined that a detailed risk evaluation would be required. Specifically, the FME cover resulted in the loss of the Unit 2 A-train containment spray system flow path for longer than the Technical Specification allowed outage time. In addition, the inspectors used Exhibit 3 of Appendix A for evaluation of the impact to the barrier integrity cornerstone and determined that the finding would be evaluated using Appendix H, "Containment Integrity Significance Determination Process."

A detailed risk evaluation was performed by a regional senior reactor analyst using SAPHIRE Version 8.2.5 and NRC St. Lucie Unit 2 SPAR model Version 8.61. The conditional analysis included a failure of the A-train containment spray flow path to the spray header with a one-year exposure time. No credit was provided in the analysis for post-failure recovery of the affected flow path. The dominant core damage event sequence involved a plant transient and stuck-open safety relief valve initiating event with the failure of A-train containment coolers accompanied by the maintenance unavailability of the B-train of component cooling water. The analysis determined that the estimated increase in Core Damage Frequency (delta-CDF) was less than 1E-07/year. In accordance with IMC 0609, Appendix H, the finding screened out of additional consideration for an increase in Large Early Release Frequency (delta-LERF) as a Type A finding because the estimated delta-CDF was less than 1E-07/year. In addition, IMC 0609, Appendix H does not consider the containment spray system to be a significant contributor to early large, dry ambient containment failures and screened out of additional consideration for delta-LERF as a Type B finding. Therefore, the finding was determined to be of very low safety significance (Green) for delta-CDF and delta-LERF.

Cross-Cutting Aspect: H.8 - Procedure Adherence: Individuals follow processes, procedures, and work instructions. Maintenance technicians and a supervisor failed to verify removal of both inlet and outlet FME dams in accordance with 0-GMM-81.07, Inspection and Maintenance of Pacific Gate and Globe Valves, Revision 0.

Enforcement:

Violation: St. Lucie Unit 2 Technical Specification 6.8.1.a, stated, in part, that written procedures shall be established, implemented, and maintained covering the activities referenced in the applicable procedures recommended in Appendix A, of Regulatory Guide 1.33, Revision 2, February 1978. Regulatory Guide 1.33, Revision 2, Appendix A, item 9, Procedures for Performing Maintenance, subsection a, stated, in part, maintenance that can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. 0-GMM-81.07, Inspection and Maintenance of Pacific Gate and Globe Valves, Revision 0, was a written procedure used by the licensee to provide instructions for disassembly, inspection, lapping, and assembly of V07162. Attachment 7, step 10, provided instructions to remove inlet and outlet dams after satisfactory seat lapping. Contrary to the above, on March 10, 2020, technicians did not remove both inlet and outlet dams and a supervisor did not verify both inlet and outlet dams were removed. V07162 was reassembled with an FME dam obstructing the flow path to the 2A containment spray header.

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

EXIT MEETINGS AND DEBRIEFS

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

- On November 3, 2021, the inspectors presented the Biennial Licensed Operator Requalification inspection results to Mr. Carlos Santos, Acting Site Vice President, and other members of the licensee staff.
- On November 10, 2021, the inspectors presented the Beyond Design Basis Event Exercise inspection results to Mr. Dan DeBoer, Site Vice President, and other members of the licensee staff.
- On January 13, 2022, the inspectors presented the integrated inspection results to Mr. Dan DeBoer, Site Vice President, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.11B	Miscellaneous	082020DB3	RO and SRO Biennial Written Exam	02/2020
		CCW-02SA, CVC-01S, ESF-05SA, CFW-01P, PVS-01P	Crew 3, Week 3 Job Performance Measures	10/25/2021
		EDS-02S, ESF-01SA, RCS-03SA, ECC-04P, MSS-01P	Crew 4, Week 4 Job Performance Measures	11/01/2021
		PSL 0815004 and PSL 0815048	Crew 3, Week 3 Simulator Scenarios	10/25/2021
		PSL 0815006, PSL 0815018	Crew 4, Week 4 Simulator Scenarios	11/1/2021
	Procedures	TR-AA-220-1004	Licensed Operator Continuing Training Annual Operating and Biennial Written Exams	Revision 8
		TR-AA-230-1007	Conduct of Simulator Training and Evaluation	Rev 15
		TRN-001	Simulator Fidelity Test: Reactor Trip	06/12/2020
		TRN-004	Simulator Fidelity Test: All RCPs Trip from Full Power	06/12/2020