



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

November 6, 2014

Mr. Michael J. Pacilio
Senior VP, Exelon Generation Co., LLC
President and CNO, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: BYRON STATION, UNITS 1 AND 2 NRC INTEGRATED INSPECTION REPORT
05000454/2014004; 05000455/2014004

Dear Mr. Pacilio:

On September 30, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Byron Station, Units 1 and 2. The enclosed report documents the results of this inspection, which were discussed on October 14, 2014, with Mr. F. Kearney and other members of your staff.

Based on the results of this inspection, one NRC-identified finding of very low safety significance was identified. The finding involved a violation of NRC requirements. However, because of its very low safety significance, and because the issue was entered into your Corrective Action Program, the NRC is treating the violation as a non-cited violation (NCV) in accordance with Section 2.3.2 of the NRC Enforcement Policy.

If you contest the subject or severity of this NCV, 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 a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission-Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Byron Station. In addition, if you disagree with the cross-cutting aspect assigned to any finding 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 Regional Administrator, Region III, and the NRC Resident Inspector at the Byron Station.

M. Pacilio

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In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Eric R. Duncan, Chief
Branch 3
Division of Reactor Projects

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

Enclosure:
IR 05000454/2014004; 05000455/2014004
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 05000454; 05000455
License Nos: NPF-37; NPF-66

Report No: 05000454/2014004; 05000455/2014004

Licensee: Exelon Generation Company, LLC

Facility: Byron Station, Units 1 and 2

Location: Byron, IL

Dates: July 1, 2014 through September 30, 2014

Inspectors: J. McGhee, Senior Resident Inspector
J. Draper, Resident Inspector
C. Hunt, Reactor Engineer
J. Bozga, Reactor Inspector
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Illinois Emergency Management Agency

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

Enclosure

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SUMMARY OF FINDINGS

Inspection Report 05000454/2014004, 05000455/2014004; 07/01/2014–09/30/2014; Byron Station, Units 1 and 2; Maintaining Emergency Preparedness.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. In addition, headquarters based inspectors reviewed licensee submittals and supporting documentation for the site Emergency Plan. One Green finding was identified by the inspectors. The finding was considered a non-cited violation (NCV) of NRC regulations. The significance of inspection findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process (SDP)," dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," dated January 1, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated July 9, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5, dated February 2014.

Cornerstone: Emergency Preparedness

- Green. A finding of very low safety significance and a NCV of 10 CFR 50.54(q)(2) associated with 10 CFR 50.47(b)(10) and 10 CFR Part 50, Appendix E, Section IV.4, was identified for failing to maintain the effectiveness of the Byron Station Emergency Plan, as a result of failing to provide the station evacuation time estimate (ETE) to the responsible offsite response organizations (OROs) by the required date. Exelon submitted the Byron Station ETE to the NRC on December 12, 2012, prior to the required due date of December 22, 2012. However, the NRC completeness review found the ETE to be incomplete due to Exelon fleet common and site-specific deficiencies, preventing Exelon from providing the ETE to responsible OROs and from updating site-specific protective action strategies as necessary. The NRC discussed its concerns regarding the completeness of the ETE in a teleconference with Exelon on June 10, 2013, and on September 5, 2013, Exelon resubmitted the ETE. The NRC again found the ETE to be incomplete. The issue was a performance deficiency because it involved a failure to comply with a regulation that was under Exelon's control to identify and prevent. The licensee entered this issue into their Corrective Action Program (CAP) and re-submitted a new revision of the Byron Station ETE to the NRC on May 2, 2014, which was found to be complete by the NRC.

The finding was more than minor because it was associated with the Emergency Preparedness cornerstone attribute of Procedure Quality and it adversely affected the cornerstone objective of ensuring that the licensee was capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The finding was of very low safety significance (Green), because it was a failure to comply with a non risk-significant portion of 10 CFR 50.47(b)(10). The cause of the finding was related to the cross-cutting aspect of Human Performance, Documentation (H.7). (Section 1EP5)

REPORT DETAILS

Summary of Plant Status

Unit 1

The unit began the period at full power and operated at or near full power for the entire inspection period.

Unit 2

The unit began the period at full power and operated at or near full power until September 29, 2014, when the unit was shut down for a refueling outage. The unit remained in the outage through the end of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- 1A containment spray (CS) system while 1B CS was out of service for planned maintenance;
- 1A emergency diesel generator (EDG) after emergent failure of the 1B EDG manual voltage regulator circuit;
- 2B safety injection system after surveillance testing was performed; and
- Unit 0 (common) component cooling water while in an outage alignment.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system and therefore potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, the Updated Final Safety Analysis Report (UFSAR), Technical Specification (TS) requirements, outstanding work orders (WOs), issue reports (IRs), and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

These activities constituted four partial system walkdown samples as defined in Inspection Procedure (IP) 71111.04–05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

The inspectors conducted fire protection walkdowns which were focused on the availability, accessibility, and condition of firefighting equipment in the following risk-significant plant areas:

- 1A residual heat removal pump room;
- 1B residual heat removal pump room;
- 1A CS pump room;
- 1B CS pump room;
- 2B safety injection pump room;
- 2B centrifugal charging pump room; and
- Unit 2 containment pipe penetration area (Area 7).

