



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION III  
2443 WARRENVILLE RD. SUITE 210  
LISLE, IL 60532-4352

December 18, 2014

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

SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2, BASELINE EMERGENCY  
PREPAREDNESS BIENNIAL EXERCISE INSPECTION REPORT  
05000456/2014502; 05000457/2014502

Dear Mr. Pacilio:

On November 21, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Braidwood Station, Units 1 and 2. The enclosed report documents the results of this inspection which were discussed on November 21, 2014, with Mr. M. Kanavos and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel. No findings were identified during this inspection.

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

Sincerely,

/RA/

Steven K. Orth, Chief  
Plant Support Branch  
Division of Reactor Safety

Docket Nos. 50-456; 50-457  
License Nos. NPF-72; NPF-77

Enclosure:  
IR 05000456/2014502; 05000457/2014502  
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-456; 50-457  
License No: NPF-72; NPF-77

Report No: 05000456/2014502; 05000457/2014502

Licensee: Exelon Generation Company, LLC

Facility: Braidwood Station, Units 1 and 2

Location: Braceville, IL

Dates: November 17 through 21, 2014

Inspectors: R. Jickling, Senior Emergency Preparedness Inspector  
J. Benjamin, Senior Resident Inspector  
J. McGhee, Senior Resident Inspector  
J. Beavers, Emergency Preparedness Inspector  
D. Funk, Senior Project Specialist

Approved by: S. Orth, Chief  
Plant Support Branch  
Division of Reactor Safety

Enclosure

## SUMMARY OF FINDINGS

IR 05000456/2014502, 05000457/2014502, 11/17/2014 – 11/21/2014, Braidwood Station, Units 1 and 2, Baseline Emergency Preparedness Exercise Evaluation - Hostile Action Event, Exercise Evaluation Scenario Review; Performance Indicator Verification.

This report covers a 1-week period of announced baseline inspection by three regional inspectors and two resident inspectors. The significance of most findings is indicated by their color (i.e., Green, White, Yellow, and Red) using Inspection Manual Chapter 0609, "Significance Determination Process (SDP)." Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5, dated February 2014.

### **A. NRC-Identified and Self-Revealed Findings**

#### **Cornerstone: Emergency Preparedness**

No findings were identified.

### **B. Licensee-Identified Violations**

None

## REPORT DETAILS

### 1. REACTOR SAFETY

#### Cornerstone: Emergency Preparedness

#### 1EP7 Exercise Evaluation – Hostile Action Event (71114.07)

##### .1 Exercise Evaluation

##### a. Inspection Scope

Title 10, *Code of Federal Regulations* (CFR), Part 50, Appendix E, Section IV.F.2.j, requires, in part, that nuclear power reactor licensees, in each eight calendar year exercise cycle, provide the opportunity for their Emergency Response Organization (ERO) to demonstrate proficiency in the key skills necessary to respond to a Hostile Action (HA) event directed at the plant site. Braidwood Station designed the November 19, 2014, exercise to satisfy this requirement, and the NRC inspected the Braidwood Station HA event exercise to assess the licensee's ability to effectively implement their Emergency Plan during a HA event and adequately protect public health and safety.

The exercise evaluation consisted of the following reviews and assessments:

- The adequacy of the licensee's performance in the biennial exercise conducted on November 19, 2014, regarding the implementation of the Risk-Significant Planning Standards in 10 CFR 50.47 (b)(4), (5), (9), and (10), which address emergency classification, offsite notification, radiological assessment, and Protective Action Recommendations (PAR), respectively.
- The overall adequacy of the licensee's emergency response facilities with regard to NUREG-0696, "Functional Criteria for Emergency Response Facilities," and Emergency Plan commitments. The facilities assessed were the Control Room Simulator, Alternative Emergency Response Facility, Incident Command Post, Simulated Central Alarm Station, and the Emergency Operations Facility.
- A review of other performance areas such as the licensee ERO's recognition of abnormal plant conditions; command and control, including interactions with site security staff; intra and inter-facility communications; prioritization of mitigating activities; utilization of repair and field monitoring teams; interface with offsite agencies, including local law enforcement agencies; staffing and procedure adequacy; and the overall implementation of the Emergency Plan and its implementing procedures.
- Past performance issues from NRC inspection reports to determine the effectiveness of corrective actions, as demonstrated during this exercise, to ensure compliance with 10 CFR 50.47(b)(14).

