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

January 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
05000456/2020004; 05000457/2020004; AND 07200073/2020001

Dear Mr. Rhoades:

On December 31, 2020, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Braidwood Station. On January 11, 2021, the NRC inspectors discussed the results of this inspection with Mr. J. Keenan, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. One Severity Level IV violation without an associated finding is documented in this report. We are treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violations or the significance or severity of the violations documented in this inspection report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III; the Director, Office of Enforcement; and the NRC Resident Inspector at Braidwood Generating Station.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III; and the NRC Resident Inspector at Braidwood Station.

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,

/RA/

Hironori Peterson, Chief
Branch 3
Division of Reactor Projects

Docket Nos. 05000456; 05000457;
07200073
License Nos. NPF-72 and NPF-77

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV®

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

SUBJECT: BRAIDWOOD STATION – INTEGRATED INSPECTION REPORT 05000456/2020004; 05000457/2020004; AND 07200073/2020001

DISTRIBUTION:
Jessie Quichocho
Richard Skokowski
RidsNrrDorlLpl3
RidsNrrPMBraidwood Resource
RidsNrrDroIrib Resource
John Giessner
Kenneth O'Brien
Jamnes Cameron
Allan Barker
DRPIII
DRSIII
ROPreports.Resource@nrc.gov

ADAMS ACCESSION NUMBER: ML21027A038

☒ SUNSI Review		☒ Non-Sensitive ☐ Sensitive		☒ Publicly Available ☐ Non-Publicly Available	
OFFICE	RIII	RIII			
NAME	NShah:wc via email	HPeterson via email			
DATE	1/25/2021	1/26/2021			

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers:	05000456; 05000457; and 07200073
License Numbers:	NPF-72 and NPF-77
Report Numbers:	05000456/2020004; 05000457/2020004; and 07200073/2020001
Enterprise Identifier:	I-2020-004-0024 and I-2020-001-0161
Licensee:	Exelon Generation Company, LLC
Facility:	Braidwood Station
Location:	Braceville, IL
Inspection Dates:	October 1, 2020 to December 31, 2020
Inspectors:	R. Bowen, Illinois Emergency Management Agency G. Edwards, Health Physicist R. Edwards, Senior Health Physicist M. Garza, Emergency Preparedness Inspector D. Kimble, Senior Resident Inspector V. Petrella, 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, 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

Failure to Follow Established Procedures Results in Incomplete Multi-Purpose Canister Blowdown			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Not Applicable	NCV 05000456,05000457/2020004-01 Open/Closed	Not Applicable	71152
A self-revealed Severity Level IV non-cited violation (NCV) of 10 CFR 72.150, "Instructions, Procedures and Drawings," occurred for failing to follow procedures for activities that affect quality when setting up the Multi-Purpose Canister (MPC) Forced Helium Dehydration (FHD) system. Specifically, in preparation for removing bulk water from the MPC, hoses were incorrectly connected which resulted in essentially no water being removed prior to commencing drying operations and incorrectly declaring that bulk water boiling was no longer a concern.			

Main Steam Safety Valves Lift Pressure Setpoints Not Within Technical Specification Lift Setting Tolerance			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000457/2020004-02 Open/Closed	[P.5] - Operating Experience	71153
A self-revealed finding of very low safety significance and an associated non-cited violation (NCV) of Technical Specification (TS) 3.7.1, "Main Steam Safety Valves (MSSVs)," were identified when the licensee operated Braidwood Unit 2 with three MSSVs which were found to have lift pressure setpoints that were not within their TS lift setting tolerance. Specifically, just prior to the Braidwood Unit 2 A2R21 refueling outage on April 15 - 16, 2020, MSSVs 2MS014B, 2MS016A, and 2MS016C were found with lift pressure setpoints above the 3 percent tolerance listed in TS 3.7.1 during in-situ testing. A subsequent causal evaluation by the licensee identified that previous procedures and work instructions used to make adjustments to the lift pressure setpoints for the MSSVs did no incorporate applicable guidance for temperature stabilization following very large adjustments or multiple back to back adjustments. This pre-disposed the MSSVs to larger lift pressure setpoint drift levels over their service time.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000457/2020-001-00	LER 2020-001-00 for Braidwood Station, Unit 2, Three Main Steam Safety Valves Failed Setpoint Testing	71153	Closed

PLANT STATUS

Unit 1 and Unit 2 both 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, both units 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 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 Disease 2019 (COVID-19), resident 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; conducted plant status activities as described in IMC 2515, Appendix D, "Plant Status"; 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 portions 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

71111.01 - Adverse Weather Protection

Seasonal Extreme Weather Sample (IP Section 03.01) (1 Sample)

(1) The inspectors evaluated readiness for seasonal extreme weather conditions prior to the onset of seasonal cold temperatures during the weeks ending December 5 through December 19, 2020.

External Flooding Sample (IP Section 03.03) (1 Sample)

(1) The inspectors evaluated that flood protection barriers, mitigation plans, procedures, and equipment are consistent with the licensee's design requirements and risk analysis assumptions for coping with external flooding during the weeks ending December 5 through December 19, 2020.

71111.04 - Equipment Alignment

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

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

(1) 2B Residual Heat Removal (RH) Train during 2A RH Train maintenance activities during the week ending November 7, 2020
(2) 1A Essential Service Water (SX) Train during 1B SX Train maintenance activities during the week ending November 21, 2020

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 a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

(1) Fire Zone 11.3-0 South; Unit 2 Component Cooling Pumps and Heat Exchanger (HX) during the week ending November 21, 2020
(2) Fire Zone 11.2A-1; the 1A RH Pump Room during the week ending November 21, 2020
(3) Fire Zone 11.4A-1; the 1B Auxiliary Feed (AF) Pump Room during the week ending December 19, 2020

71111.06 - Flood Protection Measures

Cable Degradation (IP Section 03.02) (1 Sample)

The inspectors evaluated cable submergence protection during review of the following activity:

(1) Inspection of the 2J Cable Vault during sump pump replacement as documented in Work Order (WO) 4906557 during the week ending November 21, 2020.

71111.07T - Heat Sink Performance

Triennial Review (IP Section 03.02) (3 Samples)

(1) 1VA02SA - 1A Residual Heat Removal Pump Cubicle Cooler
(2) 2CC01A - Unit 2 Component Cooling Water Heat Exchanger
(3) Section 02.02d, Specifically Sections 02.02d2 and 02.02d7 were completed

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 administered on October 9, 2020.

The licensee tested all licensed operators required to perform the annual operating test per the licensed operator requalification program under 10 CFR 55.59. The licensee developed remediation plans as appropriate for operators who failed portions of the exam.

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 observed and evaluated licensed operator performance in the Control Room during various activities involving on-watch operations crews in the main control room during the weeks ending October 24 through October 31, 2020. These activities included, but were not limited to:
- Plant power maneuvers in support of main turbine throttle and governor valve testing on Unit 1 during the week ending October 24, 2020.
- Electrical plant manipulations, including infrequent operation of the emergency diesel generators in support of the opposite unit, during essential electrical Division 1 4160 Vac unit crosstie capability testing during the week ending October 31, 2020.