The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and implemented adequate compensatory measures for out-of-service, degraded, or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, and their potential to impact equipment which could initiate or mitigate a plant transient. The inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. Documents reviewed are listed in the Attachment to this report.

These activities constituted seven quarterly fire protection inspection samples as defined in IP 71111.05–05.

b. Findings

No findings were identified.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On August 13, 2014, the inspectors observed fire brigade activation due to a simulated fire in the Unit 1 turbine building on the 426' elevation. The fire drill was unannounced in that the fire brigade did not know the drill was scheduled in advance of the plant page and plant alarm actuation. The simulated class "A" fire was located in a room used to work on motor-operated valve actuators. The inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified performance and equipment deficiencies, openly discussed shortcomings in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were:

- proper wearing of turnout gear and self-contained breathing apparatus;
- proper use and layout of fire hoses;
- employment of appropriate firefighting techniques;
- sufficient firefighting equipment brought to the scene;
- effectiveness of fire brigade leader communications, command, and control;
- search for victims and propagation of the fire into other plant areas;
- smoke removal operations;
- utilization of pre-planned strategies;
- adherence to the pre-planned drill scenario; and
- drill objectives.

Documents reviewed are listed in the Attachment to this report.

These activities constituted one annual fire protection inspection sample as defined in IP 71111.05-05.

b. Findings

No findings were identified.

1R06 Flooding (71111.06)

.1 Underground Vaults

a. Inspection Scope

The inspectors selected underground bunkers/manholes subject to flooding that contained cables whose failure could disable risk-significant equipment. The inspectors determined whether the cables were submerged, whether splices were intact, and whether appropriate cable support structures were in place. The inspectors verified that drainage of the area was available, and that the cables were qualified for submergence conditions. The inspectors also reviewed the licensee's corrective action documents with respect to past submerged cable issues identified in the CAP to verify the adequacy of the corrective actions. The inspectors performed a walkdown of the following underground bunkers/manholes subject to flooding:

- Cable Vault 1MK–Manhole 1K; and
- Cable Vault/Manhole 0B2.

Documents reviewed are listed in the Attachment to this report. This inspection constituted one underground vaults sample as defined in IP 71111.06–05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Resident Inspector Quarterly Review of Licensed Operator Requalification (71111.11Q)

a. Inspection Scope

On August 12, 2014, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification examination training to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- the ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of abnormal and emergency procedures;
- control board manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS and Emergency Plan actions.

The crew's performance in these areas was compared to pre-established operator action expectations, procedural compliance, and successful critical task completion requirements. Documents reviewed are listed in Attachment to this report.

This inspection constituted one quarterly licensed operator requalification program simulator sample as defined in IP 71111.11.

b. Findings

No findings were identified.

.2 Resident Inspector Quarterly Observation of Heightened Activity or Risk (71111.11Q)

a. Inspection Scope

On September 28, 2014, the inspectors observed the operating crew in the Unit 2 main control room maneuver the plant for shutdown to begin the scheduled refueling outage. This was an activity that required heightened awareness or was related to increased risk. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- the ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of procedures;
- control board equipment manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions.

The performance in these areas was compared to pre-established operator action expectations, procedural compliance, and successful task completion requirements. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one quarterly licensed operator heightened activity/risk sample as defined in IP 71111.11.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk-significant systems:

- Process Radiation Monitoring; and
- Well Water System.

The inspectors reviewed events including those in which ineffective equipment maintenance had resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- implementing appropriate work practices;
- identifying and addressing common cause failures;
- scoping of systems in accordance with 10 CFR 50.65(b) of the Maintenance Rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and
- verifying appropriate performance criteria for structures, systems, and components (SSCs)/functions classified as (a)(2), or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance

effectiveness issues were entered into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two quarterly maintenance effectiveness samples as defined in IP 71111.12-05.

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

.1 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the licensee's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed promptly when conditions were identified for emergent issues and prior to removing equipment for work for scheduled activities:

- emergent failure of 1B EDG manual voltage regulator circuit;
- emergent failure of 1A EDG differential overcurrent trip lockout circuit;
- Unit 1 nuclear instrumentation calibration, 1A EDG room vent fan out of service; and Unit 2 auxiliary building ventilation out of service during the week of September 8, 2014;
- Unit 2 auxiliary building supply fans out of service, Unit 1 rod control in manual mode, 1A CS pump surveillance, emergent failure of 2A EDG, and Unit 2 fuel pool cooling water pump out of service for maintenance during the week of September 15, 2014; and
- Unit 2 outage schedule, outage risk management profile, and electrical equipment work and alignments impacting Unit 1 (the online unit) during the week of September 29, 2014.

These activities were selected based on their potential risk significance relative to the Reactor Safety Cornerstones. As applicable for each activity, the inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4) and were accurate and complete. When emergent work was performed, the inspectors verified that plant risk was promptly reassessed and managed. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed TS requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

Documents reviewed are listed in the Attachment of this report. These maintenance risk assessments and emergent work control activities constituted five samples as defined in IP 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- essential service water train “A” pipe wall thinning;
- diesel oil storage tank watertight door flood evaluation;
- failure of 1C reactor containment fan cooler high speed breaker;
- safety classification not correct for temporary flood barrier used for diesel generator fuel oil storage rooms;
- discovery of free water in Unit 2 containment tendon D6–08;
- failure to perform inspection of essential service water makeup pumps seismic restraints; and
- containment tendon H57–CB Buttress B field end failed elongation test.

