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

January 17, 2020

EA-16-125

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

SUBJECT: BYRON STATION – INTEGRATED INSPECTION REPORT 05000454/2019004 AND 05000455/2019004

Dear Mr. Hanson:

On December 31, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Byron Station. On January 8, 2020, the NRC inspectors discussed the results of this inspection with Mr. M. Kanavos and other members of your staff. The results of this inspection are documented in the enclosed report.

No NRC-identified or self-revealing findings were identified during this inspection.

A licensee-identified violation which was determined to be of very low safety significance is documented in this report. We are treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

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. 05000454 and 05000455
License Nos. NPF-37 and NPF-66

Enclosure:
As stated

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Letter to Mr. Bryan C. Hanson from Hironori Peterson dated January 17, 2020.

SUBJECT: BYRON STATION – INTEGRATED INSPECTION REPORT 05000454/2019004 AND 05000455/2019004

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers:	05000454 and 05000455
License Numbers:	NPF-37 and NPF-66
Report Numbers:	05000454/2019004 and 05000455/2019004
Enterprise Identifier:	I-2019-004-0064
Licensee:	Exelon Generation Company, LLC
Facility:	Byron Station
Location:	Byron, IL
Inspection Dates:	October 01, 2019 to December 31, 2019
Inspectors:	D. Betancourt-Roldan, Senior Resident Inspector J. Corujo-Sandin, Acting Senior Resident Inspector C. Hunt, Resident Inspector G. Roach, Senior Operations Engineer C. Thompson, Illinois Emergency Management Agency
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 Byron 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. A licensee-identified non-cited violation is documented in report section: 71152.

List of Findings and Violations

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

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
EDG	EA-16-125	Closure of EA-16-125 and Associated Enforcement Discretion Regarding Tornado Missile Protection	71111.15	Closed

PLANT STATUS

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

Unit 2 began the inspection period operating at full power. With the exception of minor reductions in power to support scheduled testing activities or load changes requested by the transmission dispatcher, the unit remained at or near full power for the entire inspection period.

INSPECTION SCOPES

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

REACTOR SAFETY

71111.01 - Adverse Weather Protection

Seasonal Extreme Weather Sample (IP Section 03.02) (1 Sample)

(1) The inspectors evaluated readiness for seasonal extreme weather conditions prior to the onset of winter weather conditions.

71111.04Q - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (1 Sample)

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

(1) Unit 2 direct current batteries and battery chargers on December 27, 2019

71111.04S - Equipment Alignment

Complete Walkdown Sample (IP Section 03.02) (1 Sample)

(1) The inspectors evaluated system configurations during a complete walkdown of the Unit 1 auxiliary feedwater system on October 11, 2019.

71111.05Q - Fire Protection

Quarterly Inspection (IP Section 03.01) (3 Samples)

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

(1) Fire Zone (FZ) 11.6-0, Auxiliary Building 426' - 0” elevation, auxiliary building general area on November 19, 2019
(2) FZ 11.6c-0, Auxiliary Building 426' -0” elevation, electrical maintenance department motor operated valve room on November 19, 2019
(3) FZ 11.3f-1, Auxiliary Building 364' -00” elevation, 1B Safety Injection Pump Room on November 19, 2019

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 in November 2019.

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

(1) The inspectors observed and evaluated licensed operator performance in the Control Room on November 18, 2019 following a failure of a pressure transmitter instrument. Additionally, on December 3, 2019 the inspectors observed control room staff perform a Unit 1 flux map concurrent with a 2B emergency diesel generator surveillance and 1D steam generator pressure operating relief valve troubleshooting.

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

(1) The inspectors observed and evaluated a requalification exam on November 6, 2019.

