



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

May 3, 2022

Ms. Cheryl Gayheart
Regulatory Affairs Director
Southern Nuclear Company
3535 Colonnade Parkway
Birmingham, AL 35243

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT – INTEGRATED INSPECTION REPORT
05000348/2022001 AND 05000364/2022001

Dear Ms. Gayheart:

On March 31, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Joseph M. Farley Nuclear Plant. On April 25, 2022, the NRC inspectors discussed the results of this inspection with Delson Erb and other members of your staff. The results of this inspection are documented in the enclosed report.

No findings or violations of more than minor significance were identified during this 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."

Sincerely,

A handwritten signature in black ink, appearing to read "Alan J. Blamey".

Signed by Blamey, Alan
on 05/03/22

Alan J. Blamey, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Docket Nos. 05000348 and 05000364
License Nos. NPF-2 and NPF-8

Enclosure:
As stated

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SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT – INTEGRATED INSPECTION
REPORT 05000348/2022001 AND 05000364/2022001 DATED MAY 3, 2022

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NAME	D. Mas-Penaranda	P. Meier	A. Blamey		
DATE	5/3/2022	5/3/2022	5/3/2022		

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**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Numbers: 05000348 and 05000364

License Numbers: NPF-2 and NPF-8

Report Numbers: 05000348/2022001 and 05000364/2022001

Enterprise Identifier: I-2022-001-0021

Licensee: Southern Nuclear Company

Facility: Joseph M. Farley Nuclear Plant

Location: Columbia, AL

Inspection Dates: January 01, 2022 to March 31, 2022

Inspectors: C. Fontana, Emergency Preparedness Inspector
P. Meier, Senior Resident Inspector
S. Sanchez, Senior Emergency Preparedness Insp
S. Temple, Resident Inspector
J. Walker, Resident Inspector

Approved By: Alan J. Blamey, Chief
Reactor Projects Branch 2
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 Joseph M. Farley Nuclear Plant, 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

No findings or violations of more than minor significance were identified.

Additional Tracking Items

None.

PLANT STATUS

Unit 1 and unit 2 began the report period at approximately 100 percent rated thermal power (RTP) and remained at or near 100 percent RTP through the end of the report 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

71111.01 - Adverse Weather Protection

Impending Severe Weather Sample (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated the adequacy of the overall preparations to protect risk-significant systems from impending severe cold weather January 21-24, 2022 (FNP-0-SOP-0.12).

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) Unit 2 'A' containment spray system during a planned maintenance outage of the 'B' containment spray system on January 4, 2022 (D205038).
- (2) Unit 2 'A' motor driven auxiliary feedwater and turbine driven auxiliary feedwater systems during the 'B' motor driven auxiliary feedwater pump planned maintenance outage and testing on February 1, 2022 (FNP-2-SOP-22.0, D205007, D205033).
- (3) Unit 1 component cooling water system during 'B' component cooling water pump maintenance on February 22, 2022 (FNP-1-SOP-23.0, D175002).
- (4) Unit 2 'A' residual heat removal system during the encapsulation removal work for unit 2 'B' residual heat removal pump containment sump suction isolation valve (Q1E11MOV8811B) on March 30, 2022 (FNP-2-SOP-7.0, D205038, D205041).

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

- (1) The inspectors evaluated system configurations during a complete walkdown of the unit 1 service water system on January 13, 2022 (FNP-1-SOP-24.0, D170119).

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (5 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 area 1-021, unit 1 'B' train switchgear room, on February 16, 2022 (FNP-1-FPP-1.0).
- (2) Fire area 1-034, unit 1 'V' motor control center and 'B' train electrical penetration room, on February 16, 2022 (FNP-1-FPP-1.0).
- (3) Fire area 1-018, unit 1 'A' vital DC switchgear room, on February 16, 2022 (FNP-1-FPP-1.0).
- (4) Fire area 44, main control room, on February 16, 2022 (FNP-1-FPP-1.0).
- (5) Fire area 1-001 (fire zone 223; auxiliary building 121 foot), pipe penetration room, on February 16, 2022 (FNP-1-FPP-1.0).

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

- (1) The inspectors evaluated the onsite fire brigade training and performance during an unannounced fire drill on March 21, 2022 (NMP-TR-425).

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 auxiliary building 121-foot non-radiation side during the week of January 31, 2022 (CR 10854954; Calculation BM-99-1932-001).