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TS and the UFSAR to the licensee’s evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors reviewed a sample of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

This operability inspection constituted seven samples as defined in IP 71111.15–05.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

.1 Plant Modifications

a. Inspection Scope

The inspectors reviewed the regulatory evaluation and engineering changes associated with Byron Station’s compliance with Nuclear Energy Institute (NEI) 08–05, “Industry Initiative on Control of Heavy Loads,” Revision 0, to upgrade the containment polar

crane to an equivalent single failure proof crane for lifts of the reactor vessel closure head. In addition to reviewing engineering change 377924 that implemented the changes, the inspectors reviewed procedures that describe the time restrictions that the reactor vessel closure head was allowed to be lifted above the reactor vessel.

The inspectors reviewed the configuration changes and associated 10 CFR 50.59 safety evaluation screening against the design basis, the UFSAR, and the TSs. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one permanent plant modification sample as defined in IP 71111.18–05.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

.1 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed the following post-maintenance testing activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- 1B CS pump run following planned pump breaker maintenance;
- repair of the 1B EDG voltage regulator;
- repair of the 1A EDG differential overcurrent trip circuitry;
- repair of the 1A rod drive motor-generator set;
- repair of the 1C reactor containment fan cooler fast speed breaker; and
- repair of the Bus 112 125Vdc battery charger.

These activities were selected based upon the SSC's ability to impact risk. The inspectors evaluated these activities for the following: the effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion); and test documentation was properly evaluated. The inspectors evaluated the activities against the TSs, the UFSAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them into the CAP and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment to this report.

This inspection constituted six post-maintenance testing samples as defined in IP 71111.19–05.

b. Findings

No findings were identified.

1R20 Outage Activities (71111.20)

.1 Refueling Outage Activities

a. Inspection Scope

The inspectors reviewed the Outage Risk Management Profile (ORMP) including the outage risk profile and contingency plans for the Unit 2 refueling outage (RFO) that began on September 29, 2014, to confirm that the licensee had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. The inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below:

- licensee configuration management, including maintenance of defense-in-depth commensurate with the ORMP for key safety functions and compliance with the applicable TS when taking equipment out of service;
- implementation of clearance activities and confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing;
- installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error;
- controls over the status and configuration of electrical systems and switchyard activities to ensure that TS and ORMP requirements were met;
- monitoring of decay heat removal processes, systems, and components;
- controls to ensure that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system;
- reactor water inventory controls including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss;
- controls over activities that could affect reactivity;
- maintenance of secondary containment as required by TS;
- licensee fatigue management, as required by 10 CFR 26, Subpart I;
- refueling activities; and
- licensee identification and resolution of problems related to RFO activities.

The outage was still in progress at the end of this reporting period. Additional inspection activities for this sample will be included in the fourth quarter 2014 report.

This partial inspection constituted no sample as defined in IP 71111.20–05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

.1 Surveillance Testing

a. Inspection Scope

The inspectors reviewed the test results for the following activities to determine whether risk-significant systems and equipment were capable of performing their intended safety function and to verify testing was conducted in accordance with applicable procedural and TS requirements:

- 1BOSR 0.5-3.AF.1-1, "Unit One ASME [American Society of Mechanical Engineers] Surveillance Requirements for the A Train Auxiliary Feedwater SX Supply Valves" (IST);
- 1BOSR 5.5.8.RH.5-1a, "Unit One Group A Inservice Testing (IST) Requirements for Residual Heat Removal Pump 1RH01PA" (IST);
- 1BOSR 8.1.2-1, "Unit One 1A Diesel Generator Operability Surveillance" (Routine);
- 0BOSR 5.5.8.SX.5-2C, "Comprehensive Inservice Testing (IST) Requirements for Essential Service Water Makeup Pump 0B" (IST);
- 1BOSR 5.5.8.CS.5-1c, "Unit 1 Comprehensive In-service Testing (IST) Requirements for Containment Spray Pump 1CS01PA" (IST); and
- BMP 3114-15, "Main Steam Safety Valve Verification of Lift Point Using Furmanite's Trevitest Equipment" (Routine).

