UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

July 26, 2019

Mr. Bryan C. Hanson
Senior VP, Exelon Generation Company, LLC
President and CNO, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2—INTEGRATED INSPECTION REPORT 05000456/2019002 AND 05000457/2019002

Dear Mr. Hanson:

On June 30, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Braidwood Station, Units 1 and 2. On July 2, 2019, the NRC inspectors discussed the results of this inspection with Ms. M. Marchionda, 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 finding or violation 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 at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Hironori Peterson, Chief
Branch 3
Division of Reactor Projects

Docket Nos. 05000456 and 05000457
License Nos. NPF-72 and NPF-77

Enclosure:
As stated

cc: Distribution via LISTSERV®

Letter to Bryan Hanson from Hironori Peterson dated July 26, 2019

SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2—INTEGRATED INSPECTION REPORT 05000456/2019002 AND 05000457/2019002

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers:	05000456 and 05000457
License Numbers:	NPF-72 and NPF-77
Report Numbers:	05000456/2019002 and 05000457/2019002
Enterprise Identifier:	I-2019-002-0059
Licensee:	Exelon Generation Company, LLC
Facility:	Braidwood Station, Units 1 and 2
Location:	Braceville, Illinois
Inspection Dates:	April 01, 2019 to June 30, 2019
Inspectors:	D. Kimble, Senior Resident Inspector J. Robbins, Reactor Inspector P. Smagacz, Resident Inspector
Approved By:	Hironori Peterson, Chief Branch 3 Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at Braidwood 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
URI	05000456,05000457/2018012-01	Qualification of Conduit Seal Removal for 2RY456 Limit Switch	71111.21N	Closed

PLANT STATUS

Unit 1 began the inspection period operating at full power. With the exception of minor reductions in power to support scheduled testing activities or small load changes requested by the transmission system dispatcher, the unit remained operating at or near full power for the entire inspection period.

Unit 2 began the inspection period operating at full power. With the exception of minor reductions in power to support scheduled testing activities or small load changes requested by the transmission system dispatcher, the unit remained operating at or near full power for the entire 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 licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

REACTOR SAFETY

71111.01 - Adverse Weather Protection

Summer Readiness Sample (IP Section 03.01) (1 Sample)

(1) The inspectors evaluated summer readiness of offsite and alternate alternating current (AC) power systems during the week ending June 22, 2019

71111.04 - Equipment Alignment

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

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

(1) 1B Emergency Diesel Generator (EDG) with 1A EDG out of service for maintenance during the week ending April 6, 2019
(2) 1A Containment Spray (CS) with 1B CS out of service for planned maintenance during the week ending June 22, 2019

71111.05Q - Fire Protection

Quarterly Inspection (IP Section 03.01) (4 Samples)

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

(1) Fuel Handling Building, Fire Zone 12.1-0 during the week ending April 6, 2019
(2) 2A Residual Heat Removal (RH) Pump Room, Fire Zone 11.2A-2 during the week ending April 27, 2019
(3) Unit 1 Containment Pipe Penetration Area, Fire Zone 11.3-1 during the week ending April 27, 2019
(4) 2A EDG Room, Fire Zone 18.2-2 during the week ending June 22, 2019

71111.06 - Flood Protection Measures

Inspection Activities - Internal Flooding (IP Section 02.02a.) (1 Sample)

The inspectors evaluated internal flooding mitigation vulnerability and protection for the following plant area:

(1) Unit 2 'B' Essential Service Water (SX) Pump Room, Auxiliary Building Elevation 330' during the weeks ending May 18 through June 1, 2019

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 conducted an evaluation of licensed operator performance in the Control Room during various observations of on-watch Operations shift crews during the weeks ending April 27 through June 29, 2019

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

(1) The inspectors observed and evaluated a graded simulator scenario for a crew of licensed operators on June 25, 2019

71111.12 - Maintenance Effectiveness

Quality Control (IP Section 02.02) (1 Sample)

