



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I  
2100 RENAISSANCE BLVD.  
KING OF PRUSSIA, PA 19406-2713**

May 1, 2017

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 - INTEGRATED INSPECTION  
REPORT 05000244/2017001**

Dear Mr. Hanson:

On March 31, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at R.E. Ginna Nuclear Power Plant, LLC (Ginna). On April 19, 2017, the NRC inspectors discussed the results of this inspection with Mr. William Carsky, Site Vice President, and other members of the Ginna staff. The results of this inspection are documented in the enclosed report.

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

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

If you contest the violation or significance of the 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 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.

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

Sincerely,

*/RA/*

Anthony Dimitriadis, Chief  
Reactor Projects Branch 1  
Division of Reactor Projects

Docket No. 50-244  
License No. DPR-18

Enclosure:  
Inspection Report 05000244/2017001  
w/Attachment: Supplementary Information

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION I**

Docket No. 50-244

License No. DPR-18

Report No. 05000244/2017001

Licensee: Exelon Generation Company, LLC (Exelon)

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

Location: Ontario, New York

Dates: January 1, 2017, through March 31, 2017

Inspectors: N. Perry, Senior Resident Inspector  
J. Petch, Resident Inspector  
J. Schussler, Resident Inspector  
M. Orr, Acting Resident Inspector  
H. Anagnostopoulos, Senior Health Physicist  
T. Fish, Senior Operations Engineer  
K. Mangan, Senior Reactor Inspector

Approved by: Anthony Dimitriadis, Chief  
Reactor Projects Branch 1  
Division of Reactor Projects

Enclosure

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## SUMMARY

Inspection Report 05000244/2017001; 01/01/2017 – 03/31/2017; Ginna; Routine Integrated Inspection Report.

This report covered a 3-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. One licensee identified violation of very low safety significance (Green) was documented. The significance of most 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", dated April 29, 2015. All violations of NRC requirements are dispositioned in accordance with the U.S. Nuclear Regulatory Commission's (NRC's) Enforcement Policy, dated November 1, 2016. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

### **Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity**

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

### **Other Findings**

A violation of very low safety significance that was identified by Exelon was reviewed by the inspectors. Corrective actions taken or planned by Exelon have been entered into Exelon's corrective action program (CAP). This violation and corrective action tracking number are listed in Section 4OA7 of this report.

## REPORT DETAILS

### Summary of Plant Status

Ginna began the inspection period operating at 100 percent power and remained at or near 100 percent power for the entire inspection period.

#### 1. REACTOR SAFETY

##### **Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

#### 1R01 Adverse Weather Protection (71111.01 – 1 sample)

##### Readiness for Impending Adverse Weather Conditions

##### a. Inspection Scope

On March 8, 2017, the inspectors reviewed Exelon's preparations for impending sustained high winds. The inspectors reviewed the implementation of adverse weather preparation procedures before the onset of and during this adverse weather condition. The inspectors walked down the greenhouse, transformer yard, auxiliary building, and the emergency diesel generator (EDG) rooms to ensure system availability. The inspectors verified that operator actions defined in Exelon's adverse weather procedure maintained the readiness of essential systems. The inspectors discussed readiness and staff availability for adverse weather response with operations and work control personnel. Documents reviewed for each section in this report are listed in the Attachments.

##### b. Findings

No findings were identified.

#### 1R04 Equipment Alignment

##### Partial System Walkdowns (71111.04Q – 4 samples)

##### a. Inspection Scope

The inspectors performed partial walkdowns of the systems below. The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the Updated Final Safety analysis Report (UFSAR), technical specifications (TSs), action requests (ARs), and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted the system's performance of its intended safety functions. The inspectors also performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed

operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether Exelon staff had properly identified equipment issues and entered them into the CAP for resolution with the appropriate significance characterization.

