



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

October 26, 2021

Mr. David Rhoades
Senior VP, Exelon Generation Company, LLC
President and CNO, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: BRAIDWOOD STATION – INTEGRATED INSPECTION REPORT
05000456/2021003 AND 05000457/2021003

Dear Mr. Rhoades:

On September 30, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Braidwood Station. On October 13, 2021, the NRC inspectors discussed the results of this inspection with Mr. J. Keenan, the Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

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

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

A handwritten signature in black ink, appearing to read "Hironori Peterson".

Signed by Peterson, Hironori
on 10/26/21

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 w/ encl: Distribution via LISTSERV®

Letter to David Rhoades from Hironori Peterson dated October 26, 2021.

SUBJECT: BRAIDWOOD STATION – INTEGRATED INSPECTION REPORT
05000456/2021003 AND 05000457/2021003

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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: 05000456/2021003 and 05000457/2021003

Enterprise Identifier: I-2021-003-0059

Licensee: Exelon Generation Company, LLC

Facility: Braidwood Station

Location: Braceville, IL

Inspection Dates: July 01, 2021 to September 30, 2021

Inspectors: B. Bartlett, Senior Operations Engineer
G. Edwards, Health Physicist
D. Kimble, Senior Resident Inspector
J. Nance, Operations Engineer
N. Shah, Project Engineer
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, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

List of Findings and Violations

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

Additional Tracking Items

None.

PLANT STATUS

Unit 1 began the inspection period operating at full power. With the exception of minor reductions in power to support scheduled testing activities and 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. On September 16, 2021, the unit reached the end of the fuel cycle and power coast down operations commenced in preparation for a planned refuel outage. The unit continued to reduce power in accordance with the licensee's approved reactivity management plan, and was operating at approximately 91 percent power at the end 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 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), resident and regional inspectors were directed to begin telework and to remotely access licensee information using available technology. During this time, the resident inspectors performed periodic site visits each week, increasing the amount of time on-site as local COVID-19 conditions permitted. As part of their on-site activities, resident inspectors conducted plant status activities as described in IMC 2515, Appendix D, "Plant Status," and conducted routine reviews using IP 71152, "Problem Identification and Resolution," observed risk significant activities; and completed on-site portions of IPs. In addition, resident and regional baseline inspections were evaluated to determine if all or a portion of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In some cases, portions of an IP were completed remotely and on-site. The inspections documented below met the objectives and requirements for completion of the IP.

REACTOR SAFETY

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (4 Samples)

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

- (1) 1A Residual Heat Removal (RH) Train during 1B RH Train maintenance during the week ending July 24, 2021.
- (2) 1B Safety Injection (SI) Train during 1A SI Train maintenance during the week ending August 28, 2021.
- (3) 2A Station Air Compressor during replacement of the Unit 0 Station Air Compressor replacement during the week ending September 4, 2021.
- (4) 2A Auxiliary Feedwater (AF) Train during 2B AF Train maintenance during the week ending September 11, 2021.

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (3 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting physical inspections and reviews to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

- (1) Units 1 and 2 Auxiliary Building, 346' Elevation, General Area, during the week ending August 7, 2021.
- (2) Units 1 and 2 Auxiliary Building, 330' Elevation, 1A and 2A Essential Service Water (SX) Pump Room, during the week ending August 7, 2021.
- (3) Units 1 and 2 Auxiliary Building, 330' Elevation, 1B and 2B SX Pump Room, during the week ending August 7, 2021.

71111.06 - Flood Protection Measures

Inspection Activities - Internal Flooding (IP Section 03.01) (2 Samples)

The inspectors evaluated internal flooding mitigation protection features in the following plant areas:

- (1) Unit 1 Auxiliary Building, 330', 346', and 364' Elevations, during the week ending August 7, 2021.
- (2) Unit 2 Auxiliary Building, 330', 346', and 364' Elevations, during the week ending August 7, 2021.

71111.11A - Licensed Operator Requalification Program and Licensed Operator Performance

Requalification Examination Results (IP Section 03.03) (1 Sample)

- (1) The inspectors reviewed and evaluated the licensed operator examination failure rates for the requalification annual operating exam and biennial written examination administered from August 9, 2021 through September 17, 2021.

71111.11B - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Requalification Program (IP Section 03.04) (1 Sample)

- (1) Biennial Requalification Written Examinations

The inspectors evaluated the quality of the licensed operator biennial requalification written examination administered between August 9, 2021 and September 17, 2021.

Annual Requalification Operating Tests

The inspectors evaluated the adequacy of the facility licensee's annual requalification operating test.

Administration of an Annual Requalification Operating Test

The inspectors evaluated the effectiveness of the facility licensee in administering requalification operating tests required by 10 CFR 55.59(a)(2) and that the facility licensee is effectively evaluating their licensed operators for mastery of training objectives.

Requalification Examination Security

The inspectors evaluated the ability of the facility licensee to safeguard examination material, such that the examination is not compromised.

