UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

May 9, 2022

Mr. Brad Berryman
Senior Vice President and Chief Nuclear Officer
Susquehanna Nuclear, LLC
769 Salem Blvd., NUCSB3
Berwick, PA 18603

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 – INTEGRATED INSPECTION REPORT 05000387/2022001 AND 05000388/2022001

Dear Mr. Berryman:

On March 31, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Susquehanna Steam Electric Station, Units 1 and 2. On May 5, 2022, the NRC inspectors discussed the results of this inspection with you 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 I; the Director, Office of Enforcement; and the NRC Resident Inspector at Susquehanna Steam Electric Station, Units 1 and 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 I; and the NRC Resident Inspector at Susquehanna Steam Electric Station, Units 1 and 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,

Jonathan E. Greives

Digitally signed by Jonathan E. Greives
Date: 2022.05.09 13:43:49 -04'00'

Jonathan E. Greives, Chief
Projects Branch 4
Division of Operating Reactor Safety

Docket Nos. 05000387 and 05000388
License Nos. NPF-14 and NPF-22

Enclosure:
As stated

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SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 – INTEGRATED INSPECTION REPORT 05000387/2022001 AND 05000388/2022001 DATED MAY 9, 2022

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers:	05000387 and 05000388
License Numbers:	NPF-14 and NPF-22
Report Numbers:	05000387/2022001 and 05000388/2022001
Enterprise Identifier:	I-2022-001-0052
Licensee:	Susquehanna Nuclear, LLC
Facility:	Susquehanna Steam Electric Station, Units 1 and 2
Location:	769 Salem Blvd., Berwick, PA
Inspection Dates:	January 1, 2022 to March 31, 2022
Inspectors:	C. Highley, Senior Resident Inspector M. Rossi, Resident Inspector H. Anagnostopoulos, Senior Health Physicist L. Casey, Senior Project Engineer
Approved By:	Jonathan E. Greives, Chief Projects Branch 4 Division of Operating Reactor Safety

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at Susquehanna Steam Electric Station, Units 1 and 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

Non-Functional Emergency Lighting in the Remote Shutdown Room			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000387/2022001-01 Open/Closed	[H.8] - Procedure Adherence	71111.05
The inspectors identified a Green, non-cited violation (NCV) of Appendix R to 10 CFR Part 50, Section III.J, when the licensee failed to ensure emergency lighting was available and did not implement compensatory measures in the remote shutdown panel (RSDP) room.			

Instrument Drift Resulted in Condition Prohibited by Technical Specifications			
Cornerstone	Severity	Cross-Cutting Aspect	Report Section
Not Applicable	Severity Level IV NCV 05000387,05000388/2022001-02 Open/Closed	Not Applicable	71153
A Severity Level IV NCV of Unit 2 Technical Specifications (TSs) 3.3.5.1, 3.5.1, and 3.0.3 was self-revealed when the Unit 1 reactor steam dome pressure - low permissive pressure switch failed to meet acceptance criteria during testing. Specifically, upon station evaluation, it was determined that the inoperable condition existed for longer than allowed by TSs limiting condition for operation (LCO) 3.3.5.1, 3.5.1, and 3.0.3.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000387,05000388/ 2018-005-02	LER 2018-005-02 for Susquehanna Steam Electric Station, Units 1 and 2, Condition Prohibited by Technical Specifications Due to Drift of Reactor Pressure Switches	71153	Closed
LER	05000388/2020-002-00	LER 2020-002-00 for Susquehanna Steam Electric Station, Unit 2, Condition Prohibited by Technical Specifications Due to Drift of Reactor Pressure Switch	71153	Closed

LER	05000388/2020-002-01	LER 2020-002-01 for Susquehanna Steam Electric Station, Unit 2, Condition Prohibited by Technical Specifications Due to Drift of Reactor Pressure Switch Caused by Lack of Requirements for Acclimation of the Instrument to the Operating Environment	71153	Closed
LER	05000387/2021-001-00	LER 2021-001-00 for Susquehanna Steam Electric Station, Unit 1, Unplanned Inoperability of the High-Pressure Coolant Injection (HPCI) System Due to a Primary Containment Isolation (PCIV) Valve Failure to Stroke Full Closed On-Demand Due to an Intermittent Break in the Close Control Circuitry	71153	Closed