- The adequacy of the licensee’s post-exercise critiques, to evaluate Braidwood Station’s self-assessment of its ERO performance during the November 19, 2014, exercise and to ensure compliance with 10 CFR Part 50, Appendix E, Section IV.F.2.g.

The inspectors reviewed various documents that are listed in the Attachment to this report. This inspection activity satisfied one inspection sample for the exercise evaluation on a biennial basis.

This exercise evaluation inspection constituted one sample as defined in Inspection Procedure (IP) 71114.07-06.

b. Findings

No findings were identified.

1EP8 Exercise Evaluation – Scenario Review (71114.08)

a. Inspection Scope

Prior to the inspection activity, the inspectors conducted an in-office review of the exercise objectives and scenarios submitted to the NRC using IP 71114.08, “Exercise Evaluation - Scenario Review,” to determine if the exercise would test major elements of the Emergency Plan as required by 10 CFR 50.47(b)(14). This inspection activity represents one sample on a biennial cycle.

The inspectors reviewed various documents that are listed in the Attachment to this report. This inspection activity satisfied one inspection sample for the exercise evaluation on a biennial basis.

This review of the exercise objectives and scenario constituted one sample as defined in IP 71114.08-06.

b. Findings

No findings were identified.

**4. OTHER ACTIVITIES**

**Cornerstone: Emergency Preparedness**

4OA1 Performance Indicator Verification (71151)

.1 Drill/Exercise Performance

a. Inspection Scope

The inspectors sampled licensee submittals for the Drill/Exercise Performance (DEP) Performance Indicator (PI) for the period from the first quarter 2013 through the third quarter 2014. To determine the accuracy of the DEP data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) document NEI 99-02, “Regulatory Assessment Performance Indicator Guideline,” Revision 7, was used. The inspectors reviewed the licensee’s records associated with

the PI to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the NEI guidance. Specifically, the inspectors reviewed licensee records and processes, including procedural guidance on assessing opportunities for the PI, assessments of PI opportunities during pre-designated control room simulator training sessions, and performance during other drills. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one DEP sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 Emergency Response Organization Drill Participation

a. Inspection Scope

The inspectors sampled licensee submittals for the ERO Drill Participation PI for the period from the first quarter 2013 through the third quarter 2014. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, was used. The inspectors reviewed the licensee's records associated with the PI to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the NEI guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the PI, performance during the 2013 and 2014 drills, and revisions of the roster of personnel assigned to key ERO positions. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one ERO Drill Participation sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Alert and Notification System

a. Inspection Scope

The inspectors sampled licensee submittals for the Alert and Notification System (ANS) PI for the period from the first quarter 2013 through the third quarter 2014. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, was used. The inspectors reviewed the licensee's records associated with the PI to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the NEI guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the PI and results of periodic scheduled ANS operability tests. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one ANS sample as defined in IP 71151-05.

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On November 21, 2014, the inspectors presented the biennial exercise inspection results to Mr. M. Kanavos and other members of the licensee's staff. The licensee acknowledged the issues presented.

The inspectors confirmed that none of the potential report input discussed was considered proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee

M. Kanavos, Site Vice President  
M. Marchionda, Plant Manager  
J. Bashor, Engineering Manager  
B. Bergman, Outage Manager  
J. Cady, Radiation Protection Manager  
A. Daniels, MidWest Emergency Preparedness Manager  
T. Elam, Projects  
A. Ferko, Operations Manager  
T. Fisk, Nuclear Oversight  
T. Gardner, Nuclear Oversight Assessor  
C. Ingold, Site Chemical Environment & Radwaste Manager  
J. Lizalek, Security  
S. McKinney, Emergency Preparedness Coordinator  
D. Poi, Emergency Preparedness Manager  
P. Raush, Regulatory Assurance Manager  
R. Schlessmann, Regulatory Assurance  
B. Sparr, Maintenance Director  
D. Stiles, Site Training Director