71111.12 - Maintenance Effectiveness

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

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

(1) Auxiliary Building chillers on October 11, 2019
(2) Unit 2 component cooling water system on November 29, 2019

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (3 Samples)

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

(1) Risk management during performance of high risk surveillance 2BOSR 3.2.8-608D, Non-ESFAS Instrumentation Slave Relay Surveillance (Train B Safeguards Actuation Relay (SARB) Parallel Path Test) on October 17, 2019
(2) Protected equipment walkdown during 1A residual heat removal pump work window on December 6, 2019
(3) Risk management during the 0A essential service water make-up line chemical clean up work on December 13, 2019

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 02.02) (5 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

(1) Action request (AR) 04281903, 2B charging pump mini flow failed inservice test (IST) on October 2, 2019
(2) AR 4272763, 2FW009C body to bonnet pressure seal leakage on October 9, 2019
(3) AR 4294807, 2CS019B diagnostic test not completed in required time on November 11, 2019
(4) AR 04261131, 0B essential service water makeup pump (0SX02PB) sub-synchronous vibration analysis on November 20, 2019
(5) Closure of EA-16-125 and associated enforcement discretion regarding tornado missiles protection on November 29, 2019

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (2 Samples)

The inspectors evaluated the following temporary or permanent modifications:

(1) OA essential service water makeup pump change of flow orifice on October 9, 2019
(2) Upgrade automatic voltage controller with digital model on November 4, 2019

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (3 Samples)

The inspectors evaluated the following post maintenance tests:

(1) Unit 0 component cooling pump following maintenance on October 23, 2019
(2) 2AF005E valve controller following calibration on November 13, 2019
(3) 1B safety injection pump following maintenance on November 14, 2019

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Surveillance Tests (other) (IP Section 03.01) (1 Sample)

(1) 1A diesel generator 18 month safety actuation start surveillance on October 30, 2019

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

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

(1) BI02: Unit 1 Reactor Coolant System Identified Leak Rate (RCSL) October 2018 - September 2019
(2) BI02: Unit 2 Reactor Coolant System Identified Leak Rate (RCSL) October 2018 - September 2019

71152 - Problem Identification and Resolution

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

(1) The inspectors reviewed the licensee's corrective action program for potential adverse trends in multiple valves failing stroke time testing (AR 04281945) that might be indicative of a more significant safety issue.

Annual Follow-up of Selected Issues (IP Section 02.03) (3 Samples)

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

(1) 2A emergency diesel generator non-emergency trips on December 27, 2019
(2) Missed fire watch in Unit 1 electrical penetration room on December 27, 2019
(3) Steam leak on main steam line pressure transmitter PT-524 on November 20, 2019

INSPECTION RESULTS

Enforcement Discretion	Enforcement Action EA-16-125: Closure of EA-16-125 and Associated Enforcement Discretion Regarding Tornado Missile Protection	71111.15
Description: On June 10, 2015, the NRC issued Regulatory Issue Summary (RIS) 2015–06, "Tornado Missile Protection," (ML15020A419) and Enforcement Guidance Memorandum (EGM) 15–002, "Enforcement Discretion for Tornado-Generated Missile Protection Noncompliance" (ML15111A269). The RIS focused on the requirements regarding tornado-generated missile protection and required compliance with the facility-specific licensing basis. The EGM provided guidance to allow the NRC staff to exercise enforcement discretion when an		

operating power plant licensee did not comply with the current licensing basis for tornado-generated missile protection.

On May 25, 2016, the licensee documented several identified non-conformances related to tornado missile protection in their corrective action program (AR 02673848). In addition, the licensee discussed their intent to request to use the enforcement discretion afforded by EGM 15-002 and discussed the actions required to comply with the provisions of the EGM. The NRC documented the exercising of enforcement discretion in NRC Integrated Inspection Reports 2016-002 (ML16208A389) and 2017-001 (ML17125A029). Enforcement Action (EA) number EA-16-125 was assigned to administratively track the use of enforcement discretion until final corrective actions were implemented.

