



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

December 2, 2016

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 – TEMPORARY  
INSTRUCTION 2515/191 INSPECTION REPORT 05000244/2016011

Dear Mr. Hanson:

On November 10, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at the R.E. Ginna Nuclear Power Plant, LLC (Ginna). On November 10, 2016, the NRC inspectors discussed the results of this inspection with Mr. Joseph Pacher, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

The inspection examined activities conducted under your license as they relate to the implementation of mitigation strategies and spent fuel pool instrumentation orders (EA-12-049 and EA-12-051) and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans, your compliance with the Commission's rules and regulations, and with the conditions of your operating license. Within these areas, the inspection involved examination of selected procedures and records, observation of activities, and interviews with plant personnel.

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

B. Hanson

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

Sincerely,

**/RA/**

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

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

Enclosure:  
Inspection Report 05000244/2016011  
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

B. Hanson

-2-

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DOCUMENT NAME: G:\DRS\DIRECTOR\Cahill\Ginna IR 2016011FINAL.docx  
ADAMS Accession No. **ML16337A092**

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**U.S. NUCLEAR REGULATORY COMMISSION****REGION I**

Docket No. 50-244

License No. DPR-18

Report No. 05000244/2016011

Licensee: Exelon Generation Company, LLC (Exelon)

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

Location: Ontario, New York

Dates: November 7-10, 2016

Inspectors: C. Cahill, PE, Senior Reactor Analyst, Division of Reactor Safety (DRS)  
F. Arner, Senior Reactor Analyst, DRS  
J. Petch, Resident Inspector (Ginna)

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

Enclosure

## **SUMMARY**

Inspection Report 05000244/2016011; 11/7/2016 – 11/10/2016; R.E. Ginna Nuclear Power Plant, LLC (Ginna); Temporary Instruction (TI) 2515/191, Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans.

The inspection covered a one week inspection by two senior reactor analysts, and the resident inspector. No findings were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

## REPORT DETAILS

### 4. OTHER ACTIVITIES

#### 4OA5 Other Activities

##### TI 2515/191 – Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans

The objective of TI 2515/191, “Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans,” is to verify: (1) that licensees have adequately implemented the mitigation strategies as described in the licensee’s Final Integrated Plan (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16006A050) and the NRC’s plant safety evaluation (ADAMS Accession No. ML16124A038); (2) that the licensees installed reliable water-level measurement instrumentation in their spent fuel pools (SFPs); and (3) that licensees have implemented emergency preparedness enhancements as described in their site-specific submittals and NRC safety assessments, including multi-unit dose assessment capability, enhancements to ensure that staffing is sufficient, and that communications can be maintained during beyond-design-basis external events.

The team verified that plans for complying with NRC Orders EA-12-049, “Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design Basis External Events,” (ADAMS Accession No. ML12054A735) and EA-12-051, “Order Modifying Licenses With Regard to Reliable Spent Fuel Pool Instrumentation,” (ADAMS Accession No. ML12056A044) were in place and were being implemented by Exelon. The team also verified that Exelon had implemented staffing and communications plans provided in response to the March 12, 2012, request for information letter and multi-unit dose assessment information provided per COMSECY-13-0010, “Schedule and Plans for Tier 2 Order on Emergency Preparedness for Japan Lessons Learned,” dated March 27, 2013 (ADAMS Accession No. ML12339A262).

The team discussed the plans and strategies with Exelon personnel, reviewed documentation, completed a tabletop exercise involving a beyond design basis event leading to an extended loss of offsite power and, where appropriate, performed plant walk downs to verify that the strategies could be implemented as stated in Exelon’s submittals and the NRC staff prepared safety evaluation. For most strategies, this included verification that the strategy was feasible, procedures and/or guidance had been developed, training had been provided to plant staff, and required equipment had been identified and staged. Specific details of the team’s inspection activities are described in the following sections. Documents reviewed for each section of this report are listed in the Attachment.

