



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

November 8, 2018

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

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION – INTEGRATED INSPECTION
REPORT 05000387/2018003 AND 05000388/2018003

Dear Mr. Berryman:

On September 30, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Susquehanna Steam Electric Station, Units 1 and 2. On October 18, 2018, the NRC inspectors 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 inspectors did not identify any findings or violations of more than minor significance.

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 the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Part 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

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

Docket Numbers: 50-387 and 50-388
License Numbers: NPF-14 and NPF-22

Enclosure:
Inspection Report 05000387/2018003 and
05000388/2018003

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SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION – INTEGRATED INSPECTION
 REPORT 05000387/2018003 AND 05000388/2018003 DATED NOVEMBER 8,
 2018

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

Docket Numbers: 50-387 and 50-388

License Numbers: NPF-14 and NPF-22

Report Numbers: 05000387/2018003 and 05000388/2018003

Enterprise Identifier: I-2018-003-0069

Licensee: Susquehanna Nuclear, LLC (Susquehanna)

Facility: Susquehanna Steam Electric Station, Units 1 and 2

Location: Berwick, Pennsylvania

Inspection Dates: July 1, 2018 to September 30, 2018

Inspectors: L. Micewski, Senior Resident Inspector
T. Daun, Resident Inspector
N. Floyd, Senior Reactor Inspector
M. Orr, Reactor Inspector
J. Furia, Senior Health Physicist

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

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring Susquehanna's performance at Susquehanna Steam Electric Station, Units 1 and 2 by conducting the baseline inspections described in this report 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.

No findings or more-than-minor violations were identified.

Additional Tracking Items

Type	Issue number	Title	Inspection Results Section	Status
LER	05000388;387/2016-006-00	Loss of Secondary Containment Due to Damper Controller Sticking	71153	Closed
LER	05000388;387/2017-005-00	Secondary Containment Declared Inoperable Due to Trip of Zone III Filtered Exhaust Fan	71153	Closed
LER	05000388;387/2017-006-00	Secondary Containment Declared Inoperable Due to Trip of Zone II Exhaust Fan	71153	Closed

PLANT STATUS

Unit 1 began the inspection period at 100 percent power. On August 3, 2018, operators reduced power to approximately 57 percent to perform a rod sequence exchange. Full power was achieved again on August 5, 2018. On August 18, 2018, operators shut down the unit for a planned maintenance outage to replace a reactor recirculation pump seal. Following seal replacement, operators commenced a reactor startup on August 23, 2018, and commenced a ramp towards full power, achieving 96 percent power on August 30, 2018. On August 30, 2018, operators lowered power to 59 percent following an electrical disturbance that caused a loss of drywell cooling. Following restoration of drywell cooling, operators restored power to 96 percent and continued the ramp, achieving full power on the same day. Unit 1 remained at or near 100 percent power for the remainder of the inspection period.

Unit 2 began the inspection period at 100 percent power. On August 30, 2018, operators lowered power to 60 percent following an electrical disturbance that caused a loss of drywell cooling. Following restoration of drywell cooling, operators restored power to 100 percent that same day. On August 31, 2018, operators reduced power to approximately 62 percent to perform a rod pattern adjustment. Operators returned the unit to 100 percent on September 2, 2018, and remained at or near 100 percent power for the remainder of the inspection period.

INSPECTION SCOPES

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

REACTOR SAFETY

71111.01 - Adverse Weather Protection

External Flooding (1 Sample)

The inspectors evaluated readiness to cope with external flooding.

71111.04 - Equipment Alignment

Partial Walkdown (3 Samples)

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

- (1) Unit 1, division 2 core spray during work on a division 1 'C' core spray room cooler on July 2, 2018
- (2) Unit 1, division 2 residual heat removal (RHR) during 'A' RHR system outage window on August 8, 2018
- (3) Unit 2, division 2 RHR service water (RHRSW) during work on division 1 RHRSW pump discharge valves on September 11, 2018

Complete Walkdown (1 Sample)

The inspectors evaluated system configurations during a complete walkdown of the Unit Common, 'E' emergency diesel generator (EDG) and support systems following 5 year diesel overhaul.