Corrective Actions: By letter dated October 7, 2016, (ML16281A174) and as supplemented by letter dated March 20, 2017, (ML17079A130) the licensee submitted a license amendment request to revise their licensing bases regarding protection from tornado-generated missiles. As part of the amendment process one of the key items discussed was the Ultimate Heat Sink (UHS). Specifically, the licensee wanted to use the TORMIS methodology to address a non-conforming condition and operability evaluation related to unprotected UHS components needed for safe shutdown after a tornado. As discussed in the safety evaluation, the licensee established success criteria that were dependent on: (1) the outside air wet bulb temperature; (2) the number of operating units; and (3) the number of available essential service water cooling tower (SXCT) cells and fans. The licensee indicated to the Office of Nuclear Reactor Regulation (NRR) the site would establish administrative controls to ensure the assumed initial conditions in the post-tornado UHS cooldown analysis are met. In response, the licensee revised and implemented procedure 0BOSR 0.1-0, “Unit Common All Modes/All Times Shiftly and Daily Operating Surveillance.” This procedure is used, in part, to comply with: 1) TS 3.7.9, “Ultimate Heat Sink”; 2) TRM 3.7.e, “Tornado Design Basis Essential Service Water Cooling Tower (SXCT) Fans - Operating”; and 3) TRM 3.7.e, “Tornado Design Basis Essential Service Water Cooling Tower (SXCT) Fans - Shutdown.”

On August 10, 2017, the NRC issued License Amendment No. 199 to NPF-37, Amendment No. 199 to NPF-66, and the associated safety evaluation (ML17188A155). Based on its evaluation, the NRC approved Byron Station, Units 1 and 2, to revise the Updated Final Safety Analysis Report (UFSAR) to incorporate the TORMIS computer code as the methodology used for assessing tornado-generated missile protection of specific unprotected plant structures, systems and components and to describe the results of the site-specific tornado hazard analysis as described in the licensee’s application and safety evaluation.

Corrective Action References: AR 02673848 – “Tornado Protection Design Nonconforming Condition”

Enforcement:

Violation: Based on the licensee’s corrective actions described above, no additional violations were identified. The enforcement discretion afforded by EGM 15-002 is no longer required, and EA-16-125 is considered closed.

Licensee-Identified Non-Cited Violation	71152
This violation of very low safety significance was identified by the licensee and has been entered into the licensee corrective action program and is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.	

Violation: Technical Specification Section 5.4.1.c states, in part, that written procedures shall be established, implemented, and maintained covering the Fire Protection Program. The licensee established Section 3.10, "Fire Protection," Revision 118, of the Technical Requirements Manual (TRM) to address the requirements of the Fire Protection Program. Section 3.10.d, states, in part, that the carbon dioxide suppression system in the lower cable spreading room shall be operable whenever the equipment in the lower cable spreading room is required to be operable. Section 3.10.d, condition A.1 states, in part, that if one or more of the required carbon dioxide systems is inoperable then enter the condition referenced Table T3.10.d-1 for the inoperable carbon dioxide systems. Table T3.10.d-1, CO_2 Systems, identifies the lower cable spreading room as a protected fire zone area and directs the licensee to enter condition C of Section 3.10.d. Condition C then states, in part, as required by Required Action A.1 and referenced in Table T3.10.d-1, establish an hourly fire watch or verify the automatic fire detection instrumentation is operable within an hour. Additionally, TRM Section 3.10.g, states, in part, that all fire assemblies separating safety related fire areas or separating portions of redundant systems important to safe shutdown within a fire area shall be operable. Section 3.10.g, condition A.1 states, in part, that if one or more of the required fire assemblies is inoperable the licensee is required to establish a continuous fire watch on at least one side of the inoperable assembly, or verify the operability of fire detectors on at least one side of the inoperable assembly per condition A.2.1 and either establish an hourly fire watch patrol per condition A.2.2 or establish alternate compensatory measures per condition A.3.

Contrary to the above, on September 16, 2019, the licensee failed to perform an hourly fire watch or verify the automatic fire detection instrumentation was operable within an hour as required by TRM Section 3.10.d, Condition A and C. Additionally, the licensee failed to establish a continuous fire watch on at least one side of an inoperable fire assembly, or verify the operability of fire detectors on at least one side of the inoperable assembly and either establish an hourly fire watch patrol or establish alternate compensatory measures as required by TRM Section 3.10.g, Condition A. Specifically, while performing maintenance involving cutting a hole in a required fire assembly in the Unit 1 lower cable spreading room, with the carbon dioxide suppression system secured, the licensee failed to perform hourly fire watches for approximately five hours.

Significance/Severity: Green. The inspectors assessed the significance of the finding using Inspection Manual Chapter 0609, Appendix F, Attachment 1, "Fire Protection Significance Determination Process Worksheet," dated May 2, 2018. In accordance with step 1.5 of the document, a Senior Reactor Analyst reviewed the licensee's risk evaluation and verified the core damage frequency results were significantly less than the 1E-6/year threshold (Green).

