



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

August 18, 2020

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

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 – BIENNIAL
PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT
05000387/2020011 AND 05000388/2020011

Dear Mr. Berryman:

On July 31, 2020, the U.S. Nuclear Regulatory Commission (NRC) completed a problem identification and resolution inspection at your Susquehanna Steam Electric Station, Units 1 and 2 and discussed the results of this inspection with Mr. Kevin Cimorelli, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspection team reviewed the station's corrective action program and the station's implementation of the program to evaluate its effectiveness in identifying, prioritizing, evaluating, and correcting problems, and to confirm that the station was complying with NRC regulations and licensee standards for corrective action programs. Based on the samples reviewed, the team determined that your staff's performance in each of these areas adequately supported nuclear safety.

The team also evaluated the station's processes for use of industry and NRC operating experience information and the effectiveness of the station's audits and self-assessments. Based on the samples reviewed, the team determined that your staff's performance in each of these areas adequately supported nuclear safety.

Finally the team reviewed the station's programs to establish and maintain a safety-conscious work environment, and interviewed station personnel to evaluate the effectiveness of these programs. Based on the team's observations and the results of these interviews the team found no evidence of challenges to your organization's safety-conscious work environment. Your employees appeared willing to raise nuclear safety concerns through at least one of the several means available.

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,

X /RA/

Signed by: Jonathan E. Greives
Jonathan E. Greives, Chief
Reactor Projects Branch 4
Division of Reactor Projects

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 – BIENNIAL
 PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT
 05000387/2020011 AND 05000388/2020011 DATED AUGUST 18, 2020

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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: 05000387/2020011 and 05000388/2020011

Enterprise Identifier: I-2020-011-0013

Licensee: Susquehanna Nuclear, LLC

Facility: Susquehanna Steam Electric Station, Units 1 and 2

Location: Berwick, PA

Inspection Dates: July 13, 2020 to July 31, 2020

Inspectors: P. Finney, Senior Project Engineer
T. Gardner, Physical Scientist
C. Highley, Resident Inspector
M. Rossi, Resident Inspector

Approved By: Jonathan E. Greives, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a biennial problem identification and resolution 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

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

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000388/2017-010-01	LER 2017-010-01 for Susquehanna, Unit 2, Condition Prohibited by Technical Specifications Due to Drift of Reactor Pressure Switches	71153	Closed
LER	05000387,05000388/2018-005-01	LER 2018-005-01 for Susquehanna, Unit 1, Condition Prohibited by Technical Specifications Due to Drift of Reactor Pressure Switches	71153	Closed
LER	05000387/2019-002-01	LER 2019-002-001 for Susquehanna Steam Electric Station, Unit 1, Inoperability of "C" Emergency Service Water Pump	71153	Closed

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 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 (COVID-19), regional inspectors were directed to begin telework. The inspection documented below was determined that the objectives and requirements stated in the IP could be completed remotely.

OTHER ACTIVITIES – BASELINE

71152B - Problem Identification and Resolution

Biennial Team Inspection (IP Section 02.04) (1 Sample)

- (1) The inspectors performed a biennial assessment of the licensee's corrective action program; use of operating experience, self-assessments, and audits; and safety conscious work environment.
 - Corrective Action Program Effectiveness: The inspectors assessed the corrective action program's effectiveness in identifying, prioritizing, evaluating, and correcting problems. The inspectors also conducted a five-year review of age-dependent issues on residual heat removal service water and 480 volt engineering safeguard system load centers and motor control centers.
 - Operating Experience, Self-Assessments and Audits: The inspectors assessed the effectiveness of the station's processes for use of operating experience, audits and self-assessments.
 - Safety Conscious Work Environment: The inspectors assessed the effectiveness of the station's programs to establish and maintain a safety-conscious work environment.

71153 - Followup 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 05000387/2019-002-001, Unit 1, Inoperability of "C" Emergency Service Water Pump (ADAMS Accession No. ML19352E175). The inspectors reviewed the updated LER submittal. The previous LER submittal was reviewed in Inspection Report 05000387;388/2019004. The inspection conclusions associated with this LER are documented in Inspection Report 05000387;388/2019004 under the Inspection Results Section.
- (2) LER 05000387;388/2018-005-01, Unit 1, Condition Prohibited by Technical Specifications Due to Drift of Reactor Pressure Switches (ADAMS Accession No.

ML19350A284). The inspectors reviewed the updated LER submittal. The previous LER submittal was reviewed in Inspection Report 05000387;388/2018004. The inspection conclusions associated with this LER are documented in Inspection Report 05000387;388/2018004 under the Inspection Results Section.