PLANT STATUS

Unit 1 began the inspection period at or near rated thermal power. On January 4, 2022, the unit was down powered to 73 percent for rod friction testing. The unit was returned to rated thermal power on January 5, 2022. On January 9, 2022, the unit was down powered to 67 percent for a rod pattern adjustment. The unit was returned to rated thermal power on January 10, 2022. On January 14, 2022, the unit was down powered to 72 percent for a rod pattern adjustment. The unit was returned to rated thermal power on January 21, 2022. On January 21, 2022, the unit commenced a coast down for a planned refueling outage. On March 27, 2022, the unit was down powered to 17 percent for the refueling outage; and on March 28, 2022, a planned manual scram was inserted. The unit remained shut down for the refueling outage for the remainder of the inspection period.

Unit 2 began the inspection period at or near rated thermal power. On January 7, 2022, the unit was down powered to 61 percent for a rod sequence exchange. The unit was returned to rated thermal power on January 10, 2022. On March 25, 2022, the unit was down powered to 64 percent for a rod sequence exchange. The unit was returned to rated thermal power on March 28, 2022, and remained at or near 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 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 (IP Section 03.02) (1 Sample)

(1) The inspectors evaluated the adequacy of the overall preparations to protect risk-significant systems from impending severe weather on January 24, 2022.

71111.04 - Equipment Alignment

Partial Walkdown (IP Section 03.01) (4 Samples)

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

(1) Unit Common, 'A' emergency service water pumps during 'B' control structure chiller maintenance on January 12, 2022
(2) Unit 2, 'B' residual heat removal during Unit 1 spent fuel pool cooling maintenance outage on February 22, 2022
(3) Unit 1, reactor core isolation cooling post-run alignment prior to the high-pressure coolant injection system outage window on March 15, 2022
(4) Unit Common, 'C' and 'E' emergency diesel generators during Unit 1 high-pressure coolant injection out-of-service with 'A' emergency diesel generator irregular indications on March 21, 2022

71111.05 - Fire Protection

Fire Area Walkdown and Inspection (IP Section 03.01) (8 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 2, high-pressure coolant injection system (FZ 2-2B and FZ 2-1C) on January 4, 2022
(2) Unit 2, reactor water clean up pump 2B room (FZ 2-5D II-502) on January 4, 2022
(3) Units 1 and 2, lower relay rooms (FZ 1-33A and FZ 2-33A) on January 6, 2022
(4) Unit Common, refueling floor (FZ 0-8A) on February 22, 2022
(5) Unit 1, spent fuel pool pump room during hot work with alarms disabled (FZ 1-5A-N, S, W and FZ 1-5H) on February 22 and 23, 2022
(6) Unit Common, emergency service water and residual heat removal service water pump house (FZ 0-51 and FZ 0-52) on March 17, 2022
(7) Unit Common, 'E' diesel generator building (FZ 0-41E) on March 29, 2022
(8) Unit Common, diesel generator bay 'D' (FZ 0-41D) on March 29, 2022

Fire Brigade Drill Performance (IP Section 03.02) (2 Samples)

(1) The inspectors evaluated the onsite fire brigade training and performance during an unannounced fire drill on January 18, 2022
(2) The inspectors evaluated the onsite fire brigade training and performance during an announced fire drill on February 26, 2022

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (2 Samples)

(1) The inspectors observed and evaluated licensed operator performance in the control room during routine operations to include annunciator response procedures and recirculation pump adjustments for reactivity control on February 18, 2022.
(2) The inspectors observed and evaluated licensed operator performance in the control room during Unit 1 planned shutdown for commencement of the refueling outage on March 27, 2022.