Corrective Action References: (1) AR 04279777, CO2 LCSR TRM 3.10d and 3.10g

Observation: Leak on 2B Main Steamline Pressure Transmitter (2PT-524)	71152

The inspectors performed detailed reviews of IR 4298076, Emergent Isolation of 2PT-524 Transmitter, and IR 4299087, TCC EC 630050 Installation. The licensee's evaluation was related to the temporary repair performed to restore function to the 2B Main Steamline Pressure Transmitter (2PT-524). This instrument was isolated on November 18, 2019, after an engineer identified a significant steam leak on the line that fed the instrument. Upon isolation of the instrument, the Unit was ramped down 2 MWe to keep indicated power less than 100 percent as the instrument provided an input to the calorimetric. As part of their review, the inspectors looked at operator response and the corrective actions taken to restore the instrument to operable status.

As part of the corrective action, the licensee performed a temporary repair which consisted of isolating the normal pressure sensing line input to 2PT-524 from its instrument condensate pot and installing a new sensing line from an independent instrument 2PT-MS042 (2B Main Steam Pressure Operated Relieve Valve Pressure control transmitter). To address instrument line separation criteria, barriers were installed to protect redundant transmitter channels that were in close proximity (under 18 inches). Following the installation and restoration of the equipment to operable status, one of these barriers was discovered by engineers performing a post installation walkdown to have been installed without one of the three supports specified in the design specification. This resulted in approximately 50 inches of unsupported piping. Engineering evaluated the condition and determined that the stress levels would remain less than the ultimate stress for the material and would not fail under design conditions.

Following their review, the inspectors concluded that the licensee's identification of the issue had been timely and that the actions the licensee had taken to troubleshoot the condition had been reasonable and appropriate. No findings of significance were identified by the inspectors. Although there was an error associated with the installation of the temporary modification, the inspectors determined that the performance deficiency involved did not rise to the level of being of more than minor safety significance and, as such, did not constitute a documentable finding. However, since the components involved were safely-related, the failure to properly follow the design specifications when installing the temporary modification was considered a violation of 10 CFR Part 50, Criterion V, "Instructions, Procedures and Drawings." Since the licensee determined that the repair would not fail under design conditions and the issue was documented under IR 4298076, the failure to comply with 10 CFR Part 50, Criteria V, constitutes a minor violation that is not subject to enforcement action in accordance with the NRC's Enforcement Policy.

Observation: 2A Emergency Diesel Generator Pneumatic Check Valve Operating Experience	71152

Inspectors performed an in-depth review of several 2A emergency diesel generator (EDG) pneumatic check valve failures throughout 2019 and assessed the licensee's performance against the performance attributes listed in Section 03.06 of the Problem Identification and Resolution inspection procedure 71152. Specifically, the inspectors assessed the licensee's ability to identify actions that are appropriately focused to correct a condition adverse to quality and whether those actions resulted in correcting the condition.

Each unit has two safety related EDGs that provide an independent emergency source of alternating current power, one for each engineering safeguards features division, in the event of a complete loss of offsite power. The diesel generators supply all of the electrical loads which are required for reactor safe shutdown either with or without a loss-of-coolant accident. The EDGs are described in the Updated Final Safety Analysis Report (UFSAR) Section 8.3. For routine testing, an EDG is normally started in test mode where certain features are active that will shut down the engine in a non-emergency situation if an issue arises. These non-emergency trips are bypassed during an emergency start of the EDG to ensure that the engine can perform its design basis function when called upon.

On March 11, March 21, August 7, and December 11, 2019, the 2A EDG tripped during non-emergency engine runs. The licensee documented the events in AR 04228530, AR 04231438, AR 04270087, and AR 04302979, respectively. In each case, malfunctioning check valves in the non-emergency trip air header were determined to be the cause. Inspectors noted that over the last five years, the 2A EDG has unexpectedly tripped six times

due to issues with pneumatic check valves sticking and once due to pneumatic check valves leaking by in the non-emergency trip air header. The licensee has performed three failure analyses on the affected pneumatic check valves between 2016 and 2019. All three analyses attributed the sticking of the check valves to the presence of a white film on the valve seat that was causing the valve disc to become stuck in the closed position.

