



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
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KING OF PRUSSIA, PA 19406-2713

May 17, 2018

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

SUBJECT: R.E. GINNA NUCLEAR POWER PLANT, LLC – NRC BIENNIAL PROBLEM
IDENTIFICATION AND RESOLUTION INSPECTION REPORT
05000244/2018011

Dear Mr. Hanson:

On March 22, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed on-site inspection activities at your R.E. Ginna Nuclear Power Plant, LLC (Ginna) and discussed the results of this inspection with Mr. William Carsky, Site Vice President, and other members of the Ginna staff. During that discussion your staff requested to provide additional information for consideration. In-office review of the additional information continued by the NRC, and a telephonic exit meeting was conducted on April 19, 2018, with Kyle Garnish, Ginna Regulatory Assurance Manager and other members of the Ginna staff. The results of this inspection are documented in the enclosed report.

The NRC inspection team reviewed the station's corrective action program and the station's implementation of the program to evaluate its effectiveness in identifying, prioritizing, evaluating, and correcting problems, and to confirm that the station was complying with NRC regulations and licensee standards for corrective action programs. Based on the samples reviewed, the team determined that your staff's performance in each of these areas adequately supported nuclear safety. The team identified two findings in the area of Corrective Action Program, Problem Identification.

The team also evaluated the station's processes for use of industry and NRC operating experience information and the effectiveness of the station's audits and self-assessments. Based on the samples reviewed, the team determined that your staff's performance in each of these areas adequately supported nuclear safety.

Finally the team reviewed the station's programs to establish and maintain a safety-conscious work environment, and interviewed station personnel to evaluate the effectiveness of these programs. Based on the team's observations and the results of these interviews, the team found no evidence of challenges to your organization's safety-conscious work environment. Your employees appeared willing to raise nuclear safety concerns through at least one of the several means available.

NRC inspectors documented two findings of very low safety significance (Green) in this report. Both of these findings involved violations of NRC requirements and are being treated as non-cited violations (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy. If you contest the violations or significance, you should provide a response within 30 days of the date

of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspectors at Ginna. In addition, if you disagree with a cross-cutting aspect assignment or a finding not associated with a regulatory requirement in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region I, and the NRC Resident Inspectors at Ginna.

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 the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Part 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Michelle Catts, Acting Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Number: 50-244
License Number: DPR-18

Enclosure:
Inspection Report 05000244/2018011

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SUBJECT: R.E. GINNA NUCLEAR POWER PLANT, LLC – NRC BIENNIAL PROBLEM
 IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000244/2018011
 DATED MAY 16, 2018

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**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Number: 50-244

License Number: DPR-18

Report Number: 05000244/2018011

Enterprise Identifier: I-2018-011-0028

Licensee: Exelon Generation Company, LLC (Exelon)

Facility: R.E. Ginna Nuclear Power Plant, LLC (Ginna)

Location: Ontario, New York

Dates: March 5 to April 19, 2018

Inspectors: J. Hawkins, Senior Resident Inspector, Team Leader
C. Lally, Reactor Inspector
L. McKown, Resident Inspector
S. Obadina, Project Engineer

Observer(s): A. Rosebrook, Senior Project Engineer

Approved By: M. Catts, Acting Chief
Reactor Projects Branch 1
Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring Exelon's performance at Ginna by conducting the biennial problem identification and resolution inspection 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.

Based on the samples selected for review, the inspection team concluded that Exelon was generally effective in identifying, evaluating, and resolving problems and that the Exelon effectively used operating experience and self-assessments. The inspectors found no evidence of significant challenges to Exelon's safety conscious work environment at Ginna and concluded that the staff are willing to raise nuclear safety concerns through at least one of the several means available.

NRC identified and self-revealing findings and violations are summarized in the table below.

List of Findings and Violations

Potential Preconditioning of Turbine Driven Auxiliary Feedwater Surveillance Testing			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Reactor Safety – Mitigating Systems	Green NCV 05000244/2018011-01 Closed	None.	71152B
The NRC identified a Green non-cited violation (NCV) of Title 10 of the <i>Code of Federal Regulations</i> (10 CFR) Part 50, Appendix B, Criterion XI, "Test Control," because Exelon established unevaluated preconditioning, with a reasonable doubt of whether the preconditioning was acceptable, prior to testing of the turbine driven auxiliary feedwater pump. This results in the loss of as-found conditions which challenge the capability of the test to assure that the turbine driven auxiliary feedwater pump will perform satisfactorily in service.			

Failure to Procedurally Verify Fuel Transfer Cart Results in Fuel Interference Event			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Reactor Safety – Barrier Integrity	Green NCV 05000244/2018011-02 Closed	H.12 – HU – Avoid Complacency	71152B
A self-revealing Green non-cited violation (NCV) of Technical Specification 5.4.1.a, "Procedures," was identified for the failure of Exelon to operate refueling equipment in accordance with technical procedures in April and May of 2017, which resulted in a fuel interference event, damage to the rod cluster control assembly, and the need for a detailed inspection of a fuel assembly.			

INSPECTION SCOPES

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

OTHER ACTIVITIES – BASELINE

71152 - Problem Identification and Resolution

Biennial Team Inspection (1 Sample)

The inspectors performed a biennial assessment of Exelon's corrective action program, use of operating experience, self-assessments and audits, and safety conscious work environment. The assessment is documented below.

