



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION I  
2100 RENAISSANCE BOULEVARD, SUITE 100  
KING OF PRUSSIA, PA 19406-2713

June 28, 2018

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

SUBJECT: R.E. GINNA NUCLEAR POWER PLANT, LLC – TRIENNIAL FIRE PROTECTION  
INSPECTION REPORT 05000244/2018010

Dear Mr. Hanson:

On June 21, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at R.E. Ginna Nuclear Power Plant, LLC (Ginna). The NRC inspectors discussed the results of this inspection with Mr. William Carsky, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspectors did not identify any finding or violation of more than minor significance. 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's 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/*

Glenn T. Dentel, Chief  
Engineering Branch 2  
Division of Reactor Safety

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

Enclosure:  
Inspection Report 05000244/2018010

cc w/encl: Distribution via ListServ

SUBJECT: R.E. GINNA NUCLEAR POWER PLANT, LLC – TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000244/2018010 DATED JUNE 28, 2018

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

Docket Number: 50-244

License Number: DPR-18

Report Number: 05000244/2018010

Enterprise Identifier: I-2018-010-0060

Licensee: Exelon Generation Company, LLC

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

Location: Ontario, NY

Inspection Dates: June 4 – 21, 2018

Inspectors: C. Bickett, Senior Reactor Inspector (Team Lead)  
S. Elkhiamy, Reactor Inspector  
J. Patel, Reactor Inspector  
J. Rady, Reactor Inspector

Approved By: G. Dentel, Chief  
Engineering Branch 2  
Division of Reactor Safety

Enclosure

**SUMMARY**

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring Exelon's performance at Ginna by conducting the triennial fire protection team 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.

No findings or more-than-minor violations were identified.

## INSPECTION SCOPE

This inspection was conducted using the appropriate portions of the inspection procedure (IP) 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 performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

## REACTOR SAFETY

### 71111.05T – Fire Protection (Triennial)

The inspectors evaluated the following from June 4 – 21, 2018:

#### Fire Protection Inspection Requirements (4 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas and/or fire zones:

- (1) Fire Area ABBM, Zone ABM – Aux Building Mezzanine Floor 253' Elevation
- (2) Fire Area ABI, Zone IBN-1 – Intermediate Building North
- (3) Fire Area CC, Zone RR – Relay Room
- (4) Fire Area SH, Zone SH-2 – Screen House Operating Floor

In performing this review, the inspectors performed an analysis of the following electrical circuits:

- (1) 52/EG1A1, Breaker for EDG 'A' Supply to Bus 14
- (2) LT-428A and LI-428A, Pressurizer Level Transmitter and Indicator
- (3) LC-112C, Volume Control Tank Outlet Valve
- (4) LC-112B, Emergency Makeup Refueling Water Storage Tank to Charging Pump
- (5) MOV-3996, Turbine Driven Auxiliary Feedwater Pump Discharge Valve

#### B.5.b Inspection Activities (2 Samples)

The inspectors evaluated feasibility of the following B.5.b Mitigating Strategies:

- (1) ER-AFW.3, Alternate Standby Auxiliary Feedwater, Revision 5
- (2) ER-SFP.2, Diverse Spent Fuel Pool Makeup and Spray, Revision 7 (external spray strategy)

## EXIT MEETINGS AND DEBRIEFS

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

On June 21, 2018, the inspectors presented the triennial fire protection team inspection results to Mr. William Carsky, Site Vice President, and other members of the Exelon staff.

**DOCUMENTS REVIEWED**71111.05XTFire Protection Licensing and Design Basis Documents

0028-0011-007-001, Ginna NFPA 805 Nuclear Safety Capability Assessment, Revision 1  
 51-9089546-001, Ginna Nuclear Safety Capability Assessment, Revision 001A  
 EPM-FPPR-ANL, R.E. Ginna Nuclear Power Plant Fire Protection Program, Revision 15  
 G1-FSS-F001, Fire PRA Notebook Fire Scenario Selection and Analysis Detailed Fire Modeling, Revision 5  
 Ginna NFPA 805 Transition Report, dated 03/29/13  
 HAI 0028-0011-002-003, R.E. Ginna Nuclear Power Station NFPA 805 Fire Risk Evaluations, Revision 0  
 License Amendment Request – Revised Commitment Associated with Implementation of NFPA 805, 2001 edition, dated June 30, 2017  
 License Amendment Request Pursuant to 10 CFR 50.90: Adoption of NFPA 805, Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants (2001 Edition), dated March 28, 2013  
 R.E. Ginna Nuclear Power Plant – Issuance of Amendment Regarding Transition to a Risk-Informed, Performance-Based Fire Protection Program in Accordance with Title 10 of the *Code of Federal Regulations* Section 50.48(c), dated November 23, 2015