71111.05A/Q - Fire Protection Annual/Quarterly

Quarterly Inspection (5 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

- (1) Unit Common, 'A' EDG (fire zone 0-41A) on July 16, 2018
- (2) Unit 2, 'A' RHR pump room (fire zone 2-1F) on September 12, 2018
- (3) Unit 1, 'A' core spray pump room (fire zone 1-1A) on September 14, 2018
- (4) Unit Common, 'C' EDG (fire zone 0-41C) on September 26, 2018
- (5) Unit Common, engineered safeguard service water pump house (fire zones 0-51 and 0-52) on September 27, 2018

Annual Inspection (1 Sample)

The inspectors evaluated fire brigade performance on August 16, 2018.

71111.07 - Heat Sink Performance

Heat Sink (1 Sample)

The inspectors evaluated Susquehanna's monitoring and maintenance of Unit Common 'E' EDG lube oil cooler performance.

71111.11 - Licensed Operator Regualification Program and Licensed Operator Performance

Operator Regualification (1 Sample)

The inspectors observed and evaluated licensed operator simulator training, which included a loss of all instrument air, a small break loss of coolant accident, trip of the high pressure coolant injection pump due to loss of lubrication oil cooling, and the failure of select components to automatically start as required on August 13, 2018.

Operator Performance (1 Sample)

The inspectors observed reactivity manipulations to reduce power to approximately 63 percent, and a subsequent rod sequence exchange at Unit 1 on August 3 and 4, 2018. The

inspectors also observed reactor shutdown activities for a planned maintenance outage at Unit 1 on August 18, 2018.

71111.12 - Maintenance Effectiveness

Routine Maintenance Effectiveness (2 Samples)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety significant functions:

- (1) Unit Common, scram discharge volume vent and drain valve stroke timing and coordination
- (2) Unit Common, emergency service water (ESW) piping corrosion and preservation in vaults

71111.13 - Maintenance Risk Assessments and Emergent Work Control (4 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

- (1) Unit 1, emergent work control associated with half scram resulting from failure of K14A reactor protection system (RPS) relay on July 18, 2018
- (2) Unit 2, 'D' RHR pump protected during 'B' RHR pump maintenance on July 31, 2018
- (3) Unit 1, 'A' reactor recirculation pump #2 seal failure on August 7, 2018
- (4) Unit 1, risk management activities during 'A' standby liquid control pressure sensing valve replacement on September 28, 2018

71111.15 - Operability Determinations and Functionality Assessments (5 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Unit 2, failure of relay 44A in 4kV bus 2C prevented 2C RHR and 2C core spray pumps from starting on July 24, 2018
- (2) Unit Common, control structure chillers following T-20 electrical transient on July 30, 2018
- (3) Unit Common, ESW through wall leak in Unit 1 reactor core isolation cooling (RCIC) room on August 28, 2018
- (4) Unit 1, ladder stored adjacent to RCIC division 2 isolation panel on August 29, 2018
- (5) Unit Common, water leaking from conduit into engineered safeguard service water pump house basement on September 25, 2018

71111.17T - Evaluations of Changes, Tests, and Experiments (25 Samples)

The inspectors evaluated the following changes which were implemented from August 2015 to August 2018:

10 CFR 50.59 Evaluations

- (1) SE 00028, Unit 1 and 2 Online Noble Chemistry System Installation, Revision 0