71111.07A - Heat Exchanger/Sink Performance

Annual Review (IP Section 03.01) (1 Sample)

The inspectors evaluated readiness and performance of:

- (1) Unit 2 'C' component cooling water heat exchanger during the week of January 17, 2022 (WO SNC1109637).

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 for the following activities:

- Unit 1 'B' residual heat removal pump testing and operator response to various control room alarms on January 4, 2022 (FNP-1-STP-11.2).
- Unit 2 operator response to various control room alarms and manipulation of plant equipment on January 27, 2022.
- Unit 1 operator testing of the '1C' emergency diesel generator output breaker on March 7, 2022 (FNP-1-STP-33.4).
- Unit 1 dilution, operator response to indications, and power adjustments based on indications on March 14, 2022 (CR 10866518).

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

- (1) The inspectors observed and evaluated an as-left simulator exam (LOCT 22-1 As-Left) involving a loss of coolant accident on January 27, 2022.

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (3 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) Unit 1 instrument air system after compressor issues identified in January 2022 (CRs 10852936 and 10853048).
- (2) Unit 1 secondary issues that have the potential to result in a plant transient should they become worse; associated with the 'A' condensate pump (CR10804285), 'B' condensate pump (CR10809782), 'B' circulating water pump (CR 10799933), 'C' condensate pump air in-leakage (CR 10810886), and elevated main generator terminal temperature on one phase (CR 10803199).
- (3) Review of the unit 1 and unit 2 10 CFR 50.65(a)(3) maintenance rule periodic evaluation for the period of January 1, 2020, to May 27, 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) '2B' emergency diesel generator output breaker checks with ongoing high-risk work in the high voltage switch yard on January 5, 2022 (NMP-DP-001).
- (2) Unit 1 turbine driven auxiliary feedwater system planned maintenance outage on January 11, 2022 (NMP-OS-010).
- (3) Unit 1 'B' service air compressor emergent work identified on January 23, 2022 (NMP-DP-001, CRs 10852936 and 10853048).
- (4) Emergent troubleshooting associated with a unit 2 'B' vital DC bus ground identified on January 15, 2022 (WO SNC1204558).

- (5) Unit 2 Containment Spray valve 8817A emergent work on February 8, 2022 (NMP-DP-001, CR 10857083).
- (6) Unit 2 'C' service water pump planned maintenance outage, 'B' penetration room filtration equipment emergent work, and '1-2L' motor control center planned maintenance outage (and associated Unit 2 'B' train service water inoperability and '2B' emergency diesel generator inoperability) on March 1 and 2, 2022 (NMP-DP-001).
- (7) Unit 1 'B' component cooling water pump planned maintenance outage concurrent with the '1-2L' motor control center planned maintenance outage (and associated unit 1 'B' train service water inoperability and '1B' emergency diesel generator inoperability) resulting in yellow risk on March 2, 2022 (NMP-DP-001).

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) '1-2A' emergency diesel generator with the ventilation louvers issue identified on January 13, 2022 (CR 10850820).
- (2) Unit 2 'B' vital DC bus ground associated with battery cell 21 identified on January 15, 2022 (CR 10851386 & 10851591).
- (3) Control room air conditioning system with failures identified on January 23, 2022 (CRs 10835251 and 10852917).
- (4) Unit 2 containment spray valve 8817A hand switch failure identified on February 8, 2022 (CR 10857083).
- (5) Unit 1 leading edge flow meter flow measurement drifting non-conservatively with a potential impact on the actual power and the licensed power limit identified on February 22, 2022 (CR 10861153).
- (6) '1-2A' emergency diesel generator crankcase vacuum pump oil release identified on March 14, 2022 (CR 10866533).

71111.18 - Plant Modifications

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

The inspectors evaluated the following temporary or permanent modifications:

- (1) Safety injection motor operated valve thermal overload bypass modification implemented in January 2022 (DCP SNC1127561).

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (5 Samples)

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

- (1) Unit 2 'B' emergency diesel generator fuel oil transfer pump testing following seal

- replacements on January 5, 2022 (WO SNC1140354).
- (2) Unit 2 'A' penetration filtration system testing following exhaust fan discharge damper and recirculation fan exhaust damper actuator maintenance on January 19, 2022 (FNP-2-STP-20.0, WO SNC997134, SNC818707).
 - (3) 'A' train control room air conditioning system testing following system repairs and maintenance on February 9, 2022 (FNP-0-STP-950.1, WO SNC1090852).
 - (4) Unit 1 'B' component cooling water pump test following pump seal replacement on March 4, 2022 (FNP-1-STP-23.2, WO SNC1078004).
 - (5) Unit 2 'A' charging pump testing following seal replacement on March 11, 2022 (FNP-2-STP-4.1, WO SNC1175572).