Calculations, Analysis, and Engineering Evaluations

0028-0018-000-001, Qualification of HEMYC Fire Barrier Wrap in B Battery Room of Ginna Station, Revision 2  
 A11014-C-001, Evaluation of Steam Generator Blowdown Depressurization Following Reactor Fire and Trip, Revision 1  
 DA-EE-93-104-07, 480 Volt Coordination and Circuit Protection Study, Revision 8  
 DA-EE-99-066, DC System Fuse Coordination, Revision 3  
 DA-ME-2000-075, Pressurizer, Volume Control Tank and Reactor Water Storage Tank Evaluation for Appendix R, Revision 0  
 DA-ME-2001-031, Evaluation of Suppression System Flow and Pressure requirements, Revision 4  
 DA-ME-93-117B, Fire Damper Design Analysis, Revision 0\*  
 DA-ME-94-118-02, Fire Barrier Penetration Seal Qualification Analysis for Permanent Caulk Seals, Revision 0  
 DA-ME-94-118-11, Fire Barrier Penetration Seal Qualification Analysis for Pipe/Conduit/Sleeve Penetrations, Revision 0  
 DA-ME-94-118-12, Fire Barrier Penetration Seal Qualification Analysis for Boot Seal Assembly, Revision 0  
 DA-ME-95-154, Auxiliary Building Operating Floor RWST Barrier Gap, Revision 1  
 DA-ME-96-013, Hemyc Wrap Degradation Criteria Analysis, Revision 0  
 ECP-16-000608-309-1001-01-01, Evaluation of Steam Generator Blowdown Depressurization Following Reactor Fire and Trip, Revision 0  
 ECP-17-000663, Modify S26 Fire System to Prevent Fire Pump Auto Starts, Revision 0  
 ECP-18-000200, B Battery Room Hemyc Tear Analysis  
 ESR-12-0142m, HWCB03 Hemyc Modification  
 G1-HRA-F001, Ginna Fire Probabilistic Risk Assessment Notebook Human Reliability Analysis, Revision 7  
 M-026, Steam Generator Dry-Out Time Assuming No Feedwater Addition under Extended Power Uprate Conditions, Revision 0  
 OPEVAL-15-008, 64-125 VDC Electrical System SR, 65 – Diesel Generator Emergency Power System, Revision 1

Drawings and Wiring Diagrams

03201-0102, 120 VAC Instrument Bus One-Line Diagram, Revision 25  
 03202-0102, 125 VDC Power Distribution System One Line Diagram, Revision 24  
 10905-0270, Control Valve Table Elementary Wiring Diagram, Revision 5  
 10905-0295, Remote Operated Valves Elementary Wiring Diagram, Revision 3  
 11300-0178, Main Control Board Connection Diagram, Revision 4  
 11300-0179, Main Control Board Connection Diagram, Revision 3  
 11300-0744, Main Control Board Connection Diagram, Revision 2  
 21488-0105, Relay Room Section B-B North Wall Penetration Locations, Revision 5  
 21488-0120, Intermediate Building Clean Side Sect. C-C North Wall, Sect. D-D East Wall Penetration & Pyrocrete Locations, Revision 11  
 21488-0122, Auxillary Building West End Floor Plan & Partial Section Elev. Penetration & Pyrocrete Locations, Revision 25  
 21489-0511, Appendix R Instrument Panels Wiring Diagram, Revision 11  
 21946-0101, Sheet 1, Diesel Generator A Supply Breaker to Bus 14 Control Schematic, Revision 9  
 21946-0656, TDAFW Pump Discharge Valve MOV 3996 Control Schematic, Revision 9  
 21946-0760, LCV-112C VCT outlet Valve Control Schematic, Revision 1  
 33013-0652, 480 Volt One Line Diagram, Revision 30  
 33013-1230, Alternate RCS Injection System P&ID, Revision 3  
 33013-1238, Standby Auxiliary Feedwater P&ID, Revision 42  
 33013-1242, Fire Protection Relay and Multiplexer Room, Revision 5  
 33013-1606, Sheet 15, Miscellaneous Relay Rack M1 Terminal Deck Wiring, Revision 8  
 33013-1606, Sheet 2, Miscellaneous Relay Rack Relay Coils and Contacts, Revision 5  
 33013-1988, Fire Service Water Supply to Sprinkler Systems and Hose Reel Stations System Overview, Revision 8  
 33013-1989, Fire Protection Systems Fire Service Water Plant Systems P&ID, Revision 30  
 33013-1991, Fire Protection Fire Service Water Aux Bldg., Intermediate Bldg P&ID, Revision 21  
 33013-2409, Ginna Station AC Electrical System One Line Diagram, Revision 7  
 33013-2543, Fire Response Plan Auxiliary Building, Revision 8  
 33013-2545, Fire Response Plan Containment Structure and Intermediate Building, Revision 9  
 33013-25546, Fire Response Plan Auxiliary Building, Revision 4  
 33013-2559, Fire Response Plan Control Building, Revision 14  
 33013-2571, Fire Response Plan Screen House Building, Revision 6  
 34480-0118, Sheet 1, Bus 14 – Bus 18 Connection Diagram, Revision 1