To date, notable actions that the licensee has taken in response to this issue include:

- Failure analysis testing of the affected pneumatic check valves in 2016 and again in 2019;
- A review of the supply system to determine if the failed valves were related to a manufacturing issue;
- A historical review of diesel starting air system quality testing to determine what affects, if any, repeated failures between 2013 and 2016 had on the operation of the pneumatic check valves in the system. Failure analyses ruled out starting air quality as being a factor in the check valve failures;
- A review of the maintenance strategy for the affected valves. The licensee determined that no change in the maintenance strategy was required. In 2019, the licensee extended the frequency of pneumatic check valve replacements from every six years to every eight years. As part of the justification for the extension, the licensee reviewed preventive maintenance frequencies, equipment history, the ability to detect a component failure, and the consequences for each component failure. Overall, the licensee determined that the risk to extending the maintenance frequency was acceptable.

Inspectors reviewed the 2019 events and determined that the 2A EDG remained available to perform its safety function because the engine trips in the non-emergency trip air header are bypassed upon receipt of an emergency start signal. Additionally, the inspectors determined that the unavailability time incurred by the station during the replacement of the affected pneumatic check valves did not significantly impact the margin to the station's maintenance rule unavailability goal. The inspectors noted that although similar pneumatic check valve failures have not predominately been seen in the other three EDGs at the site, the licensee continues to be challenged with identifying actions that will address the ongoing issue with check valve failures in the 2A EDG. Further, by extending the frequency at which these pneumatic check valves are replaced from six to eight years, the licensee has accepted the additional risk of like failures in the future. Inspectors noted that although a failure in a pneumatic check valve would not prevent an EDG from performing its design basis function, as discussed in AR 02612025 and AR 02612060, operating the EDG with a pneumatic check valve failure during an actual event could pose a challenge to operators in an already high stress situation.

No findings or violations were identified in this sample.

Observation: ASME Stroke Time Testing in Safety Related Valves	71152

Inspectors performed a review of plant issues, particularly those entered into the licensee Corrective Action Program (CAP), associated with stroke time testing of safety related valves. Title 10 CFR 50.55a and the American Society of Mechanical Engineers Operation and Maintenance of Nuclear Power Plants (ASME OM) Code contain guidance on the periodic testing of safety related valves at nuclear power plants. One such test is the timing of a valve stroke to verify the operational readiness of the valve to perform its design basis function when required.

The inspectors noted that in 2019, there were numerous instances in the CAP of valves failing to meet acceptance criteria for stroke time testing. Approximately twelve valves, some with multiple test failures, contributed to the total number of failures between both units at the site. The inspectors reviewed the actions taken by the licensee for each test failure and the follow on engineering evaluation for the affected valves. In all cases, the inspectors determined that the licensee took the appropriate actions as required by Technical Specifications and the ASME OM Code. In general, the licensee has been able to repair or rebaseline through the licensee's Inservice Testing Program, as appropriate, valves that failed to meet stroke time acceptance criteria. The remaining valves that have not been fully restored to service are being tracked in the licensee's CAP. The licensee documented this trend in AR 04281945.

No findings or violations were identified in this sample.

