



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, ILLINOIS 60532-4352

October 30, 2018

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

SUBJECT: BYRON STATION, UNITS 1 AND 2—NRC INTEGRATED INSPECTION REPORT
05000454/2018003 AND 05000455/2018003

Dear Mr. Hanson:

On September 30, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Byron Station, Units 1 and 2. On October 9, 2018, the NRC inspectors discussed the results of this inspection with Mr. H. Welt and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC did not identify any findings of significance during this inspection period.

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

Sincerely,

/RA/

Eric Duncan, Chief
Branch 3
Division of Reactor Projects

Docket Nos. 50-454; 50-455
License Nos. NPF-37; NPF-66

Enclosure:
IR 05000454/2018003; 05000455/2018003

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Letter to B. Hanson from Eric Duncan dated October 30, 2018

SUBJECT: BYRON STATION, UNITS 1 AND 2—NRC INTEGRATED INSPECTION REPORT
05000454/2018003 AND 05000455/2018003

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REGION III

Docket Numbers: 50-454; 50-455

License Numbers: NPF-37; NPF-66

Report Numbers: 05000454/2018003; 05000455/2018003

Enterprise Identifier: I-2018-003-0024

Licensee: Exelon Generation Company, LLC

Facility: Byron Station, Units 1 and 2

Location: Byron, IL

Dates: July 1, 2018 through September 30, 2018

Inspectors: J. McGhee, Senior Resident Inspector
C. Hunt, Resident Inspector
D. Kimble, Senior Resident Inspector
T. Hartman, Senior Resident Inspector
S. Bell, Health Physicist
J. Cassidy, Senior Health Physicist
J. Bozga, Senior Reactor Inspector
C. Thompson, Resident Inspector, Illinois Emergency
Management Agency

Approved by: E. Duncan, Chief
Branch 3
Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring licensee performance by conducting an integrated quarterly inspection at Byron Station Units 1 and 2 in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

List of Findings and Violations

No findings or violations were identified.

Additional Tracking Items

None.

PLANT STATUS

Unit 1 began the inspection period at scheduled thermal power. On September 9, 2018, Unit 1 was shut down to conduct refueling outage B1R22. Unit 1 was restarted and returned to full power on September 29, 2018. Unit 1 remained at scheduled power levels for the remainder of the inspection period.

Unit 2 operated at scheduled power levels 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

71111.04—Equipment Alignment

Partial Walkdown (3 Samples)

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

- (1) 125 volt direct current (DC) 111/112 batteries and battery chargers, on July 5, 2018;
- (2) Unit 2 4.16 kilovolt (KV) and 6.9 KV electrical distribution lineups following failure of the station auxiliary transformer (SAT) 242-2, on July 10, 2018; and
- (3) 1A train of Safety Injection (SI) during 1B SI train pump work window, on August 23, 2018.

Complete Walkdown (1 Sample)

The inspectors evaluated system configurations during a complete walkdown of the Unit 1 Auxiliary Feedwater (AF) system on September 27, 2018.

71111.05AQ—Fire Protection Annual/Quarterly

Quarterly Inspection (7 Samples)

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

- (1) Unit 1 electrical cable tunnel on July 10, 2018;

- (2) Unit 2 essential service water (SX) pump room on July 24, 2018;
- (3) Unit 1 SX pump room on July 24, 2018;
- (4) Unit 1 upper cable spreading room on August 1, 2018;
- (5) Unit 1 auxiliary electrical equipment room on August 29, 2018;
- (6) Unit 2 auxiliary electrical equipment room on August 29, 2018; and
- (7) Unit 2 electrical cable tunnel on August 23, 2018.

Annual Inspection (1 Sample)

The inspectors observed and evaluated Crew “E” fire brigade performance on September 2, 2018.

71111.08—Inservice Inspection Activities (1 Sample)

The inspectors assessed the effectiveness of the licensee’s programs for monitoring degradation of the reactor coolant system boundary, risk-significant piping system boundaries, and the containment boundary by reviewing the following activities from September 10 to September 21, 2018:

- (1) Ultrasonic (UT) Examination of Pipe to Pipe Weld on 1CS06AB–6/C06
 Ultrasonic (UT) Examination of Elbow to Pipe Weld on 1CS06AB–6/C05
 Ultrasonic (UT) Examination of Elbow-Pipe Weld on 1CV05B–8/C24
 Ultrasonic (UT) Examination of Pipe-Tee Weld on 1CV05B–8/C25
 Ultrasonic (UT) Examination of Tee-Pipe Weld on 1CV05B–8/C26
 Ultrasonic (UT) Examination of Loop Stop Isolation Valves (LSIVs) 1A and 2A studs, 1RC8001A/Studs 1–24 and 1RC8002A/Studs 1–24;
- (2) Review of examination records with relevant indications accepted for continued service for Liquid Penetrant (PT) Examination of 1RC01R Reactor Head Nozzle 31 and 43 and Ultrasonic (UT) Examination of Pipe to SOL Weld on 1FW87CA-6/C08A;
- (3) Welding Repair on Service Water Tee 1SXA3A–6 and 1SX311B–6 (Work Order 4825544–01);
- (4) Bare Metal Visual (BMV) examinations of the reactor vessel upper head penetrations;
- (5) Review of boric acid evaluations and corrective action records for charging header isolation valve 1CV8106, safety injection valve 1SI045 and inlet flanged connection of containment spray piping 1CS01SB;
- (6) Visual Examination (General Visual) of Containment Penetrations 1PC–086 through 1PC–091 and 1PC–094, 1PC–095 and 1PC–097; and
- (7) Liquid Penetrant (PT) Examination of Service Water Tee Weld 1SX311B–6 and Magnetic Particle (MT) Examination of Service Water Pipe Weld 1SX26A–10.