The inspectors evaluated the licensee's maintenance and quality control activities associated with the following equipment performance issue:

(1) The failure of control power fuses for the 2A EDG as documented in Issue Report (IR) 4252176 during the weeks ending June 8 through June 29, 2019

Routine Maintenance Effectiveness Inspection (IP Section 02.01) (2 Samples)

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

(1) A 1B Auxiliary Feedwater (AF) Pump performance issue associated with diesel fuel oil seepage into the crankcase oil system as documented in IR 4238259 during the weeks ending April 20 through June 29, 2019
(2) An issue with the cubicle cooler fan motor bearing service life and run times for the chemical and volume control pump cubicle coolers as documented in IRs 4244994, 4244974, and 4244975 during the weeks ending May 4 through June 29, 2019

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (6 Samples)

The inspectors evaluated the licensee's assessment of risk associated with the following planned and emergent work activities:

(1) Planned 2-year maintenance on the 1A EDG as document in Work Order (WO) 4692594 during the week ending April 6, 2019
(2) Emergent maintenance on the 1B AF Pump as documented in WO 4908688 during the week ending April 13, 2019
(3) Starting battery capacity maintenance and testing for the 2B AF Pump as documented in WO 1836579 during the weeks ending April 20 through April 27, 2019
(4) Unit 1 System Auxiliary Transformer (SAT) 142-1 maintenance inspections as documented in WO 1945815 during the week ending May 11, 2019
(5) Ground isolation activities on direct current (DC) Bus 111 as documented in WO 4920701 during the weeks ending May 18 through June 29, 2019
(6) Emergent maintenance activities surrounding the failure of DC control power fuses for the 2A EDG as documented in IR 4252176 during the week ending June 1, 2019

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 02.02) (6 Samples)

The inspectors performed evaluations of the following issues with respect to equipment operability and/or functionality:

(1) The licensee's decision to isolate primary water to the 1C Reactor Coolant Pump (RCP) seal package standpipe as documented in IR 4224618 during the weeks ending April 20 through April 27, 2019
(2) Evaluation of excessive run time hours for the bearings on the 1B CV Cubicle Cooler fan motor as documented in IR 4244994 during the weeks ending May 4 through June 29, 2019
(3) Evaluation of the minimum bus voltages for the Unit 1 SAT outage window as documented in IR 4247579 during the week ending May 11, 2019
(4) Evaluation of intermittent grounds on DC Bus 111 as documented in IR 4248185 during the weeks ending May 18, 2019 through June 29, 2019
(5) Evaluation of degraded conditions for the valve 2AF005G manual loader (2HK-AF036B) as documented in IR 4249077 during the week ending May 18, 2019

(6) Evaluation of degraded performance associated with valve 2SX124A as documented in IR 4253330 during the weeks ending June 8 through June 15, 2019

71111.19 - Post-Maintenance Testing

Post Maintenance Test Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated the adequacy of the following post maintenance testing activities:

(1) Functional and operational testing for 1B SX Pump following planned oil cooler maintenance during the weeks ending May 18 through May 25, 2019
(2) Functional and operational testing for check valve 2CC070B following disassembly and inspection as documented in WO 1939834 during the weeks ending May 18 through May 25, 2019
(3) Functional testing following investigation and repair of a high temperature connection associated with 1AP27E, Division 1, during the week ending May 25, 2019
(4) Functional testing following repairs on the cubicle cooler flow indicator sensing line for the 1B CS pump during the week ending June 22, 2019

71111.21N - Design Bases Assurance Inspection (Programs)

The inspectors conducted the following activities:

Select Sample Components to Review - Risk Significant/Low Design (Inside/Outside Containment) (IP Section 02.01) (1 Partial)

(1) (Partial)
The inspectors reviewed actions to close Unresolved Item 05000456,05000457/2018012-01; "Qualification of Conduit Seal Removal for 2RY456 Limit Switch." These reviews by the inspectors did not constitute a separate stand-alone inspection sample. Rather, they were an integral part of the original inspection sample for this previously documented item.