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

(1) The inspectors observed and evaluated licensed operators during requalification activities that included loss of T-20 transformer, malfunction of a reactor recirculation pump, reactor scram, primary leak with a loss of high-pressure coolant injection and no reactor coolant isolation cooling available, and no condensate flow which led to initiation of automatic depressurization. Additionally, an emergency action level determination of Alert and an escalation to Site area emergency was performed on February 17, 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 remain capable of performing their intended function:

(1) Units 1 and 2, scram discharge volume vent and drain valve evaluation into a (1) status on March 24, 2022
(2) Unit Common, Appendix R lighting (system 07) maintenance strategy and function scoping on March 31, 2022
(3) Unit Common, automatic transfer switch (system 06) motor and gearbox maintenance and replacement strategy on March 31, 2022

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management (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 Common, increased plant risk during emergency service water pipe replacement in conjunction with residual heat removal service water pressure safety valve replacement on January 28, 2022
(2) Unit 1, increased plant risk 1A residual heat removal service water system outage window concurrent with the 'A' emergency diesel generator system outage window on January 31, 2022
(3) Unit 1, increased plant risk during online maintenance of emergency safeguards system alternate power breaker 1A201-09 on February 22, 2022
(4) Unit 1, increased plant risk during emergent inoperability of the 'B' control structure chiller and the concurrent functional testing of the loop 'B' and common residual heat removal at the RSDP on March 14, 2022
(5) Unit 1,Yellow core damage frequency during high-pressure coolant injection out-of-service while performing RSDP testing on March 22, 2022
(6) Unit 1, Yellow large early release frequency during de-inertion of containment while high-pressure coolant injection out-of-service on March 27, 2022
(7) Unit 1, Yellow shutdown risk during loss of coolant/loss of offsite power infrequently performed test (two year) on March 30, 2022

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (3 Samples)

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

(1) Unit Common, functionality assessment of BlueMax diesel generator as documented in CR-2022-00354 on January 3, 2022
(2) Unit 2, reactor pressure vessel narrow range level instrument out of tolerance for past operability as documented in CR-2021-17540 on February 3, 2022
(3) Unit 1, past functionality assessment of the RSDP emergency lighting as documented in CR-2021-17538 on March 10, 2022

71111.19 - Post-Maintenance Testing

Post-Maintenance Test (IP Section 03.01) (7 Samples)

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

(1) Unit 1, 'A' spent fuel pool cooling pump troubleshooting and repair, PCWO2511347-0, on January 5, 2022
(2) Unit 1, 'B' core spray valve inspection and maintenance, RTPM2178047, RTPM2264759, and RTPM2401192, on January 11, 2022
(3) Unit Common, 'B' control structure HVAC system repair and maintenance, PCWO 2403586-0, RACT 2408732, RACT 2408734, and RTPM 2352625, on January 12, 2022
(4) Unit 2, reactor water cleanup 2B pump replacement on January 18, 2022
(5) Unit 1, 1A20109 4kV supply breaker to switchgear inspection and overhaul, ERPM 2443595, on February 22, 2022
(6) Unit 1, fuel pool cooling heat exchanger instrument line weld repair, PCWO 2422162-0, on February 22, 2022
(7) Unit 1, reactor core isolation cooling pump flow surveillance following breaker and valve work, RTPM 2297582, RTSV 2336523, and RTPM 2339995, on March 15, 2022

71111.20 - Refueling and Other Outage Activities

Refueling/Other Outage (IP Section 03.01) (1 Partial)

(1) (Partial)
The inspectors evaluated refueling and inspection outage (U122RIO) activities from March 28, 2022, to March 31, 2022. The inspectors completed IP Section 03.01, Sections A and B, and completed some portions of Section 03.01, Section C.