71111.11—Licensed Operator Requalification Program and Licensed Operator Performance

Operator Requalification (1 Sample)

The inspectors observed and evaluated the operating crew “E” licensed operator requalification training scenario on August 7, 2018.

Operator Performance (2 Samples)

- (1) The inspectors observed and evaluated operator activities during power maneuvering to

- shutdown the Unit 1 reactor plant for refueling outage B1R22 on September 9, 2018; and
- (2) The inspectors observed and evaluated operator activities during Unit 1 startup and power ascension from September 24 through September 29, 2018.

71111.12—Maintenance Effectiveness

Routine Maintenance Effectiveness (2 Samples)

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

- (1) Function DC-02, "Safety-Related Direct Current (DC) Power," after input breakers for battery chargers 111 and 212 tripped on June 16, June 27, and July 6, 2018; and
- (2) Function MP-08, "Transform Switchyard Voltage to 4 kV and 6.9 kV for Plant Use," following a SAT 242-2 failure on July 6, 2018.

Quality Control (1 Sample)

The inspectors evaluated maintenance and quality control activities associated with the repair of the 1A AF pump discharge valve, 1AF004A, on September 28, 2018. This sample reviewed the commercial grade dedication of parts for a safety-related application.

71111.13—Maintenance Risk Assessments and Emergent Work Control (6 Samples)

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

- (1) Missed surveillance on inaccessible fire penetration seals on July 2, 2018;
- (2) Emergent failure of SAT 242-2 on July 6, 2018, and impact of single SAT operation on planned work during the week of July 9 through 14, performed on July 9 and 10, 2018;
- (3) Battery replacement for AF pump 2B concurrent with switching and clearance activities to support lifting of electrical connections for SAT 242-2 on July 18, 2018;
- (4) Unit 1 refueling outage, B1R22, shutdown safety management plan (SSMP) and revisions beginning August 30, 2018;
- (5) Shutdown cooling protected equipment lineup walkdown during yellow shutdown safety risk window on September 12, 2018; and
- (6) Risk evaluation performed to support mode changes during planned startup with risk significant equipment out-of-service on September 24, 2018.

71111.15—Operability Determinations and Functionality Assessments (10 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) 0A SX makeup pump due to loose debris in common suction basin after failure of the 0A circulating water (CW) makeup pump, on July 9, 2018;
- (2) Westinghouse reload analysis ALFRED code error, on July 9, 2018;
- (3) Reactor coolant system loop isolation valve, 1RC8002B, was at locked rotor current during last stroke open, on July 19, 2018;
- (4) Through-wall leak on 1B diesel generator (DG) SX supply pipe, on July 21, 2018;

- (5) Oil leak from 1B auxiliary feedwater (AF) pump governor, on July 24, 2018;
- (6) Potential defect in alternating current (AC) voltage sensing board used in power operated relief valve (PORV) uninterruptible power supply (UPS), on August 9, 2018;
- (7) Significant external corrosion on SX suction valve 0SX138A, on August 14, 2018;
- (8) Through-wall leak on 1B AF pump SX suction pipe, on September 4, 2018;
- (9) Main steam safety valve 1MS017A received invalid data during lift testing, on September 7, 2018; and
- (10) Through-wall leak on 2B AF pump SX return pipe, on September 12, 2018.

71111.18—Plant Modifications (2 Samples)

The inspectors evaluated the following permanent modifications:

- (1) Installation of vent valves in FLEX piping that connects to AF pipe on Unit 1; and
- (2) Installation of Unit 1 main steam isolation valve (MSIV) room roof plug restraints.

71111.19—Post Maintenance Testing (9 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) Work Order (WO) 4596749; Control Room Chilled Water System (VC) to Service Building Chilled Water System (VS) Crosstie Operation, on July 3, 2018;
- (2) 2BHSR 8.4.2–2, Revision 1, Unit 2 Bus 212 125V Battery Charger Operability, after card and edge connector replacement following charger tripping off after SAT 242–2 failed, on July 9, 2018;
- (3) WO 0468178; Edge Card Connector One Time Replacement for Battery Charger 112, on July 26, 2018;
- (4) WO 04761261; Proactive Replacement of 2AF01EA–B Battery, on July 31, 2018;
- (5) WO 04810351; 1B AF Pump Diesel Driven Engine – Oil Leak at Governor, on July 24, 2018;
- (6) 1BOSR 5.5.8.SI.5–2a, Group A Inservice Testing (IST) Requirements for Safety Injection Pump 1SI01PB, Revision 3, following a 1B Safety Injection Pump work window on August 23, 2018;
- (7) WO 04833974; 1FW009D Leaking, on September 24, 2018;
- (8) WO 01839606; LR–OT1 Auxiliary Feedwater System Inspection and Replacement of 1B Auxiliary Feedwater Pump Gearbox Auxiliary Lube Oil Pump on September 26, 2018; and
- (9) WO 04834622; 1FFW530 Failed Closed at 300 Megawatts, on September 25, 2018.