The inspectors observed in-plant activities and reviewed procedures and associated records to determine the following:

- did preconditioning occur;
- were the effects of the testing adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- were acceptance criteria clearly stated, sufficient to demonstrate operational readiness, and consistent with the system design basis;
- was plant equipment calibration correct, accurate, and properly documented;
- were as-left setpoints within required ranges; and was the calibration frequency in accordance with TSs, the USAR, procedures, and applicable commitments;
- was measuring and test equipment calibration current;
- was test equipment used within the required range and accuracy and were applicable prerequisites described in the test procedures satisfied;
- did test frequencies meet TS requirements to demonstrate operability and reliability, were tests performed in accordance with the test procedures and other applicable procedures, and were jumpers and lifted leads controlled and restored where used;
- were test data and results accurate, complete, within limits, and valid;
- was test equipment removed following testing;
- where applicable for IST activities, was testing performed in accordance with the applicable version of Section XI, ASME Code and were reference values consistent with the system design basis;
- was the unavailability of the tested equipment appropriately considered in the performance indicator data;

- where applicable, were test results not meeting acceptance criteria addressed with an adequate operability evaluation or was the system or component declared inoperable;
- where applicable for safety-related instrument control surveillance tests, was reference setting data accurately incorporated into the test procedure;
- was equipment returned to a position or status required to support the performance of its safety function following testing;
- were all problems identified during the testing appropriately documented and dispositioned in the licensee's CAP;
- where applicable, were annunciators and other alarms demonstrated to be functional and were annunciator and alarm setpoints consistent with design documents; and
- where applicable, were alarm response procedure entry points and actions consistent with the plant design and licensing documents.

Documents reviewed are listed in the Attachment to this report.

This inspection constituted two routine surveillance testing samples and four inservice testing samples as defined in IP 71111.22, Sections–02 and–05.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP4 Emergency Action and Emergency Plan Changes (71114.04)

.1 Emergency Action and Emergency Plan Changes

a. Inspection Scope

The Nuclear Security and Incident Response headquarters staff performed an in-office review of the latest revision to the ETE Analysis for Byron Station, Units 1 and 2, located under ADAMS accession number ML14141A046.

The staff performed a review using the guidance provided in NUREG/CR–7002, “Criteria for Development of Evacuation Time Estimate Studies.” The Updated ETE was found to be complete in accordance with 10 CFR Part 50, Appendix E.IV.3. The NRC review was only intended to verify consistent application of the ETE guidance contained in NUREG/CR–7002, and therefore the ETE remains subject to future NRC inspection in its entirety.

Documents reviewed are listed in the Attachment to this report.

This emergency plan review inspection constituted no samples as defined in IP 71114.04–06.

b. Findings

No findings were identified.

1EP5 Maintaining Emergency Preparedness (71114.05)

.1 Maintaining Emergency Preparedness

a. Inspection Scope

Nuclear Regulatory Commission Emergency Preparedness (EP) rulemaking, which became effective on December 23, 2011, added a new regulation that required a licensee to develop an ETE analysis and submit it to the NRC by December 22, 2012. This inspection was a follow-up of issues identified by the NRC Headquarters (HQ) staff during its review of the Exelon submittal of the ETE for the ten sites that it operates. The NRC HQ staff related those issues to Exelon, which provided responses through 2013 and into 2014. During this inspection period, regional EP inspectors reviewed applicable licensee documents, conducted discussions with licensee personnel, and provided assessment of the Exelon response. Documents reviewed are listed in the Attachment to this report.

This emergency preparedness inspection constituted no samples as defined in IP 71114.05.

b. Findings

Introduction: The NRC identified a finding of very low safety significance (Green) and an associated NCV of 10 CFR 50.54(q)(2) for failing to maintain the effectiveness of the Byron Station Emergency Plan. Specifically, the licensee failed to provide the station ETE to responsible OROs and failed to update their site-specific protective action strategies as required by 10 CFR 50.47(b)(10) and Section IV, Paragraph 4 of Appendix E to 10 CFR Part 50.

Description: The NRC issued final new and amended EP regulations on November 23, 2011 (76 Federal Register 72560). This rulemaking, which became effective on December 23, 2011, amended 10 CFR 50.47(b)(10) to require licensees to update the ETE on a periodic basis. The rulemaking also added a new regulation, 10 CFR Part 50, Appendix E, Section IV.4, which requires a licensee to develop an ETE analysis using the most recent decennial census data and submit it to the NRC within 365 days of December 23, 2011. Concurrently with the issuance of the rulemaking, the NRC published a new report, "Criteria for Development of Evacuation Time Estimate Studies," NUREG/CR-7002. The Statements of Consideration for the rulemaking (76 Federal Register 72580) identified that the NRC would review the submitted ETES for completeness using that document. The Statements also provided that the guidance of NUREG/CR-7002 was an acceptable template to meet the requirements and licensees should use the guidance or an appropriate alternative.

By individual letters dated December 12, 2012, Exelon submitted the ETES for the sites for which it holds the operating licenses, including Byron Station. By letter dated January 23, 2013, Exelon submitted the NUREG/CR-7002 checklists for these ETES. These checklists identified where a particular criterion was addressed in the ETES, facilitating the NRC review.

As provided in the Statements of Consideration, the NRC performed a completeness review using the checklists and found the ETES (including that for the Byron Station) to

be incomplete due to common and site-specific deficiencies. The NRC discussed its concerns regarding the completeness of the ETEs in a teleconference with Exelon on June 10, 2013. By letter dated September 5, 2013, Exelon resubmitted the ETEs and the associated checklists for its sites. The NRC performed another completeness review and again found the ETEs to be incomplete. Examples of information missing from the submittal included: peak and average attendance were not stated (NUREG/CR-7002 Criteria Item 2.1.2.a); the ETE used a value based on campsite and hotel capacity, vice an average value (2.1.2.b); basis for speed and capacity reduction factors due to weather was not provided (3.4.b); snow removal was not addressed (3.4.c); no bus routes or plans were included in the ETE analysis (4.1.2.a); and no discussion on the means of evacuating ambulatory and non-ambulatory residents was included (4.1.2.b).