- 'A' boric acid (BA) System on January 31, 2017
- 'B' BA system on February 6, 2017
- 'C' standby auxiliary feedwater (SAFW) System on February 17, 2017
- 'B' safety injection (SI) System on March 29, 2017

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Resident Inspector Quarterly Walkdowns (71111.05Q – 5 samples)

a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that Exelon controlled combustible materials and ignition sources in accordance with administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan, and passive fire barriers were maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for out of service, degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Intermediate building top floor clean side on January 24, 2017
- Canister preparation building on February 16, 2017
- 'A' EDG Room on March 1, 2017
- Technical Support Center on March 7, 2017
- Intermediate building basement clean side on March 31, 2017

b. Findings

No findings were identified.



.2 Fire Protection – Drill Observation (71111.05A – 1 sample)

a. Inspection Scope

The inspectors observed a fire brigade drill scenario conducted on January 23, 2017, that involved a simulated fire in the operator turnover briefing room on the turbine deck. The inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that Exelon personnel identified deficiencies, openly discussed them in a self-critical manner at the debrief, and took appropriate corrective actions as required. The inspectors evaluated the following specific attributes of the drill:

- Proper wearing of turnout gear and self-contained breathing apparatus
- Proper use and layout of fire hoses
- Employment of appropriate fire-fighting techniques
- Sufficient fire-fighting equipment brought to the scene
- Effectiveness of 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
- Drill objectives met

The inspectors also evaluated the fire brigade's actions to determine whether these actions were in accordance with Exelon's fire-fighting strategies.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)

Annual Review of Cables Located in Underground Bunkers/Manholes

a. Inspection Scope

The inspectors conducted an inspection on February 21, 2017, of underground bunkers/manholes subject to flooding that contain cables whose failure could affect risk-significant equipment. The inspectors performed walkdowns of risk-significant areas, including manholes 1A-01, 1A-02, 1A-03, MH-1 East and MH-1 West containing offsite power cables and signal cables, to verify that the cables were not submerged in water, that cables and/or splices appeared intact, and to observe the condition of cable support structures. When applicable, the inspectors verified proper sump pump operation and verified level alarm circuits were set in accordance with station procedures and calculations to ensure that the cables will not be submerged. The inspectors also ensured that drainage was provided and functioning properly in areas where dewatering devices were not installed.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program and Licensed Operator Performance (71111.11Q – 2 samples)

.1 Quarterly Review of Licensed Operator Regualification Testing and Training

a. Inspection Scope

On March 7, 2017, the inspectors observed licensed operator simulator training, which included a failed pressurizer level channel, a letdown line leak, failure of main steam isolation valves to close, a failure of the reactor to trip, and two main steam safety valves stuck open. The inspectors evaluated operator performance during the simulated event and verified completion of risk-significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the unit supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the TS action statements entered by the unit supervisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Room

a. Inspection Scope

On March 1, 2017, the inspectors observed and reviewed the monthly test of the 'B' EDG. The inspectors observed the pre-shift briefing to verify that the briefing met the criteria specified in procedures HU-AA-1211, "Pre-Job Briefings," Revision 011. Additionally, the inspectors observed test performance to verify that procedure use, crew communications, and coordination of activities between work groups similarly met established expectations and standards.

b. Findings

No findings were identified.

.3 Licensed Operator Requalification (71111.11A – 1 sample)

a. Inspection Scope

On February 24, 2017, NRC region-based inspectors conducted an in-office review of results of licensee-administered annual operating tests and biennial written exams for Ginna operators. The inspectors assessed whether pass rates were consistent with the guidance of NRC IMC 0609, Appendix I, and “Operator Requalification Human Performance Significance Determination Process (SDP).” The inspectors verified that the failure rate (individual or crew) did not exceed 20 percent.

Failure rate (operating test and biennial written exam)

- The overall individual operator failure rate was 0.0 percent.
- The overall crew failure rate was 0.0 percent.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 2 samples)

a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on structure, system, and component (SSC) performance and reliability. The inspectors reviewed system health reports, CAP documents, and maintenance rule (MR) basis documents to ensure that Exelon was identifying and properly evaluating performance problems within the scope of the MR. For each sample selected, the inspectors verified that the SSC was properly scoped into the MR in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.65 and verified that the (a)(2) performance criteria established by Exelon staff were reasonable. As applicable, for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2). Additionally, the inspectors ensured that Exelon staff was identifying and addressing common cause failures that occurred within and across MR system boundaries.