71111.20—Refueling and Other Outage Activities (1 Sample)

The inspectors evaluated refueling outage B1R22 activities from shutdown on September 9, 2018, to plant restart and power ascension on September 29, 2018.

71111.22—Surveillance Testing

The inspectors evaluated the following surveillance tests:

Routine (1 Sample)

- (1) 1BVSR 7.1.1–1, Unit 1 Main Steam Safety Valve Operability Test, on September 24, 2018.

In-Service (2 Samples)

- (1) 2BOSR 5.5.8.CV.5–1a, Group A Inservice Testing (IST) Requirements for 2A Charging Pump 2CV01PA, Revision 9, on August 9, 2018; and
- (2) 1BOSR 5.5.8.AF.5–1c, Comprehensive Inservice Testing (IST) Requirements for the Motor Driven Auxiliary Feedwater Pump 1AF01PA, Revision 10, on September 7, 2018.

Containment Isolation Valve (1 Sample)

- (1) WO 0172007902; Ops-PMT [Post-Maintenance Test] Functional/LLRT [Local Leak Rate Test] 1PR066 on September 20, 2018.

RADIATION SAFETY

71124.01—Radiological Hazard Assessment and Exposure Controls

Radiological Hazard Assessment (1 Sample)

The inspectors evaluated radiological hazards assessments and controls.

Instructions to Workers (1 Sample)

The inspectors evaluated worker instructions.

Contamination and Radioactive Material Control (1 Sample)

The inspectors evaluated contamination and radioactive material controls.

Radiological Hazards Control and Work Coverage (1 Sample)

The inspectors evaluated radiological hazards control and work coverage.

High Radiation Area and Very High Radiation Area Controls (1 Sample)

The inspectors evaluated risk-significant high radiation area and very high radiation area controls.

Radiation Worker Performance and Radiation Protection Technician Proficiency (1 Sample)

The inspectors evaluated radiation worker performance and radiation protection technician proficiency.

71124.02—Occupational As Low As Reasonably Achievable Planning and Controls

Radiological Work Planning (Partial Sample)

The inspectors evaluated the licensee's radiological work planning by reviewing the following activities:

- Radiation Work Permit BY-1-18-00654; Seal Table All Activities
- Radiation Work Permit BY-1-18-00623; Reactor Cavity Decontamination
- Radiation Work Permit BY-1-18-00505; Containment Scaffold Activities
- Radiation Work Permit BY-1-18-00609; Containment Sump Inspection and Calibration

Verification of Dose Estimates and Exposure Tracking Systems (1 Sample)

The inspectors evaluated dose estimates and exposure tracking.

Implementation of As Low As Reasonably Achievable and Radiological Work Controls (Partial Sample)

The inspectors reviewed As Low As Reasonably Achievable (ALARA) practices and radiological work controls by reviewing the following activities:

- Radiation Work Permit BY-1-18-00654; Seal Table All Activities
- Radiation Work Permit BY-1-18-00623; Reactor Cavity Decontamination
- Radiation Work Permit BY-1-18-00505; Containment Scaffold Activities
- Radiation Work Permit BY-1-18-00609; Containment Sump Inspection and Calibration

Radiation Worker Performance (1 Sample)

The inspectors evaluated radiation worker and radiation protection technician performance.

71124.03—In-Plant Airborne Radioactivity Control and Mitigation

Engineering Control (1 Sample)

The inspectors evaluated airborne controls and monitoring.

Use of Respiratory Protection Devices (Partial Sample)

The inspectors evaluated respiratory protection.

71124.04—Occupational Dose Assessment

Source Term Characterization (1 Sample)

The inspectors evaluated the licensee's source term characterization.

Special Dosimetric Situations (Partial Sample)

The inspectors evaluated the licensee's performance for dosimeter placement and effective dose equivalent for external exposures.

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

Radioactive Material Storage (1 Sample)

The inspectors evaluated the licensee's radioactive material storage.

Radioactive Waste System Walkdown (1 Sample)

The inspectors evaluated the licensee's radioactive waste processing facility during plant walkdowns.

Waste Characterization and Classification (1 Sample)

The inspectors evaluated the licensee's radioactive waste characterization and classification.

Shipment Preparations (1 Sample)

The inspectors evaluated the licensee's radioactive material shipment preparation processes.

Shipment Records (1 Sample)

The inspectors evaluated the licensee's non-excepted package shipment records.

OTHER ACTIVITIES – BASELINE

71151—Performance Indicator Verification (8 Samples)

The inspectors verified the licensee performance indicator submittals listed below:

- (1) MS08: Heat Removal Systems – 2 Samples (July 2017 – June 2018);
- (2) MS10: Cooling Water Support Systems – 2 Samples (July 2017 – June 2018);
- (3) BI01: Reactor Coolant System (RCS) Specific Activity – 2 Samples (July 2017 – June 2018);
- (4) OR01: Occupational Exposure Control Effectiveness – 1 Sample (October 2017 – June 2018); and
- (5) PR01: Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual (RETS/ODCM) Radiological Effluent Occurrences – 1 Sample (July 2017 – June 2018).