71111.22 - Surveillance Testing

The inspectors evaluated the performance and conduct of the following surveillance testing activities:

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

(1) 2BwOSR 3.8.1.2-1: 2A Diesel Generator Semiannual Operability Surveillance - Timed Fast Start during the week ending April 13, 2019
(2) 1BwOS MS-Q1: Unit 1 Main Condenser Steam Dump Operability Surveillance - Timed Fast Opening during the week ending April 13, 2019
(3) 2BwOSR5.5.8.SI-10B: Group A Inservice Test (IST) Requirements for 2B Safety Injection Pump during the week ending June 22, 2019

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors conducted a verification of the performance indicators listed below through a sample of the licensee's submitted data:

MS05: Safety System Functional Failures (SSFFs) Sample (IP Section 02.04) (2 Samples)

(1) Unit 1 (April 1, 2018, through March 31, 2019)
(2) Unit 2 (April 1, 2018, through March 31, 2019)

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

(1) Unit 1 (April 1, 2018, through March 31, 2019)
(2) Unit 2 (April 1, 2018, through March 31, 2019)

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

(1) Unit 1 (April 1, 2018, through March 31, 2019)
(2) Unit 2 (April 1, 2018, through March 31, 2019)

71152 - Problem Identification and Resolution

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

(1) The inspectors reviewed the licensee's corrective action program for potential adverse trends involving multiple issues with the loose parts monitoring systems on both units that might be indicative of a more significant safety issue during the weeks ending May 3, 2019, through June 29, 2019.

INSPECTION RESULTS

Observation: Loose Parts Monitoring System Reliability	71152
The inspectors performed a review of plant issues, particularly those entered into the licensee's CAP, associated with issues and failures of the loose parts monitoring systems on both units. The loose parts monitoring system is described in Section 4.4.6.4 of the station's Updated Final Safety Analysis Report (UFSAR) as a system that detects and alarms upon sensing unusual noises that might indicate a metallic loose part within the reactor coolant system. Operability requirements for the system in operational Modes 1 and 2 are set forth in Section 3.3.d of the station's Technical Requirements Manual (TRM). During their review, the inspectors noted that there have been several loose parts monitoring system failures during the current operating cycles on both units. Currently, each unit has three (of a total of twelve available) loose parts monitoring system channels in a degraded and unavailable status, and due to accessibility issues with the equipment locations in containment each degraded channel will remain unavailable for the remainder of the unit's operating cycle. Given the system's overall significance, as indicated by its UFSAR and TRM descriptions and requirements, additional review of system maintenance practices may be warranted.	

Additionally, during the course of the most recent inspection period, the inspectors noted that a spurious Unit 1 loose parts monitoring system alarm was frequently being received at the same time each morning on most days of the week over a several week period. Following discussions with licensee management regarding the vulnerabilities associated with spurious alarms causing the operating crews to become desensitized, this particular loose parts monitoring system problem was traced to a computer coding issue within the system's software and eliminated.

Unresolved Item (Closed)	Qualification of Conduit Seal Removal for 2RY456 Limit Switch 05000456,05000457/2018012-01	71111.21N

Description: The inspectors identified an unresolved Item concerning the removal of the conduit seal of a NAMCO EA180 limit switch for the 2RY456 Pressurizer Power Operated Relief Valve (PORV). Position indication of PORVs is a requirement outlined in NUREG-0737, "Clarification of TMI Action Plan Requirements," Enclosure 1, "Post-TMI Requirements for Operating Reactors," Item II.D.3, "Valve Position Indication." These requirements were incorporated prior to license issuance and are part of Braidwood's current licensing basis.