Exelon entered this issue into their CAP as IR 1525923 and IR 1578649. Exelon submitted a third ETE for Byron Station on May 2, 2014, and the NRC's review of that ETE found it to be complete as documented in Section 1EP4 of this report.

Analysis: The inspectors determined that Exelon's failure to submit a complete updated ETE for the Byron Station by December 22, 2012, was a licensee performance deficiency because the issue was a failure to comply with a regulatory requirement and the issue was reasonably within the licensee's ability to foresee and correct, and therefore should have been prevented, for both the December 12, 2012, and September 5, 2013, submittals.

Using IMC 0612, Appendix B, "Issue Screening," the inspector determined that the performance deficiency was associated with the Emergency Preparedness cornerstone attribute of Procedure Quality and was more than minor because it adversely affected the cornerstone objective of ensuring that the licensee was capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The ETE was an input into the development of protective action strategies prior to an accident and to the protective action recommendation decision-making process during an accident. Inadequate ETEs have the potential to reduce the effectiveness of public protective actions implemented by the OROs.

The inspectors utilized IMC 0609, Appendix B, "Emergency Preparedness (EP) Significance Determination Process (SDP)," to determine the significance of the finding. The finding was associated with planning standard 10 CFR 50.47(b)(10). EP SDP Table 5.10-1, "Significance Examples §50.47(b)(10)," provided two Green significance examples: "ETEs and updates to the ETEs were not provided to responsible OROs," and, "The current public protective action strategies documented in emergency preparedness implementing procedures (EPIPs) are not consistent with the current ETE." The inspectors concluded that because the performance deficiency delayed the NRC's approval of the Byron Station ETE, the ETE was not provided to the site OROs nor was it used to inform the site EPIPs as required by 10 CFR 50.47(b)(10) and Section IV, Paragraph 4 of Appendix E to 10 CFR Part 50. Therefore, in accordance with EP SDP Table 5.10-1, this finding screened as having very low safety significance (Green).

This finding had a cross-cutting aspect in the area of Human Performance, Documentation, because Exelon personnel did not create and maintain complete, accurate and, up-to-date documentation. Specifically, the EP organization did not

develop the Byron Station ETE as required by the new regulation introduced by the NRC's EP Rule. (IMC 0310 H.7)

Enforcement: Title 10 CFR 50.54(q)(2) states, in part, that a licensee "shall follow and maintain the effectiveness of an emergency plan that meets the requirements in Appendix E to this part and, for nuclear power reactor licensees, the planning standards of § 50.47(b)." 10 CFR 50.47(b)(10) requires, in part, that licensees shall develop an evacuation time estimate and update it on a periodic basis. 10 CFR Part 50, Appendix E, Section IV.4, states that within 365 days of December 23, 2011, nuclear power reactor licensees shall develop an ETE analysis and submit it under § 50.4. Contrary to the above, within 365 days of December 23, 2011, Exelon, the licensee for the Byron Station, failed to develop a complete and adequate ETE analysis and submit it under 10 CFR 50.4. Immediate corrective actions taken by Exelon included entering this issue into their CAP and revising the ETE to satisfy NRC requirements. Because this finding was of very low safety significance and was entered into the CAP, this issue is being treated as an NCV consistent with Section 2.3.2.a. of the NRC's Enforcement Policy. **(NCV 05000454/201400-01; 05000455/2014004-01: "Inadequate Evacuation Time Estimate Submittals")**.

4. OTHER ACTIVITIES

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Security

40A1 Performance Indicator Verification (71151)

.1 Safety System Functional Failures

a. Inspection Scope

The inspectors sampled licensee submittals for the Safety System Functional Failures performance indicator (PI) for Byron Unit 1 and Unit 2 for the period from the third quarter of 2012 through the second quarter of 2014. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73," definitions and guidance, were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, IRs, event reports and NRC Integrated Inspection Reports for the period of July 1, 2012 through June 30, 2014 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's IR database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two safety system functional failure samples as defined in IP 71151-05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Items Entered into the Corrective Action Program

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify they were being entered into the licensee's CAP at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Attributes reviewed included: identification of the problem was complete and accurate; timeliness was commensurate with the safety significance; evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent-of-condition reviews, and previous occurrence reviews were proper and adequate; and that the classification, prioritization, focus, and timeliness of corrective actions were commensurate with safety and sufficient to prevent recurrence of the issue. Minor issues entered into the licensee's CAP as a result of the inspectors' observations are included in the Attachment to this report.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished through inspection of the station's daily IR packages.