71152—Problem Identification and Resolution

Annual Follow-Up of Selected Issues (1 Sample)

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

- (1) AR [Action Request] 04149294; NRC ID Ultrasonic Flow Meter Accuracy 5 percent vs 2 percent, dated June 14, 2018; and
- (2) AR 04154533; Adverse Trend Identified with ASME [American Society of Mechanical Engineers] Performance Issues, dated July 10, 2018.

71153—Follow-Up of Events and Notices of Enforcement Discretion

Personnel Performance (1 Sample)

The inspectors evaluated the operator and plant response to the failure of SAT 242–2 that resulted in the loss of an offsite Class 1E power supply to Unit 2 on July 6, 2018.

INSPECTION RESULTS

71152—Problem Identification and Resolution

Observation	71152 – Annual Sample Review
<p>The station continues to be challenged with the use of measuring and testing equipment (M&TE) when executing in-service testing (IST) surveillance procedures.</p> <p>In NRC Integrated Inspection Report 05000454/2018002; 05000455/2018002, the inspectors documented a programmatic weakness in the implementation of the IST program at Byron Station with several supporting examples. The licensee performed an adverse trend evaluation and planned a number of corrective actions to address this adverse trend. The inspectors found that the licensee's planned corrective actions, which relied on effective training programs and briefings, to be reasonable and likely to resolve the identified issues, if effectively implemented.</p> <p>During this inspection period, an issue was identified with the use of M&TE while the licensee's adverse trend evaluation was in progress. Specifically, while the ASME Operation and Maintenance (OM) Code and the IST program required flow instrumentation to be calibrated to a ± 2 percent accuracy, the calibration sticker on a flow meter used during an IST surveillance indicated that the instrument was only calibrated to a ± 5 percent accuracy. The assessment of this instrument calibration issue is discussed as a minor violation in this inspection report.</p> <p>In addition, on September 26, 2018, during the Unit 1 B1R22 refueling outage, the licensee again encountered problems with improper installation of an ultrasonic flow instrument to obtain accurate data during a performance test of the Unit 2 "B" diesel generator transfer pump and documented the issue in AR 04177383. In this instance, the licensee suspended the test until the issue could be resolved. Since the surveillance was not credited, no inspection-related performance deficiency was identified.</p>	

Minor Violation—Failure to Meet American Society of Mechanical Engineers Operation and Maintenance Code Requirements for Instrument Accuracy	71152
<p>Minor Violation: On June 14, 2018, the licensee performed IST surveillance 2BOSR 5.5.8.DO-1, “Test of the Diesel Oil Transfer System,” on the 2A diesel oil transfer pump. On June 19, 2018, the inspectors noted that an issue concerning the calibration of the Flexim ultrasonic flow meter used during the test had not been documented in the licensee’s Corrective Action Program (CAP). Specifically, the calibration sticker on the flow meter used during the surveillance test indicated that the instrument was calibrated to a ± 5 percent accuracy when the ASME OM Code required an instrument accuracy of ± 2 percent. The inspectors discussed the issue with licensee management. The licensee subsequently confirmed that the instrument calibration did not meet ASME OM Code requirements and entered this issue into their CAP.</p> <p>Title 10 CFR Part 50, Appendix B, Criterion XII, “Control of Measuring and Test Equipment,” requires that measures be established to assure that tools, gages, instruments, and other measuring and testing devices used in activities affecting quality are properly controlled, calibrated, and adjusted at specific periods to maintain accuracy within necessary limits. Licensee procedure ER-AA-321, “Administrative Requirements for Inservice Testing,” Section 4.10.3, states, in part, that instrument accuracy and range requirements are specified in the applicable ASME Code Edition/Addenda.</p> <p>ASME OM Code Paragraph ISTB-3510, “General,” states, in part, that instrument accuracy shall be within the limits of Table ISTB-3510-1, “Required Instrument Accuracy.” Table ISTB-3510-1 states that the required instrument accuracy for determining flow rate is ± 2 percent.</p> <p>Screening: The failure to implement programmatic controls that ensured measurement and test equipment was calibrated to the accuracy requirements of the ASME OM Code was a performance deficiency. The instruments used in IST surveillances were later re-certified to meet the required ± 2 percent accuracy in the ASME OM Code with no required adjustments.</p> <p>As a result, the performance deficiency was determined to be minor because the inspectors answered “No” to all of the more-than-minor screening criteria in IMC 0612, Appendix B. The licensee generated Issue Report (IR) 04149294 to document this issue in their CAP. This issue was also incorporated into a corrective action program evaluation (CAPE) report evaluating an adverse trend identified with ASME test performance at the site (AR 04154533).</p> <p>Violation: The failure to comply with 10 CFR Part 50, Appendix B, Criterion XII, “Control of Measuring and Test Equipment,” constituted a minor violation that was not subject to enforcement action in accordance with the NRC’s Enforcement Policy.</p>	

EXIT MEETINGS AND DEBRIEFS

The inspectors confirmed that proprietary information was controlled to protect it from public disclosure. No proprietary information was documented in this report.