These switches are located in containment and could be exposed to a high temperature steam environment during an accident. These switches were originally qualified for this environment by Westinghouse. As documented in the Regulatory Guide 1.89 discussion in UFSAR, Appendix A, (Page A1.89-1), "For Westinghouse Nuclear Steam System Supplier Class lE equipment, Westinghouse has met the requirements of IEEE-323-1974, "IEEE Standard for Qualifying Class lE Equipment for Nuclear Power Generating Stations" including the Nuclear Power Engineering Committee (NPEC) Position Statement of July 24, 1975, and Regulatory Guide 1.89, Revision 0, by providing an appropriate combination of the following: type testing, operating experience, qualification by analysis, and on-going qualification. This commitment has been satisfied by NRC review and approval of Westinghouse Topical Report WCAP-8587."

Subsequently, the licensee performed an analysis that supported the removal of seals associated with the conduit attachment to the limit switch without affecting its environmental qualification. The inspectors were concerned that the subsequent analysis did not align with detailed guidance located within IEEE-323-1974.

Initially, the inspectors viewed this lack of alignment as a potential performance deficiency. After discussions with NRR technical staff and legal staff, the inspectors determined that no performance deficiency existed. The basis for this conclusion was that 10 CFR 50.49, "Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants," does not currently invoke any specific standard. The information contained within the licensee's UFSAR, when viewed as a historical reference, includes information about IEEE-323-1974 because this information describes how equipment was originally qualified. However, the requirements pertaining to IEEE-323-1974 were sunset upon the issuance of the Final Rule, 50.49 (see Federal Register (FR), 48 FR 2733, Jan. 21, 1983, as amended at 49 FR 45576). As a result, no performance deficiency was identified.

Corrective Action Reference(s): AR 4120790 - NRC Question on Environment Qualification Binder Evaluation of Limit Switches

EXIT MEETINGS AND DEBRIEFS

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

- On July 2, 2019, the inspectors presented the integrated inspection results to Ms. M. Marchionda, Site Vice President, and other members of the licensee staff.
- On July 10, 2019, the inspectors presented the closure of Unresolved Item 2018012-01 to Mr. S. MacArtney, General Design Engineering Manager, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.01	Procedures	0BwOA ENV-1	Adverse Weather Conditions Unit 0	124
		OP-AA-102-102	General Area Checks and Operator Field Rounds	16
		OP-AA-108-107-1001	Station Response to Grid Capacity Conditions	7
		OP-AA-108-111-1001	Sever Weather and Natural Disaster Guidelines	18
		OP-BR-102-102-1001	Augmented Operator Field Rounds	3
		WC-AA-107	Seasonal Readiness	21
71111.04		BwOP CS-E1	Electrical Lineup - Unit 1 Containment Spray system Electrical Lineup	4
		BwOP CS-M1	Operating Mechanical Lineup Unit 1	12
		BwOP DG-E2	Electrical Lineup – Unit 1, 1B Diesel Generator	6
		BwOP DG-M2	Operating Mechanical Lineup Unit 1, 1B Diesel Generator	17
71111.05A	Fire Plans	No. 104; Fire Zone 11.2A-2	Auxiliary Building 364' Elevation RHR Pump 2A Room	1
		No. 114; Fire Zone 11.3-1	Auxiliary Building 364' Elevation Unit 1 Containment Pipe Penetration Area	1
71111.05Q		No. 104; Fire Zone 11.2A-2	Auxiliary Building 364' Elevation Residual Heat Removal Pump 2A Room	1
		No. 114; Fire Zone 11/3-1	Auxiliary Building 364' Elevation Unit 1 Containment Pipe Penetration Area	1
		No. 178; Fire Zone 12.1-0	Fuel Handling Building 401' Elevation	1
		No. 179; Fire Zone 12.1-0	Fuel Handling Building 426' Elevation	1
		No. 200; Fire Zone 18.2-2	Auxiliary Building 401' Elevation Diesel Generator 2A & Switchgear Room Air Shaft	0
	Procedures	BwAP 1110-1	Fire Protection Program System Requirements	42
		BwAP 1110-3	Plant Barrier Impairment program	38
		BwOP PBI-1	Plant Barrier Control program	12
		CC-AA-201	Plant Barrier Control Program	12