- (1) Corrective Action Program Effectiveness – The inspection team evaluated Exelon's effectiveness in identification, prioritization and evaluation, and correcting problems, and verified the station complied with NRC regulations and Exelon's standards for corrective action programs.
- (2) Operating Experience – The team evaluated Exelon's effectiveness in its use of industry and NRC operating experience information and verified the station complied with Exelon's standards for the use of operating experience.
- (3) Self-Assessments and Audits – The team evaluated the effectiveness of Exelon's audits and self-assessments and verified the station complied with Exelon's standards for the use of operating experience.
- (4) Safety Conscious Work Environment – The team reviewed Exelon's programs to establish and maintain a safety-conscious work environment, and interviewed station personnel to evaluate the effectiveness of these programs.

INSPECTION RESULTS

Evaluation of the Ginna PI&R Program	71152B
<p>The NRC inspection team reviewed the station's corrective action program and the station's implementation of the program to evaluate its effectiveness in identifying, prioritizing, evaluating, and correcting problems, and to confirm that the station was complying with NRC regulations and licensee standards for corrective action programs. Based on the samples reviewed, the team determined Exelon staff's performance in each of these areas adequately supported nuclear safety. The team identified two findings in the area of Corrective Action Program, Problem Identification, and identified some weaknesses in the implementation of the station's Maintenance Rule (MR) program.</p> <p>The team also evaluated the station's processes for use of industry and NRC operating experience information and the effectiveness of the station's audits and self-assessments. Based on the samples reviewed, the team determined that Exelon's performance in each of these areas adequately supported nuclear safety.</p> <p>Finally, the team reviewed the station's programs to establish and maintain a safety-conscious work environment, and interviewed station personnel to evaluate the effectiveness of these programs. Based on the team's observations and the results of these interviews the team found no evidence of challenges to Exelon's safety-conscious work environment. Site employees appeared willing to raise nuclear safety concerns through at least one of the several means available.</p>	

Potential Preconditioning of Turbine Driven Auxiliary Feedwater Surveillance Testing			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Reactor Safety – Mitigating Systems	Green NCV 05000244/2018011-01 Closed	None.	71152B
<p>The NRC identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," because Exelon established unevaluated preconditioning, with a reasonable doubt of whether the preconditioning was acceptable, prior to testing of the turbine driven auxiliary feedwater pump. This results in the loss of as-found conditions which challenge the capability of the test to assure that the turbine driven auxiliary feedwater pump will perform satisfactorily in service.</p>			
<p><u>Description:</u> The inspectors observed implementation of licensee Procedure STP-O-16-COMP-T, "Auxiliary Feedwater Turbine Pump – Comprehensive Test," on March 7, 2018. During review of licensee Procedure STP-O-16-COMP-T and the quarterly test, Procedure STP-O-16QT, "Auxiliary Feedwater Turbine Pump – Quarterly," the inspectors found that immediately prior to the cold pump start, Exelon altered, manipulated, and adjusted a number turbine driven auxiliary feedwater pump train components as directed by the surveillance procedures. These included flushing the condensate storage tank water aligned to the pump suction through the pump to a drain at the pump discharge for approximately 30 minutes, removing and cleaning the auxiliary feedwater pump lubricating oil cooling water (service water) strainer, validating the functionality of the lubricating oil cooling water (service water) strainer bypass valve and bypass valve controlling differential pressure pressure switch, stopping and starting the alternating current and direct current lubricating oil pumps, and verifying the low oil pressure trip functionality of the turbine trip and throttle valve which fully cycles the trip and throttle valve as well as the governor control valve under no load</p>			

conditions. Consistent with NRC Inspection Manual Part 9900: "Technical Guidance, Maintenance – Preconditioning of Structures, Systems and Components before Determining Operability," the inspectors identified these activities, executed immediately prior to cold pump start, as potential preconditioning and discussed the observations with Exelon staff.

Exelon established processes associated with the assessment of preconditioning under Procedures IP-IIT-2, "Inservice Testing Program for Pumps and Valves," and CTP-IST-001, "Corporate Technical Position – Preconditioning of Inservice Testing Program Components," which states in part, "Preconditioning SHALL be avoided unless an evaluation has been performed to determine that the preconditioning is acceptable." The inspectors asked the licensee if a preconditioning evaluation for Procedures STP-Q-16-COMPT or STP-O-16QT was conducted.

After the pump run on March 7, Exelon chose to perform an evaluation of preconditioning acceptability for the flushing of the pump. The justification for acceptability of this preconditioning was protection of the steam generators from low quality water sitting within the pump. Exelon asserted that impact on the pump test results are "negligible" without providing the details of the potential as-found conditions masked, failure mechanisms against which the activity was evaluated, or why the lower quality water, which is always with the pump while in a standby lineup, is acceptable for event mitigation.

Exelon discovered a preconditioning evaluation had been performed for the cycling of the turbine trip mechanism on April 13, 2010. The inspectors determined this 2010 preconditioning evaluation was narrowly focused on governor control valve stem binding and did not address any other pump parameters or failure modes that could be masked due to cycling the low oil trip or the cycling of the trip mechanism prior to the surveillance test.