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

(1) The inspectors observed and evaluated/graded a Crew Simulator Casualty Scenario during the week ending November 14, 2020.

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (2 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 Essential Service Water (SX) Supply Pit Isolation Valves (0SX115 A-F) during the weeks ending October 31 through December 12, 2020.
(2) Maintenance effectiveness and performance history review of the 0A Control Room Heating, Ventilation, and Air Conditioning (VC) Chiller during the week ending December 12, 2020.

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (2 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) Assessment of risk and emergent repairs for 0VC24Y (0A VC Train Makeup Air Filter Discharge Flow Control Damper) as set forth in Work Order (WO) 5095226 during the week ending November 7, 2020.
(2) Assessment of risk during actuator replacement for 1SX150B (1B Essential Service Water Strainer Backwash Valve) as set forth in WO 1730745 during the week ending November 21, 2020.

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (5 Samples)

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

(1) Assessment of the operability of plant warning beacons in safety-related equipment rooms as documented in Issue Report (IR) 4383947 during the week ending November 14, 2020.
(2) Assessment of the operability of the Unit 2 Leading Edge Flow Meter (LEFM) following multiple issues with the LEFM computer processor as documented in IR 4375795 and several other IRs during the weeks ending October 24 through December 5, 2020.
(3) Assessment of the operability of the 1A AF Train and impact on the AF safety function following identification of a failed pump suction pressure instrument (1PT-AF051) as documented in IR 4374128 during the weeks ending October 9 through December 19, 2020.
(4) Assessment of the operability and functionality of the Unit 1 & 2 Control Rod Drive system following identification of potential issues with the rod drive speed as documented in IRs 4377754 and 4377755 during the weeks ending October 24 through November 4, 2020.
(5) Assessment of the operability of the 2B SX Pump following discovery of cubicle cooler head degradation as documented in IR 4377920 during the weeks ending October 24 through December 19, 2020.

71111.19 - Post-Maintenance Testing

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

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

(1) Functional and operational testing of 1SX150B (1B Essential Service Water Strainer Backwash Valve) following actuator replacement as set forth in WO 1730745 during the week ending November 21, 2020.
(2) Functional and operational testing of the 2A Reactor Containment Fan Cooler (RCFC) unit following calibration of two fan time delay starting relays as set forth in WOs 4908204 and 4906560 during the week ending December 5, 2020.
(3) Functional and operational testing of the 2B Emergency Diesel Generator (EDG) following various work accomplished during a 2-year maintenance work window as set forth in WOs 4924112, 4924113, and 5086398 during the week ending December 19, 2020.

(4) Functional and operational testing of the Unit 1 Station Air Compressor following full replacement of the component with a new, upgraded unit as set for in WO 5014727 during the weeks ending December 19 through December 31, 2020.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

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

(1) 1BwOSR 3.8.1.2-1: Unit 1 1A Diesel Generator Operability Surveillance during the weeks ending October 3 through October 10, 2020
(2) 1BwOS TRM 3.3.g.4: Unit 1 Turbine Overspeed Protection Systems Valve Stem Freedom Checks (TV - GV Cycling) during the week ending October 24, 2020
(3) 1BwOSR 3.8.1.8-1: SAT 242-1 Crosstie to Bus 141 and EDG 1A Crosstie to Bus 142 Surveillance during the weeks ending October 31 through November 7, 2020

Inservice Testing (IP Section 03.01) (1 Sample)

(1) 2BwOSR 5.5.8.SX-3A: Group A Inservice Testing (IST) for 2A Essential Service Water Pump (2SX01PA) during the weeks ending October 31 through November 7, 2020

FLEX Testing (IP Section 03.02) (1 Sample)

(1) 0BwOS FX-9: Flex Pump Flow Surveillance during the weeks ending October 17 through October 24, 2020

71114.04 - Emergency Action Level and Emergency Plan Changes

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

(1) The inspectors completed an evaluation of submitted emergency action level and emergency plan changes on December 2, 2020. This evaluation does not constitute NRC approval.

RADIATION SAFETY

71124.05 - Radiation Monitoring Instrumentation

Walkdowns and Observations (IP Section 03.01) (5 Samples)

The inspectors evaluated the following radiation detection instrumentation during plant walkdowns:

(1) Area Radiation Monitors (ARMs) in auxiliary building.
(2) Portable ion chambers stored ‘ready for use’ and/or during use in auxiliary building.
(3) Portable friskers used at the radiation protection checkpoint area at the auxiliary building exit.
(4) Portable ion chambers used at the radiation protection checkpoint area at the auxiliary building exit.

(5) Small Articles Monitor (SAM) at the auxiliary building exit.

Calibration and Testing Program (IP Section 03.02) (4 Samples)

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

(1) Thermo SAM-12, SN#12102
(2) Eberline Model 3, SN#0021768
(3) Ludlum Model 177, SN#0025793
(4) Ludlum Model 177, SN#0025808

Effluent Monitoring Calibration and Testing Program Sample (IP Sample 03.03) (2 Samples)

The inspectors evaluated the calibration and maintenance of the following radioactive effluent monitoring and measurement instrumentation:

(1) Unit 1 Containment Purge Effluent (1RE-001A)
(2) Unit 2 Auxiliary Building ventilation system discharge to main plant vent stack (2PR28J)

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

BI01: Reactor Coolant System (RCS) Specific Activity Sample (IP Section 02.10) (2 Samples)

(1) Unit 1 (August 2019–September 2020)
(2) Unit 2 (August 2019–September 2020)

BI02: RCS Leak Rate Sample (IP Section 02.11) (2 Samples)

(1) Unit 1 (October 1, 2019 through September 30, 2020)
(2) Unit 2 (October 1, 2019 through September 30, 2020)

OR01: Occupational Exposure Control Effectiveness Sample (IP Section 02.15) (1 Sample)

(1) August 2019–September 2020

PR01: Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (RETS/ODCM) Radiological Effluent Occurrences Sample (IP Section 02.16) (1 Sample)

(1) August 2019–September 2020

71152 - Problem Identification and Resolution

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

(1) The inspectors conducted a semiannual review of the licensee's corrective action program (CAP) for potential adverse trends that might be indicative of a more significant safety concern during the weeks ending October 3 through December 26, 2020. A specific trend related to the site's fire protection system and header isolation valve stem/disc separation is documented in the Results Section of this report.

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) Completion of an in-depth review of corrective actions taken following various human performance issues with the summer 2020 dry cask storage (DCS) loading campaign, as documented in IR 4364058, during the weeks ending September 12 through December 31, 2020. This review completed the partial inspection sample documented in Inspection Report 05000456/2020003 and 05000457/2020003 (ADAMS Accession Number ML20315A490). Specific details regarding this review are documented in the Results Section of this report.
(2) An in-depth review of corrective actions taken following lube oil cooler issues identified during a 2B EDG 2-year maintenance window, as documented in IR 4389711, during the weeks ending December 12 through December 31, 2020. Specific details regarding this review are documented in the Results Section of this report.