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		ER-AA-600-1069	High Risk Fire Area Identification	4
		ER-BR-600-1069	Site List of High Risk Fire Areas - Braidwood Unit 1 and Unit 2	0
		OP-AA-201-004	Fire Prevention for Hot Work	16
		OP-AA-201-007	Fire Protection System Impairment Control	0
		OP-AA-201-009	Control of Transient Combustible Material	23
71111.06		0BwOA PRI-8	Auxiliary Building Flooding Unit 0	9
		BwAP 1110-3	Plant Barrier Impairment Program	38
		BwOP PBI-1	Plant Barrier Impairment Program Pre-Evaluated Barrier Matrix	3
		CC-AA-201	Plant Barrier Control Program	12
71111.11Q		ER-AA-600	Risk Management	7
		OP-11-101-113-1006	4.0 Crew Critique Guidelines	10
		OP-AA-101-111-1001	Operations Standards and Expectations	22
		OP-AA-101-113	Operator Fundamentals	13
		OP-AA-103-102	Watch Standing Practices	18
		OP-AA-103-102-1001	Strategies for Successful Transient Mitigation	2
		OP-AA-103-103	Operation of Plant Equipment	1
		OP-AA-104-101	Communications	4
		OP-AA-108-107-1002	Interface Procedure Between BGE/COMED/PECO and Exelon Generation (Nuclear/Power) for Transmission Operations	12
		OP-AA-111-101	Operating Narrative Logs and Records	15
		OP-AA-300	Reactivity Management	13
		TQ-AA-10	Systematic Approach to Training Process Description	5
		TQ-AA-150	Operator Training Programs	18
		TQ-AA-155	Conduct of Simulator Training and Evaluation	9
		TQ-AA-201	Examination Security and Administration	17
		TQ-AA-306	Simulator Management	9
		TQ-BR-201-0113	Braidwood Training Department Simulator Examination	22

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Security Actions	
71111.12	Corrective Action Documents	0881124	Long Range Planning for 1VA06CD Motor Refurbishment	02/16/2009
		4238259	1AF01PB Crankcase Oil Analysis Degrading Trend	04/10/2019
		4244974	1VA06SA Vibration Reading Results	04/30/2019
		4244975	2VA06SA Vibration Reading Results	04/302019
		4244994	1VA06CD Exceeds Run Time Threshold for Motor Bearings	04/30/2019
	Procedures	ER-AA-310-1002	Maintenance Rule Functions - Safety Significant Classification	3
		ER-AA-320	Maintenance Rule Implementation per NEI 18-10	0
		ER-AA-320-1001	Maintenance Rule 18-10 - Scoping	0
		ER-AA-320-1004	Maintenance Rule 18-10 - Performance Monitoring and Dispositioning Between (a)(1) and (a)(2)	1
71111.13	Calculations	BRW-97-0340-E	Battery Duty Cycle and Sizing for the Braidwood Diesel Driven Auxiliary Feedwater Pumps	3
	Corrective Action Documents	2667064	Lessons Learned - Unit 1 System Auxiliary Transformer (SAT) Outage Temporary State Estimator Alarm Setpoint	05/09/2016
		4235979	Coating Repairs Needed for the 1DG01KA-X2 Lower Stationary Head	04/03/2019
		4235981	Coating Repairs Needed for the 1DG01KA-X2 Lower Pact End Channel Head	04/03/2019
		4235983	Coating Repairs Needed for the 1DG01KA-X1 Upper Pact End Channel Head	04/03/2019
		4235987	Debris Found Inside Stationary Head and Tubesheet 1DG01KA-X2	04/03/2019
		4235988	Degradation Found During Inspection of 1DG01KA-X1 Upper Stationary Head	04/03/2019
		4236145	Significant Amount of Oil in Air Sensing Line	04/04/2019
		4236908	1A Diesel Generator South Fuel Rack Positioner Cable Broke	04/06/2019
		4236938	1A Diesel Generator Butterfly Valve Sticking	04/06/2019
		4238259	1AF01PB Crankcase Oil Analysis Degrading Trend	04/10/2019
		4240057	Battery Charger Lugs are Distorted on 2AF01EB-A Battery	04/16/2019
		4247173	ACB 1441 Would Not Close Following SAT Restoration	05/02/2019