- Power range nuclear instrumentation on January 13, 2017
- Service water (SW) system in (a)(2) on March 16, 2017

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 4 samples)

a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that Exelon performed the appropriate risk assessments prior to removing equipment from service. The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that Exelon personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When Exelon performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work and discussed the results of the assessment with the station's probabilistic risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the TS requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

- Planned maintenance on the BA system on January 28, 2017
- Unplanned maintenance on city water system on February 3, 2017
- Planned maintenance on chemical and volume control system (CVCS) valve 110C on February 17, 2017
- Planned maintenance on the 'A' SI pump on March 27, 2017

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 3 samples)

a. Inspection Scope

The inspectors reviewed operability determinations for the degraded or non-conforming conditions listed below based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the operability determinations to assess whether 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 TSs and UFSAR to Exelon's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors examined whether the measures in place would function as intended and were properly controlled by Exelon.

- Bus 11A under frequency relay missed surveillance on February 7, 2017
- Turbine to intermediate building cracks in block wall on February 28, 2017
- 'B' EDG reverse power relay on March 3, 2017

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 – 2 samples)

.1 Temporary Modifications

a. Inspection Scope

The inspectors reviewed a temporary modification to install temporary recorder to monitor control rod I-11 stationary coil current (Engineering Change Package (ECP)-17-000202) to determine whether the modification affected the safety functions of systems that are important to safety. The inspectors reviewed 10 CFR 50.59 documentation and post-modification testing results, and conducted field walkdowns of the modifications to verify that the temporary modification did not degrade the design bases, licensing bases, and performance capability of the affected systems.

b. Findings

No findings were identified.

.2 Permanent Modifications

a. Inspection Scope

The inspectors evaluated a modification to replace the 'A' SI pump motor with an equivalent spare implemented by ECP-15-000135, "SI Spare Motor Equivalent Change Package." The inspectors verified that the design bases, licensing bases, and performance capability of the affected systems were not degraded by the modification. In addition, the inspectors reviewed modification documents associated with the replacement and design change, including revision to the seismic calculation, electrical environmental qualification documentation and vendor qualification documentation.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 6 samples)a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure were consistent with the information in the applicable licensing basis and/or design basis documents, that the test results were properly reviewed and accepted, and that problems were appropriately documented. The inspectors also walked down the affected job site, observed the pre-job brief and post-job critique where possible, confirmed that work site cleanliness was maintained, and witnessed the test or reviewed test data to verify quality control hold points were performed and checked, and that results adequately demonstrated restoration of the affected safety functions.

- 'B' BA planned maintenance on February 3, 2017
- 'C' SAFW pump planned maintenance on February 15, 2017
- Flow Indicator FI-686 from 'A' spent fuel pool cooling pump planned maintenance on February 27, 2017
- 'A' EDG planned maintenance on March 16, 2017
- 'B' residual heat removal pump planned maintenance on March 20, 2017
- 'A' SI pump planned maintenance on March 28, 2017

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 8 samples)a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied TSs, the UFSAR, and Exelon procedure requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied. Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following surveillance tests:

- STP-I-32A, Reactor Trip Breaker Testing – Train 'A' on February 10, 2017
- STP-I-9.1.14, Undervoltage Protection – 480 Volt Safeguard Bus 14 on February 16, 2017
- STP-O-13.4.25, Multimatic Valve Testing-Suppression System S15 Intermediate Building Basement Cable Trays Pre-Action System on February 16, 2017
- STP-O-40.5, NFWA Diesel Generator (KDG09) Run Test on February 17, 2017

- STP-O-R-2.3B, Diesel Generator 'B' Trip Testing on February 22, 2017
- STP-O-3QB, Containment Spray Pump 'B' Quarterly Test on March 22, 2017 (inservice test)
- STP-O-16QT, Auxiliary Feedwater Turbine Pump Quarterly on March 23, 2017 (inservice test)
- STP-I-32A, Reactor Trip Breaker Testing – Train 'A' on March 31, 2017

b. Findings

No findings were identified.