- On July 27, 2018, the inspector presented the radiation protection program inspection results to Mr. H. Welt, Operations Director, and other members of the licensee staff.
- On September 21, 2018, the inspector presented the inservice program inspection results to Mr. M. Kanavos, Site Vice President, and other members of the licensee staff.

- On September 21, 2018, the inspector presented the radiation protection program inspection results to Mr. M. Kanavos, Site Vice President, and other members of the licensee staff.
- On October 9, 2018, the inspector presented the quarterly integrated inspection results to Mr. H. Welt, and other members of the licensee staff.

DOCUMENTS REVIEWED

71111.04—Equipment Alignment

- BOP DC-E1A, DC Battery & Distribution System Train A Electrical Line-Up (Unit 1); Revision 1
- BOP DC-E1B, DC Battery & Distribution System Train B Electrical Line-Up (Unit 1); Revision 2
- AR 04153997; SAT 242-1 At Power Alignment; 7/8/2018
- AR 04154095; BOP AP-86 Further Guidance; 7/9/2018
- AR 04154096; BOP AP-86 Error; 7/9/2018
- AR 04154100; BOP AP-86 Additional Guidance; 7/9/2018
- Standing Order 18-024; Single SAT Loading Requirements & Actions; 7/8/2018
- Unit 2 Electrical Lineup Evaluation; 7/10/2018
- Standing Order 18-025; Single SAT Loading Revision to BOP AP-86; 7/11/2018
- EC [Engineering Change] 624785; Evaluation Of Unit 2 Single SAT Ops for SAT 242-1 with Deviations to BOP AP-86; Revision 000
- BOP AP-86; Isolating SAT 242-2 At Power; Revision 23
- BOP AP-86; Isolating SAT 242-2 At Power; Revision 24
- M-61, Diagram of Safety Injection
- M-37, Diagram of Auxiliary Feedwater
- AR 04175870; 1AF004A-6 Porting Air Continuously; 9/22/2018
- AR 04175994; 1B AF Pump Gearbox Run Light Not Lit in MCR [Main Control Room]; 9/23/2018
- AR 04176503; 1AF049A Containment Isolation Leaking By; 9/24/2018
- AR 04173425; B1R22; Check Valve Failed Back Leakage Test; 9/15/2018
- AR 04173427; B1R22; Check Valve Failed Back Leakage Test; 9/15/2018
- AR 04173719; B1R22; Expanded Scope 1AF014E Check Valve; 9/16/2018
- AR 04176507; 1AF049D Containment Isolation Leaks By; 9/24/2018
- AR 04176513; 1AF049B Containment Isolation Leaks By; 9/24/2018
- AR 04176516; 1AF049C Containment Isolation Leaks By; 9/24/2018
- AR 04176014; AF Cub Cooler SX Flow; 9/23/2018

71111.05AQ—Fire Protection Annual/Quarterly

- Pre-Fire Plan #97; Fire Zone (FZ) 3.1-1, Auxiliary Building 414'-0" Elevation, Unit 1 Cable Tunnel; Revision 2
- Pre-Fire Plan #97; FZ 11.1B-0; Auxiliary Building 330' Elevation Unit 2 Essential Service Water Pump Room; Revision 2
- Pre-Fire Plan #96; FZ 11.1A-0; Auxiliary Building 330' Elevation Unit 1 Essential Service Water Pump Room; Revision 2
- Pre-Fire Plan #29; FZ 3.3A-1, Auxiliary Building 463'-0" Elevation Upper Cable Spreading Room; Revision 3
- Pre-Fire Plan #31; FZ 3.3B-1, Auxiliary Building 463'-0" Elevation Upper Cable Spreading Room; Revision 3
- Pre-Fire Plan #33; FZ 3.3C-1, Auxiliary Building 463'-0" Elevation Upper Cable Spreading Room; Revision 3
- Pre-Fire Plan #35; FZ 3.3D-1, Auxiliary Building 463'-0" Elevation Upper Cable Spreading

Room; Revision 3

- Pre-Fire Plan #16; FZ 3.1-2, 1; Auxiliary Building 414'-0" Elevation, Unit 2 Cable Tunnel; Revision 0
- Pre-Fire Plan #49; FZ 5.5-1; Unit 1 Auxiliary Building 451' Auxiliary Electric Room, Revision 3
- Pre-Fire Plan #50; FZ 5.5-2; Unit 2 Auxiliary Building 451' Auxiliary Electric Room, Revision 4
- AR 04170088; 4.0 Critique of 9-2-18 Fire Drill; 9/5/2018