(2) SE 00015, Vent Effluent Radiation Monitoring System Replacement, Revision 0

10 CFR 50.59 Screening/Applicability Determinations

- (1) SD 01381, EC 1684212, Control Structure Chiller Time Delay Control Changes, Revision 1
- (2) SD 01502, EC 1544685, Install Higher Head Pumps in Place of Fire Pumps 0P511, 0P512, and 0P592, Revision 8
- (3) SD 01694, EC 1846732, Ensure Positive Seating of Residual Heat Removal Injection Check Valves HV151F050A&B, Revision 0
- (4) SD 01708, Temporary Repairs of Minor Pipe Leaks, Revision 0
- (5) SD 01750, Depressurize Reactor Vessel to <40 psig Prior to Initiating Shutdown Cooling, Revision 0
- (6) SD 01751, Reliable Hardened Containment Vent System, Revision 3
- (7) SD 01757, Pre-engineered Replacement of PSA Mechanical Snubbers and Compensating Struts with Lisega Hydraulic Units, Revision 0
- (8) SD 01785, Installation and Removal of Oscillographic Recorder for Diesel Generator Surveillances in Accordance with MT-GE-024, Revision 0
- (9) SD 01786, EC 1805589, Remove CIG Compressor Inlet Check Valves, Revision 0
- (10) SD 01793, Removal of LIS25348 per PCWO 1935310 greater than 90 days at power, Revision 0
- (11) SD 01795, ZWO 1959855, Compensatory Measure for 'A' CST Heat Trace Inoperable, Revision 0
- (12) SD 01819, Change Shutdown Cooling Startup Sequence to Crack Open F017 Valves Prior to Starting Residual Heat Removal Pump, Revision 0
- (13) SD 01828, LDCN 5269, Isolation of ESW from 'E' DG Fuel Oil Heat Exchanger 0E526E, Revision 0
- (14) SD 01840, Temporary Alteration Applied Under PCWO 1912777 in Place Greater than 90 Days, Revision 0
- (15) SD 01871, EC 1948468, Repair of Service Water Lines Using External Composite Pipe Wrap Material, Revision 0
- (16) SD 01928, EC 2002457, Increase the Design Pressure for Instrument Air Piping, Revision 0
- (17) SD 01934, On-Line Functional Test of Residual Heat Removal Loop B at 2 C201B, Revision 0
- (18) SD 01937, LDCN 5295, Change to Design Basis Hydrogen Generation, Revision 0
- (19) SD 01944, LDCN 5301, Impact of AREVA Computer Code Version Changes Used for U2C19 Analysis, Revision 0
- (20) SD 01960, LDCN 5311, Fuel Handling Accident Analysis Update, Revision 0
- (21) SD 02104, EC 2132596, Yokogawa CX112 Replacement with DX1012N for Reactor Core Isolation Cooling Steam Leak Detection System, Revision 0
- (22) SD 02122, EC 2033998, Replace the Compressors and Air Dryers in DG Air Start System, Revision 0
- (23) SD 02128, Use of Core Flow Versus Core Pressure Drop Relationship for Core Flow Validation in Single Loop Operation, Revision 0

71111.19 - Post Maintenance Testing (6 Samples)

The inspectors evaluated post maintenance testing for the following maintenance/repair activities:

- (1) Unit 1, 'C' core spray room cooler following relay replacement on July 2, 2018
- (2) Unit 1, replacement of auxiliary contact kit on K14A RPS relay on July 18, 2018
- (3) Unit Common, 'C' ESW pump following lift check maintenance on July 23, 2018
- (4) Unit Common, 'D' EDG following mechanical governor replacement on August 2, 2018
- (5) Unit Common, 'E' EDG following overhaul, on August 17, 2018
- (6) Unit 1, 'A' reactor recirculation pump following seal replacement on September 14, 2018

71111.20 - Refueling and Other Outage Activities (1 Sample)

The inspectors evaluated Unit 1 forced outage SD01-18-02 activities from August 17, 2018 to August 23, 2018.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Inservice (2 Samples)

- (1) Unit 1, Division 1 core spray valve exercising on July 3, 2018
- (2) Unit Common, 'C' ESW pump inservice test re-baseline on September 19, 2018

Reactor Coolant System Leak Detection (1 Sample)

- (1) Unit 1, unidentified/identified leakage calculations following seal failure, on August 16, 2018

71114.06 - Drill EvaluationEmergency Planning Drill (1 Sample)

The inspectors evaluated the emergency director, dose assessment personnel, and communicators' emergency preparedness implementation during three tabletop training exercises between July 19, 2018 and August 2, 2018. The inspectors observed three different emergency response organization crews responding to a scenario that involved a loss of offsite power and a simulated radiological release due to fuel cladding damage.

RADIATION SAFETY71124.06 - Radioactive Gaseous and Liquid Effluent TreatmentWalkdowns and Observations (1 sample)

The inspectors walked down the gaseous and liquid radioactive effluent monitoring and filtered ventilation systems to assess the material condition and verify proper alignment according to plant design.

Calibration and Testing Program (1 sample)

The inspectors reviewed gaseous and liquid effluent monitor instrument calibration, functional test results, and alarm set-points based on National Institute of Standards and Technology calibration traceability and offsite dose calculation manual (ODCM) specifications.

Sampling and Analyses (1 sample)

The inspectors reviewed radioactive effluent sampling activities, representative sampling requirements, compensatory measures taken during effluent discharges with inoperable effluent radiation monitoring instrumentation, the use of compensatory radioactive effluent sampling, and the results of the inter-laboratory and intra-laboratory comparison program including scaling of hard-to-detect isotopes.