These daily reviews were performed by procedure as part of the inspectors' daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings were identified.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153)

.1 (Closed) Licensee Event Report 05000454/2010-001-00: Technical Specification Allowed Outage Time Extension Request for Component Cooling Water System Contained Inaccurate Information That Significantly Impacted the Technical Justification

On January 11, 2011, the licensee submitted Licensee Event Report (LER) 05000454/2010-001-00; 05000455/2010-001-00 in accordance with 10 CFR 50.73(a)(2)(ii)(B) and 10 CFR 50.73(a)(2)(v)(B) after identifying on November 12, 2010, that the TS allowed outage time extension request for the component cooling water system contained inaccurate design information that significantly impacted the technical justification. Immediate corrective actions to address this issue included procedural controls to limit component cooling water system operating configuration to conditions that satisfied the submittal bases. Additionally, the TS allowed out of service times were administratively limited to pre-change values for the component cooling system and the residual heat removal system until a modification was completed to provide a safety-related make-up supply to the component cooling system expansion tank. The inspectors reviewed the LER and associated corrective actions. No findings or violations of NRC requirements were identified. This LER is closed.

This event follow-up review constituted one sample as defined in IP 71153-05.

4OA6 Management Meetings

.1 Exit Meeting Summary

On September 14, 2014, the inspectors presented the inspection results to Mr. F. Kearney and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

An interim exit was conducted for the results of the EP program inspection with Mr. R. Lloyd by telephone on September 8, 2014.

The inspectors confirmed that none of the potential report input discussed was considered proprietary. Proprietary material received during the inspection was returned to the licensee.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

F. Kearney, Site Vice President
T. Chalmers, Plant Manager
E. Hernandez, Operations Director
C. Keller, Engineering Director
J. Fiesel, Maintenance Director
D. Spitzer, Regulatory Assurance Manager
G. Armstrong, Security Manager
S. Kerr, Training Manager
L. Zurawski, NRC Coordinator
B. Barton, Radiation Protection Manager
K. Aleshire, Corporate Emergency Preparedness Manager
V. Cwietniewicz, Corporate Emergency Preparedness Manager
M. Jesse, Corporate Regulatory Assurance Manager
R. Lloyd, Emergency Preparedness Manager

Nuclear Regulatory Commission

E. Duncan, Chief, Reactor Projects Branch 3
J. McGhee, Senior Resident Inspector
J. Draper, Resident Inspector

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000454/2014004-01; NCV Inadequate Evacuation Time Estimate Submittals
05000455/2014004-01

Closed

05000454/2014004-01; NCV Inadequate Evacuation Time Estimate Submittals
05000455/2014004-01

05000454/2010001-00 LER Technical Specification Allowed Outage Time Extension
Request for Component Cooling Water System Contained
Inaccurate Information That Significantly Impacted the
Technical Justification

LIST OF DOCUMENTS REVIEWED

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspector reviewed the documents in their entirety, but rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

Section 1R04

- BOP CS-E1; Revision 4; Unit 1 Containment Spray System Electrical Lineup
- BOP CS-M1; Revision 13; Unit 1 Containment Spray System Valve Lineup
- BOP SI-M2B; Revision 3; Unit 2 Train "B" Safety Injection System Valve Lineup
- BOP SI-E2B; Revision 2; Unit 2 Train "B" Safety Injection System Electrical Lineup

Section 1R05

- Pre-fire Plan Fire Area/Zone 11.2A-1; Revision 0; Aux. Bldg. 364'-0" Elev. 1A RHR Pump Room
- Pre-fire Plan Fire Area/Zone 11.2B-1; Revision 0; Aux. Bldg. 364'-0" Elev. 1A Containment Spray Pump Room
- Pre-fire Plan Fire Area/Zone 11.2C-1; Revision 0; Aux. Bldg. 364'-0" Elev. 1B Containment Spray Pump Room
- Pre-fire Plan Fire Area/Zone 11.2D-1; Revision 0; Aux. Bldg. 364'-0" Elev. 1B RHR Pump Room
- Pre-fire Plan Fire Area/Zone 11.3-2; Revision 2; Aux. Bldg. 364'-0" Elev. Unit 2 Containment Pipe Penetration Area
- Pre-fire Plan Fire Area/Zone 11.3F-2; Revision 0; Aux. Bldg. 364'-0" Elev. 2B Safety Injection Pump Room
- Pre-fire Plan Fire Area/Zone 11.3G-2; Revision 0; Aux. Bldg. 364'-0" Elev. 2B Centrifugal Charging Pump Room
- Fire Drill Scenario 14-02a; Fire in Electrical Department MOV Room – 426' (modified with no injury victim)
- IR 1697209; Generic Fire Drill Critique – Crew C

Section 1R06

- Exelon Drawing 6E-0-3507; Revision BM; Electrical Installation Essential Service Cooling Tower 0B Plan – Switchgear Room El. 874' – 6"

Section 1R11

- Cycle 14-5 Evaluated Scenario

Section 1R12

- Maintenance Rule Summary for Function PR
- IR 1655506, 0B Deepwell Pump Will Not Start
- Maintenance Rule Failure Classification Form for IR 1655506; 06/24/2014
- Maintenance Rule System Basis Document for Function WW-02
- Maintenance Rule System Basis Document for Function AP-03
- ER-AA-310; Revision 9; Implementation of the Maintenance Rule