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		4247555	Ground Connections Corroded	05/08/2019
		4247567	Unit 1 SAT LCO 4.0 Critique	05/08/2019
		4247579	Braidwood SAT Outage Restoration Delays	05/08/2019
		4248106	SAT 142-1 Received Unsatisfactory Doble Test on X3 Bushing	05/10/2019
		4248185	Direct Current Bus 111 Ground	05/11/2019
	Engineering Evaluations	620474	Evaluation of Single SAT Operation on Unit 1 for 2019	0
	Procedures	1BwOSR 3.8.1.1	Unit 1 Offsite AC Power Availability Surveillance	5
		2BwHS 384-6	24 Volt ESF Auxiliary Feed Diesel Battery BT2 and BT2 Performance Test	0
		2BwHSR 3.7.5-BA	2B Diesel Auxiliary Feed Pump Battery Bank B Battery A (2AF01EB-A) Capacity Test	3
		2BwOS DC-Q4	24V DC Auxiliary Feed Pump 2B Battery Bank A and B Quarterly Surveillance	6
		BwHP 4006-023	Bus Disconnect Link Relocation on 6900 V SAT Buses	8
		BwHP 4006-059	Operation of the Biddle/AVO Ground Fault Tracer	3
		BwHP 4006-066	DC Bus Ground Location Using the Multi-Amp Battery Ground-Fault Locator	1
		BwHP 4006-074	Bus Disconnect Link Relocation on 4160 V SAT Buses	4
		BwHS 4002-084	System Auxiliary Transformer Preventative Maintenance Inspection	15
		BwMP 3100-022	Diesel Generator 2 Year Inspection	38
		BwMP 3200-014	Auxiliary Feedwater Pump Diesel Drive Unit Inspection and Maintenance	22
		BwOP AP-15	Isolating System Auxiliary Transformer (SAT) 142-1 with Unit 1 Unit Auxiliary Transformer (UAT) Energized	27
		BwOP AP-20	Restoring System Auxiliary Transformer (SAT 142-2) with Unit 1 UAT Energized	21
		BwOP AP-54	With SAT 142-1 Isolated, Isolate SAT 142-2 and Restore SAT 142-1 with Unit 1 UAT Energized	11
		BwOP DC-E2	Electrical Lineup – Unit 1 Operating – 125 Vdc Division 11	9
		ER-AA-330-009	ASME Section XI Repair/Replacement Program	16
		ER-AA-335-015-	VT-2 Visual Examination in Accordance with ASME 2013	0

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		2013		
		ER-AA-600-1042	On-Line Risk Management	11
		MA-AA-716-230-1004	Lubricant Sampling Guideline	5
		MA-BR-EM-4-09070	Diesel Generator Electrical Inspection	16
		OP-AA-108-117	Protected Equipment Program	5
		WC-AA-101-1006	On-Line Risk Management and Assessment	2
		WC-AA-104	Integrated Risk Management	25
	Work Orders	1836579	24 Volt Auxiliary Feed Battery Bank Capacity Test (2AF01EB)	04/15/2019
		1945815	1AP02E: Preventative Maintenance Inspection of SAT 142-1	05/07/2019
		4692594	1DG01KA: 24 Month Inspection of the Diesel Generator	04/01/2019
		4693700	1DG01EA: Diesel Generator Exciter Inspection (1A EDG)	04/01/2019
		4908688	1AF01PB Crank Case Oil and Filter Change	04/12/2019
		4920701	DC Bus 111 Ground	05/13/2019
71111.15	Corrective Action Documents	2667064	Lessons Learned - Unit 1 SAT Outage Temporary State Estimator Alarm Setpoint	09/09/2016
		4194175	1PL01J Alarms Generate DC Bus 111 Ground Alarm	11/12/2018
		4209879	DC Bus 111 Ground Coming in with 1PL01J Panel Check	01/10/2019
		4223051	1RF008 Flowrate Trend Anomaly	02/24/2019
		4224618	1CV179 Cycling Excessively	02/28/2019
		4228652	1RF009 Elevated Reading	03/12/2019
		4229675	Unit 1 Floor Drain Sump Channel A Failed - PC002	03/15/2019
		4244974	1VA06SA Vibration Reading Results	04/30/2019
		4244975	2VA06SA Vibration Reading Results	04/30/2019
		4244994	1VA06CD Exceeds Run Time Threshold for Motor Bearings	04/30/2019
		4247579	Braidwood SAT Outage Restoration Delays	05/08/2019
		4248185	DC Bus 111 Ground	05/22/2019
		4249077	2HK-AF036B: Manual Loader for 2AF005G Failed - WO 1893938	05/15/2019
		4253330	2SX124A is Very Difficult to Operate	05/31/2019
		4254702	Erratic 2A CV Pump Cubicle Cooler SX Flow Rate	06/05/2019