71153 - Follow-up of Events and Notices of Enforcement Discretion

Event Follow-up (IP Section 03.01) (1 Sample)

(1) Review and tracking of licensee actions during the COVID-19 National Emergency declaration as set forth by the President of the United States during the weeks ending October 3 through December 26, 2020.

Event Report (IP Section 03.02) (1 Sample)

The inspectors evaluated and closed the following licensee event report (LER):

(1) Review and closure of LER 05000457/2020-001-00, Three Main Steam Safety Valves Failed Setpoint Testing, (ADAMS Accession Number ML20164A226) during the weeks ending November 7 through December 31, 2020. The inspection conclusions and specific details associated with the closure of this LER are documented in the Results Section of this report.

INSPECTION RESULTS

Failure to Follow Established Procedures Results in Incomplete Multi-Purpose Canister Blowdown			
Cornerstone	Severity	Cross-Cutting Aspect	Report Section
Not Applicable	Severity Level IV NCV 05000456,05000457/2020004-01 Open/Closed	Not Applicable	71152

A self-revealed Severity Level IV non-cited violation (NCV) of 10 CFR 72.150, "Instructions, Procedures and Drawings," occurred for failing to follow procedures for activities that affect quality when setting up the Multi-Purpose Canister (MPC) Forced Helium Dehydration (FHD) system. Specifically, in preparation for removing bulk water from the MPC, hoses were incorrectly connected which resulted in essentially no water being removed prior to commencing drying operations and incorrectly declaring that bulk water boiling was no longer a concern.

Description:

On August 19, 2020, while preparing for processing MPC 409, the vent hose was incorrectly connected to the drain line and the drain hose was connected to the vent line on the MPC. During bulk water removal from this MC, an evolution known as blowdown, compressed helium should have been applied to the vent line where bulk water is then forced out through the drain line and back to the spent fuel pool. By monitoring a sight glass on the drain line, a worker can determine when blowdown is complete when only gas, and no water, is flowing through the drain line. Because the hoses were swapped, compressed helium was incorrectly put into the drain line and effectively allowed to bubble out of the vent line without removing any water from the MPC. Approximately 10 to 15 minutes following the start of blowdown, a worker noted the blowdown appeared complete since no water was seen flowing through the drain line site glass. Normally, a blowdown is expected to take 45 to 60 minutes. Believing blowdown was complete, the workers declared that bulk water boiling was no longer a concern. The time to boiling is calculated and tracked to ensure that bulk water is removed prior to the time at which bulk boiling would start. As such, the licensee incorrectly exited the time-to-boil (TTB) clock and continued with drying operations, the next evolution in processing an MPC. When the FHD system was started, the workers heard an abnormal noise and stopped to investigate. It was at this point that the licensee identified the incorrect hose lineup and discovered blowdown was incomplete. The hoses were reconfigured, blowdown was completed successfully, the TTB clock was correctly exited. The TTB clock was calculated to expire at 2030 on August 19. Despite the original error in declaring bulk water removed, the licensee was able to correct the configuration and blowdown the canister by 1518 on August 19, well within the calculated TTB expiration time. In addition to a potential hazard to equipment and personnel, bulk boiling inside an MPC has the potential to over pressurize the important-to-safety MPC, which is relied upon as the eventual confinement barrier to fission product release.

The as configured lineup during initial attempts to process MPC 409 was not in accordance with licensee procedure OU-MW-671-300, *MPC Processing Forced Helium Dehydration (FHD) for PWRs,* Revision 13. Step 4.4.7 of this procedure states, "Connect 2-inch hose, from FDV-2, Manifold Drain Side Inlet Valve, to VD-1, Drain Port RVOA." Step 4.4.10 states, "Connect 2-inch hose, from FVV-2, Manifold Vent Side Outlet Valve, to VV-1, Vent Port

RVOA." Furthermore, the condition was not identified beforehand during procedurally required equipment alignment checks or from available indications following completion of the perceived blowdown. Specifically, Step 4.4.19 states, "Perform walkdown of hoses and components to verify configuration." Finally, the personnel involved noted that the duration of the attempted blowdown appeared to be rather short and available survey data indicated no change in radiological conditions following the attempted blowdown; however, this information was not reviewed or used to assess the results of the blowdown.

Corrective Actions: Upon discovery of the incorrect hose configuration, the equipment was placed in a safe condition and lineup corrected, the MPC was blown down, and the canister was safely processed for storage. There was no immediate safety concern because the bulk water was eventually removed prior to exceeding the calculated time to boil. The concern was placed in the corrective action program and additional causal evaluations and corrective actions assigned. Long term corrective actions proposed include modifying components to ensure the configuration is fail-safe and procedural enhancements to further ensure the configuration is correct and conditions as expected. The inspectors did not identify and issues with these licensee corrective actions as part of their in-depth problem identification and resolution inspection sample.

Corrective Action References: IR 04364058; *Forced Helium Drying Skid Issue;* 08/19/2020

Performance Assessment:

The inspectors determined this violation was associated with a minor performance deficiency. The inspectors concluded that the licensee failed to follow procedure OU-MW-671-300 when setting up the FHD system to process the important-to-safety MPC, increasing the potential to over pressurize the MPC, damage equipment, and/or injure personnel.

Enforcement:

Severity: The inspectors determined that the violation could be evaluated, using Section 6.5.d.1 of the NRC Enforcement Policy, as a violation of very low safety significance (Severity Level IV) because the licensee failed to meet a regulatory requirement that had a more than minor safety significance.

Violation: Title 10 CFR 72.150, "Instructions, Procedures, and Drawings," states, in part, that the licensee shall prescribe activities affecting quality by documented instructions, procedures, or drawings of a type appropriate to the circumstances and shall require that these instructions, procedures, and drawings be followed. The licensee established procedure OU-MW-671-300, *MPC Processing Forced Helium Dehydration (FHD) for PWRs,* Revision 13, as the implementing procedure for processing an MPC, an activity affecting quality.

Procedure OU-MW-671-300, Step 4.4.7 states, "Connect 2-inch hose, from FDV-2, Manifold Drain Side Inlet Valve, to DV-1, Drain Port RVOA;" Step 4.4.10 dates, "Connect 2-inch hose, from FVV-2, Manifold Side Outlet Valve to VV-1, Vent Port RVOA;" and Step 4.4.19 states, "Perform walkdown of hoses and components to verify configuration."