- ER-AA-310-1004; Revision 11; Maintenance Rule – Performance Monitoring

Section 1R13

- Work Week 7/21/2014 Risk Evaluation; Revisions 2 and 3
- Work Week 9/8/2014 Risk Evaluation; Revision 1, 2, and 3
- BOP IC-3; Revision 14; Moveable Incore Detectors Flux Mapping Procedure
- 1BOSR 3.1.7-41; Revision 23; Channel Operation Test of Power Range Channel N41
- ER-AA-600-1042; Revision 9; On-line Risk Management
- WC-AA-101-1006; Revision 1; On-line Risk Management and Assessment
- OP-AA-108-117; Revision 4; Protected Equipment Program
- Work Week 9/15/2014 Risk Evaluation; Revisions 1 and 2
- 1BISR 3.1.7-001; Revision 18; Channel Operation Test of Delta T/Tave Loop 1A Protection Channel I (1RC-0411)

Section 1R15

- EC 398664; Op Eval 14-003; “Train A SX Operability with Localized Wall Thinning on 0SX03CA-48”
- IR 1676951; SX Piping Has Multiple Thin Spots; Enterprise Vulnerability
- IR 1676939; SX Piping Wall Thinning Acceptance Criteria Error
- IR 1690682; 1C RCFC High Speed Fan Failure to Start
- IR 1691373; NOS ID 1C RCFC Failure to Start Response
- IR 1691765; 1C RCFC Fast Speed Breaker 33A Contact Sticking
- Drawing 6E-1-4030VP06; Revision T; Schematic Diagram Reactor Containment Fan Cooler 1C – High Speed 1VP01CC
- Drawing 6E-1-4030VP05; Revision U; Schematic Diagram Reactor Containment Fan Cooler 1C – Low Speed 1VP01CC
- UFSAR Section 6.2.2.2.1; Reactor Containment Fan Cooler (RCFC) System
- IR 1691431; Need Contingencies for DOST Water Tight Surveillance
- IR 1693152; Temporary Flood Door Classification
- IR 1694912; Discovery of Free Water in Tendon D6-08
- EC 353115; Document and Evaluate for Acceptability the Freewater Presence in Unit 2 Tendons Found During Tendon Surveillances
- ASME Section XI Boiler and Pressure Vessel Code; Subsections IWA & IWL, 1992, with 1992 Addenda and 1998
- Stevens & Associates Report No. 05Q0523-R-001; Revision 0
- IR 1694034; NOS ID: Finding Restraint Not In ISI Plan
- IR 1374664; Service Water Make-Up Pump Restraints Can Not Be Examined
- ASME Section XI; 2001 Edition; Rules for Inservice Inspection of Nuclear Power Plant Components
- BOP CC-10; Revision 29; Alignment of the U-0 CC Pump and U-0 CC Hx to a Unit
- M-66; Sheet 4D; Revision AQ; Diagram of Component Cooling
- M-139; Sheet 2; Revision AG; Diagram of Component Cooling
- M-66; Sheet 2; Revision AJ; Diagram of Component Cooling
- M-66; Sheet 3A; Revision AU; Diagram of Component Cooling
- M-66; Sheet 3B; Revision AN; Diagram of Component Cooling
- 0BOSR CC-1; Revision 6; Unit CC Crosstie IST Valve Strokes

Section 1R18

- 50.59 Evaluation No. 6G-13-016; Byron Station Polar Crane Single Failure-Proof Equivalency per NEI 08-05; Revision 0
- Engineering Change 377924; Byron Station Polar Crane Single Failure Proof Equivalency – NEI 08-05; Revision 0
- Engineering Change 383485; Polar Crane Compliance with CMAA 70 NEI 08-05 SFPE; Revision 0
- Analysis No. BY-MISC-003; Event Frequency Calculation to Support NEI 08-05; Revision 1
- Procedure No. BMP 3118-7; Reactor Vessel Closure Head Installation; Revision 50
- Procedure No. BMP 3118-1; Reactor Vessel Closure Head Removal; Revision 40
- Issue Report 01694157; Polar Crane Earthquake Restraint Qualification; dated August 19, 2014

Section 1R19

- WO 1547082; Op PMT – Cycle Breaker Bus 142 Cub 8 (Run 1CS01PB)
- BOP CS-5; Revision 11; Containment Spray System Recirculation to the RWST
- WO 1188997; Troubleshoot 1DG01KB DG (Contingency Work Order)
- 1BOSR 8.1.2-2; Revision 032, Unit One 1B Diesel Generator Operability Surveillance
- IR 1684676; 1B DG Volts Adjust Not Working From the MCR
- IR 1685001; Volt Adjust Switch Failed to Control From MCR or Local Panel
- IR 1688846; 1A DG Output Differential Lockout Relay Actuated
- WO 1759285; 1A DG Output Differential Lockout Relay Actuated
- MA-BY-773-300; Revision 6; Byron Diesel Generator Relay Routine
- 1BOSR 8.1.12-1; Revision 10; 1A Diesel Generator ESF Actuation Test Signal Start and Non-emergency Trip Bypass Test and Generator Differential Trip Test
- 1BOSR 8.1.2-1; Revision 23; Unit One 1A Diesel Generator Operability Surveillance
- Technical Publication; Type WL and W-2 Multi-contact Lock-out Relays; September 1, 1998
- IR 1689978; 1A MG [Motor-Generator] Set Generator Output Breaker Trip
- WO 1760212; EM Troubleshoot 1A Rod Drive MG Set
- BOP RD-5; Revision 10; Control Rod Drive MG Set Startup and Paralleling to Operating Control Rod Drive MG Set
- WO 1761592; 1C RCFC Fast Speed Breaker 33A Contact Sticking
- IR 1691765; 1C RCFC Fast Speed Breaker 33A Contact Sticking
- IR 1690682; 1C RCFC High Speed Fan Failure to Start
- IR 1691373; NOS ID 1C RCFC Failure to Start Response
- IR 1688608; Unexpected Alarms DC Bus 112
- WO 1591102; Replace Sensing/Current Limits, Amplifier & Firing
- 1BOSR 8.6.1-2; Revision 16; Unit One 125V DC ESF Battery Bank and Charger 112 Operability Weekly Surveillance