## 1. Mitigation Strategies for Beyond-Design Basis External Events

### a. Inspection Scope

The team examined Exelon's established guidelines and implementing procedures for the beyond-design-basis mitigation strategies. The team assessed how the Exelon staff coordinated and documented the interface/transition between existing off-normal and emergency operating procedures with the newly developed mitigation strategies. The team selected a number of mitigation strategies and conducted plant walk downs with licensed operators and responsible plant staff to assess: the adequacy and completeness of the procedures; familiarity of operators with the procedure objectives and specific guidance; staging and compatibility of equipment; and the practicality of the operator actions prescribed by the procedures, consistent with the postulated scenarios.

The team verified that a preventive maintenance program had been established for the Diverse and Flexible Coping Strategies (FLEX) portable equipment and that periodic equipment inventories were in place and being conducted. Additionally, the team examined the introductory and planned periodic/refresher training provided to the Operations and Ginna staff most likely to be tasked with implementation of the FLEX mitigation strategies. The team also reviewed the introductory and planned periodic training provided to the Emergency Response Organization personnel.

### b. Assessment

Based on samples selected for review, the inspectors verified that Exelon satisfactorily implemented appropriate elements of the FLEX strategy as described in the plant specific submittal(s) and the associated safety evaluation (ADAMS Accession No. ML16124A038) and determined that Exelon was in compliance with NRC Order EA-12-049.

The team verified that Exelon satisfactorily:

- Developed and issued FLEX Support Guidelines (FSGs) to implement the FLEX strategies for postulated external events;
- Integrated their FSGs into their existing emergency operating procedures and off-normal procedures such that entry into and departure from the FSGs are clear when using existing plant procedures;
- Protected FLEX equipment from site-specific hazards;
- Developed and implemented adequate testing and maintenance of FLEX equipment to ensure their availability and capability;
- Trained their staff to assure personnel proficiency in the mitigation of beyond-design-basis events; and
- Developed procedures to ensure that the necessary off-site FLEX equipment will be available from off-site locations.

The team verified that inspector observations identified during the inspection were entered into Exelon's corrective action program, where appropriate.

### c. Findings

No findings were identified.

## 2. Spent Fuel Pool Instrumentation

### a. Inspection Scope

The team examined Exelon's newly installed SFP instrumentation. Specifically, the team verified the sensors were installed as described in the plant specific submittals and the associated safety evaluation, and that the cabling for the power supplies and the indications for each channel are physically and electrically separated. In addition, the team verified that Exelon had evaluated environmental conditions and accessibility of the instrumentation.

The team verified that Exelon had approved procedures for maintenance, testing, calibration, and use of the primary and backup SFP instrumentation channels. The team also verified that the procedures followed the industry guidance contained in Nuclear Energy Institute 12-02, "Industry Guidance for Compliance with NRC Order EA-12-051, "To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," and that these procedures were part of an existing Exelon process to be maintained.

### b. Assessment

Based on samples selected for review, the team determined that Exelon satisfactorily installed and established appropriate operating and maintenance controls for the SFP instrumentation as described in the plant specific submittals and the associated safety evaluation. The team determined that Exelon was in compliance with NRC Order EA-12-051.

The team verified that Exelon satisfactorily:

- Installed the SFP instrumentation sensors, cabling, and power supplies to provide physical and electrical separation as described in the plant specific submittal(s) and safety evaluation;
- Installed the SFP instrumentation display in the accessible location, and environmental conditions as described in the plant specific submittal(s);
- Trained their staff to assure personnel proficiency with the maintenance, testing, and use of the SFP instrumentation; and
- Developed and issued procedures for maintenance, testing, and use of the reliable SFP instrumentation.

The team verified that issues identified during the inspection were entered into Exelon's corrective action program.

### c. Findings

No findings were identified.