Since Exelon performed a technically inadequate preconditioning evaluation associated with low oil trip testing of the turbine trip function and Exelon had not performed preconditioning evaluations of the impact of flushing water through the pump, the lubricating oil cooling water (service water) activities, or stopping and starting of the lubricating oil pumps in advance of the surveillance as of the end of the inspection, the inspectors have concluded that the activities performed immediately prior to cold pump start during comprehensive and quarterly turbine driven auxiliary feedwater pump surveillance testing are examples of unevaluated preconditioning with a reasonable doubt of whether the preconditioning was acceptable, consistent with NRC Inspection Manual Part 9900 Technical Guidance and Exelon program guidance.

Corrective Actions: Exelon entered this concern into the corrective action program for prioritization, assessment, and resolution. This included a preconditioning evaluation of all of the identified issues. Exelon concluded there was no unacceptable preconditioning and that the operability of the turbine driven auxiliary feedwater system was not adversely affected. The inspectors have no current operability concerns. This evaluation will be fully reviewed under the baseline inspection program.

Corrective Action Reference: Action requests (ARs) 4111709 and 04119043

Performance Assessment:

Performance Deficiency: The inspectors determined that Exelon did not adequately evaluate pre-test activities for the turbine driven auxiliary feedwater pump comprehensive and quarterly tests for preconditioning as discussed in NRC Inspection Manual Part 9900

Technical Guidance, and required by Ginna’s Inservice Test Program guidance and Exelon’s corporate technical position on preconditioning; and failed to identify that those activities may have constituted unacceptable preconditioning. This performance deficiency was reasonably within the licensee’s ability to foresee and correct and should have been prevented.

Screening: This finding was more than minor in accordance with IMC 0612, “Power Reactor Inspection Reports,” Appendix B, “Issue Screening,” dated January 1, 2018, because the performance deficiency is associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and adversely affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This is also similar to IMC 0612 Appendix E, Examples of Minor Issues, examples 3J and 3K. Specifically, preconditioning of components could mask the actual as-found conditions of the system resulting in an inability to verify operability of the system.

Significance: The inspectors assessed significance of this condition using IMC 0609, Attachment 4, “Phase 1 – Initial Screening and Characterization of Findings” worksheet, which directs the user to IMC 0609 Appendix A, “The Significance Determination Process (SDP) for Findings At-Power.” In accordance with IMC 0609, Appendix A, Exhibit 2, “Mitigating Systems Screening Questions”, Section A, “Mitigating Systems, Structures or Components and Functionality,” the finding screened to be of very low safety significance (Green), because the performance deficiency did not affect system design or qualification, did not result in a loss of safety function, and did not result in the turbine driven auxiliary feedwater train to be out of service for greater than its technical specification allowed outage time.

Cross Cutting Aspect: No cross cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance.

Enforcement:

Violation: Title 10 CFR Part 50, Appendix B, Criterion XI, “Test Control,” states, in part, that a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents.

Contrary to the above, from April 13, 2010 to present, Exelon did not establish an adequate test program, which assured that all testing required to demonstrate the turbine driven auxiliary feedwater system will perform satisfactorily in service, due to potential preconditioning.

Disposition: This violation is being treated as a NCV, consistent with Section 2.3.2 of the Enforcement Policy.

Failure to Procedurally Verify Fuel Transfer Cart Results in Fuel Interference Event			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Reactor Safety – Barrier Integrity	Green NCV 05000244/2018011-02 Closed	H.12 – HU – Avoid Complacency	71152B

A self-revealing Green NCV of Technical Specification 5.4.1.a, "Procedures," was identified for the failure of Exelon to operate refueling equipment in accordance with technical procedures in April and May of 2017, which resulted in a fuel interference event, damage to the rod cluster control assembly, and the need for a detailed inspection of a fuel assembly.

Description: The inspectors identified two examples of failure to follow a required procedure. Specifically, Exelon Procedures RF-200, "Fuel Handling System Checkouts," and RF-302, "Fuel Handling Tool Checkout and Operation in Containment," were not followed as discussed below.

(1) In advance of the Spring 2017 refueling outage on April 20, 2017, Exelon implemented a modification to the fuel transfer system to improve fuel moves between containment and the spent fuel pool. This modification changed the alignment of the transfer cart rails, which resulted in a change to the match-mark locations where the encoder stops the fuel assembly. The licensee failed to perform adequate post modification testing including verification of fuel transfer cart to rail alignment at these match-marked locations in accordance with Steps 6.2.4.16 and 6.2.4.20 of licensee Procedure RF-200.

(2) During the Spring 2017 refueling outage, Exelon performed a complete core offload of all 121 fuel assemblies using the modified fuel transfer system in accordance with Procedure RF-302, Attachment 3, "Fuel Transfer System Operating Instructions." The licensee did not perform Step 4.6.4 of Procedure RF-302, Attachment 3, which required the operators to verify pointer and target match-marks to confirm fuel transfer cart to rail alignment on the spent fuel pool side. During core reload on May 4, 2017, upon sending the fifth fuel assembly, which was a new fuel assembly, from the spent fuel pool to the reactor side, the fuel transfer system operator confirmed location of the fuel assembly using the encoder position as provided by a lit indication instead of the pointer and target match-marks as required by Step 4.5.4 of Procedure RF-302, Attachment 3. When the fuel transport system operator up-ended the fuel assembly on the reactor side, the rod cluster control assembly installed with the fuel assembly struck the fuel transport tube. The fuel assembly and rod cluster control assembly were immediately sent back to the spent fuel pool for evaluation of potential damage.