Remedial Training and Re-examinations

The inspectors evaluated the effectiveness of remedial training conducted by the licensee, and reviewed the adequacy of re-examinations for licensed operators who did not pass a required requalification examination.

Operator License Conditions

The inspectors evaluated the licensee's program for ensuring that licensed operators meet the conditions of their licenses.

Control Room Simulator

The inspectors evaluated the adequacy of the facility licensee's control room simulator in modeling the actual plant, and for meeting the requirements contained in 10 CFR 55.46.

Problem Identification and Resolution

The inspectors evaluated the licensee's ability to identify and resolve problems associated with licensed operator performance.

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)

The inspectors observed and evaluated the following licensed operator activities in the control room:

- (1) Various activities involving on-watch operations crews. These activities included, but were not limited to:
 - End-of-cycle reactivity maneuvers leading into Unit 2 coast down operations for the A2R22 refuel outage during the week ending September 18, 2021.
 - 4,160 Vac electric plant maneuvers in support of emergency diesel generator testing during the week ending September 18, 2021.

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

The inspectors observed and evaluated the following licensed operator training activity:

- (1) A complex casualty graded scenario involving a crew of licensed operators was observed in facility's simulator on September 7, 2021.

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (3 Samples)

The inspectors evaluated the effectiveness of maintenance to ensure the following structures, systems, and components (SSCs) remain capable of performing their intended function:

- (1) Maintenance effectiveness and performance history review of the Direct Current (DC) Batteries and Distribution System during the weeks ending August 21 through August 28, 2021.
- (2) Maintenance effectiveness and performance history review of nuclear instrumentation during the week ending August 28, 2021.
- (3) Maintenance effectiveness and performance history review of Overpower Delta Temperature (OPDT) components during the weeks ending September 4 through September 30, 2021.

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (3 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) Evaluation of the activities and risk associated with emergent troubleshooting and repairs to the 1A Emergency Diesel Generator (EDG), as documented in Issue Report (IR) 4437474 during the week ending July 31, 2021.
- (2) Evaluation of the work activities and risk associated with planned maintenance on the 1B SI Recirculation Isolation Valve, 1SI8920, in conjunction with emergent work on 1HD026A, the 12A Feedwater Heater Normal Level Control Valve, during the week ending September 18, 2021.
- (3) Evaluation of the work activities and risk associated with several concurrent planned work activities, including acceptance testing for the 1A Station Air Compressor, 1A EDG monthly operability testing, 1A RH Train operability testing, and 2A Containment Spray Train operability testing during the week ending September 30, 2021.

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (6 Samples 1 Partial)

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

- (1) Evaluation of the availability of the 2B Start Up Feedwater Pump due to low oil pressure, as documented in IR 4428965 during the weeks ending July 10 through August 14, 2021.
- (2) Evaluation of the operability of the 2B RH system due to boric acid leakage on the 2FIS-0611 Recirculation Valve Controller, as documented in IR 4436953 during the weeks ending July 31 through August 14, 2021.
- (3) Evaluation of the operability of the 1A EDG after a failure to start during a monthly surveillance, as documented in IR 4437474 during the weeks ending August 7 through September 18, 2021.
- (4) Evaluation of the operability of the 2A EDG following identification of a sheared bolt associated with the 4L cylinder air manifold, as documented in IR 4443522 during the weeks ending September 4 through September 25, 2021.
- (5) (Partial)
Continued evaluation of the operability of the source range nuclear instruments with their high flux trips bypassed during reactor startup, as documented in IR 4418688 during the weeks ending July 1 through September 25, 2021.
- (6) Review of Unit 1 Core Exit Thermocouple (CETC) operability following several issues, as documented in IRs 4419609, 4420610, and 4423740 during the weeks ending September 25 through September 30, 2021.
- (7) Review of the 0B Auxiliary Building Nonaccessible Area (NAC) Exhaust Filter Plenum Ventilation Train operability following identification of testing equipment being left installed since May 2021, as documented in IR 4447805 during the weeks ending July 10 through September 30, 2021.

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (2 Samples)

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

- (1) Testing of the 1SI8920 Mini-Flow Recirculation Valve after maintenance, as set forth in Work Order (WO) 4904903 during the week ending September 18, 2021.
- (2) Comprehensive functional and operational acceptance testing of the 1A Station Air Compressor following replacement and installation, as documented in station procedure SPP-21-002 during the weeks ending September 25 through September 30, 2021.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Surveillance Tests (other) (IP Section 03.01) (2 Samples)

- (1) 2BwOSR 3.8.1.2-1, Technical Specification operability surveillance for the 2A EDG, during the weeks ending August 7 through August 14, 2021.
- (2) BwIP 2500-070, calibration of the 2B Steam Generator main steam atmospheric relief valve control loop, during the week ending August 14, 2021.