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) (4 Samples)

(1) Unit Common, seismic monitor calibration and functional test, SI-099-302 and 201, on January 24, 2022
(2) Unit 1, 24VDC battery operability testing on February 22, 2022
(3) Unit 2, high-pressure coolant injection surveillance run on March 10, 2022
(4) Unit 1, RSDP testing of 'B' residual heat removal on March 14, 2022

Inservice Testing (IP Section 03.01) (1 Sample)

(1) Unit Common, control structure chilled water loop 'B' comprehensive flow surveillance, SO-030-B06, on February 15, 2022

RCS Leakage Detection Testing (IP Section 03.01) (1 Sample)

(1) Unit 2, reactor coolant system leak detection calculation on February 24, 2022

71114.06 - Drill Evaluation

Select Emergency Preparedness Drills and/or Training for Observation (IP Section 03.01) (1 Sample)

(1) Full scale emergency preparedness drill simulating a feedwater leak with loss of containment and level instrumentation on March 8, 2022

RADIATION SAFETY

71124.03 - In-Plant Airborne Radioactivity Control and Mitigation

Permanent Ventilation Systems (IP Section 03.01) (2 Samples)

The inspectors evaluated the configuration of the following permanently installed ventilation systems:

(1) Unit 2 Turbine Building (2F157A/B)
(2) Unit 1 Zone 3 Reactor Building (1F216A/B)

Temporary Ventilation Systems (IP Section 03.02) (2 Samples)

The inspectors evaluated the configuration of the following temporary ventilation systems:

(1) Hot shop Kelly building enclosure
(2) Hot shop lathe enclosure

Use of Respiratory Protection Devices (IP Section 03.03) (1 Sample)

(1) The inspectors evaluated the licensee’s use of respiratory protection devices.

Self-Contained Breathing Apparatus for Emergency Use (IP Section 03.04) (1 Sample)

(1) The inspectors evaluated the licensee's use and maintenance of self-contained breathing apparatuses.

OTHER ACTIVITIES – BASELINE

71153 - Follow Up of Events and Notices of Enforcement Discretion

Event Report (IP Section 03.02) (3 Samples)

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

(1) LER 05000387 and 05000388/2018-005-02, Condition Prohibited by Technical Specifications Due to Drift of Reactor Pressure Switches (ADAMS Accession No. ML21182A042): The inspectors reviewed the updated LER submittal. The previous LER submittal was reviewed in Susquehanna Steam Electric Station, Units 1 and 2 - Biennial Problem Identification and Resolution Inspection Report 05000387/2020011 and 05000388/2020011 (ADAMS Accession No. ML20231A321). The inspection conclusions associated with this LER are documented in Susquehanna Steam Electric Station - Integrated Inspection Report 05000387/2018004 and 05000388/2018004 (ADAMS Accession No. ML19045A259) under the Inspection Results Section, NCV 05000387;388/2018004-02.

(2) LER 05000388/2020-002-00 and 05000388/2020-002-01, Condition Prohibited by Technical Specifications Due to Drift of Reactor Pressure Switch Caused by Lack of Requirements for Acclimation of the Instrument to the Operating Environment (ADAMS Accession Nos. ML20281A825 and ML21182A044): The inspection conclusions associated with this LER are documented in this report under the Inspection Results Section, NCV 05000388/2022001-02.

(3) LER 05000387/2021-001-00, Unplanned Inoperability of the High-Pressure Coolant Injection (HPCI) System Due to a Primary Containment Isolation (PCIV) Valve Failure to Stroke Full Closed On-Demand Due to an Intermittent Break in the Close Control Circuitry (ADAMS Accession No. ML21126A316): The inspectors determined that it was not reasonable to foresee or correct the cause discussed in the LER; therefore, no performance deficiency was identified. The inspectors did not identify a violation of NRC requirements.

INSPECTION RESULTS

Non-Functional Emergency Lighting in the Remote Shutdown Room			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000387/2022001-01 Open/Closed	[H.8] - Procedure Adherence	71111.05
The inspectors identified a Green NCV of Appendix R to 10 CFR Part 50, Section III.J, when the licensee failed to ensure emergency lighting was available and did not implement compensatory measures in the RSDP room.			
Description: The plant lighting system is designed to furnish illumination levels required for safe performance of plant operation, security, shutdown, and maintenance duties.			

Emergency DC-powered lighting is provided in essential areas for the safety of personnel during an AC power failure. The plant lighting system is composed of normal (AC), essential (AC), and emergency (DC) lighting.