Exelon found the affected rod cluster control assembly to be damaged and was removed from service. The licensee performed a detailed inspection of the associated fuel assembly and determined the fuel cladding remained operable. The NRC inspectors reviewed Exelon's apparent cause evaluation for this issue and determined that while applicable sections of Procedures RF-200 and RF-302 were documented as completed, fuel handlers did not use cart alignment match-marks to verify fuel assembly position. They had instead relied upon the encoder position of the cart as provided by a lit indication.

Corrective Actions: Exelon revised Procedures RF-200 and RF-302 requiring verification of match-marks via remote visual observation (e.g., camera), including staff signatures for all steps that verify cart fuel and target match-marks, and added a caution identifying the lit encoder position indication as not a valid indication of cart position.

Corrective Action Reference: AR 04006765

Performance Assessment:

Performance Deficiency: Inspectors found that Exelon did not operate refueling equipment in accordance with I Procedures, RF-200 and RF-302, during pre-outage activities, core offload, and core reload in April and May of 2017, which resulted in a fuel interference event, damage

to the rod cluster control assembly, and the need for a detailed inspection of a fuel assembly. This performance deficiency was reasonably within the licensee's ability to foresee and correct and should have been prevented.

Screening: This finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated January 1, 2018, because if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. Specifically, the repetitive failure to perform the procedurally required fuel transfer cart position verifications, which resulted in the interference event, the actual damage sustained by the rod cluster control assembly, and the need for a detailed inspection of the fuel assembly, if left uncorrected, would have the potential to result in actual damage to a spent fuel assembly which could challenge the ability of the fuel cladding to remain intact.

Significance: The inspectors assessed significance of this condition using IMC 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings" worksheet, which directs the user to IMC 0609 Appendix G, "Shutdown Operations Significance Determination Process." However, criteria for evaluating fuel handling issues are only contained in IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Since no criteria exist to evaluate this issue in IMC, Appendix G, the inspectors used the most applicable screening criteria available to make a bounding case and characterize this finding as allowed by IMC 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." The inspectors assessed significance of this fuel handling event in accordance with IMC 0609, Appendix A, Exhibit 3, "Barrier Integrity Screening Questions", Section D, "Spent Fuel Pool." The finding was determined to be of very low safety significance (Green), because the performance deficiency did not affect fuel pool temperature or level, did not affect neutron absorber capability or result in a fuel bundle being misplaced, and although the performance deficiency resulted in fuel handling errors, it did not cause mechanical damage to fuel clad and a detectible release of radionuclides.

Cross Cutting Aspect: This finding in accordance with IMC 0310, "Aspects within the Cross-Cutting Areas," dated December 04, 2014, has a cross-cutting aspect in the area of Human Performance associated with Avoid Complacency, in that Exelon fuel transfer system operators did not recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Specifically, operators failed to recognize the latent issues associated with misalignment of the fuel transfer cart and the inherent risk incurred by the inappropriate cart position verification method used, and did not complete the appropriate procedure step a number of times prior to the interference event occurring. (H.12)

Enforcement:

Violation: Technical Specification 5.4.1.a, "Procedures," states in part, "Written procedures shall be established, implemented, and maintained covering the following activities: The applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978." Regulatory Guide 1.33, Revision 2, Appendix A, Section 2.k, identifies "Refueling Equipment Operation," as a recommended procedure. Exelon Procedures RF-200, "Fuel Handling System Checkouts," and RF-302, "Fuel Handling Tool Checkout and Operation in Containment," implement this requirement.

Contrary to the above, from April 20, 2017 to May 4, 2017, Exelon staff did not properly implement written procedures RF-200 and RF-302, which resulted in a fuel interference event

on May 4, 2017, damage to the rod cluster control assembly, and the need for a detailed inspection of a fuel assembly.

Disposition: This violation is being treated as a NCV, consistent with Section 2.3.2 of the Enforcement Policy.