Contrary to these requirements, on August 19, 2020, the licensee failed to follow procedure OU-MW-671-300 in that the drain hose was incorrectly connected from the Manifold Drain Site Inlet Valve to the Vent Port RVOA and the vent hose was incorrectly connected from the Manifold Vent Side Outlet Valve to the Drain Port RVOA, and the licensee did not identify the

incorrect configuration while performing the walkdown of hoses and components when setting up the FHD system to process the important-to-safety MPC.
Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Observation: Trend in Fire Protection System Header Isolation Valve Issues	71152

The inspectors performed a review of plant issues, particularly those entered into the licensee's corrective action program (CAP), associated with fire protection system over the past six months. During their review, the inspectors noted that there had been several recent issues at the station involving the separation of the valve disc from the valve stem in fire protection system header isolation valves. These included, but were not limited to:

-Issues with 0FP297, *Auxiliary Building Ring Header to Loop Header Isolation Valve*, as documented in the licensee's CAP as IR 4382568.

-Issues with 0FP252, *Auxiliary Building Ring Header Sectionalizing Valve*, as documented in the licensee's CAP as IR 4382571.

-Issues with 0FP251, *Auxiliary Building Ring Header Sectionalizing Valve*, as documented in the licensee's CAP as IR 4366302.

In addition to being installed in the same raw water system, the inspectors noted that all of these fire protection system header isolation valves were of a similar design (Anchor-Darling 150 pound class manual gate valves, of either 10-inch or 6-inch size), and had been installed around the same time as part of the plant's initial construction.

While the inspectors noted that these issues documented in the CAP had occurred as part of the licensee's actions to conduct extensive full flow testing of their fire protection system header in response to industry operating experience, coincidental issues with multiple header isolation valves featuring so many common denominators represented a potential concern warranting a more in-depth analysis. Following discussions with the inspectors, the licensee entered the trend into their CAP as IR 4393999.

The inspectors did not identify any findings or violations of NRC requirements in the course of their review.

Observation: 2B Emergency Diesel Generator (EDG) Cooler Quad Rings	71152

The inspectors performed a detailed review of IR 4389711, 2B DG - 2DG01KB-Y1/Y2 - Quad Ring Gasket Material Found. The issue involved the identification of quad ring gasket material in both the upper and lower 2B EDG lube oil coolers during a 6-year lube oil cooler inspection performed on the 2B EDG in December 2020. The inspectors chose this issue for an in-depth review of the licensee's actions within their corrective action program (CAP) due to previous history on the 2B EDG where quad ring gasket material had been degraded and potentially become a foreign material issue. Consequently, for this detailed Problem Identification and Resolution inspection sample, the inspectors focused on assessment of the licensee's corrective actions taken both in the past and for this present condition.

The inspectors did not identify any issues with the licensee's CAP actions taken for past historical issues involving quad rings on either the 2B EDG lube oil jacket water coolers. These CAP actions were largely focused on preventing the quad rings from becoming

extruded or otherwise damaged to the extent that they might become a foreign material issue. Similarly, the inspectors' review of the licensee's current corrective actions also did not result in the identification of any issues of note. The most recent CAP actions included, but were not limited to, retrieval of all of the most recently identified gasket material from December 2020 and analysis of 2B EDG lube oil temperatures since the last 6-year lube oil cooler inspection had been performed in 2016. The latter action verified that no abnormal temperature conditions had been recorded during 2B EDG operation during the period.

No findings or violations of NRC requirements were identified by the inspectors in the course of this review.

Main Steam Safety Valves Lift Pressure Setpoints Not Within Technical Specification Lift Setting Tolerance			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000457/2020004-02 Open/Closed	[P.5] - Operating Experience	71153

A self-revealed finding of very low safety significance and an associated non-cited violation (NCV) of Technical Specification (TS) 3.7.1, "Main Steam Safety Valves (MSSVs)," were identified when the licensee operated Braidwood Unit 2 with three MSSVs which were found to have lift pressure setpoints that were not within their TS lift setting tolerance. Specifically, just prior to the Braidwood Unit 2 A2R21 refueling outage on April 15 - 16, 2020, MSSVs 2MS014B, 2MS016A, and 2MS016C were found with lift pressure setpoints above the 3 percent tolerance listed in TS 3.7.1 during in-situ testing. A subsequent causal evaluation by the licensee identified that previous procedures and work instructions used to make adjustments to the lift pressure setpoints for the MSSVs did no incorporate applicable guidance for temperature stabilization following very large adjustments or multiple back to back adjustments. This pre-disposed the MSSVs to larger lift pressure setpoint drift levels over their service time.

Description:

On April 15 - 16, 2020, the licensee was conducting pre-outage lift pressure setpoint testing for Unit 2 MSSVs as required by TX 3.7.1 prior to shutting the unit down for its scheduled A2R21 refueling outage. During testing, the as-found set points for MSSVs 2MS014B, 2MS016A, and 2MS016C failed to meet the as-found set pressure acceptance criteria set forth in TS 3.7.1 of +/- 3 percent. The specific as-found values were +4.18 percent for 2MS016A, +3.9 percent for 2MS014B, and +3.13 percent for 2MS016C.

The licensee determined that the apparent cause of the failed as-found lift pressure setpoint testing on the MSSVs was setpoint drift. This setpoint drift had been exacerbated by the lack of incorporation of known industry and internal company experience into the formal work instructions and/or procedural guidance governing testing and setpoint adjustments for the MSSVs. This lack of formal guidance led to insufficient temperature stabilization lifts in between multiple back to back adjustments of the MSSV setpoints or following very large adjustments to the setpoints. Ultimately, without allowing the MSSV temperature to appropriately stabilize as a part of the lift pressure setpoint adjustment process, the valves were susceptible to larger drift levels over their subsequent service periods.

Typically, issues found during TS surveillance tests are considered to have occurred at the

time of the test unless there is substantive evidence to the contrary. Multiple MSSVs found to lift with setpoints outside of TS limits was an indication that the condition had arisen over a period of time, and that the unit had been operated at power in excess of TS 3.7.1 required action completion times. As a result, the licensee reported this event in accordance with 10 CFR 50.73(a)(2)(i)(B) as an operation or condition prohibited by the plant's TS. Additionally, because the issue impacted multiple MSSVs and led to their being inoperable, the event was also considered to be reportable under 10 CFR 50.73(a)(2)(vii) as an event where a single cause or condition caused two independent trains or channels to become inoperable in a single system designed to mitigate the consequences of an accident. The licensee reported this event to the NRC as LER 2020-001-00, *Three Main Steam Safety Valves Failed Setpoint Testing,* on June 12, 2020, (ADAMS Accession Number ML20164A226).

Corrective Actions: The entire population of 20 Unit 2 MSSVs were subjected to lift pressure setpoint testing, and all 20 MSSVs were returned to the required lift pressure setpoint range of +/- 1 percent as set forth in TS 3.7.1 at the conclusion of testing evolution. Further, the licensee's causal evaluation confirmed that all 20 installed MSSVs on Unit 2 had not been subjected to multiple adjustments without sufficient lifts to stabilize the valves' springs in between adjustments during pre-outage A2R21 testing, and enhancements were made to existing MSSV testing procedures and work instructions to incorporate appropriate guidance for temperature stabilization. Finally, 2MS014B and 2MS016C were conservatively scheduled for lift pressure setpoint testing in the licensee's A2R22 refueling outage planned for October 2021.