Inservice Testing (IP Section 03.01) (1 Sample)

- (1) 2BwOSR 5.5.8.RH, inservice testing for the 2B RH Train, during the weeks ending August 14 through August 21, 2021.

71114.04 - Emergency Action Level and Emergency Plan Changes

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

- (1) The inspectors evaluated the following submitted Emergency Action Level and Emergency Plan changes.
 - Eval No. 20-71 Emergency Action Levels for Braidwood Station, EP-AA-1001, Addendum 3

This evaluation does not constitute NRC approval.

71114.06 - Drill Evaluation

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

The inspectors evaluated the following select emergency preparedness (EP) drill:

- (1) Observation and evaluation of the station's Emergency Response Organization during the performance of a full-scale site-wide EP drill on August 2, 2021.

Drill/Training Evolution Observation (IP Section 03.02) (1 Sample)

The inspectors evaluated the following EP drill/training evolution:

- (1) Review of the implementation of the site's emergency plan by a crew of licensed operators during an evaluated emergency scenario in the facility's simulator on September 7, 2021.

RADIATION SAFETY

71124.05 - Radiation Monitoring Instrumentation

Calibration and Testing Program (IP Section 03.02) (6 Samples)

The inspectors evaluated the calibration and testing of the following radiation detection instruments:

- (1) Thermo Fisher RO20 SN#0013941
- (2) Eberline Model 3 SN#0017854
- (3) Ludlum 177 SN#0025821
- (4) Thermo Fisher RO20 SN#0018388
- (5) Eberline Model 3 SN#0014351
- (6) Ludlum 3030P SN#0015022

71124.07 - Radiological Environmental Monitoring Program

Environmental Monitoring Equipment and Sampling (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated environmental monitoring equipment and observed collection of environmental samples.

Radiological Environmental Monitoring Program (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated the implementation of the licensee's radiological environmental monitoring program.

GPI Implementation (IP Section 03.03) (1 Sample)

- (1) The inspectors evaluated the licensee's implementation of the Groundwater Protection Initiative program to identify incomplete or discontinued program elements.

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

Radioactive Material Storage (IP Section 03.01) (1 Sample)

- (1) Inspectors evaluated the licensee's performance in controlling, labeling, and securing radioactive materials. This included the radioactive waste storage portion of the facility.

Radioactive Waste System Walkdown (IP Section 03.02) (1 Sample)

- (1) Inspectors walked down accessible portions of the solid radioactive waste systems and evaluated system configuration and functionality.

Waste Characterization and Classification (IP Section 03.03) (2 Samples)

- (1) The inspectors evaluated the licensee's characterization and classification of radioactive waste. This included the resin waste streams at the facility.
- (2) The inspectors evaluated the licensee's characterization and classification of radioactive waste. This included the dry activated waste (DAW) stream at the facility.

Shipment Preparation (IP Section 03.04) (1 Sample)

- (1) The inspectors observed that a shipment containing radioactive material is prepared according to requirements. The shipment identification number was RWS21-015 for seven B-25 Boxes of Condensate Polish Resin shipped on August 17, 2021.

Shipping Records (IP Section 03.05) (3 Samples)

The inspectors evaluated the following non-excepted radioactive material shipments through a record review:

- (1) Shipment RWS 21-001 UN3321 LSA-II; Resin Liner P0695283-14 in Cask 14-215.
- (2) Shipment RWS 20-015 UN3321 LSA-II; 14 DAW Legacy Waste in Cask 14-210.
- (3) Shipment RWS 20-018 UN2916 Type (B) Package; Resin Liner PO 692200-4.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors reviewed and verified selected portions of the licensee's performance indicator submittals listed below:

MS08: Heat Removal Systems (IP Section 02.07) (2 Samples)

- (1) Unit 1 (July 1, 2020 through June 30, 2021)
- (2) Unit 2 (July 1, 2020 through June 30, 2021)

MS09: Residual Heat Removal Systems (IP Section 02.08) (2 Samples)

- (1) Unit 1 (July 1, 2020 through June 30, 2021)
- (2) Unit 2 (July 1, 2020 through June 30, 2021)

MS10: Cooling Water Support Systems (IP Section 02.09) (2 Samples)

- (1) Unit 1 (July 1, 2020 through June 30, 2021)
- (2) Unit 2 (July 1, 2020 through June 30, 2021)

71152 - Problem Identification and Resolution

Annual Follow-up of Selected Issues (IP Section 02.03) (2 Samples)

The inspectors conducted in-depth reviews of the licensee's implementation of the CAP related to the following issues:

- (1) Review and assessment of the corrective actions for the spent fuel dry cask storage (DCS) system forced helium drying errors, as documented in IR 4364058 during the weeks ending August 7 through August 14, 2021.
- (2) Review and assessment of the corrective actions for the 1/2CC202B wrong unit valve operation, as documented in IR 4434922 during the weeks ending July 17 through September 30, 2021.