Observations and Minor Violations/Performance Deficiencies	71152B
<p>Corrective Action Program: The team concluded that Exelon's corrective action program was generally effective. However, some observations were noted; particularly, a number of issues in the MR program. Specifically,</p>	
<ol style="list-style-type: none"> <li data-bbox="253 569 1406 1031">1. The inspectors reviewed maintenance preventable functional failures (MPFFs) that occurred on the service air system since 2016. The inspectors noted that diesel driven service air compressor failures on January 12 and December 27, 2017, were documented by Ginna to be the result of vendor guidance not being used correctly in the development of online monitoring of equipment. Based on Ginna's documentation, the inspectors determined that Ginna's basis for the December 2017 failure not being a repetitive MPFF was not adequately justified. Ginna presented the inspectors additional analysis and evaluation of the failure from December 2017, that had not been documented originally, which showed that the maintenance related cause was different than the cause of the failure in January 2017. Therefore, the issue was not a repetitive MPFF and did not constitute a violation of 10 CFR 50.65 (a)(2). Exelon documented the inspector's observation concerning adequate documentation of MPFF causes in AR 04122176. This observation is related to the assessment of the Corrective Action Program Area of Problem Evaluation. <li data-bbox="253 1066 1419 1602">2. The inspectors reviewed 22 maintenance rule functional failures (MRFFs) that occurred over the last two years, 13 of which were determined to be not maintenance preventable, 9 MPFFs, and zero were repetitive MPFFs. The inspectors determined that three of the 13 issues that Exelon determined were not MPFFs, were maintenance preventable (ARs 02625128, 02630466, and 02633768). The inspectors also noted inconsistencies regarding Exelon's documented basis for why MPFFs were or were not determined to be repeat MPFFs. The inspectors determined that all of these MR issues represented performance deficiencies because Exelon was not following their MR performance monitoring Procedure, ER-AA-310-1004. Exelon documented the issue in ARs 04117878 and 04118265. The inspectors determined that these issues do not constitute a violation of 10 CFR 50.65 (a)(2) per the guidance in the NRC Enforcement Manual because the additional MPFFs did not cause any of Exelon's MR systems to exceed their performance criteria and the performance deficiency was minor because the issues did not represent a significant programmatic deficiency within the MR program. This observation is related to the assessment of the Corrective Action Program Area of Problem Evaluation. <li data-bbox="253 1638 1414 1900">3. The inspectors reviewed two failures of the 'B' containment hydrogen monitor (ARs 02630466 and 02633768) that occurred in February 2016. The failures were the result of failed 480 VAC current voltage transformers that had internal non-electrolytic capacitors fail due to age. Exelon's evaluation of the failures determined that their procurement procedure for the tracking of component shelf-life, PES-S-002, had not been revised to include updated industry guidance that would ensure the appropriate shelf-life of safety-related and augmented quality components are appropriately tracked. The inspectors determined that Exelon's corrective action to revise the 	

procedure had not been completed yet and had been extended multiple times leaving the program vulnerable to the same failure mode. The inspectors also determined that no extent of condition had been performed on other components tracked by the shelf-life program. This performance deficiency is of minor risk significance because the aged components either were not yet installed in the plant, failures were identified during post maintenance testing, and the equipment failures did not impact the Barrier Integrity cornerstone objective. Exelon documented these issues in ARs 02657276 and 02657285. This observation is related to the assessment of the Corrective Action Program Area of Problem Evaluation.

4. The inspectors reviewed corrective actions associated with NCV 05000244/2015002-02, "Inadequate Procedure Implementation Results in Inadvertent Entry into 72-Hour Technical Specification Action Statement." Exelon's evaluation of the event determined that improper tool usage, while lifting leads to support a power supply replacement, caused the inverter swap. Exelon's corrective actions included revising Procedure M-71.4, "Removal and/or Installation of Modules Within Defeated or Out of Service Instrument Loops," to provide clear direction that only nonconductive tools should be used to perform the activity. The inspectors determined that the 2015 procedure included the caution, however subsequent versions did not include this caution, and that there were no procedure change request forms that accounted for the revisions not including the caution. The inspectors reviewed this issue using IMC 0612, Appendix B, "Issue Screening," and determined this issue was a minor violation of Technical Specification 5.4.1.a, "Procedures," because the issue was administrative in nature, workers had knowledge of the precaution due to previously completed corrective actions, and the issue had not repeated. Exelon documented the issue in AR 04114953. This observation is related to the assessment of the Corrective Action Program Area of Timely and Effective Corrective Actions.

Observation and Minor Performance Deficiency	71152B
<p>Operating Experience: The team identified some issues in Exelon's incorporation of lessons learned from industry and NRC operating experience into station programs, processes, and procedures. This observation also supports the assessment of the MR.</p> <p>The inspectors reviewed two equipment failures in the service air system (ARs 02639792 and 03962433) both of which had similar industry operating experience that were determined to have not been reviewed by Exelon prior to each failure. Exelon documented the issue in the ARs noted above. For these failures, Exelon identified that valid operating experience had not been evaluated; however, the failures were appropriately classified as MRFFs when this fact was identified. The failures did not result in a loss of system or train function. Therefore this does not constitute a violation of NRC requirements and the performance deficiency is minor.</p>	

Observation	71152B
<p>Self-Assessments and Audits: The team identified some issues in Exelon's use of audits and self-assessments. These issues support the observation of weakness in the MR program.</p> <ol style="list-style-type: none"> 1. <u>Maintenance Rule Program Focused Area Self-Assessment (FASA) dated June 30, 2016 (FASA 02565710)</u> - The inspectors noted that the FASA did not meet Objective #3 of the self-assessment, to review equipment failures of two MR systems 	

since the last FASA, specifically only one system was reviewed. Exelon documented the issue in AR 04117874.

2. Nuclear Oversight (NOS) Corrective Action Program Audit dated March 29, 2017 (AR 3977544) – The inspectors noted the audit did not include a review of the MR program and that the audit’s corrective actions did not address that three of eight operating experience reviews contained errors related to accurate documentation. Exelon documented the issue in AR 04117882.

Observation	71152B
Safety Conscious Work Environment: The team found no evidence of challenges to Exelon’s organization’s safety-conscious work environment. Site employees appeared willing to raise nuclear safety concerns through at least one of the several means available.	