Corrective Action References: 4335846; *2MS016A - Pre-A2R21 Testing As-Found Outside of Acceptance Range;* 04/15/2020. 4336005; *2MS016C - Pre-A2R21 Testing As-Found Outside of Acceptance Range;* 04/16/2020. 4335997; *2MS014B - Pre-A2R21 Testing As-Found Outside of Acceptance Range;* 04/16/2020.

Performance Assessment:

Performance Deficiency: The inspectors concluded that the licensee's failure to incorporate industry guidance for stabilizing valve temperatures during the testing and adjusting of the lift set pressure of their MSSVs into applicable work instruction and procedures constituted a performance deficiency. Further, because some of the licensee's corporate subject matter experts were keenly aware of this guidance, the inspectors determined that the performance deficiency was within the licensee's ability to have foreseen and should have been prevented.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Procedure Quality attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

Significance: The inspectors assessed the significance of the finding using Appendix A, “The Significance Determination Process (SDP) for Findings At-Power.” This finding was associated with the Mitigating Systems Cornerstone of Reactor Safety and was determined to be of more than minor significance because it was associated with cornerstone attributes of design control and procedure quality, and adversely affected the cornerstone objective: "To ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage)." Specifically, the inspectors determined that the licensee's failure to have incorporated known industry guidance for

stabilizing valve temperatures during the testing and adjusting of the lift set pressure of their MSSVs into applicable work instructions and procedures contributed to the degradation of the valves with respect to lift pressure setpoint drift and contributed to the ultimate inoperability of MSSVs 2MS016A, 2MS014B, and 2MS016C. The inspectors also compared the finding with the examples listed in IMC 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues," Example 3.I was found to be similar in that a failure to incorporate available industry operating experience into the licensee's processes for MSSV lift pressure setpoint testing and adjustments ultimately resulted in increased MSSV lift pressure setpoint drift and valve inoperability.

Cross-Cutting Aspect: P.5 - Operating Experience: The organization systematically and effectively collects, evaluates, and implements relevant internal and external operating experience in a timely manner. Specifically, licensee subject matter experts were aware of industry experience regarding MSSV temperature stabilization during lift pressure setpoint adjustment activities, yet this information was not effectively implemented by incorporating it into applicable procedures and work instructions until after Unit 2 MSSV lift pressure setpoint testing activities on April 15 – 16, 2020, as corrective action for this event.

Enforcement:

Violation: Technical Specification (TS) 3.7.1 requires that the five MSSVs associated with each steam generator (SG) are operable whenever the unit is operating above 56 percent of rated thermal power. Contrary to this requirement, on April 15 - 16, 2020, planned lift pressure setpoint testing identified that MSSV 2MS016A for the 2A SG, MSSV 2MS014B for the 2B SG, and MSSV 2MS016C for the 2C SG failed to meet the as-found set pressure acceptance criteria set forth in TS 3.7.1 of +/- 3 percent and were, therefore, inoperable. A causal evaluation performed by the licensee determined that the failures had occurred over time during the previous Unit 2 operating cycle, and that the unit had been operated in a condition prohibited by TS 3.7.1 during that cycle.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

EXIT MEETINGS AND DEBRIEFS

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

- On January 11, 2021, the inspectors presented the integrated inspection results to Mr. J. Keenan, Site Vice President, and other members of the licensee staff.
- On October 9, 2020, the inspectors presented the annual licensed operator requalification examination results inspection results to Mr. J. Taff, Operations Training Manager, and other members of the licensee staff.
- On November 24, 2020, the inspectors presented the triennial heat sink inspection results to Mr. G. Gugle, Plant Manager, and other members of the licensee staff.
- On December 2, 2020, the inspectors presented the emergency action level and emergency plan inspection results to Mr. D. Moore, Senior Manager – Emergency Preparedness, and other members of the licensee staff.
- On December 16, 2020, the inspectors presented the radiation protection inspection results to Ms. M. Holba, Acting Radiation Protection Manager, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.01	Corrective Action Documents	4384749	0SH08PB Motor Hot to the Touch	11/16/2020
		4386474	2TS-SI-059X Chattering	11/25/2020
		4386776	1HT86EA Low Current and Circuit Fault Alarms In	11/28/2020
		4387383	Potential Leakby of 0FP941	12/01/2020
		4388090	2TS-SI059X Relay Chattering	12/04/2020
		4389193	System Effect on 1SH01PA Vibrations	12/09/2020
		4389796	0FX01AF Heater Not Energizing	12/12/2020
	Miscellaneous	Letter	2021 Winter Readiness Certification	12/15/2020
	Procedures	0BwOS XFT-A1	Unit Common Freezing Temperature Equipment Protection Surveillance	21
		0BwOS XFT-A2a	Unit Common Station Heat Area Heaters Freezing Temperature Equipment Protection Surveillance	9
		0BwOS XFT-A2b	Unit Common Station Heat Area Heaters Freezing Temperature Equipment Protection Surveillance	7
		0BwOS XFT-A3	Unit Common Cold Weather Surveillance	13
		0BwOS XFT-A4	Unit Common Freezing Temperature Equipment Protection Inside Surveillance	13
71111.04	Procedures	BwOP RH-E2	Electrical Lineup - Unit 2 Operating	9
		BwOP RH-M4	Operating Mechanical Lineup Unit 2 2B Train	8
		BwOP SX-E1	Electrical Lineup - Unit 1 Essential Service Water System Operating	11
		BwOP SX-M1	Operating Mechanical Lineup Unit 1	35
71111.05	Fire Plans	Pre-Fire Plan No. 103	Fire Zone 11.2A-1; Auxiliary Building 346' Elevation, Residual Heater Removal Pump 1A Room	2
		Pre-Fire Plan No. 113	Fire Zone 11.3-0 South; Unit 2 Auxiliary Building General Area - (South)	2
		Pre-Fire Plan No. 137	Fire Zone 11.4A-1; Auxiliary Building 383' Elevation, Unit 1 Auxiliary Feedwater Pump Diesel	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