Fixtures for the emergency DC lighting subsystem (ELS) within the plant are normally energized from normal AC power. This DC lighting subsystem is normally supplied from the branch circuits of the 120/208 volt lighting panels via a transfer switch to the AC/DC lighting panels. Upon loss of the preferred AC source, the AC/DC panels will be fed automatically from the 125VDC emergency lighting power system.

The Unit 1 RSDP room contains two batteries attached to the emergency DC lighting system to provide power for 8 hours of lighting in the event of loss of normal AC power. Lighting is required in this location in the event of a control room evacuation which requires plant operators to shut down the reactor from the remote location.

On October 5, 2021, the licensee performed a surveillance on the Unit 1 RSDP lighting, noting satisfactory results as documented in work order 2414524.

On December 15, 2021, the NRC inspectors identified that both ELS batteries were unplugged and fully discharged in the RSDP room and notified station personnel. Station personnel declared the ELS lights (ELS2007 and ELS2008) non-functional, immediately implemented a compensatory measure to stage portable lighting inside the RSDP room, and dispatched personnel to investigate the condition. As part of the investigation, station personnel determined that the most recent preventive maintenance and testing of the ELS occurred on October 5, 2021.

In the course of inspection, it was determined that plant procedure OP-107-001, "Plant Lighting System," Revision 32, the governing procedure for Appendix R lighting, did not specify a requirement for compensatory measures for this lighting unless failure of the system UPS occurred. The station developed a corrective action to revise the conditions under which the procedure requires compensatory actions. Additionally, portable lantern lighting is permanently staged and available on another elevation in the FLEX equipment boxes in both of the residual heat removal pump rooms and the reactor core isolation cooling room.

Additionally, inspectors engaged the station on the need for compensatory actions prior to performing discharge testing of the ELS in the RSDP room and main control room. Plant procedure MT-007-002, "E8 and E30 Appendix R and Non-Appendix R Emergency Lighting Preventive Maintenance and Functional Failure Checks," Revision 27, does not specify the need for compensatory actions in the event of testing failure or component replacement. Station personnel subsequently investigated the maintenance practices used during this testing.

Following the investigation, there were no procedures or processes conducted between the time of the preventative maintenance and when the inspectors identified the emergency lights unplugged, and the licensee was unable to determine when the lights were unplugged.

Corrective Actions: Plant operations staff placed portable lighting in the RSDP room and assigned actions to revise the Appendix R lighting procedure.

Corrective Action References: CR-2021-17538, CR-2022-00560

Performance Assessment:

Performance Deficiency: The failure to ensure availability of emergency lighting or an appropriate compensatory measure in the RSDP was reasonably foreseeable and preventable and was a performance deficiency. Station personnel did not ensure that the RSDP ELS was energized and capable of performing its function after completing station activities.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Protection Against External Factors 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, in the event of a control room fire requiring evacuation, control room operators would be required to relocate to the RSDP room, where inadequate installed emergency lighting existed to enable successful completion of operator actions. This determination was also informed by IMC 0612, Appendix E, Example 4.d., "Examples of Minor Issues," which is more than minor if individuals are not procedurally required to normally carry adequate lighting on their person. Control room operators do not have a requirement to carry flashlights.

Significance: The inspectors assessed the significance of the finding using Appendix F, "Fire Protection and Post - Fire Safe Shutdown SDP." Under Section 1.4.7, Question A, the performance deficiency is associated with emergency lighting, and operators did have a source of adequate alternate lighting available; therefore, this finding screens to Green. Specifically, while operators are not required to carry flashlights, alternate lighting existed outside the RSDP room on the 645-foot elevation in the FLEX equipment storage boxes; and adequate installed lighting existed across that travel path to enable retrieving the lights to complete their assigned actions.

Cross-Cutting Aspect: H.8 - Procedure Adherence: Individuals follow processes, procedures, and work instructions. Specifically, the emergency lights were unplugged without direction by site processes or procedures.

Enforcement:

Violation: Susquehanna Steam Electric Station Operating License Condition 2.C.(6) requires, in part, that the licensee shall implement and maintain in effect all provisions of the approved fire protection program as described in the Fire Protection Review Report for the facility.