Observation	71152B
Review of Corrective Actions Related to Greater-than-Green Findings That Were Not Completed by the End of the Associated Supplemental Inspection: The team reviewed the corrective actions, open at the time of completion of the documented IP 95001 Supplemental Inspection (ML16333A024), dated November 28, 2016, associated with a White NOV in the Emergency Preparedness Cornerstone. The team verified these corrective actions had been completed as scheduled. The team did not identify any new performance deficiencies and did not document any additional observations.	

EXIT MEETINGS AND DEBRIEFS

On March 22, 2018, the inspectors presented the biennial problem identification and resolution initial inspection results to Mr. William Carsky, Site Vice President, and other members of the Ginna staff. During that discussion your staff requested to provide additional information for consideration. In-office review of the additional information continued by the NRC, and a telephonic exit meeting was conducted on April 19, 2018 with Kyle Garnish, Ginna Regulatory Assurance Manager and other members of the Ginna staff. Inspectors verified no proprietary information was retained or documented in this report.

THIRD PARTY REVIEWS

Inspectors reviewed Institute on Nuclear Power Reactor reports that were issued during the inspection period.

DOCUMENTS REVIEWED**71152B**Procedures

CC-AA-211, Fire Protection Program, Revision 8
 CC-AA-501-1008, Exelon Nuclear Welding Program Welding General Requirements
 CTP-IST-001, Corporate Technical Position – Preconditioning of IST Program Components, Revision 1
 EI-AA-1, Safety Conscious Work Environment, Revision 4
 EI-AA-101, Employee Concerns Program, Revision 11
 EI-AA-101-1000, Employee Concerns Program Process, Revision 15
 EP-AA-112-400, Emergency Operations Facility Activation and Operation, Revision 13
 EP-CE-111, Emergency Classification and Protective Action Recommendations, Revision 4
 EP-CE-111-F-03, Ginna Protective Action Recommendation Flowchart, Revision B
 EP-CE-114-100, Emergency Notifications, Revision 6
 EPG-EPAC, Emergency Preparedness Advisory Committee Subcommittee for Excellence in Emergency Preparedness Guideline, Revision 00000
 EPJA-0, Ginna Station Event Evaluation and Classification, Revision 2
 ER-AA-310, Implementation of the Maintenance Rule, Revision 11
 ER-AA-310-1004, Maintenance Rule – Performance Monitoring, Revision 14
 ER-AA-310-1005, Maintenance Rule – Dispositioning Between (a)(1) and (a)(2), Revision 7
 ER-AA-310-1006, Maintenance Rule-Expert Panel Roles and Responsibilities, Rev. 7
 ER-AA-310-1007, Maintenance Rule – Periodic (a)(3) Assessment, Revision 5
 ER-INST.3, Instrument Bus Power Restoration, Revision 01200
 GMM-24-02-ISFSI01A, ISFSI Operations using Areva equipment
 GMM-24-02-ISFSI15, ISFSI abnormal events and recovery actions
 HU-AA-104-101, Procedure Use and Adherence, Revision 5
 IP-IIT-2, Inservice Testing Program for Pumps and Valves, Revision 016
 M-71.4, Removal and/or installation of modules within defeated or out of service instrument loops, Revision 02501, 02600, 02700
 MA-AA-716-003, Tool Pouch / Minor Maintenance, Revision 10
 MA-AA-716-004, Conduct of Troubleshooting, Revision 15
 MA-AA-716-234, FIN Team Process, Revision 12
 NO-AA-21, Nuclear Oversight Audit Process Descriptions, Revision 9
 OP-AA-108-115, Operability Determinations, Revision 20
 OP-AA-108-115-1002, Supplemental Consideration for on-shift Immediate Operability Determination, Revision 3
 OP-AA-112-101, Shift Turnover and Relief, Rev 13
 OU-AA-630-1000 R007, Spent Fuel Loading Campaign Management
 PES-S-002, Shelf Life, Revision 8
 PI-AA-1012, Safety Culture Monitoring, Revision 1
 PI-AA-115, Operating Experience Program, Revision 2
 PI-AA-115-1001, Processing of Level 1 OPEX Evaluations, Revision 2
 PI-AA-115-1002, Processing of Level 2 OPEX Evaluations, Revision 3
 PI-AA-115-1003, Processing of Level 3 OPEX Evaluations, Revision 3
 PI-AA-120, Issue Identification and Screening Process, Revision 8
 PI-AA-125, Corrective Action Program (CAP) Procedure, Revision 6
 PI-AA-125-0004, Effectiveness Review Manual, Revision 2
 PI-AA-125-001-F-01, CAPCO Indoctrination Guide, Revision 1