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		CC-AA-201	Plant Barrier Control Program	13
		ER-AA-600-1069	High Risk Fire Area Identification	4
		ER-BR-600-1069	Braidwood Units 1 and 2 - Site List of High-Risk Fire Areas	0
		OP-AA-201-004	Fire Prevention for Hot Work	17
		OP-AA-201-007	Fire Protection System Impairment Control	0
		OP-AA-201-008	Pre-Fire Plan Manual	4
		OP-AA-201-009	Control of Transient Combustible Material	25
		OP-AA-201-012-1001	Operations On-Line Fire Risk Management	4
71111.06	Corrective Action Documents	4356572	Cable Vault 1G High Level	07/14/2020
	Drawings	20E-0-1001A	Duct Runs Outdoor Plan Plant Area	O
		20E-0-3594	Electrical Installation Manholes #2J Racks Plan and Sections	Z
		M-67A	Miscellaneous Drains Electrical Cable Vaults Units 1 and 2	D
	Procedures	ER-AA-300-150	Cable Condition Monitoring Program	7
	Work Orders	4906557	Remove and Replace Cable Vault 2J Sump Pump (2DM06P)	11/17/2020
71111.07T	Calculations	ATD-0063	Heat Load to the Ultimate Heat Sink During a Loss of Coolant Accident	5
		ATD-0109	Thermal Performance of UHS During Postulated Loss of Coolant Accident	4
		BRW-08-0097-M	Air to Water Cubicle Cooler Heat Exchanger Tube Plugging Evaluation	1
		BRW-97-1072-M / BYR97-0467	Component Cooling Heat Exchanger Tube Plugging Evaluation	6
	Corrective Action Documents	04127063	OSP-X L-1 RCFC Cooler Head Degraded Sealing Surface	04/15/2018
		04146327	Lessons Learned from Diesel Freeze	06/12/2018
		04297169	White Paste Found in 0B VC Suction Elbow and Guide Vanes	11/14/2019
		04338566	08-OSP-A 2C RCFC Degradation Found Cooler Heads	04/26/2020
	Corrective Action Documents	04385510	NRC Identified a Gap in Documentation for BwMP 330-095	11/19/2020
		04385659	Non-Conservative Assumptions in Heat Load Calc for the	11/20/2020

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Resulting from Inspection		UHS	
		04386129	NRC UHS - Calc Methodology for RH Cubicle Cooler Performance	11/23/2020
	Miscellaneous		1A RHR Cubicle Cooler Heat Exchanger Inspection Report	12/03/2018
			Unit Two - Modes 1, 2, and 3 Shiftly and Daily Operating Surveillance Data Sheet from 10-1-2020 to 10-31-2020	
			Unit Two - Modes 1, 2, and 3 Shiftly and Daily Operating Surveillance Data Sheet From 11-12-2020 to 11-18-2020	
			Unit Two - Modes 1, 2, and 3 Shiftly and Daily Operating Surveillance Data Sheet From 11-1-2020 to 11-11-2020	
			Unit One - Modes 1, 2, and 3 Shiftly and Daily Operating Surveillance Data Sheet From 10-1-2020 to 10-31-2020	
			Unit One - Modes 1, 2, and 3 Shiftly and Daily Operating Surveillance Data Sheet From 11-12-2020 to 11-18-2020	
			Unit One - Modes 1, 2, and 3 Shiftly and Daily Operating Surveillance Data Sheet From 11-1-2020 to 11-11-2020	
			Unit Common All Modes / At All Times Shiftly and Daily Operating Surveillance Data Sheet From 10-1-2020 to 10-31-2020	
			Unit Common All Modes / At All Times Shiftly and Daily Operating Surveillance Data Sheet From 11-1-2020 to 11-11-2020	
			Unit Common All Modes / At All Times Shiftly and Daily Operating Surveillance Data Sheet From 11-12-2020 to 11-18-2020	
			Unit 2 CC Heat Exchanger Inspection Report	01/09/2018
	NDE Reports		Unit 2 CC Heat Exchanger Eddy Current Examination	01/11/2018
	Procedures	0Bw0A ENV-1	Adverse Weather Conditions Unit 0	124
		0Bw0A ENV-3	Braidwood Cooling Lake Low Level Unit 0	105
		0Bw0A ENV-7	Adverse Cooling Lake Conditions Unit 0	10
	Work Orders	01528250-01	0L-CW041 Circulating Water Intake Bay Level Control Loop	08/11/2015
		01790489	2C Forebay - August Diver Inspection and Screen ADJ	09/11/2015
		01790490	2A Forebay - August Diver Inspection and Screen ADJ	10/23/2015
		01825273	1C Forebay - August Diver Inspection and Screen ADJ	10/19/2016

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		01828057	1A Forebay - August Diver Inspection and Screen ADJ	10/23/2016
		01886280	LR-2C Forebay - August Diver Inspection and Screen ADJ	10/10/2018
		01889551	Gauge(s) out of Calibration	03/22/2016
		01891178-01	Unexpected Annunciator - SX STRN DP High (19)	01/12/2016
		01912566	LR-2A Forebay - August Diver Inspection and Screen ADJ	10/19/2018
		01932930	LR-1VA02SA Eddy Current Testing/Trend	12/04/2018
		04584734	LR-2B Forebay - August Diver Inspection and Screen ADJ	10/20/2018
		04720132	LR-Braidwood Cooling Lake Hydrographic SRVEY	03/18/2019
		04751457-01	LR-1B Forebay - August Diver Inspection and Screen ADJ	10/18/2019
		04751459-01	LR-1A Forebay - August Diver Inspection and Screen ADJ	10/09/2019
		04751460-01	LR-1C Forebay - August Diver Inspection and Screen ADJ	10/15/2019
		04798572-01	0CW05F Leak Found on Traversing Gearbox	04/22/2019
		04807644-01	2B SX Strainer Stuck in Continuous Backwash	07/17/2018
		04817927-01	Potential Environmental Risk - 3DPM Oil Leak From 1CW03FB	08/17/2018
		04908394-01	LSH Traveling Screen 2F Will Not Run in Slow	04/15/2019
		04954865-01	1A SX PP Strainer Is Backwashing Excessively	08/29/2019
		05044675-01	FNI 1PDS-SX021 Calibrate/Replace 1A SX PP Strainer DP SW	05/28/2020
71111.11A	Procedures	OP-AA-101-113	Operator Fundamentals	14
		OP-AA-101-113-1006	4.0 Crew Critique Guidelines	10
		OP-AA-103-102	Watch-Standing Practices	20
		OP-AA-103-102-1001	Strategies for Successful Transient Mitigation	2
		OP-AA-103-103	Operation of Plant Equipment	1
		OP-AA-111-101	Operating Narrative Logs and Records	16
		TQ-AA-150-F25	Braidwood 2020 LORT Annual Exam Report	10/09/2020
		TQ-AA-155	Conduct of Simulator Training and Evaluation	10
		TQ-AA-201	Examination Security and Administration	17
		TQ-AA-306	Simulator Management	10
		TQ-BR-201-0113	Braidwood Training Department Simulator Examination Security Actions	22