Instrumentation and Equipment (1 sample)

The inspectors reviewed the methodology used to determine the radioactive effluent stack and vent flow rates to verify that the flow rates were consistent with technical specification/ODCM and updated final safety analysis report values. The inspectors reviewed radioactive effluent discharge system surveillance test results based on technical specification acceptance criteria.

Dose Calculations (1 sample)

The inspectors reviewed changes in reported dose values from the previous annual radioactive effluent release reports, several liquid and gaseous radioactive waste discharge permits, the scaling method for hard-to-detect radionuclides, ODCM changes, land use census changes, public dose calculations (monthly, quarterly, annual), and records of abnormal gaseous or liquid radioactive releases.

71124.08 - Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

Radioactive Material Storage (1 sample)

The inspectors observed radioactive waste container storage areas and verified the postings and controls and that Susquehanna had established a process for monitoring the impact of long-term storage of the waste.

Radioactive Waste System Walkdown (1 sample)

The inspectors walked down accessible portions of liquid and solid radioactive waste processing systems, abandoned in place radioactive waste processing equipment, and current methods and procedures for dewatering waste.

Waste Characterization and Classification (1 sample)

The inspectors identified radioactive waste streams and reviewed radiochemical sample analysis results to support radioactive waste characterization. The inspectors reviewed the use of scaling factors and calculations to account for difficult-to-measure radionuclides.

Shipment Preparation (1 sample)

The inspectors reviewed the records of shipment packaging, surveying, labeling, marking, placarding, vehicle checks, emergency instructions, disposal manifest, shipping papers provided to the driver, and licensee verification of shipment readiness.

Shipping Records (1 sample)

The inspectors reviewed selected non-excepted package shipment records.

OTHER ACTIVITIES – BASELINE71151 - Performance Indicator Verification

The inspectors verified Susquehanna's performance indicator submittals listed below (8 Samples)

- (1) Unit 1 and Unit 2, MS05 Safety System Functional Failures, July 1, 2017 through June 30, 2018
- (2) Unit 1 and Unit 2, MS06 MSPI Emergency AC Power Systems (EDG), July 1, 2017 through June 30, 2018
- (3) Unit 1 and Unit 2, MS07 MSPI High Pressure Injection (HPCI), July 1, 2017 through June 30, 2018
- (4) Unit 1 and Unit 2, MS08 Heat Removal Systems (RCIC), July 1, 2017 through June 30, 2018

71152 - Problem Identification and ResolutionAnnual Follow-up of Selected Issues (3 Samples)

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

- (1) Ineffective risk management actions during emergent work
- (2) Unit 2 fuel leaker identified in the 2017 refueling outage
- (3) EDG slow start times

71153 - Follow-up of Events and Notices of Enforcement DiscretionLicensee Event Reports (3 Samples)

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

- (1) LER 05000388;387/2016-006-00, Loss of Secondary Containment Due to Damper Controller Sticking (ADAMS Accession No. ML16323A007). The inspectors determined that it was not reasonable to foresee or correct the cause discussed in the LER therefore no performance deficiency was identified. Thus, the inspectors also concluded that no violation of NRC requirements occurred.
- (2) LER 05000388;387/2017-005-00, Secondary Containment Declared Inoperable Due to Trip of Zone III Filtered Exhaust Fan (ADAMS Accession No. ML17230A248). The

inspectors determined that it was not reasonable to foresee or correct the cause discussed in the LER therefore no performance deficiency was identified. Thus, the inspectors also concluded that no violation of NRC requirements occurred.

- (3) LER 05000388;387/2017-006-00, Secondary Containment Declared Inoperable Due to Trip of Zone II Exhaust Fan (ADAMS Accession No. ML17249A538). The inspectors determined that it was not reasonable to foresee or correct the cause discussed in the LER therefore no performance deficiency was identified. Thus, the inspectors also concluded that no violation of NRC requirements occurred.

OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT, AND ABNORMAL

IP 92709 – Contingency Plans for Licensee Strikes or Lockouts

Susquehanna developed a Business Continuity Plan to ensure a sufficient number of qualified personnel were available to continue operations in the event that Local 1600 International Brotherhood of Electrical Workers (IBEW) personal engaged in a job action upon the expiration of their contract on August 26, 2018. Using guidance contained in NRC IP 92709, “Contingency Plants for Licensee Strikes or Lockouts,” the inspectors reviewed Susquehanna’s plans to address a potential job action at the site. On August 24, 2018, Susquehanna and IBEW, Local 1600, tentatively agreed to a new contract and union members subsequently approved the new contract. No job action was taken.