PI-AA-125-1001, Root Cause Analysis Manual, Revision 3
 PI-AA-125-1003, Corrective Action Program Evaluation Manual, Revision 4
 PI-AA-125-1006, Investigation Techniques Manual, Revision 3
 PI-AA-126, Self-Assessment and Benchmark Program, Revision 2
 PI-AA-126-1001, Self-Assessments, Revision 2
 PI-AA-126-1006, Benchmark Program, Revision 2
 PI-AA-127, Passport Action Tracking Management Procedure, Revision 2
 RE-100, Preparation, Review, and Approval of Fuel Movement Sequence Sheets and Document Closeout, Rev. 3
 RF-200, Fuel Handling System Checkouts (Dry and Wet), Revision 015
 RF-302, Fuel Handling Tool Checkout and Operation in Containment, Revision 011
 RF-602, Irradiated Fuel Assembly Visual Inspection, Revision 00200
 S-16.2, Nitrogen Make-up to the SI Accumulators, Revision 034
 SA-AA-129-2118, Management and Control of Temporary Power, Revision 9
 SM-AA-3019, Parts Quality Initiative (PQI), Revision 6
 SM-AA-4003, Supply Critical Spare Guideline, Revision 10
 STP-O-16-COMP-T, Auxiliary Feedwater Turbine Pump – Comprehensive Test, Revision 024
 STP-O-16QT, Auxiliary Feedwater Turbine Pump – Quarterly, Revision 013
 STP-O-36-COMP-C, Standby Auxiliary Feedwater Pump C – Comprehensive Test, Revision 18
 STP-O-36-COMP-D, Standby Auxiliary Feedwater Pump D – Comprehensive Test, Revision 16
 STP-O-R-19(-20), Diesel Generator A(B) – Auto-Start Undervoltage Logic Test, Revision 2
 STP-O-R-2.1A, Safety Injection Functional Test Alignment/Realignment, Revision 9
 STP-O-R-2.2-TR-A, Diesel Generator Load and Safeguard Sequence Test – Train A, Revision 0
 STP-O-R-2.2-TR-B, Diesel Generator Load and Safeguard Sequence Test – Train B, Revision 1
 STP-O-R-2.3A, Diesel Generator A Trip Testing, Revision 5
 STP-O-R-22, Feedwater Pump DC Oil Pump Time Delay Relay Test, Revision 2
 STP-O-R-27, A & B Hydrogen Recombiner Testing, Revision 2
 WC-AA-101, On-line Work Control Process, Revision 27
 WC-AA-101-1005, Work Scheduling and Grading, Revision 3
 WC-AA-106, Work Screening and Processing, Revision 17

Condition Reports (*initiated in response to inspection)

04114953*	04117882*	02405851	02492151	02535825
04114953*	04118265*	02409910	02494125	02535895
04111374*	04119043*	02424722	02494412	02535900
04111322*	01701238	02429230	02500256	02535909
04111374*	01701311	02434592	02502343	02544137
04111669*	01933869	02434979	02502359	02546188
04111709*	01938885	02439937	02506563	02573642
04112168*	01948599	02449963	02509756	02574211
04112392*	01950285	02458481	02512443	02575341
04112598*	01956230	02458739	02514628	02577596
04112750*	01961032	02465416	02514655	02577698
04112800*	01962316	02470437	02514772	02580574
04112812*	01962318	02471785	02516547	02582826
04116888*	01963575	02473775	02516554	02585574
04110783*	02132702	02475400	02516978	02592360
04117873*	02178745	02476668	02523193	02601330
04117874*	02397449	02483272	02528317	02609057
04117878*	02399951		02530555	
04117880*				

02609137	02665316	02713354	03965439	04029514
02610810	02665838	02714782	03966140	04034008
02612275	02666602	02715246	03970849	04035608
02615048	02666793	02715731	03970993	04045306
02617579	02666866	02716996	03972024	04049372
02618563	02669156	02724064	03973119	04050245
02619403	02669354	02730010	03973323	04050403
02620316	02670975	02730711	03973710	04057555
02620792	02671948	02732752	03975046	04059218
02620843	02673198	02735369	03977182	04063272
02625128	02674062	02735697	03980222	04064822
02626369	02674062	02735709	03982757	04065573
02628278	02679127	02735815	03985259	04065575
02629046	02680604	02736095	03988081	04070378
02630625	02681417	02736152	03988754	04070436
02630722	02682945	02736383	03994820	04074362
02631153	02683617	02736488	03996769	04074792
02633355	02684098	02736494	03997830	04074828
02633728	02684215	02736495	03998922	04074961
02634523	02684662	02736543	03999507	04075248
02634583	02684850	02736798	03999538	04075866
02634645	02685880	02737109	04001424	04077758
02635546	02693831	02737173	04002200	04078493
02636117	02695299	02737475	04004545	04084880
02636164	02695445	02738390	04005936	04084950
02638320	02695917	02739509	04005948	04086960
02639723	02695937	02741463	04006292	04087519
02639792	02696733	02742213	04006765	04087990
02640633	02696981	02742444	04007556	04091114
02640712	02698012	02769127	04007570	04091598
02640720	02698549	03943647	04009546	04092244
02641476	02702341	03949351	04009869	04092597
02646017	02702383	03950704	04009990	04092735
02646791	02702771	03952606	04010037	04093825
02648547	02703675	03954743	04010823	04094539
02649359	02706311	03960291	04011557	04096206
02655409	02707246	03961753	04011603	04096294
02657276	02707249	03962433	04014045	04097001
02657285	02709964	03963060	04020146	04097005
02659732	02710347	03963193	04020622	04097015
02661766	02711117	03964222	04021265	04097056
02664538	02711179	03964471	04022430	04097393
02664640	02711794	03965151	04028605	04111709
02665131	02712688		04029298	
2009-003680				
2009-002332				
2011-000411				