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.11Q	Procedures	OP-AA-101-111-1001	Operations Standards and Expectations	25
		OP-AA-104-101	Communications	5
		TQ-AA-10	Systematic Approach to Training Process Description	6
		TQ-AA-150	Operator Training Programs	19
71111.12	Corrective Action Documents	4380250	OSX115C Monthly Pit Inspection Results	10/28/2020
		4380250	Conditional Release of New Oil Pump for 0WO01CA Chiller	12/04/2020
		4387762	0A VC Chiller Trip	12/02/2020
	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-320-1003	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	4382073	0VC24Y Appears to Be Failed Open	11/03/2020
		43854326	Rebuild 1SX150B Actuator	11/19/2020
	Drawings	M-96	Control Room HVAC System	AO
	Procedures	BwMP 3305-092	Limitorque Operator Maintenance (Type HBC-0 Thru HBC-3)	4
		BwMP 3305-102	Limitorque Operator Maintenance (Type SMB Stem Nut and Actuator Removal)	4
		ER-AA-330-009	ASME Section XI Repair/Replacement Program	17
		ER-AA-600	Risk Management	17
		ER-AA-600-1042	On-Line Risk Management	12
		ER-AA-600-1052	Risk Management Support of RICT	1
		ER-AA-600-1053	Calculation of RMAT and RICT for Risk Informed Completion Time Program	0
		ER-BW-600-2001	Braidwood RICT System Guidelines	0
		MA-AA-716-004	Conduct of Troubleshooting	17
		MA-AA-734-451	Limitorque (SMB-000) Operator Maintenance	8
		OP-AA-108-117	Protected Equipment Program	5
		WC-AA-101-1006	On-Line Risk Management and Assessment	4
	Work Orders	1730745	Rebuild/Replace Actuator for 1B SX Pump Strainer	11/17/2020

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Backwash Valve (1SX150B)	
71111.15	Corrective Action Documents	4321734	Unit 2 LEFM Error Message	02/26/2020
		4335813	Unit 2 LEFM Trouble Alarm	04/15/2020
		4363654	Unexpected Alarm, LEFM Trouble	08/17/2020
		4367655	Unexpected Annunciator, LEFM Trouble	09/05/2020
		4369921	Unexpected Annunciator, LEFM Trouble	09/16/2020
		4370232	10 of 15 Group 3 Station Beacons Inoperable	09/18/2020
		4373452	Unit 2 LEFM Swapped to Method 2	10/01/2020
		4373471	Unit 2 LEFM Swapped to Method 2	10/01/2020
		4374128	P2301 Indication Suspect	10/03/2020
		4375795	Unit 2 LEFM Swapped to Method 2	10/10/2020
		4377376	Rod Control Scaling Incorrect	10/17/2020
		4377754	EOC - Unit 1 Rod Control Scaling Incorrect	10/19/2020
		4377755	EOC - Unit 2 Rod Control Scaling Incorrect	10/19/2020
		4377920	2B SX Cubicle Cooler Divider Plate on Upper Cooler Needs Repair	10/20/2020
		4383947	Beacon Repair Needed and Their Requirements	11/12/2020
	Engineering Changes	373557	Evaluate the Impact of the as Found 2VA01SA SX Cubicle Cooler Degraded with Loss of One Cubicle Cooler Fan to Determine the Cubicle Cooler's Design Capability	12/31/2008
		625908	Temporary Condition Related to the Cubicle Cooler (2VA01SA) for the 2A Essential Service Water (SX) Pump	10/29/2018
	Procedures	BwMP 3100-099	SX Cubicle Cooler Inspection	0
		BwOP FW-35	Obtaining LEFM Event Log Information and A/C Unit Alarm Resetting	3
		BwOP FW-38	LEFM Data Retrieval	3
		EP-AA-1000	Exelon Nuclear Standardized Radiological Emergency Plan	33
		ER-AA-600-1012	Risk Management Documentation	17
		MA-BR-723-141	Test of the Beacon System	2
		OP-AA-106-101-1006	Operational Decision-Making Process	22
		OP-AA-108-111	Adverse Condition Monitoring and Contingency Planning	14
		OP-AA-108-115	Operability Determinations (CM-1)	23

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.18	Work Orders	4906560	2AP10E REF1 Time Delay Relay Calibration	12/02/2020
71111.19	Corrective Action Documents	4363448	Unexpected Annunciator 2-21-C8, Diesel Generator 2A Trouble/Fail to Start	08/16/2020
		4370636	Unexpected Alarm 2-22-C8, 2B Diesel Generator Control Power Failure	09/19/2020
		4387564	Time Delay Relays Out-of-Tolerance	12/02/2020
		4391523	Multiple Oil Leaks on 1B Station Aire Compressor	12/21/2020
		4391524	Multiple Leaks on 1B Station Air Compressor	12/21/2020
		4391893	1B & 2A Station Air Compressors Not Sharing SA/IA Load	12/23/2020
		4391895	1B Station Air Compressor Failure to Start While Aux Oil Pump Initially Secured	12/23/2020
	Engineering Changes	630880	Replacement of Unit 1 Station Air Compressor	1
		632665	Diesel Generator KILOVAC Relay Replacement with Struthers-Dunn Model (Units 1 and 2)	12/04/2020
	Procedures	1BwOSR 5.5.8.SX-7	Essential Service Water System Valve Stroke Surveillance	4
		2BwOS DG-2B	2B Diesel Generator Overspeed Trip Test	4
		2BwOSR 3.3.2.8-611B	Unit 2: ESFAS [Emergency Safety Features Actuation System] Instrumentation Slave Relay Surveillance (B Train Automatic Safety Injection - K611)	13
		2BwOSR 3.6.6.7	Containment Cooling Fan Automatic Actuation Test	4
		2BwOSR 3.8.1.13-2	2B Diesel Generator Bypass of Automatic Trips Surveillance	17
		2BwOSR 3.8.1.2-2	Unit 2: 2B Diesel Generator Operability Surveillance	48
		BwMP 3100-022	Diesel Generator 2-Year Inspection	39
		MA-AA-723-300	Diagnostic Testing of Motor-Operated Valves	13
		MA-BR-722-210	Calibration of Time Delay Relays	14
		MA-BR-EM-4-09070	Diesel Generator Electrical Inspection	18
		SPP 20-003	Special Procedure - Modification Test for 1SA01CB Station Air Compressor	0
		WC-AA-101	On-Line Work Control Process	29
	Work Orders	4907204	Perform Time Delay Relay Calibration Check of 1-RCFL at	12/01/2020

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			2AP10E	
		4924112	2DG01KB - Perform 2-Year Inspection of Diesel Generator	12/08/2020
		4924113	2DG01EB - Diesel Generator Exciter Inspection (2B EDG)	12/07/2020
		5014727	1SA01CB - Replacement of Unit 1 Station Air Compressor per EC 630880	10/26/2020
		5086398	2PL08J - Replace Diesel Generator Local Control Panel KILOVAC Relays	12/08/2020
71111.20	Corrective Action Documents	4380316	1A DG Lower Oil Cooler East End Bell Leak	10/28/2020
71111.22	Corrective Action Documents	4380237	Unexpected Annunciator 1-21-E8	10/28/2020
	Procedures	0BwOS FX-9	FLEX Pump Flow Surveillance	6
		1BwOS TRM 3.3.g.4	Unit 1 Turbine Overspeed Protection Systems Valve Stem Freedom Checks (TV-GV Cycling)	21
		1BwOSR 3.8.1.2-1	Unit One 1A Diesel Generator Operability Surveillance	48
		1BwOSR 3.8.1.8-1	SAT 242-1 Crosstie to Bus 141 and DG `1A Crosstie to Bus 241 Surveillance	8
		2BwOSR 5.5.8.SX-3A	Group A IST Requirements for 2A Essential Service Water Pump (2SX01PA)	18
		OP-BR-FX-1003	High Head FLEX Pump Operating Guideline	1
		OP-BR-FX-1004	Medium Head FLEX Pump Operating Guideline	0
		OP-BR-FX-1005	Low Head FLEX Pump Operating Guideline	1
	Work Orders	4928410	18-Month Surveillance: SAT 242-1 Crosstie to Bus 141 and DG 1A Crosstie to Bus 241	10/28/2020
		4963041	0FX01PB - Medium Head FLEX Pump Component Operational Inspection	10/14/2020
		4964162	0FX02PB - High Head FLEX Pump Component Operational Inspection	10/14/2020
		4965111	0FX03PB - Low Head FLEX Pump Component Operational Inspection	10/14/2020
		5052445	Unit 1 TV-GV Surveillance	10/17/2020
71114.04	Corrective Action Documents	IR 4325295	Perform Impact Review of EAL Revisions	03/10/2020
		IR 4328154	EP FAQ EAL Change License Amendment Implementation	03/20/2020