INSPECTION RESULTS

Observation: Forced Helium Drying Skid Issue During Dry Cask Processing	71152
<p>The inspectors performed a detailed review of IR 4364058, <i>Forced Helium Drying Skid Issue</i>. Specifically, on August 19, 2020, a reactor services crew connected hoses incorrectly in preparation for Multi-Purpose Cannister (MPC) blowdown, resulting in an increased risk of the cask being over-pressurized due to bulk water boiling inside the cask. The inspectors chose this issue for an in-depth review of the licensee's actions within their corrective action program (CAP) due to the potential of cask failure and damage to the integrity of the fuel stored within the cask. Consequently, for this detailed Problem Identification and Resolution inspection sample, the inspectors focused on assessment of the licensee's corrective actions taken to address this condition.</p> <p>The licensee's evaluation concluded that the direct cause was the failure by the fuel handlers to verify that the correct hoses were properly attached to the MPC prior to starting work. Contributing to this were inappropriate actions taken by supervision overseeing the work activities, in part, due to a culture of not reinforcing expectations for using human performance tools during previous work activities and workers not effectively challenging supervision when faced with potential issues.</p> <p>Corrective actions included, but were not limited to, revising procedures to use color coded hoses to ensure correct connections and requiring that supervisors sign off on specific, key steps to ensure proper system setup. Additionally, coaching/training was provided to ensure fuel handling supervision understood the expectations for performing work observations and in how to identify and correct key behaviors. Further, fuel handling management verified the efficacy of these actions by holding monthly meetings to evaluate the observations performed and proffer feedback on their effectiveness.</p> <p>The inspectors review did not identify any issues of note with the corrective actions taken; however, their effectiveness could not be confirmed as the licensee had not performed any cask handling activities since implementation.</p> <p>No findings or violations of NRC requirements were identified by the inspectors in the course of this review.</p>	

Observation: 1/2CC202B Wrong Unit Error	71152
<p>The inspectors performed a detailed review of IR 4434922, <i>Level 4 Configuration Control - Received Unexpected Alarm 1-2-E3</i>. The issue involved the mistaken operation of 1CC202B, <i>Motor-Operated Valve (MOV) 1B SX to CC Makeup Downstream Isolation</i>, during what was planned to have been a post-maintenance stroke test of 2CC202B, <i>MOV 2B SX to CC Makeup Downstream Isolation</i>, on July 14, 2021. The inspectors determined that the mistaken operation of 1CC202B instead of the planned and briefed 2CC202B had constituted a violation of the requirements of 10 CFR Part 50, Appendix B, Criterion V, <i>Instructions, Procedures, and Drawings</i>. However, because the SX to Component Cooling (CC) emergency makeup line on each unit is protected from the effects of inadvertent valve operation by the use of two MOVs in series, the mistaken operation of the 1CC202B valve instead of the intended 2CC202B valve did not result in any adverse consequences. Subsequently, the inspectors concluded that the violation had not adversely impacted the Reactor Safety Mitigating Systems Cornerstone objective and, therefore, constituted a violation of minor significance that was not subject to formal actions per Section 2.3.1 of the NRC Enforcement Policy.</p> <p>The inspectors chose this issue for an in-depth review of the licensee's actions within their CAP because of the inherent risk associated with wrong unit/wrong component operational errors. Consequently, for this detailed Problem Identification and Resolution inspection sample, the inspectors focused on assessment of the licensee's corrective actions taken both for this specific error, as well as those targeted at the more generic issue of preventing wrong unit/wrong component operational errors.</p> <p>The inspectors did not identify any issues with the licensee's CAP actions taken. Actions targeting the more generic issue of wrong unit/wrong component operational errors were focused on reinforcing existing human performance tool use and appreciation by the workforce. Actions targeting this specific event included painting the control panels for the MOV hand switches involved in this event with the appropriate unit-specific color scheme – yellow for Unit 1 and green for Unit 2. At the time of the event, all of the control panels involved, all of which are located in the same physical area of the station, were painted with a non-distinct color.</p> <p>No findings or violations of NRC requirements of more than minor safety significance were identified by the inspectors in the course of this review.</p>	