Self-Assessment and Audits

Maintenance Rule Program Focused Area Self-Assessment dated June 30, 2016
 Nuclear Oversight (NOS) Corrective Action Program Audit dated March 29, 2017
 QA-NOSA-GIN-17-03 GINNA EMERGENCY PREPAREDNESS AUDIT REPORT, PLAN AND
 TECHNICAL SPECIALIST ORIENTATION GUIDE dated 4/12/17
 QA-NOSA-GIN-16-03 EMERGENCY PREPAREDNESS AUDIT REPORT AND PLAN dated
 4/28/16
 Maintenance Rule (a)(3) Periodic Maintenance Effectiveness Assessment, November 7, 2015 –
 May 14, 2017
 PI&R FASA dated December 29, 2017
 2016 Self-Assessment: Pre-NRC 95001 Inspection (EAL Basis)
 026359732-23, Effectiveness Review for Root Cause Evaluation 02659732, EAL Classification
 Inaccuracy
 90277135, Operability Evaluation Focused Area Self-Assessment, dated May 16, 2010

02434592	02434979	02458481	02575250	02575290	02582826
02583237	02592360	03974705	04031441		

Maintenance Orders/Work Orders

C20805095	C20805095	C90640029	C92925824	C92925829	C92939169
C93051676	C93641214	C93765443			

Calculations

03201-0102, 120V AC Instrument Bus One-Line Diagram
 ES-4.003, 125 Volt DC Short Circuit and System Voltage Drop Calculation, Revision 10

Engineering Changes / Evaluations

70108834, Change Current 6Y Replacement Scope of all Thirty Three SW Expansion Joint to
 2Y Evisive Scan Testing and Visual/Physical Inspections, dated June 24, 2010
 ECP-14-000942-103-C-01, Fuel Transfer System Modification, Revision 0002
 G1-MSPI-001, MSPI Basis Document, Revision 2
 PCAQ 92-035, Assessment of Block Wall Impact on Safety Related Service Water Piping during
 a Seismic Event
 RE-100, Preparation, Review, and Approval of Fuel Movement Sequence Sheets and
 Document Closeout, Revision 018

Drawings

03201-0102, 120V AC Instrument Bus One-Line Diagram
 211630-B-9532 Sheet 1, No. 1 Unit No. 1A, 1B and 1C Vital Buses Safeguard Equipment
 Control System Schematic Controls, Revision 8
 33013-1237, Auxiliary Feedwater, Revision 73

Operating Experience

2016-57-0152324 (EN 52324) - PART 21 - Potential Issue with Seismic Qualification of Type
 546ns Electro-Pneumatic Transducers (Emerson Fisher Controls, Intl. LLC) 11/28/16
 2016-44-0152216 (EN 52216) - PART 21 - Potential Failure of Battery System Connections
 (ENERSYS) 9/2/16
 2015-34-00, Related to Possible Cracking in KCR-13 Standby Battery Jars (C&D Technologies)
 6/8/15

02458739	02546188	02684864	02720218	04038690
02470437	02605068	02685880	02723588	04040386
02470437	02605068	02695299	02725362	04043070
02473775	02605068	02702977	03962433	04045306
02475400	02626369	02703851	03962443	04059150
02494125	02639792	02704389	03977602	04087519
02500256	02645234	02714782	03979499	04096294
02509756	02664538	02714782	04013155	
02516978	02673403	02714782	04018594	

Miscellaneous

ALCO-MI-11272C (Ginna VTD-A0152-4070) Engine Maintenance Schedule Nuclear Standby Engines, Rev. 3

Auxiliary Feedwater System, Health Group Issues/Action Plan, presented March 7, 2018
Emergency Preparedness Advisory Committee Subcommittee for Excellence in Emergency Preparedness, meeting minutes, February 5, 2018, October 16, 2017, and August 14, 2017

Emergency Preparedness Command and Control Transition Project, Change Management Plan, presented January 22, 2018

Exelon Generation Company, LLC, Quality Assurance Topical Report (QATR), NO-AA-10, Revision 92

GIN-16-0078, Ginna Auxiliary Transformer Replacement Plan, dated December 5, 2017

Ginna Maintenance Rule (a)(1) Action Plans dated between January 1, 2016, and February 1, 2018

MRC and SOC Agendas dated March 5-8, and 19-22, 2018

NRC IMC Part 9900: Technical Guidance, Maintenance – Preconditioning of Structures, Systems and Components before Determining Operability

Ginna Surveillance Frequency Control Program (SFCP), Revision 7

Ginna Updated Final Safety Analysis Report

Ginna ECP Logs dated from January 1, 2015, through February 1, 2018

Ginna Safety Culture Monitoring Panel Meeting Minutes dated from January 1, 2015, through February 1, 2018

Transition North East Sites Command and Control Structure along with select Exelon Emergency Response Organization Checklist adoption, presented February 2, 2018

TRM 3.9.1, Fuel Storage in Spent Fuel Pool (SFP), Rev. 43

Updated Final Safety Analysis Report, Revision 27

VTD-D0245-4001, Worthington WT Multistage Centrifugal Pump, Revision 004

Westinghouse Technical Bulletin 15-01, Reactor Coolant System Temperature and Pressure Limits for No. 2 Reactor Coolant Pump Seal