EXIT MEETINGS AND DEBRIEFS

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

- On January 8, 2020, the inspectors presented the integrated inspection results to Mr. M. Kanavos, Site Vice President and other members of the licensee staff.
- On December 2, 2019, the inspectors presented the Closure of EA-16-125 and Associated Enforcement Discretion Regarding Tornado Missile Protection inspection results to Ms. Zoe Cox, Principal Regulatory Engineer, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.04Q	Procedures	2BOSR 8.9.1-1	Unit Two ESF Onsite Power Distribution Weekly Surveillance Division 21	14
71111.04S	Miscellaneous	BOP AF-E1	System Lineup Sheet	10
		BOP AF-M1	Auxiliary Feedwater System Valve Lineup	19
		BOP AF-M1A	Auxiliary Feedwater System Train “A” Valve Lineup	7
71111.05Q	Fire Plans	Pre-Fire Plan #128	Aux Bldg 364'-0” Elev. 1B Safety Injection Pump Room / RWST Tunnel	2
		Pre-Fire Plan #155	Aux Bldg 426'-0” Elev. Aux. Bldg. General Area - South & MMD MOV Room	5
		Pre-Fire Plan #156	Aux Bldg 426'-0” Elev. Aux. Bldg. General Area - West, Old Men's Changing Room & Hot Shop	4
		Pre-Fire Plan (FZ 11.6-0)	Aux Bldg 426'-0” Elev. Aux. Bldg. General Area - North	5
		Pre-Fire Plan (FZ 11.6C-0)	Aux Bldg 426'-0” Elev. EMD MOV Room	2
71111.12	Corrective Action Documents	04219099	2CC9429 SFP HX CC Outlet Relief Valve Leaking Onto Cable Tray	02/11/2019
		04234898	2A CC PP 2CC01PA Inboard PP Seal Leakage	03/31/2019
		04239402	Loose Nuts on East End of CC HX-2A Support	04/16/2019
		0424012	TCC EC 625112 Wrong TRP Rev and Not Logged	04/16/2019
		04257024	Failed PMT on 1CC9473B SER Point	06/14/2019
		04283911	Oil Leak 0 1CC202A	10/01/2019
		04285199	Unit 0 CC Pump Discharge Pressure Low for ASME Run	10/05/2019
		AR 04290261	IVA07S Heat Exchanger Inspection - Repairs Required	10/22/2019
		AR 04299192	0B VA Chiller Condenser Refrigerant Pressure Low	11/22/2019
71111.13	Drawings	M-42, Sheet No. 6	Diagram of Essential Service Water	09/18/1996
	Miscellaneous		IEPA Letter re NPDES Permit No. IL0048313 - Final Permit	08/30/2016
		2A SX Pump Window (2SX01PA) fragnet	10 Hrs of 72 Hr LCO	12/10/2019

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Procedures	2BOSR 3.2.8-608D	Unit 2 Non-ESFAS Instrumentation Slave Relay Surveillance (Train B Safeguards Actuation Relay (SARB) Parallel Path Test)	5
		OP-BY-108-117-1000	Byron Protected Equipment Program	11
71111.15	Corrective Action Documents	AR 04261131	0B SX MU PP (0SX02PB) Sub-Synchronous Vibration Analysis	07/01/2019
		AR 04281903	2B CV Pump Mini Flow Failed 1st Stroke Time Test	09/24/2019
		AR 04289794	4.0 Critique of 2FW009C Temp Leak Repair	10/21/2019
		AR 04294807	2CS019B Diagnostic Test Not Completed in Required Time Frame	11/05/2019
	Miscellaneous	04294807	SOC Daily MRC Report; 2CS019B Diagnostic Test Not Completed in Required Time Frame	11/11/2019
		04294807	2CS019B Diagnostic Test Not Completed in Required Time Frame	11/13/2019
		Code Case OMN-1	Alternative Rules for Preservice and Inservice Testing of Active Electric Motor-Operated Valve Assemblies in Light-Water Reactor Power Plants	2006
		Code Case OMN-20	Inservice Test Frequency	2013
		ER-AA-302-1004	Attachment 1; MOV PVT Interval Performance Review Data Collection	11/08/2019
	Procedures	0BOSR 0.1-0	Unit Common All Modes/All Times Shiftly and Daily Operating Surveillance	66
		ER-AA-300	Motor-Operated Valve Program Administrative Procedure	12
		ER-AA-302	Motor-Operated Valve Program Engineering Procedure	7
		ER-AA-321	Administrative Requirements for Inservice Testing	13
		ER-AA-321	Attachment 3, IST Valve Evaluation Form	13
		ER-AA-321-1006	Inservice Testing of Motor Operated Valves	4
		OP-AA-108-111	Adverse Condition Monitoring and Contingency Plan; 2FW009C Body to Bonnet Pressure Seal Leakage	13
	Work Orders	1674413-02	MOV Post-Test Data Review Worksheet	09/10/2008
71111.18	Calculations	CC-AA-309-1001	Essential Service Water Make-up Pump Head Calculation	4
		PSA6-63	SX Make-up Pump Recirc Flow Back Pressure	0