EXIT MEETINGS AND DEBRIEFS

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

- On October 13, 2021, the inspectors presented the integrated inspection results to Mr. J. Keenan, Site Vice President, and other members of the licensee staff.
- On July 15, 2021, the inspectors presented the radiation protection inspection results to Mr. J. Keenan, Site Vice President, and other members of the licensee staff.
- On August 20, 2021, the inspectors presented the radiation protection inspection results to Mr. J. Keenan, Site Vice President, and other members of the licensee staff.
- On August 20, 2021, the inspectors presented the biennial requalification inspection results inspection results to Mr. J. Keenan, Site Vice President, and other members of the licensee staff.
- On October 1, 2021, the inspectors presented the EPlan and EAL Change Inspection Exit inspection results to Mr. D. Moore, Senior Manager, Emergency Preparedness, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.04	Corrective Action Documents	4429000	SA SAC (2SA02C) Oil Temperature High	06/12/2021
		4436087	1RH8729A Lock Issues	07/20/2021
		4436735	2SA02C Oil Temperature High	07/23/2021
		4437788	2SA02C Margin Improvement Initiative	07/29/2021
		4443172	2SA01C FNL I/S Temperature is High	08/28/2021
	Procedures	BwOP RH-M1	Operating Mechanical Lineup Unit 1 1A RH Train	14
		BwOP AF-E2	Electrical Lineup — Unit 2 Operating	11
		BwOP AF-M2	Operating Mechanical Lineup, Auxiliary Feedwater, Unit 2	18
		BwOP RH-E1	Electrical Lineup — Unit 1 Operating	10
		BwOP SA-E2	Electrical Lineup — Unit 2 Station Air System Operating	5
		BwOP SA-M2	Operating Mechanical Lineup Unit 2	15
		BwOP SI-E1	Electrical Lineup — Unit 1 Operating	12
		BwOP SI-M1	Operating Mechanical Lineup Unit 1	27
	71111.05	Fire Plans	Pre-Fire Plan No. 101	Fire Zone 11.2-0; Auxiliary Building 346' Elevation, Auxiliary Building General Area — South
Pre-Fire Plan No. 96			Fire Zone 11.1A-0; Auxiliary Building 330' Elevation, Unit 1 Auxiliary Building Basement (1A/2A SX)	2
Pre-Fire Plan No. 97			Fire Zone 11.1B-0; Auxiliary Building 330' Elevation, Unit 2 Auxiliary Building Basement (1B/2B SX)	3
Pre-Fire Plan No. 98			Fire Zone 11.2-0; Auxiliary Building 346' Elevation, Auxiliary Building General Area — Center	3
Pre-Fire Plan No. 99			Fire Zone 11.2-0; Auxiliary Building 346' Elevation, Auxiliary Building General Area — North	3
Procedures		BwAP 1110-1	Fire Protection Program System Requirements	44
		BwAP 1110-3	Plant Barrier Impairment Program	39
		BwOP PBI-1	Plant Barrier Impairment Program Pre-Evaluated Barrier Matrix	4
		CC-AA-201	Plant Barrier Control Program	13
		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