INSPECTION RESULTS

Observations	71152 Annual Follow-up of Selected Issues
<p><u>Condition Report CR-2017-17228, Cognitive trend of not effectively utilizing risk mitigation actions during emergent work</u></p> <p>During 2016 and 2017, several examples of inadequate assessment and management of risk were identified, including an unplanned change to station risk that resulted in a Green non-cited violation (05000387/2017002-02), an inadvertent break of a daisy chained neutral while changing a light socket that resulted in single loop operations and a significant power transient, and an inadvertent electrical short during maintenance that resulted in a reactor scram.</p> <p>Susquehanna performed a cause analysis on the events under CR-2017-17228. In all cases the cause was related to issues with human performance, communications, and not challenging assumptions. Corrective actions taken by Susquehanna included revision of the Emergent Work Checklist and the High Risk Challenge Board procedural guidance to include a requirement to consider the consequences prior to performing work. The station also revised procedure NDAP-QA-1902, “Integrated Risk Management,” to add a requirement for development of risk mitigation actions for a Yellow probabilistic risk assessment risk.</p> <p>The inspectors reviewed the technical adequacy and depth of evaluations performed by the licensee for these issues. The inspectors also evaluated the licensee’s development and implementation of corrective actions in this area and concluded that they were reasonable.</p>	

Observations	71152 Annual Follow-up of Selected Issues
<p><u>Condition Report CR-2016-25721, Indications of fuel defect for Unit 2; CR-2017-10852, Debris failure identified for rod in fuel bundle V27452; and CR-2017-13888, Adverse trend of foreign material intrusion into fuel assemblies in Unit 2 reactor</u></p> <p>In conjunction with Susquehanna’s fuel vendor, Susquehanna determined that the most probable cause of the fuel defect identified in fuel bundle V27452 in 2017 was debris fret caused by foreign material.</p> <p>Susquehanna conducted a thorough technical review of their foreign material exclusion (FME) program under CR-2017-13888. Susquehanna determined that there was a lack of program ownership for the FME program combined with a lack of oversight by the line organizations in regards to FME controls. Corrective actions included assigning an FME coordinator to fill the vacant role at the station, assign individuals within each line organization to become the FME lead within that organization, and to reinstate monthly FME steering committee meetings.</p> <p>The inspectors reviewed the corrective actions and determined Susquehanna’s overall response to the issues were commensurate with the safety significance, were timely, and were generally effective. The inspectors noted a high number of FME-related condition reports were generated during the previous refueling outage but acknowledge this is most likely the result of the increased focus and oversight on FME controls.</p> <p>The inspectors reviewed the condition reports and determined they were being entered at an appropriately low threshold and were being addressed commensurate with their safety significance.</p>	

Observations	71152 Annual Follow-up of Selected Issues
<p><u>Condition Report CR-2017-00530, MRC requested further evaluation on trend “slower than typical DG starts”; CR-2017-11996, A DG start for SO-024-001A 10.1 seconds to frequency</u></p> <p>The inspectors reviewed corrective action CR-2017-00530, which was initiated by Susquehanna staff on January 6, 2017, to evaluate a trend in slower EDG start times that still met technical specification requirements. Additionally, the inspectors reviewed CR-2017-11996 to evaluate and correct the ‘A’ EDG not meeting starting time requirements.</p> <p>The inspectors’ review of CR-2017-00530 determined that Susquehanna engineering staff concluded there was not an adverse trend because a review of records since January 2009 documented normal operating start times from 7 to 8.9 seconds. The review also determined Susquehanna staff were generating condition reports at a lower threshold which resulted in an increased number of condition reports. The inspectors concluded the evaluation was conducted with sufficient technical rigor to support the conclusions.</p> <p>CR-2017-11996 indicated that the ‘A’ EDG reached frequency in 10.16 seconds versus the required 10 seconds during testing on June 19, 2017. The inspectors determined that Susquehanna staff implemented the applicable technical specification requirements, evaluated the problem in sufficient detail to identify that pneumatic valves USY-9 and/or</p>	

USCV-9 actuated slowly resulting in a pneumatic delay, and that other causes were reasonably ruled out. Susquehanna staff replaced these valves and planned actions to revise maintenance activities and schedules for the pneumatic shuttle valves. The evaluation further noted the pneumatic starting circuit is only present in test mode and is locked out during an emergency mode start. The inspectors concluded the evaluation was of sufficient detail to identify the likely cause of not meeting the required start time and provided for corrective actions that addressed the cause.