2. **RADIATION SAFETY**

**Cornerstone: Occupational and Public Radiation Safety**

2RS5 Radiation Monitoring Instrumentation (71124.05 – 3 samples)

a. Inspection Scope

The inspectors reviewed performance in assuring the accuracy and operability of radiation monitoring instruments used to protect occupational workers during plant operations and from postulated accidents. The inspectors used the requirements in 10 CFR Part 20, Regulatory Guides, American National Standards Institute (ANSI) 323A-1997, "Radiation Protection Instrumentation, Test and Calibration, Portable Survey Instruments," ANSI N323D-2002, "American National Standard for Installed Radiation Protection Instrumentation," ANSI N42.14-1991, "Calibration and Use of Germanium Spectrometers for the Measurement of Gamma-Ray Emission Rates of Radionuclides," and procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors reviewed Ginna's UFSAR, Radiation Protection (RP) audits, records of in-service survey instrumentation, and procedures for instrument source checks and calibrations.

Walk-downs and Observations (1 sample)

The inspectors conducted walk-downs of plant area radiation monitors (ARMs) and continuous air monitors. The inspectors assessed material condition of these instruments and that the monitor configurations aligned with the UFSAR. The inspectors checked the calibration and source check status of various portable radiation survey instruments and contamination detection monitors for personnel and equipment.

Calibration and Testing Program (1 sample)

For the following radiation detection instrumentation, the inspectors reviewed the current detector and electronic channel calibration, functional testing results alarm set-points, and the use of scaling factors: laboratory analytical instruments, whole body counter,

containment high-range monitors, portal monitors, personnel contamination monitors, small article monitors, portable survey instruments, ARMs, electronic dosimetry, air samplers, and continuous air monitors. The inspectors reviewed the calibration standards used for portable instrument calibrations and response checks to verify that instruments were calibrated by a facility that used National Institute of Science and Technology traceable sources.

Problem Identification and Resolution (1 sample)

The inspectors verified that problems associated with radiation monitoring instrumentation (including failed calibrations) were identified at an appropriate threshold and properly addressed in the CAP.

b. Findings

No findings were identified.

**4. OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151 – 3 samples)

Unplanned Scrams, Unplanned Power Changes, and Unplanned Scrams with Complications

a. Inspection Scope

The inspectors reviewed Exelon's submittals for the following initiating events cornerstone performance indicators (PIs) for the period of January 1 through December 31, 2016.

- Unplanned Scrams (IE01)
- Unplanned Power Changes (IE03)
- Unplanned Scrams with Complications (IE04)

To determine the accuracy of the PI data reported during those periods, inspectors used definitions and guidance contained in Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment PI Guideline," Revision 7. The inspectors reviewed Exelon's operator narrative logs, maintenance planning schedules, ARs, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.



#### 4OA2 Problem Identification and Resolution (71152 – 1 sample)

##### .1 Routine Review of Problem Identification and Resolution Activities

###### a. Inspection Scope

As required by Inspection Procedure 71152, “Problem Identification and Resolution,” the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that Exelon entered issues into its CAP at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. 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 CAP and periodically attended AR screening meetings. The inspectors also confirmed, on a sampling basis, that, as applicable, for identified defects and non-conformances, Exelon performed an evaluation in accordance with 10 CFR Part 21, “Reporting of Defects and Noncompliance.”

###### b. Findings

No findings were identified.

##### .2 Annual Sample: ‘A’ Service Water Pump Degradation

###### a. Inspection Scope

The inspectors performed an in-depth review of Exelon’s evaluation and corrective actions to address performance problems with the ‘A’ SW pump. The inspectors reviewed ARs that documented the identification, evaluation, and corrective actions taken to address the pump performance issues. In addition to the review of these documents, the inspectors interviewed engineers to determine whether the scope of the corrective actions addressed all identified deficiencies. Specifically, the inspectors reviewed actions completed by Exelon staff to address:

- Pump flow and differential pressure degradation identified during quarterly pump performance testing;
- Increased vibration levels measured during pump performance tests; and
- Anomalies identified during pump testing that indicated differential pressure results greater than reference test values.