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance testing activities to verify system operability and/or functionality:

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

- (1) Unit 2 service water valve test on January 27, 2022 (FNP-2-STP-24.7).
- (2) Unit 1 'A' residual heat removal pump quarterly test on February 15, 2022 (FNP-1-STP-11.1).
- (3) Unit 2 'B' component cooling water pump quarterly surveillance on March 14, 2022 (FNP-2-STP-23.2).

Inservice Testing (IP Section 03.01) (1 Sample)

- (1) Unit 1 'A' train service water pumps 'A', 'B', and 'C' inservice test on January 20, 2022 (FNP-1-STP-24.1).

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 March 8, 2022. The Farley exercise scenario simulated a report from security that a tornado had touched down inside the protected area. This met the conditions for declaration of an Unusual Event. A short time later, another tornado hit the high voltage switchyard, which caused a loss of offsite power on both units. All emergency diesel generators (EDGs) started and powered the required electrical buses, but one of the Unit 1 dedicated EDGs tripped shortly after starting. This resulted in a loss of one train of electrical power on Unit 1 and met the conditions for declaration of an Alert. Lastly, the remaining Unit 1 EDG tripped on low lube oil pressure causing a loss of all onsite emergency power on Unit 1, thus meeting the conditions for declaration of a Site Area Emergency. The exercise scenario was designed to not simulate a radiological release and therefore, not meet the conditions for declaration of a General Emergency.

71114.04 - Emergency Action Level and Emergency Plan Changes

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

- (1) The inspectors evaluated submitted Emergency Action Level, Emergency Plan, and Emergency Plan implementing procedure changes during the week of March 8, 2022. 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) Licensed operator response during a simulator exam involving a loss of coolant accident that contributed to the drill and exercise performance indicator on January 27, 2022.

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:

IE01: Unplanned Scrams per 7000 Critical Hours Sample (IP Section 02.01) (2 Samples)

- (1) Unit 1 (January 1, 2021, through December 31, 2021).
- (2) Unit 2 (January 1, 2021, through December 31, 2021).

IE03: Unplanned Power Changes per 7000 Critical Hours Sample (IP Section 02.02) (2 Samples)

- (1) Unit 1 (January 1, 2021, through December 31, 2021).
- (2) Unit 2 (January 1, 2021, through December 31, 2021).

IE04: Unplanned Scrams with Complications (USwC) Sample (IP Section 02.03) (2 Samples)

- (1) Unit 1 (January 1, 2021, through December 31, 2021).
- (2) Unit 2 (January 1, 2021, through December 31, 2021).

EP01: Drill/Exercise Performance (DEP) Sample (IP Section 02.12) (1 Sample)

- (1) July 1, 2021, through December 31, 2021.

EP02: Emergency Response Organization (ERO) Drill Participation (IP Section 02.13) (1 Sample)

- (1) July 1, 2021, through December 31, 2021.

EP03: Alert And Notification System (ANS) Reliability Sample (IP Section 02.14) (1 Sample)

- (1) July 1, 2021, through December 31, 2021.

71152A - Annual Follow-up Problem Identification and Resolution

Annual Follow-up of Selected Issues (Section 03.03) (2 Samples)

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

- (1) Unit 1 fire detection upgrade implemented in 2021 to minimize control room nuisance alarms (WOs SNC1054443, SNC1054444, SNC1054445, SNC1054446).
- (2) '1-2A' emergency diesel generator output breaker failure on December 13, 2020 and associated causal evaluation and extent of condition (CR 10846540, CAR 291074).

71152S - Semiannual Trend Problem Identification and Resolution

Semiannual Trend Review (Section 03.02) (1 Sample)

- (1) The inspectors reviewed the licensee's corrective action program for potential adverse trends of foreign materials in the reactor coolant system that might be indicative of a more significant safety issue (CR 10788529).

INSPECTION RESULTS

No findings were identified.

EXIT MEETINGS AND DEBRIEFS

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

- On April 25, 2022, the inspectors presented the integrated inspection results to Delson Erb and other members of the licensee staff.
- On March 10, 2022, the inspectors presented the Emergency Preparedness Exercise Inspection results to Mr. D. Erb and other members of the licensee staff.