Fire Protection Evaluations of Modifications and Design Changes

2006-1777, Implementation of Long-Term Compensatory Actions for Hemyc  
 PCR 96-125, Combining Fire Zones/Deletion of Fire Dampers

Quality Assurance Audits and Self Assessments

2018 NRC Ginna Station Triennial Fire Protection Self-Assessment, dated 2/23/2018  
 NFPA 805 Monitoring Program Self-Assessment, dated 12/29/2017

Procedures

A-103.9, Fire Brigade Training, Revision 33  
 A-52.12, Nonfunctional Equipment Important to Safety, Revision 89  
 A-52.12, Nonfunctional Equipment Important to Safety, Revision 90  
 A-52.2, Control of Locked Valve and Breaker Operation, Revision 176  
 A-54.7, Fire Protection Tour, Revision 37  
 CC-AA-103-1001, Design Change Process, Revision 8  
 CC-NE-102-F-15, NFPA Risk Screening Criteria and Checklist, Revision 0  
 ER-AA-610-1003, NFPA 805 Monitoring Program, Revision 0

ER-AFW.1, Alternate Water Supply to the Auxiliary Feedwater Pumps, Revision 39  
 ER-AFW.3, Alternate Standby Auxiliary Feedwater, Revision 5  
 ER-EDMG.0, Emergency Damage Mitigation Guidelines, Revision 4  
 ER-FIRE.0, Control Room Response to Fire Alarms and Reports, Revision 13  
 ER-FIRE.1, Alternate Shutdown for Control Complex Fire, Revision 40  
 ER-FIRE.3, Alternate Shutdown for Auxiliary Building Basement/Mezzanine Fire, Revision 40  
 ER-SH.1, Response to Loss of Screenhouse, Revision 20  
 FPS-3, Fire Barrier Inspection Program, Revision 3  
 OP-AA-101-111, Roles and Responsibilities of On-Shift Personnel, Revision 12  
 OP-AA-201-003, Fire Drill Performance, Revision 16  
 OP-AA-201-010-1001, B.5.b. Mitigating Strategies Equipment Expectations, Revision 4  
 OP-GI-102-106, Operator Response Time Program, Revision 5  
 OPG-SHIFT-STAFFING, On Shift Staffing Requirements, Revision 0  
 PI-AA-115, Operating Experience Program, Revision 4  
 SC.3.15.15, Emergency Fire Equipment Inventory and Inspection, Revision 105  
 SC-3.15.15, Emergency Fire Equipment Inventory and Inspection, Revision 104  
 SC-3.15.15.1, Offsite Emergency Fire Equipment Inventory and Inspection, Revision 0  
 SC-3.16.13, Operating Instruction – Smoke Ventilation/Cooling, Revision 10  
 SC-3.16.4.4, Relieving Fire System High Pressure, Revision 2  
 STP-O-13, Fire Pump Operation and System Alignment, Revision 12

#### Pre-Fire Plans

FRP-11, Intermediate Building Clean Side Basement, Revision 12  
 FRP-19, Relay Room/Multiplexer Room/Annex Room, Revision 12  
 FRP-31, Screenhouse Operating Floor, Revision 10  
 FRP-5, Auxiliary Building Intermediate Level, Revision 12