The inspectors assessed Exelon’s evaluation, extent of condition review, completed and proposed corrective actions, and the prioritization and timeliness of actions to evaluate whether the actions taken by Exelon were appropriate. Inspectors evaluated whether the corrective actions which included pump replacement, flow meter upgrade, and pump stand rebuild resulted in restored pump performance. The inspectors also evaluated whether the pump was being tested in accordance with the requirements of the American Society of Mechanical Engineers (ASME) Code. The inspectors reviewed Exelon’s actions to reduce pump vibration levels to determine whether they had been effective by reviewing the modification performed on the pump and comparing inservice

test (IST) vibration results prior to and following the corrective actions. Additionally, the inspectors evaluated Exelon's modification that replaced the installed SW flowmeter to determine whether the modification met vendor design recommendations, ASME Code requirements, and if the flow meter replacement addressed anomalous IST test results related to high differential pressure at a given reference flow rate. The inspectors also reviewed the IST procedure and associated test values to evaluate if changes to the procedures met ASME Code requirements as specified in NRC regulations. Finally, the inspectors walked down the newly installed pump, rebuilt pump stand, and flow meter to determine if the equipment was installed in accordance with manufacturer's recommendations and design documentation.

b. Findings and Observations

No findings were identified.

The inspectors determined that Exelon's evaluation and extent-of-condition review were thorough and the causes were appropriately identified. The inspectors also determined that the corrective actions were reasonable and addressed the testing deficiencies and corrected the identified degraded pump performance trends.

The inspectors review of IST results following installation of a new 'A' SW pump in 2015, verified Exelon's determination that the new pump restored margin above the design limit and there was not observed negative or degrading trends for flow versus head pump performance. However, subsequent to the installation of the new pump Exelon staff noted an increasing trend in the 'A' SW pump vibration levels. The inspectors reviewed Exelon's engineering evaluation that identified that the cause of the increased vibration was due to interactions with the pump base. Exelon staff determined that the baseplate pump connection potentially had a soft foot due to tolerance differences between the pump base plate and concrete pump stand. Additionally, Exelon staff determined that the resonance frequency of the pump installation was close to the operating frequency of the pump which could cause increased vibration levels. The inspectors verified that Exelon's actions to rebuild the pump stand and level the concrete surface allowing the pump to be rigidly attached to the pump stand resulted in a significant decrease in pump vibration readings. Finally, the inspectors reviewed Exelon's actions related to test instrumentation. The inspectors determined that the flowmeter installation met vendor recommendations, resulted in improved SW flow measuring capabilities, and that the IST procedure sufficiently measured pump parameters to provide for performance monitoring in accordance with ASME Code requirements. The inspectors concluded that Exelon's evaluation and corrective actions were appropriate to identify and correct the problems associated with the 'A' SW pump.

4OA6 Meetings, Including Exit

On April 19, 2017, the inspectors presented the inspection results to Mr. William Carsky, Site Vice President, and other members of the Ginna staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

#### 4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by Exelon and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as a non-cited violation (NCV).

GINNA TS Table 3.3.1-1 requires the function of underfrequency – Bus 11A and 11B be tested to be greater than or equal to 57.5 hertz in accordance with surveillance requirement 3.3.1.10. Surveillance requirement 3.3.1.10 requires this testing to be completed in accordance with the Surveillance Frequency Control Program. The Surveillance Frequency Control Program requires the function of underfrequency – Bus 11A and 11B be tested every 24 months. Contrary to the above, on February 6, 2017, GINNA engineering personnel determined that the Bus 11A underfrequency function had not been tested within the interval specified frequency; the function had last been tested on May 1, 2014. Upon identification, Exelon conducted a risk evaluation and completed the surveillance requirement at the next available opportunity in accordance with surveillance requirement 3.0.3 for a missed surveillance.

