



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

May 3, 2016

Mr. Bryan C. Hanson  
Senior VP, Exelon Generation Company, 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  
05000456/2016502; 05000457/2016502

Dear Mr. Hanson:

On April 8, 2016, 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 April 8, 2016, with Ms. M. Marchionda 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 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding," 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's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is 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 05000456/2016502; 05000457/2016502

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 05000456/2016502; 05000457/2016502

Licensee: Exelon Generation Company, LLC

Facility: Braidwood Station, Units 1 and 2

Location: Braceville, IL

Dates: April 4 - 8, 2016

Inspectors: G. Hansen, Senior Emergency Preparedness Inspector  
J. McGhee, Senior Resident Inspector  
J. Robbins, Resident Inspector  
M. Garza, Emergency Preparedness Inspector

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

Enclosure

## **SUMMARY**

Inspection Report 05000456/2016502, 05000457/2016502, 04/04/2016 – 04/08/2016, Braidwood Station, Units 1 and 2, Baseline Emergency Preparedness Exercise Evaluation, Exercise Evaluation Scenario Review; Performance Indicator Verification.

This report covers a 1-week period of announced baseline inspection by two regional inspectors and two resident inspectors. 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.

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

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

No findings were identified.

### **Licensee-Identified Violations**

None

## **REPORT DETAILS**

### **1. REACTOR SAFETY**

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

#### **1EP1 Exercise Evaluation (71114.01)**

##### **.1 Exercise Evaluation**

##### **a. Inspection Scope**

The inspectors reviewed the April 6, 2016, biennial emergency preparedness exercise objectives and scenario to ensure that the exercise would acceptably test major elements of the licensee's emergency plan and to verify that the exercise's simulated problems provided an acceptable framework to support demonstration of the licensee's capability to implement its plan. The inspectors also reviewed records of other drills and exercises conducted in 2014, 2015, and 2016, to verify that those drills' scenarios were sufficiently different from the scenario used in the April 6, 2016, exercise.

The inspectors observed and evaluated the licensee's exercise performance, focusing on the risk-significant activities of emergency classification, notification, and protective action decision making, implementation of accident mitigation strategies, and correction of past exercise weaknesses, in the following emergency response facilities:

- Control Room Simulator;
- Technical Support Center;
- Operations Support Center; and
- Emergency Operations Facility.

The inspectors also assessed the licensee's recognition of abnormal plant conditions, transfer of responsibilities between facilities, internal communications, interfaces with offsite officials, readiness of emergency facilities and related equipment, and overall implementation of the licensee's emergency plan.

The inspectors attended post-exercise critiques in the Control Room Simulator, Technical Support Center, Operations Support Center, and Emergency Operations Facility to evaluate the licensee's initial self-assessment of its exercise performance.

The inspectors later met with the licensee's lead exercise evaluators and managers to obtain the licensee's findings and assessments of its exercise participants' performances. These self-assessments were then compared with the inspectors' independent observations and assessments to assess the licensee's ability to adequately critique its exercise performance. Documents reviewed are listed in the Attachment to this report.

This exercise evaluation inspection constituted one sample as defined in Inspection Procedure (IP) 71114.01.

##### **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 U.S. Nuclear Regulatory Commission using IP 71114.08, "Exercise Evaluation - Scenario Review," to determine if the exercise would test major elements of the Emergency Plan as required by Title 10 of the Code of Federal Regulations, Part 50.47(b)(14).

Documents reviewed are listed in the Attachment to this report.

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

##### 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 first quarter 2015 through the fourth quarter 2015. To determine the accuracy of the DEP data reported during this period, PI definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, were 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 PI verification inspection sample as defined in IP 71151.

##### b. Findings

No findings were identified.

## .2 Emergency Response Organization Drill Participation

### a. Inspection Scope

The inspectors sampled licensee submittals for the Emergency Response Organization (ERO) Drill Participation PI for the first quarter 2015 through the fourth quarter 2015. To determine the accuracy of the PI data reported during this period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, were 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 2014 and 2015 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 PI verification inspection sample as defined in IP 71151.

### 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 first quarter 2015 through the fourth quarter 2015. To determine the accuracy of the PI data reported during this period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, were 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 PI verification inspection sample as defined in IP 71151.

### b. Findings

No findings were identified.