### 3. Staffing and Communication Request for Information

#### a. Inspection Scope

Through discussions with plant staff, review of documentation, and plant walk downs, the team verified that Exelon had implemented required changes to staffing, communications equipment, and facilities to support an extended loss of all AC power (ELAP) scenario as described in Exelon's staffing assessment and the NRC safety evaluation. The team also verified that Exelon had implemented dose assessment (including releases from SFPs) capability using site-specific dose assessment software, as described in Exelon's dose assessment submittal.

#### b. Assessment

The team reviewed information provided in Exelon's dose assessment submittal and in response to the NRC's March 12, 2012, request for information letter (ML12053A340), and verified that Exelon satisfactorily implemented enhancements pertaining to Near-Term Task Force (NTTF) Recommendation 9.3, response to a large scale natural emergency event that results in an ELAP to all site units and impedes access to the site.

The team verified the following:

- Exelon satisfactorily implemented required staffing changes to support an ELAP scenario;
- Emergency preparedness communications equipment and facilities were sufficient for dealing with an ELAP scenario; and
- Exelon implemented dose assessment capabilities (including releases from SFPs) using Ginna site-specific dose assessment software and approach.

The team verified that issues identified during the inspection were entered into Exelon's corrective action program.

#### c. Findings

No findings were identified.

### 4OA6 Meetings, Including Exit

On November 10, 2016, the team presented the inspection results to Mr. Joseph Pacher, Site Vice President, and other members of the Ginna staff. The team verified that no proprietary information was retained by team members or documented in this report.

## **ATTACHMENT: SUPPLEMENTARY INFORMATION**

## **SUPPLEMENTARY INFORMATION**

### **KEY POINTS OF CONTACT**

Licensee personnel:

J. Pacher, Site Vice President  
W. Carsky, Plant Manager  
J. Jackson, Director, Emergency Preparedness  
R. Fellows, Shift Manager  
G. Wrobel, Fukushima Project Manager  
M. McGraw, Program Manager  
J. Becher, System Manager Portable Equipment  
J. Fischer, Regulatory Assurance  
D. Gomez, Training  
W. Henretty, Training  
M. Starowitz Design Engineering  
R. White, Unit Supervisor

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

Opened and Closed:

None

Discussed:

None

### **LIST OF DOCUMENTS REVIEWED**

Procedures:

A-52.12, Nonfunctional Equipment Important to Safety, Revision 083  
CC-AA-102, Design Input and Configuration Change Impact Screening, Revision 29  
CC-GI-118, Ginna Implementation of Diverse and Flexible Coping Strategies (FLEX) and Spent  
Fuel Pool Instrumentation Program, Revision 004  
ECA-0.0, Loss of All AC Power, Revision 042  
EOP AP-Elec.4, Loss of All AC Power While on Shutdown Cooling, Revision 00000  
EOP Att-5.5, Attachment SAFW with Suction from DI Water Storage Tank during SBO,  
Revision 004  
ER-COMM.1, Loss of Communications, Revision 001  
FSG-1, Long Term RCS Inventory Control, Revision 001  
FSG-2, Alternate SAFW Suction Source, Revision 00000  
FSG-3, Alternate Low Pressure Feedwater, Revision 00000  
FSG-4, ELAP DC Bus Load Shed/Management, Revision 003  
FSG-5, Initial Assessment and FLEX Equipment Staging, Revision 004  
FSG-6, Alternate SAFW DI Water Storage Tank Makeup, Revision 00000  
FSG-7, Loss of Vital Instrumentation or Control Power, Revision 00000  
FSG-8, Alternate RCS Injection, Revision 002  
FSG-9, Low Decay Heat Temperature Control, Revision 00000  
FSG-10, Passive RCS Injection Isolation, Revision 002  
FSG-11, Alternate SFP Makeup and Cooling, Revision 00000  
FSG-12, Alternate CNMT Cooling, Revision 00100