Exelon entered this issue into the CAP as AR 03970849 and completed the testing on March 11, 2017. Additional evaluation was required to demonstrate operability since the acceptance criteria of greater than or equal to 57.5 Hz was not met. The inspectors determined the finding was of very low safety significance (Green) in accordance with IMC 0609, Appendix A, “The SDP for Findings at Power, Exhibit 1, Initiating Events Screening Questions,” issued June 19, 2012, because the transient initiator did not cause a reactor trip and the loss of mitigating equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition.

#### **ATTACHMENT: SUPPLEMENTARY INFORMATION**

**SUPPLEMENTARY INFORMATION**

**KEY POINTS OF CONTACT**

Licensee Personnel

J. Pacher, Site Vice President  
W. Carsky, Plant Manager/Site Vice President (as of April 1, 2017)  
D. Blankenship, Director, Site Operations  
D. Wilson, Director, Site Engineering  
K. Garnish, Senior Manager, Operations Support and Services  
K. Gould, Manager, Radiation Protection  
T. Harding, Manager, Site Regulatory Assurance  
S. Holmes, Health Physicist  
G. Jones, Senior Chemist  
M. Kubisa, Radiation Monitoring System Engineer  
E. Miller, Instrument Chemist  
C. Siverd, Senior Regulatory Engineer  
J. Speer, Engineering Branch Manager  
P. Swift, Director, Site Work Management  
T. Weber, Radiation Protection Technician  
R. Westerbeck, Primary Lead Chemistry Technician  
S. Wihlen, Director, Site Maintenance

**LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED**

Opened/Closed

None

## LIST OF DOCUMENTS REVIEWED

### **Section 1R01: Adverse Weather Protection**

#### Procedures

ER-SC.1, Adverse Weather Plan, Revision 024

#### ARs

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03983213	03983470	03984978

### **Section 1R04: Equipment Alignment**

#### Procedures

STP-O-30.5, SAFW Pumps Valves and Breakers, Revision 00400

S-16A, SI System Alignment, Revision 082

STP-O-30.1, SI System Valve and Breaker Position Verification, Revision 00105

#### Drawings

33013-1238, SAFW P&ID, Revision 41

33013-1262, SI and Accumulators, Sheet 1 of 2, Revision 34

33013-1262, SI and Accumulators, Sheet 2 of 2, Revision 8

### **Section 1R05: Fire Protection**

#### Procedures

FPS-3, Fire Barrier Inspection Program, Revision 3

FRP-11.0, Intermediate Building Clean Side Basement, Revision 012

FRP-14.0, Intermediate Building Clean Side Top Flor, Revision 010

FRP-24.0, Diesel Generator Room 'A' and Vault, Revision 007

FRP-29.0, Technical Support Center, Revision 014

FRP-52.0, Canister Preparation Building, ISFSI Transport and HSM Fire Response,  
Revision 00101

S-3.1B, Pre-Operational Line Up of BA System, Revision 02702

#### Drawings

21488-0110, Sht. 1, Fire Barrier General Arrangement Sheet, Diesel Generator Room 'A' Floor  
Plan Penetration Locations, Revision 6

21488-0110, Sht. 3, Fire Barrier General Arrangement Sheet, Diesel Generator Room 'A' South  
and West Wall Penetration Locations, Revision 6

21488-120, Sheet 13, Fire Barrier General Arrangement Sheet Intermediate Building Clean Side  
Partial Elev. West Wall Penetration & Pyrocrete Locations Floor Elev. – 315'-4",  
Revision 1

21488-0125, Fire Barrier Arrangement Sheet - Canister Preparation Building, Revision 1

33013-1265, Sheet 2 of 2, Auxiliary Building CVCS Charging P&ID, Revision 27

33013-1266, Auxiliary Building CVCS BA P&ID, Revision 35

33013-2544, Fire Response Plan – Turbine Building, Basement Floor Elev. 253'6", Revision 15