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Actions	
		IR 4329864	NOS ID: Revise Standard Emergency Plan	03/26/2020
		IR 4334253	Emergency Plan: CDAM 50.54(q) Potential Deficiencies	04/09/2020
	Miscellaneous	Eval 19-29	Evaluation of EP-AA-1000; Exelon Nuclear Standardized Radiation Emergency Plan	09/04/2019
		Eval 19-65	Evaluation of EP-AA-1000; Exelon Nuclear Standardized Radiation Emergency Plan	09/06/2019
		Eval 19-79	Various Station Emergency Plan Annexes	11/08/2019
		Eval 19-80	On-Shift Staffing Assessments	11/08/2019
		Eval 20-38	EALs for Braidwood Station	06/22/2020
71124.05	Calibration Records	Exelon Powerlabs Calibration Record	AMS-4 02794 Calibration Record	05/16/2020
		Exelon Powerlabs Calibration Summary Report	DMC-3000 Calibration Summary Report	03/27/2020
		RP-AA-232-1001	Fastscan 13007133 Calibration Report	03/12/2020
		RP-AA-700-1235	PM-12 12060 Calibration Data Sheet	05/13/2019
		RP-AA-700-1240	ARGOS-5 1011-279 Calibration Data Sheet	02/02/2020
	Corrective Action Documents	AR 04231595	RP Instrumentation Calibration Out of Tolerance Data	03/21/2019
		AR 04337693	04-OSP-A Elevated BKGB Radiation Impacting RCA Exit	04/22/2020
		AR 04366845	Potential AR/PRM Setpoint Changes Needed	09/01/2020
	Procedures	BwIP 2505-008	Calibration of GA Technologies Area Radiation Monitors	14
		RP-AA-700-1235	Operation and Calibration of the PM-12 Gamma Portal Monitors	5
		RP-AA-700-1240	Operation and Calibration of the Canberra ARGOS-5 Personnel Contamination Monitor	6
71151	Miscellaneous		NRC Performance Indicator Data; Barrier Integrity - RCS Identified Leakage	10/01/2019 - 09/30/2020
		LS-AA-2090	Monthly Data Elements for NRC Reactor Coolant System Specific Activity	08/2019 – 09/2020
		LS-AA-2140 Attachment 1	Monthly Data Elements for NRC Occupational Exposure Control Effectiveness	08/2019 – 09/2020
		LS-AA-2150	Monthly Data Elements for RETS/ODCM Radiological	08/2019 –

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Effluent Occurrences	09/2020
	Procedures	LS-AA-2001	Collecting and Reporting of NRC Performance Indicator Data	16
		LS-AA-2100	Monthly Data Elements for NRC Reactor Coolant System (RCS) Leakage	6
71152	Corrective Action Documents	1500855	2B Diesel Generator Lube Oil FME Integrity Lost Due to Extruded Quad Ring	04/11/2013
		4219915	FME: Extruded Quad Ring Matl Found Inside 2B Upper Jacket Water Cooler	02/14/2019
		4219927	FME: Extruded Quad Ring Found Inside 2B Lower Jacket Water Cooler	02/14/2019
		4364058	Forced Helium Drying Skid Issue	08/19/2020
		4364205	Decontamination May Be Needed Under 426' Fuel Handling Building Aluminum Decking	08/19/2020
		4366302	0FP251 Suspected Stem - Disc Separation	08/30/2020
		4374821	0FP252 Suspected Stem is Separated from Disc	10/06/2020
		4382568	0FP297 Valve Stem Separated	11/05/2020
		4382571	0FP252 Valve Stem Separated from Disc	11/05/2020
		4389711	2B Diesel Generator - 2DG01KB-Y1 / Y2 - Quad Ring Gasket Material Found	12/11/2020
		4393999	Adverse Trend if Fire Protection Valve Health	01/05/2021
	Procedures	BwFP FH-34	Water Transfers of the Spent Fuel Pool, Wet Cask Pit, or Transfer Canal	2
		BwFP FH-64	Transporter Operations	10
		BwFP FH-65	Spent Fuel Cask Site Transportation	16
		BwFP FH-67	Trackmobile Operations	0
		BwFP FH-68	HI-TRAC Preparation	12
		BwFP FH-69	HI-TRAC Movement Within the Fuel Building	25-26
		BwFP FH-70	HI-TRAC Loading Operations	21-22
		BwFP FH-72	HI-STORM Processing	4
		BwFP FH-74	MPC Reflood	6
		BwFP FH-83	Spent Fuel Cask Contingency Actions	15
		NO-AA-10	Quality Assurance Topical Report (QATR)	95

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		OU-MW-671-300	MPC Processing Forced Helium Dehydration (FHD) for PWRs (ISFSI)	13-15
		OU-MW-679-300	MPC Alternate Cooling for PWRs	1
		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
	Work Orders	5074225	0FP251 Suspected Stem - Disc Separation	10/05/2020
		5092586	0FP252 Suspected Stem is Separated from Disc	11/05/2020
71153	Corrective Action Documents	4335846	2MS016A - Pre-A2R21 Testing As-Found Outside of Acceptance Range	04/15/2020
		4335997	2MS014B - Pre-A2R21 Testing As-Found Outside of Acceptance Range	04/16/2020
	Engineering Changes	631400	Unit 2 Main Steam Safety Valves As-Found Lift Setpoint Evaluation for Pre-A2R21 Testing	0
	Procedures	BwMP 3305-003	Main Steam Safety Valve Testing Using Setpoint Verification Device	3 - 5
	Work Orders	4867041	Inservice Testing/Operability Test for 2MS016C, Steam Generator 2C 1190 psig Relief	04/15/2020
		4867041-06	Inservice Testing/Operability Test for 2MS014B, Steam Generator 2B 1220 psig Relief	04/15/2020
		4867041-13	Inservice Testing/Operability Test for 2MS016A, Steam Generator 2A 1190 psig Relief	04/15/2020