EXIT MEETINGS AND DEBRIEFS

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

- On October 18, 2018, the inspectors presented the quarterly resident inspector inspection results to Mr. Kevin Cimorelli, Site Vice President, and other members of the Susquehanna staff.

DOCUMENTS REVIEWED**71111.01**Drawings

SSES Units 1 & 2 FSAR, Figure 2.5-22, Plot Plan, Revision 47

SSES Units 1 & 2 FSAR, Figure 2.5-17A, Extent of Rock and Soil Foundations, Revision 55

SSES Units 1 & 2 FSAR, Figure 2.5-40, Spray Pond Measured & Projected Water Levels,
Revision 47

SSES Units 1 & 2 FSAR, Figure 2.5-56, Profile of Slope North of Spray Pond, Revision 47

Miscellaneous

SSES-FSAR, 2.4 Hydrologic Engineering, Revision 66

71111.04Drawings

M-151, Unit 1 P&ID RHR, Sheet 1, Revision 72

M-151ABD, Unit 1 Analysis Boundary Diagram RHR Div. 1, Sheet 2, Revision 7

M-112, Unit 1 P&ID RHR Service Water System, Sheet 1, Revision 2

M-151, Unit 1 P&ID RHR, Sheet 2, Revision 53

M-151ABD, Unit 1 Analysis Boundary Diagram RHR Div. 2, Sheet 4, Revision 5

M-151ABD, Unit 1 Analysis Boundary Diagram RHR, Sheet 3, Revision 5

M-112ABD, Common Analysis Boundary Diagram RHR Service Water System, Sheet 2,
Revision 5

M-134, Common P&ID 'E' Diesel Auxiliaries (Fuel Oil System, Lube Oil System and Air Intake &
Exhaust System), Sheet 7, Revision 22

M-134, Common P&ID 'E' Diesel Auxiliaries (Starting Air and Jacket Water Systems), Sheet 5,
Revision 23

M-134, Common P&ID Diesel 'E' Auxiliaries (Starting Air System), Sheet 6, Revision 7

71111.05Procedures

TQ-171, Susquehanna Fire Training Program, Revision 8

ON-013-001, Response to Fire, Revision 49

NDAP-QA-0445, Fire Brigade, Revision 21

Condition Reports

CR-2018-12060 CR-2018-12074

Miscellaneous

FP-013-189, Diesel Generator Bay 'A' Fire Zone 0-41A, Elevations 677', 660' and 710',
Revision 4

Fire Brigade Quarterly Drill, Transient Combustibles Fire, Scenario #36

FP-013-140, Computer Room (C-202) Fire Zone 0-24E Elevation 698'-0", Revision 7

FP-213-241, RHR Pump Room "A" (II-14) Fire Zone 2-1F Elevation 645'-0" Revision 6

FP-113-101, Core Spray Pump Room 'A' (I-17) Fire Zone 1-1A Elevation 645'-0", Revision 5

FP-013-195, Diesel Generator Bay 'C' Fire Zone 0-41C Elevations 677', 660' and 710',
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

71111.07

Procedures

MT-GM-031, Immersed Component/Heat Exchanger Internals Epoxy Lining/Cladding,
Revision 22

MT-GM-025, Heat Exchanger-Cleaning and Inspection, Revision 22

Work Orders

2093734 2112486 2133022 G0104-05

Drawings

M-111, Common P&ID Emergency Service Water System, Sheet 4, Revision 5

M-134, Common P&ID 'E' Diesel Auxiliaries (Fuel Oil System, Lube Oil System and Air Intake &
Exhaust System), Sheet 7, Revision 22