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		OP-AA-201-008	Pre-Fire Plan Manual	4
		OP-AA-201-009	Control of Transient Combustible Material	26
		OP-AA-201-1001	Operations On-Line Fire Risk Management	4
71111.06	Calculations	3C8-0685-002	Auxiliary Building Flood Level Calculation	16
		3C8-0787-001	Confirmation of Safe Shutdown Capability After Auxiliary Building Flooding	4
		3C8-1281-001	Auxiliary Building Flood Level Calculations	4
		Corrective Action Documents	4355236	The Plug for the 0TR19P (Lime Sludge West Lagoon Sump Pump) is Damaged and Needs to be Replaced
	4366140		Unexpected Alarm 1-1-A2 Containment Drain Leak Detection Flow High	08/29/2020
	4391353		0TR19P WWT West Lime Sludge Lagoon #2 Sump Pump is Degraded	12/20/2020
	4405498		SD-191 Discrepancy During Watertight Door Surveillance	03/01/2021
	4418893		WO 01785089-09 Stud Missing for Re-Installation of Flood Seal	04/25/2021
	4422795		Procedural Guidance for Setting Cable Vault Sump Pumps	05/11/2021
	4427580		IAM for Sump Pump 0CP05P WO 5157026-01	06/04/2021
	4428760		Received the Unit 1 SX Sump Level High High Alarm	06/11/2021
	4438648		Door Operator Loose on Unit 2 SX Pump Room	08/03/2021
	Miscellaneous		BB-PRA-012	Byron and Braidwood Probabilistic Risk Assessment, Internal Flood Evaluation Summary Notebook
		NEI 12-07	Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features	0
	Procedures	0BwOA PRI-8	Auxiliary Building Flooding Unit 0	9
		ER-AA-450	Structures Monitoring	10
	Work Orders	1860257	1DSFO06/08 Outage Flood Seals Surveillance	03/03/2017
		1915060	2DSFSO06/08 Outage Flood Seals Surveillance	10/18/2017
		4838070	Remove/Replace Flood Seal Covers 1DSFSO07 & 09 — Auxiliary Feedwater Tunnel — Outage	03/25/2020
		5079981	Watertight Door Inspection	03/18/2021
71111.11B	Corrective Action Documents	4340246	4.0 Critique for Recent and Ramps	05/01/2020
		4398670	4.0 Critique U0 CC Heat Exchanger Side Drain Down	01/28/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Corrective Action Documents Resulting from Inspection	4418688	Level 3 Configuration Control SRNI's Required Function Bypassed	04/24/2021
		4430586	4.0 Critique U1 Reactor Trip Due to Generator Load Reject	06/21/2021
		4441641	NRC Identified Unattended Exam Material	08/19/2021
	Fire Plans	Simulator Post Event Testing	1A MFP Start (PMT)	03/05/2020
	Miscellaneous	Simulator Post Event Testing	1A MFP Start	11/06/2019
		Simulator Post Event Testing	2CC130 Issues / Drop 7 failure	07/23/2021
		Simulator Post Event Testing	2CV131 - Securing Letdown Evolution	07/14/2021
		Simulator Post Event Testing	Unit 2A MFP Start 12/7/2020	02/10/2021
		TQ-AA-306	ATT 10 PWR Moderator Temperature Coefficient of Reactivity, Cycle 23 Compare to Plant Startup Data	04/29/2021
		TQ-AA-306	ATT 10 PWR Moderator Temperature Coefficient of Reactivity Cycle 23 New Core Test	04/27/2021
		TQ-AA-306	ATT 11 PWR Rod Worth Coefficient of Reactivity Cycle 23 New Core Test	04/27/2021
		TQ-AA-306	ATT 12 PWR Boron Coefficient of Reactivity Cycle 23, New Core Test	04/27/2021
		TQ-AA-306	ATT 13 PWR Xenon Worths Cycle 23, New Core Test	04/27/2021
		TQ-AA-306	ATT 16 PWR Approach to Criticality Using Boric Acid Cycle 23, Comparison to Plant Data	04/29/2021
		TQ-AA-306	ATT 16 PWR Approach to Criticality Using Boric Acid Cycle 23, New Core Test	04/27/2021
		TQ-AA-306	ATT 17 PWR Approach to Criticality Using Rods Cycle 23, New Core Test	04/27/2021
TQ-BR-0115		Transient 10, Slow Primary Depressurization Due to Open PORV w/o Charging Pumps	03/22/2021	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		TQ-BR-302-0103	Braidwood Steady State Testing 100% and 75%	03/05/2020
		TQ-BR-302-0103	FW/CV Letdown System Tuning 49%	03/05/2020
		TQ-BR-302-0106	Transient Test - 1, Manual Reactor Trip	03/22/2021
		TQ-BR-302-0107	Transient Test 2, Simultaneous Trip of All Main Feedwater Pumps	03/22/2021
		TQ-BR-302-0108	Transient Test 3, Simultaneous Closure of All Main Steam Isolation Valves	03/22/2021
		TQ-BR-302-0109	Transient Test 4, Simultaneous Trip of All Reactor Coolant Pumps	03/22/2021
		TQ-BR-302-0110	Transient Test 5, Trip of Any Single Reactor Coolant Pump	03/22/2021
		TQ-BR-302-0111	Transient Test 6, Turbine Trip <P-8	03/22/2021
		TQ-BR-302-0112	Transient 7, Maximum Ramp Rate (100% to 75% to 100%)	03/22/2021
		TQ-BR-302-0113	Transient 8, LBLOCA with LOOP	03/22/2021
		TQ-BR-302-0114	Transient 9, Maximum Size Main Steam Line Rupture	03/22/2021
		TQ-BR-302-0116	Maximum Design Load Reject	03/22/2021
	Procedures	TQ-AA-10	Systematic Approach to Training Process Description	6
		TQ-AA-150	Operator Training Programs	20
		TQ-AA-155	Conduct of Simulator Training and Evaluation	11
		TQ-AA-201	Examination Security and Administration	18
		TQ-AA-306	Simulator Management	10
		TQ-BR-201-0113	Braidwood Training Department Simulator Examination Security Actions	23
	Self-Assessments		Differences Between Braidwood Simulator and Braidwood Unit 1	SRB 21-2
	Work Orders		Open Service Work Requests	08/16/2021
71111.11Q	Procedures	OP-AA-101-111-1001	Operations Standards and Expectations	27
		OP-AA-101-113	Operator Fundamentals	15
		OP-AA-101-113-1006	4.0 Crew Critique Guidelines	11
		OP-AA-103-102	Watch-Standing Practices	20
		OP-AA-103-102-1001	Strategies for Successful Transient Mitigation	2