- (3) LER 05000388/2017-010-01, Unit 2, Condition Prohibited by Technical Specifications Due to Drift of Reactor Pressure Switches (ADAMS Accession No. ML19350A281). The inspectors reviewed the updated LER submittal. The previous LER submittal was reviewed in Inspection Report 05000387;388/2018004. The inspection conclusions associated with this LER are documented in Inspection Report 05000387;388/2018004 under the Inspection Results Section.

INSPECTION RESULTS

Assessment	71152B
<p>Problem Identification: The inspectors determined that, in general, the licensee identified issues and entered them into the corrective action program (CAP) at a low threshold.</p> <p>However, the inspectors identified one observation regarding the licensee's identification of problems. The details of the observation are documented in the applicable section below.</p> <p>Problem Prioritization and Evaluation: Based on the samples reviewed, the inspectors determined that, in general, the licensee appropriately prioritized and evaluated issues commensurate with the safety significance of the identified problem. The licensee appropriately screened issue reports (CRs) for operability and reportability, categorized CRs by significance, and assigned actions to the appropriate department for evaluation and resolution.</p> <p>Corrective Actions: The inspectors determined that the overall CAP performance related to resolving problems was effective. In most cases, the licensee implemented corrective actions to resolve problems in a timely manner.</p>	

Assessment	71152B
<p>Use of Operating Experience -</p> <p>The team determined that the licensee appropriately evaluated industry operating experience for its relevance to the facility. The licensee appropriately incorporated both internal and external operating experience into plant procedures and processes, as well as lessons learned for training and pre-job briefs.</p> <p>Self-Assessments and Audits -</p> <p>The team reviewed a sample of self-assessments and audits to assess whether the licensee was identifying and addressing performance trends. The team concluded that the licensee had an effective self-assessment and audit process.</p>	

Assessment	71152B
<p>The team interviewed a total of 54 individuals. The purpose of these interviews was to evaluate the willingness of the licensee staff to raise nuclear safety issues; to evaluate the perceived effectiveness of the corrective action program at resolving identified problems; and to evaluate the licensee's safety-conscious work environment. The personnel interviewed</p>	

were randomly selected by the inspectors from the Operations, Chemistry, Engineering, Maintenance, Security, Emergency Preparedness, and Radiation Protection work groups. To supplement these discussions, the team interviewed the Employee Concerns Program (ECP) representative to assess his perception of the site employees' willingness to raise nuclear safety concerns. The team also reviewed the ECP case log.

All individuals interviewed indicated that they would raise safety concerns. All individuals felt that their management was receptive to receiving safety concerns and generally addressed them promptly, commensurate with the significance of the concern. Most interviewees indicated they were adequately trained and proficient on initiating condition reports. All interviewees were aware of the licensee's ECP, stated they would use the program if necessary, and expressed confidence that their confidentiality would be maintained if they brought issues to the ECP. The team determined that the processes in place to mitigate potential safety conscious work environment issues were adequately implemented.

Observation: Problem Identification

71152B

The inspectors observed some challenges in the area of Problem Identification. Examples include:

1. Procedure and process revisions under the industry CAP initiative were not performed thoroughly to ensure inter-functionality. Inspectors identified editorial, incomplete, and conflicting guidance for implementing the CAP process. These items were not identified during frequent and, in some cases, daily use. Talen generated multiple CRs and Action Requests to resolve these matters. Examples include:
 - a. Differences in the definition of a Condition Adverse to Regulatory Compliance and references to its former identity (CAQ+) in both Quality Assurance (QA) and non-QA procedures
 - b. References to a retired CAP procedure and retired causal evaluation technique manuals
 - c. Absent definition for the terms contributing cause and causal factor to include site association as equivalent terms in all causal evaluation references
 - d. Use of evaluation job aids for root cause evaluations despite their restriction to level 2 and 3 causal evaluations
 - e. Incomplete CR risk-screening guidance
2. During an emergency service water (ESW) system walkdown, an inspector identified wetness and apparent corrosion on the 2A core spray room cooler outlet ESW throttle valve, 211111, body. Talen captured the observation in CR-2020-10044, assessed the valve as operable, and created a log entry to perform a visual inspection the next time ESW was placed in service. Six days later, during weekly ESW operation, Talen confirmed a thru-wall leak at the valve body. Talen captured this in CR-2020-10317 and declared the valve inoperable which required 'A' ESW to also be declared inoperable given the location. Talen isolated the room cooler, declared the 2A core spray pump inoperable, and replaced the valve the same day. This condition was not initially identified by Talen staff nor did the staff completely recognize the deviation until subsequent operation of the system six days after initial indications of an issue.
3. During a review of Talen's corrective action work orders for breaker stab misalignment extent-of-condition, an inspector identified eight work orders where QA procedural requirements for foreign material prevention were improperly implemented. These were not identified during work order execution or post-work review. Talen captured this issue under CR-2020-10045.