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Engineering Changes	EC 628126	Performance of Cubicle Coolers 1VA06SA and 2VA06SA with One or Two Fans in Operation	0
	Procedures	1BwOS DC-1a	AAR-125 Vdc ESF Bus Ground	8
		BwOL 3.8.4 LCOAR	DC Sources - Operating Technical Specification LCO 3.8.4	8
		BwOP DC-23-111	125 Vdc Bus 111/113 Ground Detection	4
		ER-AA-321	Administrative Requirements for Inservice Testing	13
		ER-AA-600-1012	Risk Management Documentation	14
		ER-AA-600-1045	Risk Assessments of Missed or Deficient Surveillances	7
		OP-AA-106-101-1006	Operational Decision Making Process	21
		OP-AA-108-111	Adverse Condition Monitoring and Contingency Planning	13
		OP-AA-108-115	Operability Determinations (CM-1)	21
71111.19	Corrective Action Documents	4257536	2SI8804B Mechanical and Grease Inspection	06/17/2019
		4257539	2SI8912B has Inactive Packing Leak	06/17/2019
	Procedures	2BwOSR 5.5.8.SI-10B	Group A IST Requirements for 2B Safety Injection Pump (2SI01PB)	10
		BwOP SX-1	Essential Service Water Pump Startup	23
		BwOP SX-7	Swapping Essential Service Water Pumps	27
		ER-AA-330-001	Section XI Pressure Testing	16
		ER-AA-335-015-2013	VT-2 Visual Examination in Accordance with ASME 2013	0
	Work Orders	1938834	Disassemble and Inspect 2CC070B	05/14/2019
		1939833	2CC9520B Disassemble and Inspect	05/14/2019
		1955970	EQ Motor Containment Spray Pump 1B	06/18/2019
		4615529	1SX01AB Cooler Inspection and Cleaning	05/16/2019
		4838800	Flow Indicator Containment Spray Pump Room Cooler 1B Outlet	06/18/2019
		4889939	ESF Switchgear Room Division 12 Ventilation System Vent Fan Motor	05/22/2019
		4906923	IST for 1CS003B/11B - ASME Surveillance Requirements for 1CS01PB & Check Valves	06/18/2019
71111.22	Corrective Action	4238267	Valve Handle Not Moving Valve Stem Properly	04/10/2019