33013-2555, Fire Response Plan – Technical Support Center, Revision 9

33013-2557, Fire Response Plan Intermediate Building Plans – EI 293'-0", EI 294'4" & 315'-4",  
Revision 4  
33013-2983, Fire Response Plan - Canister Preparation Building, Revision 0  
21488-0120, Fire Barrier General Arrangement Sheet, Intermediate Building Clean Side Floor  
Plan – West End Penetration & Pyrocrete Locations Elevation – 253'-6", Sheet 1,  
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21488-0120, Fire Barrier General Arrangement Sheet, Intermediate Building Clean Side Floor  
Plan – East Side Penetration Locations Floor Elevation – 253'6", Sheet 2, Revision 9  
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C-C North Wall, Section D-D East Wall Penetration & Pyrocrete Locations Floor Elevation  
– 253'-6", Sheet 3 Revision 11  
21488-0120, Fire Barrier General Arrangement Sheet, Intermediate Building Clean Side Section  
B-B West Wall Penetration & Pyrocrete Locations Floor Elevation – 253'-6", Sheet 4,  
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21488-0120, Fire Barrier General Arrangement Sheet

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Miscellaneous

DA-ME-94-118-01, Fire Barrier Penetration Seal Qualification Analysis for Permanent Motor  
Seals (PENQ-01), Revision 01

**Section 1R06: Flood Protection Measures**

Drawings

33013-0014, 245KV Ducts and Control Duct Plan and Profile, Revision L  
33013-0025, Control Cable Manhole 1 Top, Bottom Slab, Sidewalls and Details, Revision G

ARs

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C93313942

**Section 1R11: Licensed Operator Requalification Program and Licensed Operator  
Performance**

Procedures

HU-AA-1211, Pre-Job Briefings, Revision 011  
OP-AA-101-113-1006, 4.0 Crew Critique Guidelines, Revision 007

**Section 1R12: Maintenance Effectiveness**

Procedures

ER-AA-310, Implementation of the MR, Revision 010  
ER-AA-310-1001, MR – Scoping, Revision 004  
ER-AA-310-1002, MR Functions – Safety Significance Classification, Revision 003  
ER-AA-310-1003, MR – Performance Criteria Selection, Revision 005  
ER-AA-310-1004, MR – Performance Monitoring, Revision 013  
ER-AA-310-1005, MR – Dispositioning Between (A)(1) and (A)(2), Revision 007

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**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

Procedures

OP-A-108-117, Protected Equipment Program, Revision 004  
OPG-PROTECTED-EQUIPMENT, Operations Protected Equipment Program, Revision 018

Drawings

33013-1261, Containment Spray (SI) P&ID, Revision 46  
33013-1265, Sheet 1 of 2, Auxiliary Building CVCS Charging, Revision 27  
33013-1266, Auxiliary Building CVCS BA P&ID, Revision 35

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**Section 1R15: Operability Determinations and Functionality Assessments**

Procedures

PRI-07-02-BUS11A, Protective Relay Calibrations 4 KV Bus 11A Relaying, Revision 00800  
PRI-07-02-BUS11A, Protective Relay Calibrations 4 KV Bus 11A Relaying, Revision 01000  
STP-I-9, Undervoltage and Underfrequency Protection 11A & 11B – 4160 Volt Buses, Revision 003

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Under Frequency Relays, dated 02/07/17 and 03/06/17  
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**Section 1R18: Plant Modifications**

Procedures

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UFSAR, Chapter 6, Engineered Safety Features, Revision 26  
EEQ-1-22B, Westinghouse Class H Safety Injection Pump Motor, Revision 000  
Generic Implementation Procedure for Seismic Verification of Nuclear Equipment, Revision 2

**Section 1R19: Post-Maintenance Testing**

Procedures

STP-O-12.1, EDG 'A', Revision 22  
STP-O-2.1QA, SI Pump 'A' Quarterly Test, Revision 016  
STP-O-2.2QB, Residual Heat Removal Pump 'B' Inservice Test, Revision 14  
STP-O-36QC, SAFW Pump 'C' – Quarterly, Revision 011