71111.08—Inservice Inspection Activities

- AR 756048; Potential Green NCV for ISI Exam; 03/28/2008
- AR 2571860; NRC Questions Regarding Containment Liner Plate; 10/16/2015
- AR 4174287; NDE [Non-Destructive Examination] Rejectable Indication on 1FW009B; 09/18/2018
- AR 4173081; UT Readings Below 87.5% Tmin on RY Piping; 09/14/2018
- AR 4173668; Observed BA [Boric Acid] on Reactor Head; 09/16/2018
- AR 4172031; NRC IN [Information Notice] 2018-10 Issued for Thermal Sleeve Flange Wear; 09/11/2018
- Engineering Change 618724; B1R21 Engineering Evaluation for Containment Liner Metal Reduction Exceeding 10% of Nominal Thickness; Revision 0
- Procedure ER-AA-335-010; Guidelines for ASME Code Allowable Flaw Evaluation and ASME Code Coverage Calculations; Revision 6
- Procedure ER-AA-335-1008; Code Acceptance & Recording Criteria for Nondestructive (NDE) Surface Examination; Revision 5
- Procedure ER-AA-335-018; Visual Examination of ASME IWE Class MC and Metallic Liners of IWL Class CC Components; Revision 13
- Procedure ER-AP-335-001; Bare Metal Visuals for Nickel Alloy Materials; Revision 6
- Procedure ER-AA-335-031; Ultrasonic Examination Austenitic Piping Welds; Revision 8
- Procedure ER-AA-355-002; Liquid Penetrant (PT) Examination; Revision 10
- Procedure ER-AA-335-003; Magnetic Particle (MT) Examination; Revision 8
- Procedure EXE-PDI-UT-2; Ultrasonic Examination of Austenitic Piping Welds in Accordance with PDI-UT-2; Revision 8
- Procedure EXE-UT-1265; Ultrasonic Examination of the Loop Stop Isolation Valve Studs at Byron and Braidwood; Revision 0
- NRC Information Notice; Thermal Sleeve Flange Wear Leads to Stuck Control Rod at Foreign Nuclear Plant; 08/29/2018
- NSAL-18-1; Thermal Sleeve Flange Wear Leads to Stuck Control Rod; 07/17/2018

71111.11—Licensed Operator Requalification Program and Licensed Operator Performance

- 1BGP 100-4; Power Descension; Revision 59
- 1BGP 100-5; Plant Shutdown and Cooldown; Revision 73
- 1BGP 100-2; Plant Startup; Revision 50
- 1BGP 100-3; Power Ascension; Revision 98

71111.12—Maintenance Effectiveness

- DC-02 Summary Evaluation for Previous 2-year Period; 06/30/2018
- Maintenance Rule a(1) Determination for DC-02; 08/13/2018
- Maintenance Rule a(1) Determination for DC-02; 08/26/2018
- MP-08 Summary Evaluation for Previous 2-year Period; 5/31/2018
- Maintenance Rule a(1) Determination for MP-02; 08/29/2018
- AR 04149917; Maintenance Rule Availability Criteria Exceeded for MP-08 Function; 6/24/2018
- AR 04149942; Maintenance Rule Availability Criteria Exceeded for SY-02 Function; 6/24/2018

- BYR-25085; CGD [Commercial Grade Dedication] Testing of SEAL, BARREL, VITON A-401C, 16" ID X 16-1/4" OD; 09/13/2018

71111.13—Maintenance Risk Assessments and Emergent Work Control

- AR 04151160, GAP Identified with FP Seal Inspections: 7/2/2018
- BY-SURV-014, Risk Assessment Missed Surveillance – Technical Requirements Manual Surveillance Requirement 3.10.g.6-1, IR 4151160; Revision 0
- Online Risk Evaluation for Emergent SAT 242-2 Failure on July 6, 2018
- Online Risk Evaluation for Emergent 0A CW Pump Failure for the Week of July 9, Revision 1
- Online Risk Evaluation for Single SAT Impact on Unit 2 work for the Week of July 9, Revisions 2 and 3
- ECR [Engineering Change Request] 434876; Need Engineering to Provide Heavy Load Path Requirements for Unit #01 Polar Crane – 1HC01G During B1R22 Outage; 6/29/2018
- BY-MODE-022; TS 3.0.4.b Evaluation – Entry to Modes 4, 3, 2, and 1 with 1PR11J and Entry into Modes 3 and 2 with 1AF01PB Inoperable; Revision 0

71111.15—Operability Determinations and Functionality Assessments

- AR 04153142; 0A CW [Circulating Water] Makeup Pump Diver Inspection Results; 7/4/2018
- AR 04153799; Wrench Dropped in CW Makeup Bay; 7/7/2018
- AR 04154160; Westinghouse Reload Analysis ALFRED Code Error; 7/9/2018
- AR 04157641; Water Intrusion Into HVAC Panel 1VD01JB; 7/21/2018
- Adverse Condition Monitoring Plan (ACMP) and Contingency Plan for Through Wall Leak on ASME Class 3 Piping 1SX26AB; 7/23/2018
- AR 04157755; Insulation Cannot be Reinstalled on SX Piping in 1B DG Room; 7/22/2018
- ASME Code Case N-513-3, Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping; 1/26/2009
- AR 04158118; Leak From 1B AF Governor; 7/23/2018
- EC 624907; OP EVAL 18-001 – Pinhole Leak on 1SX26AB-10", Use of Code Case N-513-3 (IR 4157641)
- ER-AA-330-009, ASME Section XI – Repair/Replacement Program; Attachment 6, Implementation of Code Case N-513-x; Revision 14
- EN 53529, Potential Defect in AC Voltage Sense Board, Part Numbers 80-9210842-90; 07/27/2018
- AR 04161562; 1C PORV Controller UPS Part 21 Notification; 08/03/2018
- AR 04161565; 1D PORV Controller UPS Part 21 Notification; 08/03/2018
- AR 04161567; 2C PORV Controller UPS Part 21 Notification; 08/03/2018
- AR 04161568; 2D PORV Controller UPS Part 21 Notification; 08/03/2018
- AR 04162360; Part 21 53529 AMTEC AC Voltage Sense Board; 08/07/2018
- AR 04163103; Corrosion on 0SX138A; 08/09/2018;
- BYR13-010; Required Wall Thickness for SX Lines in SX Cooling Tower Valve Chambers B1 and B2; Revision 000;
- NDE Report 2012-415, 11/07/2012;
- NDE Report 2012-167, 07/10/2012;
- NDE Report 2014-328, 09/26/2014;
- NDE Report 2015-195, 10/16/2015;
- AR 02554191; SX UT Repeatedly Not Completed as Scheduled, 09/11/2015
- AR 04169586; Chemical Residue from Inactive SX Leak; 9/3/2018
- EC 625399; OP EVAL 18-002- Pinhole Leak on Tee Branch 1SX311B-6" Use of Code Case N-513-4
- OP-AA-108-115, Operability Determinations; Revision 21