Inspection Procedure	Type	Designation	Description or Title	Revision or Date	
		OP-AA-103-103	Operation of Plant Equipment	1	
		OP-AA-104-101	Communications	5	
		OP-AA-111-101	Operating Narrative Logs and Records	18	
		OP-AA-300	Reactivity Management	14	
71111.12	Corrective Action Documents	1451512	Unit 2 Core Exit Thermocouple Nozzle 77 Connections Swapped Affecting Indications	12/12/2012	
		4370362	Recurring Equipment Reliability Issue Unit 1 D Incore Detector	09/18/2020	
		4393580	Hairline Cracks in Tops of Battery Cells (1DC02E)	01/03/2021	
		4402276	Battery 211 Terminal Voltage High Out of Admin Limit	02/14/2021	
		4402279	Battery 112 Quarterly Temp Deviation High Out of Admin Limit	02/14/2021	
		4403966	1D Incore Detector Issues	02/22/2021	
		4411770	Failed Post-Maintenance Test 1D Incore	03/26/2021	
		4413950	Battery 211 Has Cap Broken on Cell 56	04/04/2021	
		4418835	1BwOS TRM 3.3.H.1 Failed Symmetric Core Exit Thermocouple Temperature Limits	04/25/2021	
		4419609	Unit 1 Core Exit Thermocouple Nozzle 74 Connections Swapped Affecting Indications	04/28/2021	
		4421778	Unexpected Alarms 1-10-A5 and 1-114-A1 for OPDT	05/05/2021	
		4423740	Unit 1 Core Exit Thermocouples Exceed Allowed Maximum Deviation	05/15/2021	
		4425470	DC111 Cracked Battery Cells	05/25/2021	
		4436872	Pilot Cell for Battery 112 Specific Gravity Found Low	07/25/2021	
		4439676	Summary of Findings from Braidwood Unit 1 Source Range Nuclear Instrument Cable Testing	08/09/2021	
		4440617	Unexpected BwAR 1-10-C3 Poer Range Flux Rate Trip Alert for N41	08/13/2021	
		4440747	Battery 111 Average Cell Temp High	08/15/2021	
		4441987	Unexpected Alarms 1-10-A5 and 1-14-A1 for 1C OPDT	08/22/2021	
			Operability Evaluations	ER-AA-320-1001	Maintenance Rule 18-10 — Scoping
		Procedures	ER-AA-312-1002	Maintenance Rule Functions — Safety Significant	3

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Classification	
		ER-AA-320	Maintenance Rule Implementation per NEI 18-10	0
		ER-AA-320-1001	Maintenance Rule 18-10 — Failure Definitions	0
		ER-AA-320-1004	Maintenance Rule 18-10 — Performance Monitoring and Dispositioning Between (a)(1) and (a)(2)	1
71111.13	Corrective Action Documents	4446169	Unexpected MRC Alarm; 12A HTR LO	09/14/2021
		4446232	1HD054A Continuous Operation Evaluation Required	09/14/2021
	Miscellaneous		1SI8920 Work Window Protected Equipment List	09/13/2021
	Procedures	ER-AA-600	Risk Management	7
		ER-AA-600-1042	On-Line Risk Management	13
		MA-AA-716-004	Conduct of Troubleshooting	19
		OP-AA-108-117	Protected Equipment Program	7
WC-AA-101-1006	On-Line Risk Management and Assessment	4		
71111.15	Corrective Action Documents	1213984	A2R15LL: S/U FW PP Press Switch Isolation Leak-By	05/10/2011
		320432	2PS-FW282A Isolation Valve Leaks-By	04/02/2005
		4419609	Unit 1 Core Exit Thermocouple Nozzle 74 - Connections Swapped Affecting Indications	04/28/2021
		4420610	B Train Core Exit Thermocouples Not Communicating with Plant Process Computer	05/01/2021
		4423740	Unit 1 Core Exit Thermocouples Exceed Allowed Maximum Deviation	05/15/2021
		4428965	U-2 Startup Feedwater Pump Oil Pressure Low	06/12/2021
		4436953	2FIS-0611 is Weeping Boric Acid	07/26/2021
		4437474	1SX169A Failed to Open on Slow Local Start of 1A DG	07/28/2021
		4443522	2A DG Bolt on 4L Cylinder Sheared During Scheduled Run	08/30/2021
		4447805	0B Non-Accessible Plenum Delay	09/21/2021
	Procedures	BwOP FW-24	Filling and Venting an Isolated Feedwater Pump	14
		ER-AA-600-1012	Risk Management Documentation	14
		OP-AA-106-101-1006	Operational Decision-Making Process	23
		OP-AA-108-111	Adverse Condition Monitoring and Contingency Planning	15
OP-AA-108-115		Operability Determinations (CM-1)	24	
71111.19	Procedures	1BwOSR	Group A IST Requirements for 1B Safety Injection Pump	12