The Fire Protection Review Report, Section 3.4, specifies, in part, that Susquehanna will ensure compliance with 10 CFR Part 50, Appendix R, Section III.J.

Title 10 of the Code of Federal Regulations, *Energy*, Part 50, Appendix R, Section III.J, states, in part, that emergency lighting units with at least an 8-hour battery power supply shall be provided in all areas needed for operation of safe shutdown equipment. Contrary to the above, the licensee did not provide emergency lighting units with at least an 8-hour battery power supply in a location needed for operation of safe shutdown equipment. Specifically, for an unspecified duration between October 5, 2021, until December 15, 2021, the emergency lighting system in the RSDP room was non-functional with no compensatory actions in place to provide the required lighting.

Enforcement Action: This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy.

Instrument Drift Resulted in Condition Prohibited by Technical Specifications			
Cornerstone	Severity	Cross-Cutting Aspect	Report Section
Not Applicable	Severity Level IV NCV 05000387,05000388/2022001-02 Open/Closed	Not Applicable	71153

A Severity Level IV NCV of Unit 2 TSs 3.3.5.1, 3.5.1, and 3.0.3 was self-revealed when the Unit 1 reactor steam dome pressure - low permissive pressure switch failed to meet acceptance criteria during testing. Specifically, upon station evaluation, it was determined that the inoperable condition existed for longer than allowed by TSs LCO 3.3.5.1, 3.5.1, and 3.0.3.

Description: On August 10, 2020, the Unit 2 “D” reactor steam dome pressure - low permissive pressure switch, Microswitch 2, was found outside of the TS 3.3.5.1 allowable value. The switch drifted outside of the upper allowable value which is intended to ensure that the reactor dome pressure has fallen to a value below the core spray and residual heat removal/low pressure coolant injection (LPCI) maximum design pressures to preclude over-pressurization of the low pressure systems prior to low pressure injection initiation.

Based on the information available, the condition existed for longer than allowed by TSs 3.3.5.1, 3.5.1, and 3.0.3. As such, this is a condition prohibited by TS and was reported in accordance with 10 CFR 50.73(a)(2)(i)(B). In addition, since the “C” channel (PIS-B21-2N021C) was surveillance tested just prior to identification of the drift of the “D” channel (PS-B21-2N021D), redundant channels were inoperable at the same time impacting both core spray and LPCI functions; therefore, this was also considered a condition that could have prevented fulfillment of a safety function (10 CFR 50.73(a)(2)(v)(D)) and a common cause inoperability of independent trains or channels (10 CFR 50.73(a)(2)(vii)).

Drifting outside of the TS allowable value on August 10, 2020, is attributed to vendor documents not specifying requirements related to soaking, acclimating, or exposing the instrument to the environment prior to installation and the switch not meeting vendor published repeatability of 0.25 percent of full scale. Key corrective actions include changing the licensee vendor manual associated with the pressure transmitters to identify the need to acclimate new (or refurbished) switches to inservice conditions for at least 48 hours prior to placing in service and calibrating.

Corrective Actions: The switch was acclimated and returned to within the TS allowable values and the licensee revised the manual associated with the pressure transmitters to identify that acclimation of new (or refurbished) switches to in service conditions for at least 48 hours prior to placing in service and calibrating is required.

Corrective Action References: CR-2020-11139

Performance Assessment: The NRC determined this violation was not reasonably foreseeable and preventable by the licensee and therefore is not a performance deficiency.

Enforcement: The Reactor Oversight Process's significance determination process does not specifically consider a violation of requirements with no performance deficiency in its assessment of licensee performance. Therefore, it is necessary to address this violation which does not include an identified performance deficiency using traditional enforcement rather than assign a color (e.g., Green).

Section 6.1.d of the NRC Enforcement Policy provides examples of Severity Level IV violations. Section 6.1.d.1 states, in part, that failure to comply with the allowances for LCO and surveillance requirement applicabilities in TS Section 3.0 is an example of a Severity Level IV violation.