71111.11

Procedures

GO-100-012, Power Maneuvers, Revision 53

OP-131-001, Rod Worth Minimizer RWM, Revision 17

NDAP-QA-0338, Reactivity Management and Controls Program, Revision 27

Condition Reports

CR-2018-11865

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Procedures

NDAP-QA-0413, Implementation of the Maintenance Rule, Revision 15

NDAP-QA-0483, Underground Piping and Tanks Program, Revision 6

Condition Reports

CR-2017-10847 CR-2017-18437 CR-2018-08960 CR-2018-12816

CR-2018-11207 CR-2018-11231 CR-2018-12238 CR-2018-12271

CR-2018-12276 CR-2018-12440 CR-2018-12564 CR-2018-12566

CR-2018-12817 CR-2018-12892 CR-2018-13215 CR-2018-13388

Action Requests

AR-2018-09858 AR-2018-12461 AR-2018-13434 AR-2018-13623

AR-2018-13830 AR-2018-14040 DI-2018-09779

Miscellaneous

General Electric Spec 22A7468, Sheet 10, Revision 3

Underground Vault Inspections 2013 to 2017

71111.13Condition Reports

CR-2018-10666 CR-2018-11180 CR-2018-11762 CR-2018-11979

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M-142, Unit 1 P&ID Nuclear Boiler Vessel Instrumentation, Sheet 1, Revision 55

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DLAP dated July 31, 2018

IOM 311-1, Tab 8 Vendor Supplied Instruments, Volume 1, Revision 15

NP-2-1, Control Room Panel, MPL H12-P609, Seismic Qualification Review, Revision 1

Protected Equipment list dated September 28, 2018

064C, Reactor Recirculation Systems and Motor Generator Set, Revision 12

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NDAP-QA-0703, Operability Determinations and Functionality Assessments, Revision 31

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CR-2018-08841 CR-2018-09365 CR-2018-09496 CR-2018-11157
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AR-2018-09929 AR-2018-12461

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E-214, Common Schematic Diagram HVAC Control Structure Chilled Water System Chilled 'B'
 Comp Motor, Sheet 2, Revision 28

E-214, Common Schematic Diagram HVAC Control Structure Chilled Water System Chilled
 Cond Water Circ PP 0P170A&B, Sheet 5, Revision 17

E-214, Common Schematic Diagram Control Structure HVAC Chilled Water System Chilled
 Water Circ Pump 0P162B, Sheet 19, Revision 10

M310-244, Common Schematic Diagram Control Structure Chilled Water System Chiller
 0K112B, Sheet 2, Revision 7

E-214, Common Schematic Diagram Control Structure HVAC Chilled Water System Chilled
 Water Circ PPS, Sheet 4, Revision 29

E-16, Unit 1 Circuit Breaker Interruption, Impact Drawing, DC Panel 1D614, Sheet 3,
 Revision 23

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Control Structure Chiller Response following Electrical Transient
 Cases of ASME Boiler and Pressure Vessel Code, Case N-513-3
 EP-115

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GO-100-009, Single Recirculation Loop Operation, Revision 23
 MT-GE-024, Installation and Removal of Oscillographic Recorder for Diesel Generator
 Surveillances, Revision 28
 MT-GM-092, Temporary Repair of Minor Pipe Leaks, Revision 0
 NDAP-QA-0726, 10 CFR 50.59 and 10 CFR 72.48 Implementation, Revision 20
 NDAP-QA-1218, Temporary Changes, Revision 17
 OP-149-002, Residual Heat Removal Shutdown Cooling, Revision 58
 Susquehanna 50.59 Resource Manual, Revision 8

Condition Reports (*initiated in response to inspection)

CR-2015-09176	CR-2015-22586	CR-2015-22822	CR-2015-26472
CR-2016-06540	CR-2016-07955	CR-2016-22888	CR-2018-10783
CR-2018-12308*	CR-2018-12310*	CR-2018-12337*	

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E-214, Sheet 12, Schematic Diagram Control Structure HVAC Chilled Water System Chilled
 Water Circulating Pumps, Revision 16
 M-151, Unit 1 Piping and Instrumentation Drawing (P&ID) Residual Heat Removal, Revision 72
 M-157, Unit 1 Containment Atmos. Control Hardened Containment Vent System, Revision 0

Engineering Evaluations

EC-013-0022, Fire Protection Piping Pressure Losses, Revision 11
 EC-013-1438, Examination of Appendix R Safe Shutdown Components with Regard to Fire
 Suppression Activities, Revision 3
 EC-FLOD-0001, Internal Flooding Evaluations for Moderate Energy Pipe Cracks and Sprinkler
 System Actuation, Revision 3