- AR 04170307; Leak on AF Pumps Recirculation Return to SX Piping; 9/5/2018
- EC 625438; OP EVAL 18-003- Pinhole Leak on Elbow, Line 2SXE5A-3" Use of Code Case N-513-4
- AR 04170913; Lifted Valve 1MS017A Received Invalid Data; 9/7/2018
- WO 4609713; Main Steam Safety Valve Operability Test (<94% Power); 9/10/2018

71111.18—Plant Modifications

- EC 0406504; Installation of Vent Valves on FLEX Lines 1FX001BC-4" and 1FX001AD-4" at 401' Elevation in MSIV Rooms; Revision 000
- WO 01949318; Add Drain Valves Resolution to 1AF049 Issue, EC 406504 1FX031BC; 8/17/2018
- EC 0624604; Install MSIV Roof Slab Restraints – Byron Unit 1; Revision 000
- WO 04798089; Installation of MSIV Roof Slab Restraints (U1); 9/12/2018

71111.19—Post Maintenance Testing

- AR 04152992; Ops Focus: No Pressure Relief on VS [Service Building Ventilation] to VC [Main Control Room Ventilation] Crosstie; 7/3/2018
- AR 04153731; DC 212 Battery Charger Tripped During Loss of Offsite Power; 7/6/2018
- WO 01471185; Contingency Work Order for 212 Charger; 7/8/2018
- WO 04609713; Main Steam Safety Valves Operability Test (<94% RX PWR); 9/8/2018
- 1BOSR 0.5-2.FW.1; Unit One Main Feedwater System Containment Isolation Valves Full Stroke and Position Indication Test; Revision 10
- AR 04175994; 1B AF Pump Gearbox Run Light Not Lit in MCR; 9/23/2018
- 1BOSR Z.7.a.1; Auxiliary Feedwater Diesel Engine Starting Sequence and Overspeed Trip Test, Revision 6

71111.22—Surveillance Testing

- EC 344946, Determine Acceptable Range For CV [Centrifugal Charging] Pump ASME Testing Based on Safety Analysis Requirements, Revision 1
- AR 04170324; Unplanned LCOAR for 1MS014A Failed TREVI Testing; 09/05/2018
- 1BOSR 6.1.1-20; Primary Containment Type C and IST Tests of Process Radiation Monitoring System; Revision 10

71124.01—Radiological Hazard Assessment and Exposure Controls

- Radiation Work Permit and Associated ALARA Files; RWP BY-1-18-00654; Seal Table All Activities; Revision 00
- Radiation Work Permit and Associated ALARA Files; RWP BY-1-18-00623; Rx Cavity Decon; Revision 00
- Radiation Work Permit and Associated ALARA Files; RWP BY-1-18-00505; Aux/Cnmt Scaffold; Revision 00
- Radiation Work Permit and Associated ALARA Files; RWP BY-1-18-00609; Cnmt Sump Inspection & Cleaning; Revision 00
- Radiation Work Permit and Associated ALARA Files; RWP BY-1-18-00666; Emergent Work Activities; Revision 1
- File 2.12.2200.136; Remote Monitoring Support Checklist; Revision 0
- Radioactive Source Inventory; 06/28/18
- Radioactive Source Leak Test; 06/28/18
- HRA [High Radiation Area] and LHRA [Locked High Radiation Area] Door Surveillance; 08/29/18
- U1 Containment Air Sample Data; 09/12-13/180

- U1 Containment Radiological Surveys; 09/12-20/18
- Radiologically Controlled Area Exit Monitor Alarm Setpoints; Current Data
- National Source Tracking System Annual Reconciliation; 01/12/180
- 2018 Bioassay Program Annual Review at Byron Station; 06/21/18
- NISP-RP-003; Radiological Air Sampling; Revision 0
- RP-AA-301; Radiological Air Sampling Program; Revision 11
- RP-AA-403; Administration of the Radiation Work Permit Program; Revision 10
- AR 04172821; Airborne Conditions During Rx Head Lift; 09/12/2018
- AR 04174639; Clearance Order Unplanned Dose Rate Alarm; 09/17/2018
- AR 04175452; B1R22 LL Radiological Posting Improvement Opportunity; 09/21/2018