Drawings

33013-1238, SBFW P&ID, Revision 41

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C93294578      C93325739



**Section 1R22: Surveillance Testing**Procedures

STP-I-32A, Reactor Trip Breaker Testing – Train ‘A’, Revision 00500  
 STP-O-32A, Reactor Trip Breaker Testing – Train ‘A’, Revision 006  
 STP-I-9.1.14, Undervoltage Protection – 480 Volt Safeguard Bus 14, Revision 00904  
 STP-O-3QB, Containment Spray Pump ‘B’ Quarterly Test, Revision 8  
 STP-O-13.4.25, Multimatic Valve Testing – Suppression System S15 Inter Bldg Bsmt Cable Trays  
 Pre-Action System, Revision 001  
 STP-O-16QT, Auxiliary Feedwater Turbine Pump Quarterly, Revision 01100  
 STP-O-40.5, NFPA Diesel Generator (KDG09) Run Test, Revision 008  
 STP-O-R-2.3B, Diesel Generator B Trip Testing, Revision 004

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03988308	03992255	03993244	

**Section 2RS5: Radiation Monitoring Instrumentation**Procedures

CH-521, “Calibration of Tri-Carb Liquid Scintillation Analyzer,” Revision 00100  
 CH-CAL-GELI, “Efficiency Calibration of Gamma Spectrometers,” Revision 00700  
 RP-INS-C-3030P, “Calibration of the Ludlum 3030P Alpha Beta Sample Counter,”  
 Revision 00100  
 RP-INS-C-ARGOS, “Calibration of the Canberra ARGOS-5 Contamination Monitor,”  
 Revision 00200  
 RP-INS-C-BETA, “Determining Correction Factors for Beta Survey Instruments,”  
 Revision 00301  
 RP-INS-C-REMBALL, “Calibration of the NRD REMBALL Neutron Detector,” Revision 00900  
 RP-INS-C-XLB, “Calibration of the Canberra S5XLB Low Background Counter,” Revision 00000  
 RP-JC-DAILY-SRC-CHKS, “Daily Instrument Source Checks,” Revision 03100  
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 Calibration Report, Canberra ARGOS-5, S/N 1012-330, dated 1/4/17  
 Calibration Report, Canberra iSolo, S/N 27, dated 2/6/17  
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 Calibration Report, Fluke Biomedical, Model 878-10, dated 6/15/16  
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**Section 40A1: Performance Indicator Verification**Miscellaneous

NEI 99-02, Regulatory Assessment PI Guideline, Revision 7

**Section 40A2: Problem Identification and Resolution**Procedures

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PI-AA-127, Passport Action Tracking Management Procedure, Revision 002

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DA-ME-97-045, SW System Hydraulic Model, Rev. 01

E-1, Loss of Reactor or Secondary Coolant, Revision 04100

ECP-16-000459, SW Hydraulic Analysis, Revision 0

ES-1.3, Transfer to Cold Leg Recirculation, Revision 04600

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UNADM6725V3-1EN, User Manual - Portable Ultrasonic Flowmeter Fluxus ADM 6725, dated 2007

**LIST OF ACRONYMS**

10 CFR	Title 10 of the <i>Code of Federal Regulations</i>
ANSI	American National Standards Institute
AR	action request
ARM	area radiation monitor
ASME	American Society of Mechanical Engineers
BA	boric acid
CAP	corrective action program
CFR	<i>Code of Federal Regulation</i>
CVCS	chemical and volume control system
ECP	engineering change package
EDG	emergency diesel generator
IMC	Inspection Manual Chapter
IST	inservice testing
MR	maintenance rule
NCV	non-cited violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission, U.S.
P&ID	piping and instrumentation drawing
PI	performance indicator
RP	radiation protection
SAFW	standby auxiliary feedwater
SDP	significance determination process
SI	safety injection
SSC	structure, system, and component
SW	service water
TS	technical specification
UFSAR	Updated Final Safety Analysis Report
WO	work order