Section 1R20

- IR 2391173; Risk Not Evaluated for Clearance Order Hang Taking Fire Pump Out of Service

Section 1R22

- WO 01731013; STT for 1AF017A and 1AF006A (Week B)
- 1BOSR 0.5-3.AF.1-1; Revision 16, Unit One ASME Surveillance Requirements for the A Train Auxiliary Feedwater SX Supply Valves

- 1BOSR 8.1.2-1; Revision 23, Unit One 1A Diesel Generator Operability Surveillance
- 1BOSR 5.5.8.RH.5-1a; Revision 004, Unit One Group A Inservice Testing IST Requirements for Residual Heat Removal Pump 1 RH01PA
- 0BOSR 5.5.8.SX.5-2C; Revision 6; Comprehensive Inservice Testing (IST) Requirements for Essential Service Water Makeup Pump 0B
- 0B0sr 7.9.6-2; Revision 33; Essential Service Water Makeup Pump 0B Monthly Operability Surveillance
- 1BOSR 5.5.8.CS.5-1c; Revision 2; Unit 1 Comprehensive In-service Testing (IST) requirements for Containment Spray Pump 1CS01PA
- 1BOSR 3.2.8-644A; Revision 3; Unit1 ESFAS Instrument Slave Relay Surveillance (Train A Automatic Containment Spray – K644)
- WO 01329793; 2MS017C IST Trevitest
- BMP 3114-15; Revision 31; Main Steam Safety Valve Verification of Lift Point Using Furmanite's Tevitest Equipment

Section 1EP4

- Evacuation Time Estimate Analysis for Byron Station; May 2, 2014

Section 1EP5

- Letter from D. M. Gullott (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission; "10 CFR 50 Appendix E Evacuation Time Estimate Analysis for Byron Station;" December 12, 2012 [ML12348A223]
- Letter from D. M. Gullott (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission; "10 CFR 50 Appendix E Evacuation Time Estimate Analysis Checklists;" January 23, 2013 [ML13024A209]
- Letter from J. Barstow (Exelon Generating Company, LLC) to U.S. Nuclear Regulatory Commission;" 10 CFR 50, Appendix E. Evacuation Time Estimate Analysis Supplemental Response for Braidwood Station, Byron Station, Clinton Power Station, Dresden Nuclear Power Station, LaSalle County Station, Limerick Generating Station, Oyster Creek Nuclear Generating Station, Peach Bottom Atomic Power Station, Quad Cities Nuclear Power Station, and Three Mile Island Nuclear Station;" September 5, 2013 [ML13254A112]

Section 4OA1

- Unit 1 and Unit 2 Electronic Operating Logs for the Period July 1, 2012 through June 30, 2014
- LS-AA-2100; Monthly Data Elements for NRC Safety System Functional Failures

Section 4OA2

- IR 01680849; Oil Accumulation on MOV Casings

Section 4OA3

- LER 05000454/2010-001-00: Technical Specification Allowed Outage Time Extension Request for Component Cooling Water System Contained Inaccurate Information That Significantly Impacted the Technical Justification
- IR 1139610; Potential Non-Conservative Tech Specs for Component Cooling Water
- IR 1096383; Component Cooling Design Bases Concerns
- IR 1097617; Component Cooling Design Concerns Not Resolved

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access Management System
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CS	Containment Spray
DRP	Division of Reactor Projects
EDG	Emergency Diesel Generator
EP	Emergency Preparedness
EPIP	Emergency Preparedness Implementing Procedure
ETE	Evacuation Time Estimate
HQ	Headquarters
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IRs	Issue Reports
IST	Inservice Testing
LER	Licensee Event Report
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
ORMP	Outage Risk Management Profile
ORO	Offsite Response Organization
PARS	Publicly Available Records System
PI	Performance Indicator
RFO	Refueling Outage
SDP	Significance Determination Process
SSC	Structures, Systems, and Components
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
WO	Work Order

M. Pacilio

-2-

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Sincerely,

/RA

Eric R. Duncan, Chief
Branch 3
Division of Reactor Projects

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

Enclosure:
IR 05000454/2014004; 05000455/2014004
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