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Check-In Self-Assessment of the SSES 10 CFR 50.59 Program, dated April 20, 2018
 Design Basis Document (DBD) 002, Control Structure HVAC and Chilled Water Systems,
 Revision 2
 DBD 043, Reactor Water Cleanup System, Revision 5
 DBD 019, Fire Protection, Revision 7
 Fire Protection Review Report, Revision 13
 PLA-7321, Susquehanna Steam Electric Station Completion of Actions Required by NRC Order
 EA-12-051, "Reliable Spent Fuel Pool Instrumentation," dated July 2, 2015
 PLA-7542, Susquehanna Steam Electric Station 10 CFR 50.59 Summary Report and Changes
 to Regulatory Commitments, dated October 24, 2016
 PLA-7711, Report of Full Compliance with June 6, 2013, Commission Order Modifying Licenses
 with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe
 Accident Conditions, June 26, 2018
 Technical Specifications - Susquehanna Steam Electric Station Unit 1, Revised June 28, 2018
 Technical Specifications - Susquehanna Steam Electric Station Unit 2, Revised June 28, 2018
 Updated Final Safety Analysis Report for Susquehanna Steam Electric Station, Revision 66

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SO-054-A03, 92DY-ESW Flow Verif 'A' Loop, Revision 18
 SO-024-001D, Monthly Diesel Generator 'D' Operability Test, Revision 27
 SO-024-D01, Diesel Generator 'D' Integrated Surveillance Test, Revision 1
 OT-02-149, Diesel Generator 'E' Restoration, Revision 2
 MT-064-014, N-7500 Reactor Recirculating Pump Seal Rebuilding and Test, Revision 42
 TP-164-045, Local System Leakage Test of Reactor Recirculation Loops A & B, Revision 10

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CR-2018-10666 CR-2018-10080 CR-2018-12055

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1961035	2107565	2181918	2183442	2188571	2191979
2191984	2195198	2195226			

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CR-2018-12041	CR-2018-12048	CR-2018-12053	CR-2018-12054
CR-2018-12055	CR-2018-12056	CR-2018-12064	CR-2018-12078
CR-2018-12081	CR-2018-12092	CR-2018-12093	CR-2018-12097
CR-2018-12124	CR-2018-12134	CR-2018-12135	CR-2018-12146
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SO-151-A04, Quarterly Core Spray Valve Exercising Division 1, Revision 13
 SO-100-106, Shiftly Surveillance Operating Log, Revision 118
 SO-054-A03, Quarterly ESW Flow Verification Loop 'A', Revision 18

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CR-2018-10080

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AR-2018-13417

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EP-PS-001, Emergency Planning Forms and Supplementary Instructions, Revision 14
 Susquehanna Steam Electric Station Dose Assessment Summary
 Final Timeline for Tabletop PI- New to be Conducted July 5, 2018
 Drill Data Set, Unit 1

71124.08Shipments

17-046; 17-047; 18-043; 18-047; 18-057

71151Condition Reports

CR-2018-10876	CR-2018-10985	DI-2016-25418	DI-2016-25423
DI-2017-00413	DI-2017-00588	DI-2017-19298	DI-2017-19309
DI-2018-01291	DI-2018-01143		

71152Equipment Apparent Cause Evaluation

CR-2017-11996

Condition Reports

CR-2016-18464	CR-2016-26216	CR-2016-27120	CR-2017-00530
CR-2017-17228	CR-2018-10285	CR-2018-11166	CR-2018-12195

Completed Surveillance, Performance, and Functional Tests

SO-024-001A, Monthly Diesel Generator 'A' Operability Test, performed 3/24/18, 4/25/18 and 5/20/18

SO-024-001B, Monthly Diesel Generator 'B' Operability Test, performed 3/25/18, 4/27/18 and 5/28/18

SO-024-001C, Monthly Diesel Generator 'C' Operability Test, performed 4/4/18, 5/7/18 and 6/4/18

SO-024-001D, Monthly Diesel Generator 'D' Operability Test, performed 4/13/18, 5/14/18 and 6/11/18

SO-024-001E, Monthly Diesel Generator 'E' Test While Substituting for Another Diesel Generator, performed 2/1/18, 3/5/18 and 3/28/18

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FF105801, Sh. 1, Common Standby Generator Set Control Diagram, Revision 9

FF105801, Sh. 2, Cooper Bessemer Control Diagram KSV-36-10, Revision 5

71153Condition Reports

CR-2015-32449	CR-2015-32451	CR-2016-21657	CR-2017-12327
CR-2017-13014			

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AR-2017-14031

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