#### Fire Brigade Drills and Critiques

2016 Annual Offsite Fire Drill Walkthrough  
 2017 Annual Offsite Fire Drill Walkthrough  
 2017 Fire Brigade Log  
 2018 Fire Brigade Log  
 2018-01A1, AVT Xfrmr Fire Announced Drill, 3/29/2018  
 2018-01B1, B EDG Announced Drill, 2/9/2018  
 2018-01C1, Insulators Laydown Area Unannounced Drill, 3/30/2018  
 2018-01D1, Iron Horse Announced Drill, 2/2/2018  
 2018-01E1, A HDT Pump Announced Drill, 3/6/2018  
 Ginna 2016 NOS Audit Fire Drill Observation

#### Transient Combustible, Hot Work, and Ignition Source Permits and Evaluations

Hot Work Permit C93612844  
 Hot Work Permit C93660699  
 Hot Work Permit C93661683  
 Transient Combustible C93559500  
 Transient Combustible C93665212

#### Completed Tests and Surveillances

Test 1078, Ginna Relay Room Total Flooding of Room with Halon 1301, 5/21/1984  
 STP-O-13.22, Fire System Flow Alarm Check Systems S14, S25, S27, 8/25/2017  
 STP-O-13.4.33, Station Halon Systems Bottle Weighing and S08 (Relay Room and Computer Room) Air Flow Test, 3/9/2018  
 STP-O-2.2.1, Verification of Locally Operated Components, 4/24/2017  
 STP-O-13.11.5, Z26 Zone Smoke Detection Testing (Screenhouse Upper Level), 12/18/2010



SC-3.15.15, Emergency Fire Equipment Inventory and Inspection, 5/24/2018  
 SC-3.15.15, Emergency Fire Equipment inventory and inspection, 3/27/2018  
 STP-O-13.1, Annual Fire Pump Surveillance Test, 7/5/2016  
 STP-O-13.4.17, Multimatic Valve Testing Suppression System S03 Aux Bldg Mezz Level West  
 Pre-Action System, 8/16/2017  
 STP-O-13.4.1, B5b Fire Pump Annual Flow Test, 6/3/2017  
 STP-O-13.1, Annual Fire Pump Surveillance Test, 7/7/2017  
 STP-O-2.2, Plant Shutdown from Hot Shutdown to Cold Conditions, 4/28/2017  
 STP-O-13, Fire Pump Operation and System Alignment, 4/8/2018  
 STP-O-13.4, B5b Fire Pump Test, 5/27/2018  
 STP-O-13.11.20, Z03 Zone Smoke Detection Testing (Aux Bldg – Intermediate level), 4/9/2018

Issue Reports (\* written as a result of the NRC inspection)

01704240	01947414	02327057	02611476	02611477
02637408	02697920	02702977	03987283	04001873
04001879	04001883	04004224	04026323	04042685
04043918	04049715	04051280	04052409	04053091
04056379	04057612	04060494	04063095	04064183
04064276	04065082	04090945	04104511	04107502
04108798	04139500	04140434*	04144740*	04145206*
04145349*	04145857	04148085*	04148113*	04148365*
04149104*	04149504*	04150046*	04150051*	04150064*

Work Orders

C93244230	C93250728	C93418547	C93430527	C93430572
C93607905	C93619086	C93619089	C93636172	C93638990
C93639049	C93641084	C93642567	C93643183	

Miscellaneous Documents

Alphaquartz Vendor Data Sheets  
 Ametek Material Safety Data Sheet  
 Daily Control Room Logs  
 Daily Shift Rosters  
 Flammtastic 77 System Technical Bulletin, June 2007  
 Ginna Technical Requirements Manual  
 Ginna Technical Specifications  
 Ginna Updated Final Safety Analysis Report  
 N-AN-EP-B5B-CBT, Emergency Preparedness Training, Revision 1  
 N-GN-OPS-EO-A-EMERGENCY DIESEL, Emergency Diesel Generators  
 N-GN-OPS-N5401C, Local Operating Stations, Revision 16  
 NRC IN 1997-48, Inadequate or Inappropriate Interim Fire Protection Compensatory Measures,  
 June 1997  
 NRC IN 2013-09, Compressed Flammable Gas Cylinders and Associated Hazards  
 NRC IN 2014-15, Inadequate Controls of Respiratory Protection Accessibility, Training, and  
 Maintenance  
 NUREG-1924, Electric Raceway Fire Barrier Systems in U.S. Nuclear Power Plants — Final  
 Report, May 2010  
 Promatec Vendor Data Sheets  
 R.E. Ginna Safety Evaluation related to Order No. EA-02-026, dated July 26, 2007  
 Unifrax Product Information Sheet