#### 4OA6 Management Meetings

##### .1 Exit Meeting Summary

On April 8, 2016, the inspectors presented the biennial exercise inspection results to Ms. M. Marchionda, and other members of the licensee 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. Marchionda, Site Vice President  
A. Ferko, Plant Manager  
J. Bashor, Engineering Manager  
J. Cady, Radiation Protection Manager  
S. Reynolds, Regulatory Assurance Manager  
B. Finlay, Site Security Manager  
R. Hall, Chemistry Manager  
A. Daniels, MidWest Emergency Preparedness Manager  
K. Dovas, Training Director  
D. Poi, Emergency Preparedness Manager  
S. Daniels, Emergency Preparedness Specialist  
R. Schliessmann, Regulatory Assurance

#### U.S. Nuclear Regulatory Commission

D. Betancort, Resident Inspector

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

#### Opened, Closed, and Discussed

None

### **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
ERO	Emergency Response Organization
IP	Inspection Procedure
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
PARS	Publicly Available Records System
PI	Performance Indicator



## 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.

### 1EP1 Exercise Evaluation (71114.01)

- EP-AA-1000; Exelon Nuclear Standardized Radiological Emergency Plan; Rev. 28
- EP-AA-1001, Addendum 3; Emergency Action Levels for Braidwood Station; Rev. 1
- EP-AA-112-400; Emergency Operations Facility Activation and Operation; Rev. 12
- EP-AA-111; Emergency Classification and PARs; Rev. 19
- EP-AA-111-F-02; Braidwood PAR Flowchart; Rev. G
- EP-AA-112; ERO/ERF Activation and Operation; Rev. 16
- EP-AA-113; Personnel Protective Action; Rev. 12
- EP-AA-114; Notifications; Rev. 14
- EP-AA-122; Drills and Exercise Program; Rev. 18
- PI-AA-120; Issue Identification and Screening Process; Rev. 5
- Two Years of Drill and Exercise Timelines; dated Dec. 2014 – Mar. 2016
- Braidwood Oct/Nov/Dec PI Drill 2014 Evaluation Report; dated Feb. 20, 2015
- Braidwood 2014 HAB NRC Graded Exercise Evaluation Report; dated Dec. 19, 2014
- Braidwood 1Q2015 PI Drill Series Evaluation Report; dated Apr. 17, 2015
- Braidwood June PI Drill Series 2015 Evaluation Report; dated Jul. 24, 2015
- Braidwood 2015 Off-Year Exercise Evaluation Report; dated Dec. 10, 2015
- 2-Year List of Drill and Exercise Corrective Action Program Issues; dated Dec. 2014 – Mar. 2016
- AR 02438603; Review IR 2388211 for Reportability;
- AR 02454487; EP PI CFAM Points in January 3 Points less than December;
- AR 02464365; ERO Vacancy for HPN Communicator;
- AR 02465838; NOS ID: Anomaly with ERO Qualification; dated Mar. 9, 2015
- AR 02470600; Disqualified ERO Member; dated Mar. 18, 2015
- AR 02477531; EP-MW-124-1001-F-01 Control Room/Simulator Inventory Issues; dated Mar. 31, 2015
- AR 02487026; 2Q2015 EP PI Drill Failed Demonstration Criteria; dated Apr. 17, 2015
- AR 02487063; 2Q2015 Braidwood EP PI Drill Exercise/Scenario Control Issue; dated Apr. 17, 2015
- AR 02487079; 2Q2015 BRWD EP PI DRILL Facilities and Equipment; dated Apr. 17, 2015
- AR 02487090; 2Q2015 BRWD EP PI DRILLS Dose Assessment Issues; dated Apr. 17, 2015
- AR 02543379; LL FOR BRAIDWOOD Pager Replacement Project; dated Aug. 18, 2015
- AR 02595812; Exercise Management and Scenario Issues During Off Year Exercise; dated Dec. 4, 2015
- AR 02595885; Facilities and Equipment Issues During Off Year Exercise; dated Dec. 4, 2015

### 1EP8 Exercise Evaluation – Scenario Review (71114.08)

- Braidwood Station 2016 NRC Graded Exercise 60 Day Submittal; dated Feb. 4, 2016

#### 4OA1Performance Indicator Verification (71151)

- NRC PI Data; Emergency Preparedness – ANS Reliability; dated Jan. 2015 – Dec. 2015
- NRC PI Data; Emergency Preparedness - NRC ERO Drill Participation; dated Jan. 2015 – Dec. 2015
- NRC PI Data; Emergency Preparedness - DEP; dated Jan. 2015 – Dec. 2015
- NEI 99-02; Regulatory Assessment Performance Indicator Guideline; Rev. 7

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