71124.02—Occupational As Low As Reasonably Achievable (ALARA) Planning and Controls

- Radiation Work Permit and Associated ALARA Files; RWP BY-1-18-00654; Seal Table All Activities; Revision 00
- Radiation Work Permit and Associated ALARA Files; RWP BY-1-18-00623; Rx Cavity Decon; Revision 00
- Radiation Work Permit and Associated ALARA Files; RWP BY-1-18-00505; Aux/Cnmt Scaffold; Revision 00
- Radiation Work Permit and Associated ALARA Files; RWP BY-1-18-00609; Cnmt Sump Inspection & Cleaning; Revision 00

71124.03—In-Plant Airborne Radioactivity Control and Mitigation

- RP-AA-825-1035; Issue and Control of Respirators; Revision 2
- RP-AA-825; Maintenance, Care and Inspection of Respiratory Equipment; Revision 8
- RP-AA-825-0114; Operation and Inspection of the 3M Versaflo TR-300 PAPR System; Revision 5
- RP-AA-440; Respiratory Protection Program; Revision 14

71124.04—Occupational Dose Assessment

- Radiation Work Permit and Associated ALARA Files; RWP-BY-1-18-00623; Rx Cavity Decon; Revision 00
- 2018 Bioassay Program Annual Review at Byron Station; 06/21/18

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

- Nuclear Oversight Audit; BYR-18-04; Chemistry, Radwaste, Effluent and Environmental Monitoring Audit Report; June 2018
- Self Assessment; Radioactive Solid Waste Processing and Radioactive Material Handling, Storage and Transportation; May 2018
- Outdoor Radioactive Material Container Inspection Checklists; May 2018
- Trending for Shifts in Scaling Factors Quarterly Data; July 1, 2016 to June 30, 2018
- 71-0008; NRC QA Program Approval – Exelon Generation Company; Revision 14
- 10 CFR 61 Analysis; Dry Active Waste; June 20, 2016
- 10 CFR 61 Analysis; Primary Resin PO668168-16; July 20, 2017
- 10 CFR 61 Analysis; Radwaste Resin; June 26, 2016
- Radioactive Material/Waste Transportation Training Records; Various Records
- CS-OP-PR-009-161067; Bead Resin/Activated Carbon Dewatering Procedure for 14-215 or Smaller Liners Utilizing Self-Engaging Dewatering System (SEDS) at Byron Station; Revision 5

- RMS 17-159; Radioactive Material Shipment; December 1, 2017
- RMS 18-047; Radioactive Material Shipment; July 26, 2018
- RWS-18-006; Radioactive Waste Shipment – Primary Resin; May 15, 2018
- RWS-18-009; Radioactive Waste Shipment – Primary Resin; June 12, 2018
- RW-AA-100; Process Control Program for Radioactive Wastes; Revision 12
- RP-AA-600; Radioactive Material/Waste Shipments; Revision 16
- RP-AA-601; Surveying Radioactive Material Shipments; Revision 20
- RP-AA-602; Packaging of Radioactive Material Shipments; Revision 20
- RP-AA-603; Inspection and Loading of Radioactive Material Shipments; Revision 10
- AR 04151003; NOS ID: ESTS Used in Lieu of COS for Abandoned RW Equipment; June 27, 2018
- AR 04149561; NOS ID: Aux Building Floor Drain Tank Pump Oil Leak; June 22, 2018
- AR04158835; NRC Identified Misleading Information on Door in RCA; July 24, 2017
- AR 04083924; DCS Equipment Shipped from Braidwood Found Damaged; December 14, 2017
- AR 04057301; AREVA Rad Shipment Arrived Unlatched and Degraded; September 29, 2017

71151—Performance Indicator Verification

- MSPI [Mitigating System Performance Indicator] Derivation Reports for AF, CC, and SX, for the Period of July 2017 through June 2018
- BY-MSPI-001, Revision 19; Reactor Oversight Program MSPI Basis Document, Byron Nuclear Generating Station
- LS-AA-2140; Attachment 1; Monthly Data Elements for NRC Occupational Exposure Control Effectiveness; October 2017 through June 2018
- LS-AA-2090; Attachment 1; Monthly Data Elements for NRC Reactor Coolant System (RCS) Specific Activity; July 2017 through June 2018
- LS-AA-2150; Attachment 1; Monthly Data Elements for NRC RETS/ODCM Radiological Effluent Occurrences; July 2017 through June 2018

71152—Problem Identification and Resolution

- NO-AA-10; Quality Assurance Topical Report; Revision 93
- AR 04177383, 2B Diesel Generator Transfer Pump ASME Results Inconsistent

71153—Follow-Up of Events and Notices of Enforcement Discretion

- AR 04153681; Loss of Bus 13; 7/6/2018
- AR 04153722; SAT 242-2 MOD [Motor-Operated Disconnect] Would not Open; 7/6/2018
- AR 04153727; Unit 2 Sodium Elevated Due to 2A AF Pump Start; 7/6/2018
- AR 04154682; SAT 242-2 Fault and Unit 2 Loss of Offsite Power 4.0 Critique; 7/10/2018
- Main Control Room Operating Log for 6 July 2018
- Alarm Summary (printed output from Plant Process Computer)