Violation: TS LCO 3.3.5.1 specifies that the emergency core cooling system instrumentation for each Function in Table 3.3.5.1-1 shall be OPERABLE, which includes, but is not limited to, core spray system - reactor steam dome pressure low (initiation and injection permissive functions) and LPCI system - reactor steam dome pressure low (initiation, injection permissive, and recirculation discharge valve permissive functions), or to restore an INOPERABLE channel within 24 hours or declare the supported feature INOPERABLE.

TS LCO 3.5.1, Condition I, requires that one LPCI subsystem INOPERABLE for reasons other than the pump in that subsystem being INOPERABLE and one core spray subsystem INOPERABLE shall result in immediate entry into TS LCO 3.0.3.

TS LCO 3.0.3 specifies, in part, that action shall be initiated within 1 hour to place the unit, as applicable in MODE 2 within 7 hours; MODE 3 within 13 hours; and MODE 4 within 37 hours.

Contrary to the above, for an undetermined period of time until date of discovery, the emergency core cooling system instrumentation for the core spray and LPCI systems - reactor steam dome pressure low functions were not met. Specifically, when the permissive functions for the Barton pressure switch drifted out of TS acceptance criteria, the instrument was not restored to operable status within 24 hours, the supported LPCI and core spray systems were not declared inoperable as required, and a unit shutdown was not initiated.

The disposition of this violation closes LER 05000388/2020-002-00 and 05000388/2020-002-01, Condition Prohibited by Technical Specifications Due to Drift of Reactor Pressure Switch Caused by Lack of Requirements for Acclimation of the Instrument to the Operating Environment.

Enforcement Action: This violation is being treated as an NCV, 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 February 3, 2022, the inspectors presented the in-plant airborne radioactivity control and mitigation inspection results to Mr. Derek Jones, Plant Manager, and other members of the licensee staff.
- On May 5, 2022, the inspectors presented the integrated inspection results to Mr. Brad Berryman, Senior Vice President and Chief Nuclear Officer, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.01	Procedures	OI-AD-029	Emergency Load Control	Revision 17
		OP-AD-300	Administration of Operations	Revision 42
71111.05	Corrective Action Documents Resulting from Inspection		2022-03237, 2022-03241, 2022-03248, 2022-03251	
	Fire Plans	FP 113-119	Circulation Space and Adjacent Rooms, Fire Zones 1-5A-N,S,W; 1-5H, El. 749	Revision 6
		FP 113-222	Lower Switchgear Room, Fire Zone 1-33A, El. 699	Revision 2
		FP 213-244	Equipment Access Area, Fire Zone 2-2B, El. 670	Revision 6
		FP 213-279	Lower Switchgear Room, Fire Zone 2-33A, El. 699	Revision 5
	Miscellaneous		Critique of Unannounced Fire Drill on U1 D Core Spray Pump Motor	01/18/2022
			Critique of Fire Drill for Control Rod Drive	02/26/2022
	Procedures	FP-013-132	Common Refueling Floor (I 810, II 810), Fire Zone 0-8A, Elevation 818'1"	Revision 5
		FP-013-200	ESSW Pump House Loop "A" Pump Room (E-1), Fire Zone 0-51, Elevation 685'-6"	Revision 4
		FP-013-201	ESSW Pump House Loop "B" Pump Room (E-2), Fire Zone 0-52, Elevation 685'-6"	Revision 4
		FP-213-256	Pipe Penetration Room (II-501), Cleanup Recirculation Pump Room (II-502, 503), Heat Exchanger Cells (II-504, 505), Fire Zone 2-5D, Elevation 749'-1"	Revision 5
71111.19	Corrective Action Documents Resulting from Inspection		CR-2022-04142	03/15/2022
	Work Orders	2188842	Degrading Current Trend on the 2P221B RWCU Pump Replace the 2P221B with the Spare Motor (this WO included the pump replacement despite what the title states)	01/05/2022
		RTSV 2518173	92-Day RCIC Flow Verification SO-150-002	

71111.22	Procedures	RTSV 2165290	SO-149-020, Online Functional Test of RHR Loop B and RHR Loop Common at 1C201B	03/14/2022
		RTSV 2321613	SM-175-203, Division 2, 24VDC Battery 2-Year Service Test	02/22/2022