FSG-13, Transition from FLEX Equipment, Revision 00000  
FSG-14, Shutdown RCS Makeup, Revision 00000  
FSG-100, Flex Support Equipment Inventory, Revision 005  
FSG-101, FLEX Support Equipment - Beyond Design Basis Flex Pump  
(PBD01A/PBD01B/PBD01C), Revision 001  
FSG-102, FLEX Support Equipment - Diesel Driven FLEX Generator (KBD01A) Revision 001  
FSG-103, FLEX Support Equipment - Diesel Driven FLEX Air Compressor, Revision 001  
FSG-105, FLEX Support Equipment – FLEX Fuel Tanker Trailer (TBD01A/TBD01B),  
Revision 00100  
FSG-107, Flex Support Equipment – Alternate RCS Injection Diesel Driven FLEX Pump  
(PBD04)  
FSG-109, Flex Support Equipment – Motorola Communications Repeater, Revision 00000  
FSG-118, Portable Satellite Communication Systems Operating User Aid, Revision 000  
O-22, Cold Weather Walkdown Procedure, Revision 019  
OP-AA-108-111-1001, Severe Weather and Natural Disaster Guidelines, Revision 15

Drawing:

Drawing No.33013-1230, Revision 2, Alternate RCS Injection System (BDB) P&ID  
Drawing No.33013-1248, Revision 46, Auxiliary Cooling Spent Fuel Pool Cooling (AC) P&ID  
Drawing No.33013-1261, Revision 46, Containment Spray (SI) P&ID  
Drawing No.33013-1262, Sheet 1 of 2, Revision 34, Safety Injection and Accumulators (SI)  
P&ID  
Drawing No.33013-1262, Sheet 2 of 2, Revision 8, Safety Injection and Accumulators (SI) P&ID  
Drawing No.33013-2546, Revision 4, Fire Response Plan, Auxiliary Building, Elev. 253'0"  
Drawing No.33013-2552, Revision 15, Fire Response Plan, Auxiliary Building, Elev. 271'0"  
Drawing No.33013-2886, Sheet 9, Revision 1, SAFW Building Annex Embedded Conduit  
Layout

Calculations:

CALC-2014-0006, Auxiliary Building Environmental Conditions during ELAP, Revision 0  
CC-AA-309-1001, Ginna Standby Auxiliary Feedwater Room Heat-Up Analysis, Revision 8

Evaluations:

ECP-16-000103, Evaluate SAFW Bldg for Limiting SBO and FLEX Temperatures

Work Orders:

C92948909  
C93136817  
C93214421  
C93214428  
C93260455  
C93260457

Other:

FLEX-PROGPLAN, R. E. Ginna Nuclear Power Plant Final Integration Plan Mitigating  
Strategies (NRC Order EA 12-049), Revision 1  
FLEX-VALPLAN, R. E. Ginna Nuclear Power Plant NEI 12-06 FLEX Validation Plan,  
Revision 000  
10-16 EP-GI-124-1002-F-01, Control Room Communication Operational Check, completed  
October 28, 2016

10-16 EP-GI-124-1002-F-04, EOF Communication Operational Checks, completed  
October 31, 2016

10-16 EP-GI-124-1002-F-07, GTCW OMT Spare Comm Operational Checks, completed  
October 28, 2016

ARs Reviewed:

02531358	02630635	02695312	02733479
02547043	02631163	02695333	02733583
02570522	02631728	02696029	02734051
02608676	02632037	02696036	02734053
02616697	02651286	02696793	
02621537	02655947	02712066	
02734056			

ARs Generated:

02738166  
02739076  
02739495

### LIST OF ACRONYMS

AC	Alternating Current
ADAMS	Agencywide Documents Access and Management System
ELAP	Extended Loss of all AC Power
FLEX	Diverse and Flexible Coping Strategies
FSG	FLEX Support Guidelines
NRC	Nuclear Regulatory Commission, U.S.
NTTF	Near Term Task Force
SFP	Spent Fuel Pool
TI	Temporary Instruction