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Corrective Action Documents	AR 04277041	Contingency WO for 0A SX Makeup Cooler Orifice	09/05/2019
		AR 04284497	0A SX M/U Pump Cooler Flows	10/02/2019
		AR 04285002	0A SX Make-up Pump Cooler Flow Balancing	10/04/2019
	Miscellaneous		PORC Cover Sheet	10/31/2019
	Procedures	SP-19-002	Modification Testing, Commissioning and Power Ascension Procedure for ABB Unitrol 6000 Automatic Voltage Regulator (AVR) Replacement	0
71111.19	Procedures	2BOSR 0.5-2.AF.1-2	Surveillance WO Disposition Sheet; U2 Train B AF Valves Stroke Test (PMT)	0
	Work Orders	04708082 01	Change Grease in Coupling Per BMP 3229-1 Section F.2	09/04/2019
		04953604 01	(NEIL) - 1SI01PB Group A IST Requirements for Safety Injection	11/12/2019
71111.22	Work Orders	04783934 01	1A D/G ESF Actuation and Non-Emer Trip and Gen Trip Surv	03/01/2019
71151	Corrective Action Documents	AR 04282223	Unit 2 RCS Leakrate Exceeded Deviation Action Level 3	09/25/2019
		AR 04282367	Unit 2 RCS Leakrate Exceeded Deviation Action Level 2	09/26/2019
		AR 04284287	Unit 2 RCS Leakrate Exceeded Deviation Action Level 3	10/02/2019
		AR 04284697	Unit 2 RCS Leakrate Exceeded Deviation Action Level 1 and 2	10/03/2019
71152	Corrective Action Documents	AR 00477739	2A DG Tripped on High Crankcase Pressure	10/19/2014
		AR 02382133	2A DG Trip on High Crankcase Pressure	09/17/2014
		AR 02397699	2A DG Tripped on High Crankcase Pressure	10/19/2014
		AR 02397787	2DG01KA: 2A DG Trip	10/19/2014
		AR 02397787	2DG01KA: 2A DG Trip	10/19/2014
		AR 02397894	Troubleshooting 2A DG Identified Check Valve Not Passing Air	10/20/2014
		AR 02570788	2A DG Trip During Test Mode Start	10/14/2015
		AR 02611695	2A D/G Trip When Performing 2BOSR 8.1.2-1	01/13/2016
		AR 02611695	2A D/G Trip When Performing 2BOSR 8.1.2-1	01/13/2016
		AR 02612025	2A DG Trip: E.O/NSO Insights and Concerns	01/13/2016
		AR 02612060	OPS Focus - Review Extent of Condition DG Non-Emergency Trip	01/13/2016
		AR 04228530	2A DG Tripped During the Cooldown Cycle	03/11/2019

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		AR 04231438	Unexpected Alarm	03/21/2019
		AR 04258288	0B SX MU Pump Vibes in “Alert” Range	06/20/2019
		AR 04270087	2A Emergency D/G Tripped During Start for Monthly Run	08/07/2019
		AR 04274796	Diesel Generator Starting Air Quality - Historical Trend IR	08/27/2019
		AR 04298065	Flex Hose 2MS72BA Steam Leak	12/03/2019
		AR 04298076	Emergent Isolation of 2PT-524 Transmitter	12/03/2019
		AR 04298726	Failed PMT on DG PMS WO 04875139	11/20/2019
		AR 04299087	TCC EC 630050 Installation	11/21/2019
		AR 04302976	2A DG Trip When Performing 2BOSR 8.1.2-1	12/11/2019
	Engineering Changes	EC 0000630050	Connect Sensing Line 2PT-MS042 to PT-0524 due to Flex Hose Leak on 0ZY04MB Downstream of 2MS090B	11/20/2019
	Miscellaneous	AR 04274796	SOC Daily MRC Report	08/30/2019
		CR-04270087	CAP102 Report BYR MRC CR Review	08/26/2019
		CR-04299087	CAP102 Report, BYR MRC CR Review	11/21/2019
	Work Orders	01777902 01	2A DG Tripped on High Crankcase Pressure	10/19/2014