#### Nuclear Regulatory Commission

J. Benjamin, Senior Resident Inspector  
B. Boston, Acting Resident Inspector

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

#### Opened, Closed, and Discussed

None

## LIST OF DOCUMENTS REVIEWED

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

### 1EP7 Exercise Evaluation (71114.07)

EP-AA-1000; Exelon Nuclear Standardized Radiological Emergency Plan; Revision 25

EP-AA-1001; Radiological Emergency Plan Annex for Braidwood Station; Revision 32

EP-AA-110; Assessment of Emergencies; Revision 9

EP-AA-111; Emergency Classification and PARs; Revision 18

EP-AA-112; ERO/ERF Activation and Operation; Revision 16

EP-AA-113; Personnel Protective Action; Revision 11

EP-AA-114-100; Midwest Region Offsite Notifications; Revision 14

EP-AA-122; Drills and Exercise Program; Revision 15

0Bw0A; Security Threat; Revision 17

Two Year List of Drill and Exercise Corrective Action Program Issues;  
December 5, 2012 – August 29, 2014

Two Years of Drill and Exercise Timelines; December 5, 2012 – August 27, 2014

IR 2416846.2; Exercise-Alternate ERF Confusion Regarding Multiple Priority Ones;  
November 24, 2014

IR 2416846.4; Exercise-Alternative ERF Determined Cell Phone Communications With  
Mitigation Teams Was Not Adequate In the Plant; November 24, 2014

IR 2416839; Exercise-Alternative ERF Mitigation Team Movement On-Site Did Not  
Adhere to Restrictions; November 24, 2014

IR 2415811; Exercise-Over-Simulation Contributed to Confusion With Mitigation Team  
Status Communications; November 21, 2014

IR 2415803; Exercise-Mitigative Action Planning at the ICP and Alternative ERF Needs  
to be Improved and Alternative ERF Communications With ICP and Mitigation Teams  
Needs to be Improved; November 21, 2014

IR 2415733.1; Exercise-EOF Failed to Notify the NRC Within One Hour of the  
Emergency Classification; November 21, 2014

IR 2415733.2; Exercise-EOF Significant Events Log Lacked Information and Contained  
Errors; November 21, 2014

IR 2415733.3; Exercise-EOF Top Priorities Not Established But Had Three Priority  
Ones; November 21, 2014

1EP8 Exercise Evaluation – Scenario Review (71114.08)

Braidwood Station 2014 HAB Exercise 60 Day Submittal; September 15, 2014

4OA1 Performance Indicator Verification (71151)

LS-AA-2110; Monthly Data Elements for NRC ERO Drill Participation; January 2013 - September 2014

LS-AA-2120; Monthly Data Elements for NRC Drill/Exercise Performance; March 2013 - September 2014

LS-AA-2130; Monthly Data Elements for NRC ANS Reliability; January 2013 - September 2014

AR 01678496; Siren Failure; July 3, 2014

AR 01678295; Siren Failures; July 2, 2014

AR 01677436; Siren Outage; July 1, 2014

## LIST OF ACRONYMS USED

|       |   |
|-------|---|
| ADAMS | Agencywide Documents Access and Management System |
| ANS   | Alert and Notification System                     |
| CFR   | Code of Federal Regulations                       |
| DEP   | Drill and Exercise Performance                    |
| DRS   | Division of Reactor Safety                        |
| ERO   | Emergency Response Organization                   |
| HA    | Hostile Action                                    |
| IP    | Inspection Procedure                              |
| NEI   | Nuclear Energy Institute                          |
| NRC   | U.S. Nuclear Regulatory Commission                |
| PAR   | Protective Action Recommendation                  |
| PARS  | Publicly Available Records System                 |
| PI    | Performance Indicator                             |
| SDP   | Significance Determination Process                |

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Letter to Michael J. Pacilio from Steven K. Orth dated December 18, 2014.

SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2, UNITS 1 AND 2  
BASELINE EMERGENCY PREPAREDNESS BIENNIAL EXERCISE INSPECTION  
REPORT 05000456/2014502; 05000457/2014502

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