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		5.5.8.SI-10B	(1SI01PB)	
		1BwOSR 5.5.8.SI-1B	Train B Safety Injection System Valve Stroke Surveillance	14
		1BwOSR 5.5.8.SI-2B	Train B Safety Injection System Isolation Valve Indication Surveillance	12
		SPP-21-002	Modification Test of 1SA01CA Station Air Compressor	0
	Work Orders	4762173	1SI8920 Motor Operated Valve Diagnostic Test	09/14/2021
		5092650	Electrical — Replacement of U0 SAC EC 630879	10/06/2021
		5175731	IST for 1SI8919A/B/8922B/8926 — ASME Surveillance Requirements for 1SI01PM	09/14/2021
71111.22	Corrective Action Documents	4438884	2A DG Lower Lube Oil Cooler Oil Leak When Running	08/04/2021
	Miscellaneous		Calibration of Steam Generator 2B Main Steam Atmospheric Relief Valve Control Loop Test Report Package 2P-MS042 BwIP 2500-070	3
	Procedures	2BwOSR 3.8.1.2-1	Unit Two 2A Diesel Generator Operability Surveillance	51
		2BwOSR 5.5.8.RH-5B	Group A IST Requirements for Residual Heat Removal Pump 2RH01PB	23
		BwIP 2500-070	Calibration of Steam Generator Main Steam Atmospheric Relief Valve Control Loop	13
	Work Orders	4718820	2P-MS042 S/G 2B Steam Outlet Pressure Loop	08/23/2021
71114.04	Miscellaneous	Eval No. 20-71	Emergency Action Levels for Braidwood Station, EP-AA-1001, Addendum 3	09/08/2020
71114.06	Procedures	EP-AA-1000	Standardized Radiological Emergency Plan	33
		EP-AA-1001	Radiological Emergency Plan Annex for Braidwood Station	35
71124.05	Procedures	RP-AA-700	Controls for Radiation Protection Instrumentation	8
71124.07	Corrective Action Documents	AR 04359867	1st and 2nd Quarter REMP Samples to Document in 2020 AREOR	07/30/2020
		AR 04398177	BD-22	01/26/2021
		AR 04398679	3rd and 4th Quarter REMP Samples to Document in 2020 AREOR	01/28/2021
	Miscellaneous		Braidwood Station Unit 1 and 2 Annual Radiological Environmental Operating Report 2019	05/2020

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Meteorological Tower Inspection Report	06/2019
			Meteorological Tower Inspection Report	06/2020
			Braidwood Nuclear Power Station Annual Radioactive Effluent Release Report (ARERR) 2020	05/2021
			Braidwood Station Unit 1 and 2 Annual Radiological Environmental Operating Report 2020	05/2021
71124.08	Corrective Action Documents	AR 04364522	0B RW Demin Inlet Pressure High Out of Band	08/21/2020
		AR 04375152	0PL01J, Liquid RW Control Panel, Alarm Check Unsatisfactory	10/07/2020
		AR 04403327	Lesson Learned: Dose Received During RW Resin Liner Survey	02/18/2021
	Miscellaneous		10 CFR 61 Analysis for Primary Resin Filters	04/16/2021
	Procedures	RP-AA-600	Radioactive Material/Waste Shipments	18
	Shipping Records	RWS 20-015	UN3321 LSA-II; 14 DAW Legacy Waste in Cask 14-210	08/27/2020
		RWS 20-018	UN2916 Type (B) Package; Resin Liner PO 692200-4	11/12/2020
		RWS 21-001	UN3321 LSA-II; Resin Liner P0695283-14 in Cask 14-215	01/12/2021
RWS 21-015		UN2910 Limited Quantity of Material; Seven B-25 Boxes of CP Resin	08/17/2021	
71151	Miscellaneous		NRC Performance Indicator Data; Mitigating Systems — Mitigating System Performance Index for Heat Removal Systems	07/01/2020 - 06/30/2021
			NRC Performance Indicator Data; Mitigating Systems — Mitigating System Performance Index for Residual Heat Removal Systems	07/01/2020 - 06/30/2021
			NRC Performance Indicator Data; Mitigating Systems — Mitigating System Performance Index for Cooling Water Systems	07/01/2020 - 06/30/2021
	Procedures	LS-AA-2001	Collecting and Reporting of NRC Performance Indicator Data	16
		LS-AA-2200	Mitigating System Performance Index Data Acquisition and Reporting	7
71152	Corrective Action Documents	4364058	Forced Helium Drying Skid Issue	08/19/2021
		4433954	It Was Identified That Corrective Action 04364058-22 Had Been Extended Twice, In Reviewing the CA Template, the Extensions and Their Approvals Were Not Documented	07/08/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		4434922	Level 4 Configuration Control - Received Unexpected Alarm 1-2-Ec	07/14/2021
	Drawings	M-66, Sheet 3A	Diagram of Component Cooling Water, Units 1 and 2	AW
	Miscellaneous		Gap Analysis for Braidwood DCS Human Performance Error	08/18/2020
	Procedures	2BwOSR 5.5.8.CC-3	Common Train Component Cooling Isolation Valve Stroke Surveillance	10
		NO-AA-10	Quality Assurance Topical Report (QATR)	97
		OU-MW-671-300	MPC Processing Forced Helium Dehydration (FHD) for PWRS (ISFSI)	16
		PI-AA-120	Issue Identification and Screening Process	11
		PI-AA-125	Corrective Action Program (CAP) Procedure	7
		PI-AA-125-1001	Root Cause Analysis Manual	6
		PI-AA-125-1003	Corrective Action Program Evaluation Manual	6
		PI-AA-125-1004	Effectiveness Review Manual	2