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Documents	4238279	Fuel Oil Leak From Left Bank Fuel Rail	04/10/2019
		4238284	2PI-DG030A Turbo Air Inlet Pressure Indication is Suspect	04/10/2019
		4238291	2A EDG Fuel Rack Trip Level Pushbutton Fell off During EDG Run	04/10/2019
	Procedures	1BwOS MS-Q1	Main Steam Dump Valve Stroke Surveillance	11
		2BwOSR 3.8.1.2-1	2A Diesel Generator Operability Surveillance	47
		BwOP DG-1	Diesel Generator Alignment to Standby Condition	30
		BwOP DG-11	Diesel Generator Startup and Operation	51
		BwOP DG-12	Diesel Generator Shutdown	30
	Work Orders	4836509	2A Diesel Generator Operability Semi-Annual Surveillance	04/10/2019
		4876995	Unit 1 Steam Dump Valve Quarterly Surveillance (Tave Mode and Above P-8)	04/11/2019
		4898251	2A Diesel Generator Operability Monthly Surveillance	04/10/2019
71151	Corrective Action Documents	4236155	Unexpected Unit 2 Loose Parts Alarm	04/04/2019
	Miscellaneous		NRC Performance Indicator Data; Mitigating Systems - Safety System Functional Failures	04/01/2018 - 03/31/2019
			NRC Performance Indicator Data; Mitigating Systems - Mitigating System Performance Index for Emergency Alternating Current Power	04/01/2018 - 03/31/2019
			NRC Performance Indicator Data; Mitigating Systems - Mitigating System Performance Index for High Pressure Injection	04/01/2018 - 03/31/2019
	Procedures	LS-AA-2001	Collecting and Reporting of NRC Performance Indicator Data	15
		LS-AA-2080	Monthly Data Elements for NRC Safety System Functional Failures	7
		LS-AA-2200	Mitigating System Performance Index date Acquisition and Reporting	6
71152	Corrective Action Documents	4209142	Unit 2 Loose Parts Alarm	01/08/2019
		4210587	Unexpected Alarm, Loose Parts	01/14/2019
		4211151	Trend in Loose Parts Monitoring Issues	07/15/2019
		4212438	Unexpected Annunciator 2-13-E9, Loose Parts Monitoring	01/20/2019

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			System Trouble	
		4213338	Received Unexpected Annunciator 2-13-E9, Loose Parts	01/23/2019
		4216074	Unit 2 Loose Parts Alarm	01/31/2019
		4217622	Unit 1 Loose Parts Alarm	02/05/2019
		4219216	Unexpected Annunciator: 2-13-E9	02/12/2019
		4227893	Unit 2 Loose Parts Monitoring System Impact Noise Alarm Channel 4	03/08/2019
		4228922	Loose Parts Alarm - Channel 1, 3, 14 - No Abnormal Noises	03/13/2019
		4232957	Metallic Noise Unit 1 Loose Parts Monitoring System at 1C SC Lower Narrow Range Level Tap	03/25/2019
		4233318	Reactor Vessel Head Loose Parts Monitoring System Alarm Disabled 2VE-LM002	03/26/2019
		4236155	Unexpected Unit 2 Loose Parts Alarm	04/04/2019
		4236932	Unexpected Annunciator: 2-13-EP	04/06/2019
		4237724	Unexpected Unit 1 Loose Parts Alarm	04/09/2019
		4242027	Unexpected Unit 2 Loose Parts Alarm	04/22/2019
		4245172	Unexpected Annunciator 1-13-E9	05/01/2019
		4248952	Need Work Request to Troubleshoot Unit 1 Loose Parts Monitoring System Channel 1	05/14/2019
		4250626	Re-Evaluate Loose Parts Monitoring System Oversight	05/21/2019
	Miscellaneous	ER-AA-320-1003	Maintenance Rule 18-10 - Failure Definitions	0
	Procedures	BwOP LM-10	Loose Parts Monitoring System Operation and Alarm Response	4
		BwOP LM-10A1	Loose Parts Monitoring System Alignment	3
		NO-AA-10	Quality Assurance Topical Report (QATR)	7
		OP-AA-108-117	Protected Equipment Program	5
		OP-AA-201-008	Pre-Fire Plan Manual	4
		PI-AA-=125-1001	Root Cause Analysis Manual	3
		PI-AA-120	Issue Identification and Screening Process	8
		PI-AA-125	Corrective Action Program (CAP) Procedure	6
		PI-AA-125-1003	Corrective Action Program Evaluation Manual	4