The inspectors assessed that the CAP procedure and process inter-functionality issues did

not result in failure to identify or correct a condition adverse to quality based on samples reviewed. With respect to the minor thru-wall leakage, the inspectors assessed that the condition would not have adversely impacted ESW capability to perform its safety-related function. Finally, the inspectors assessed that the work order process issue did not result in adverse breaker impacts given a lack of foreign material evidence. Overall, the inspectors determined that none of these issues were of greater than minor safety significance, in accordance with IMC 0612, Appendix B, and that Talen's actions in response to the issues were appropriate to the circumstances.

EXIT MEETINGS AND DEBRIEFS

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

- On July 31, 2020, the inspectors presented the biennial problem identification and resolution inspection results to Mr. Kevin Cimorelli, Site Vice President, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71152B	Corrective Action Documents		CR-2018-12225 CR-2019-03732 CR-2015-05553 CR-2015-08083 CR-2019-01343 CR-2020-07025 CR-2018-11470 CR-2018-16474 CR-2019-07089 CR-2020-06465 CR-2019-11468 CR-2019-06358 CR-2019-11140 CR-2018-11405 CR-2019-03732 CR-2018-08960 CR-2018-14871 CR-2019-13490 CR-2019-00252 CR-2019-04810 CR-2019-07965 CR-2019-11139 CR-2019-02578 CR-2020-08293	
	Corrective Action Documents Resulting from Inspection		AR-2020-09868 AR-2020-09416 AR-2020-09448 AR-2020-09804 AR-2020-09866 CR-2020-09788 CR-2020-09789 CR-2020-10045 CR-2020-10334 DI-2020-09802 DI-2020-09812 DI-2020-09863 CR-2020-10656 CR-2020-10572	
		Walkdowns	AR-2020-09927 AR-2020-09978 AR-2020-10013 AR-2020-10061 AR-2020-10077 AR-2020-10116 AR-2020-10117 AR-2020-10120 AR-2020-10125 AR-2020-10130 AR-2020-10447 CR-2020-09864 CR-2020-09929 CR-2020-09930 CR-2020-09944 CR-2020-09968 CR-2020-09980 CR-2020-09981 CR-2020-09984 CR-2020-09987 CR-2020-09991 CR-2020-09994 CR-2020-09995 CR-2020-09998 CR-2020-10012 CR-2020-10017 CR-2020-10020 CR-2020-	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			10042 CR-2020-10044 CR-2020-10046 CR-2020-10049 CR-2020-10051 CR-2020-10052 CR-2020-10058 CR-2020-10060 CR-2020-10062 CR-2020-10063 CR-2020-10066 CR-2020-10068 CR-2020-10070 CR-2020-10074 CR-2020-10075 CR-2020-10078 CR-2020-10079 CR-2020-10080 CR-2020-10082 CR-2020-10102 CR-2020-10103 CR-2020-10108 CR-2020-10119 CR-2020-10121 CR-2020-10122 CR-2020-10127 CR-2020-10128 CR-2020-10129 CR-2020-10131 CR-2020-10133 CR-2020-10149 CR-2020-10151 CR-2020-10231 CR-2020-10237 CR-2020-10246 CR-2020-10278 CR-2020-10450	
	Miscellaneous	Non-Cited Violations	2018-002-01 2018-002-02 2018-002-03 2018-004-01 2018-004-02 2018-010-XX 2019-001-01 2019-004-01 2019-004-02 2019-410-01	
	Procedures	LS-120	ISSUE IDENTIFICATION AND SCREENING PROCESS	11
		LS-120-1001	MANUAL FOR PROCESSING AN AR OR DPI	3
		LS-125	CORRECTIVE ACTION PROGRAM	12
		LS-125-1001	ROOT CAUSE ANALYSIS MANUAL	6
	Self-Assessments		DI-2018-10929 DI-2018-17071 DI-2019-06999 DI-2019-11243 DI-2018-09557 DI-2019-00698 DI-2019-00697 DI-2019-01270 DI-2020-01786 DI-2020-02299 DI-2020-06995 DI-2020-07744 DI-2020-00588 CR-2019-02925 CR-2019-14251 CR-2020-	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			00471 CR-2019-13374 DI-2018-02528 DI-2018-08564 DI-2019-15302 DI-2018-16512	
			SSES Nuclear Safety Culture Assessment	03/01/2019