



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

June 22, 2015

Mr. Bryan C. Hanson
Senior VP, Exelon Generation Company, LLC
President and CNO, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: BYRON STATION, UNITS 1 AND 2
BASELINE EMERGENCY PREPAREDNESS BIENNIAL EXERCISE INSPECTION
REPORT 05000454/2015502; 05000455/2015502

Dear Mr. Hanson:

On May 22, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed a baseline emergency preparedness biennial exercise inspection at the Byron Station, Units 1 and 2. The enclosed report documents the results of this inspection, which were discussed on May 22, 2015, with Mr. R. Kearney, 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. 50-454; 50-455
License Nos. NPF-37; NPF-66

Enclosure: IR 05000454/2015502;
05000455/2015502 w/Attachment:
Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-454; 50-455
License Nos: NPF-37; NPF-66

Report No: 05000454/2015502; 05000455/2015502

Licensee: Exelon Generation Company, LLC

Facility: Byron Station, Units 1 and 2

Location: Byron, IL

Dates: May 18 – 22, 2015

Inspectors: G. Hansen, Physical Security Inspector
J. Beavers, Emergency Preparedness Inspector
M. Garza, Emergency Preparedness Inspector
J. Lennartz, Project Engineer
A. Shaikh, Reactor Engineer

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

Enclosure

SUMMARY OF FINDINGS

IR 05000454/2015502, 05000455/2015502; 05/18/2015 – 05/22/2015; Byron Station, Units 1 and 2; Baseline Emergency Preparedness Exercise Evaluation - Hostile Action Event; Exercise Evaluation Scenario Review; Performance Indicator Verification.

This report covers a one-week period of announced baseline inspection by five regional 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 U.S. Nuclear Regulatory Commission (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.

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

1EP7 Exercise Evaluation – Hostile Action Event (71114.07)

.1 Exercise Evaluation

a. Inspection Scope

Title 10 of the *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. Byron Station staff designed the May 20, 2015, exercise to satisfy this requirement. The U.S. Nuclear Regulatory Commission (NRC) inspected the Byron Station HA 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 May 20, 2015, 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 (PARs), 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 Emergency Operations Facility, Alternative Facility, Control Room Simulator, Incident Command Post, and the Central Alarm Station Simulator.
- 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 the Byron Station self-assessment of its ERO performance during the May 20, 2015, 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 second quarter of 2014 through the first quarter of 2015. 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 second quarter of 2014 through the first quarter of 2015. 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 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 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 second quarter of 2014 through the first quarter of 2015. 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 May 22, 2015, the inspectors presented the biennial exercise inspection results to Mr. R. Kearney, 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.

.2 Public and Media Briefing

On May 22, 2015, the inspectors summarized the NRC's preliminary exercise inspection conclusions at a public and media briefing hosted by Department of Homeland Security/Federal Emergency Management Agency, Region V, Field Office staff, at the Ogle County Sheriff's Department, in Oregon, Illinois.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

R. Kearney, Site Vice President
T. Chalmers, Plant Manager
R. Lloyd, Emergency Preparedness Manager
J. Fiesel, Maintenance Director
S. Gackstetter, Chemistry Manager
B. Currier, Senior Manager of Design Engineering
C. Keller, Engineering Director
D. Gullott, Licensing Manager (Corporate)
D. Spitzer, Regulatory Assurance Manager
T. Leaf, Outage Manager
B. Barton, RP Manager
A. Corrigan, Principle Regulatory Engineer

U.S. Nuclear Regulatory Commission

C. Zoia, Senior Resident Inspector (Acting)
J. Draper, 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 Standardized Radiological Emergency Plan; Revision 26
EP-AA-1002; Radiological Emergency Plan Annex for Byron Station; Revision 34
EP-AA-1002 Addendum 1; Byron Station On-Shift Staffing Technical Basis; Revision 1
EP-AA-1002 Addendum 3; Emergency Action Levels for Byron Station; Revision 0
EP-AA-110; Assessment of Emergencies; Revision 9
EP-AA-111; Emergency Classification and Protective Action Recommendations; Revision 19
EP-AA-111-F-03; Byron Plant Based PAR Flowchart
EP-AA-112; Emergency Response Organization (ERO)/Emergency Response Facility (ERF) Activation and Operation; Revision 17
EP-AA-112-400-F-03; EOF Director Checklist; Revision B
EP-AA-112-400; Emergency Operations Facility Activation and Operation; Revision B
EP-AA-113; Personnel Protective Actions; Revision 11
EP-AA-114; Notifications; Revision 13
EP-AA-115; Termination and Recovery; Revision 9
EP-AA-122; Drills and Exercise Program; Revision 17
EP-AA-122-300-F-01; Drill and Exercise Evaluation Criteria; Revision D
Two Year List of Drill and Exercise Condition Reports; March 2013 – April 2015
Two Years of Drill and Exercise Timelines; March 2013 – April 2015
IR 02504081; Failed Demonstration Criteria – CR/SIM Byron HAB Exercise; Dated May 21, 2015
IR 02504083; Failed Demonstration Criteria – Alternate Facility - Byron HAB Exercise; Dated May 21, 2015
IR 02504089; Byron HAB Exercise – Site Sim Issues; Dated May 21, 2015
IR 02504097; Byron HAB Exercise – Site Issues – Alternate Facility; Dated May 21, 2015
IR 02504104; Byron HAB Exercise – Site Issues – CAS-SAS-ICP; Dated May 21, 2015
IR 02505453; Byron 2015 HAB Exercise – EOF Failed DCS; Dated May 26, 2015
IR 02505457; Byron 2015 HAB Exercise – Failed DC - JIC; Dated May 26, 2015

IR 02505470; Byron 2015 HAB Exercise – Corp Issues - EOF; Dated May 26, 2015

IR 02505472; Byron 2015 HAB Exercise – Corp Issues - JIC; Dated May 26, 2015

IR 02505472; NOS ID: Byron 2015 HAB Exercise Issues; Dated May 26, 2015

IR 02505489; Byron 2015 HAB Exercise – Exercise Management Issue;
Dated May 26, 2015

IR 02505510; Byron 2015 HAB Exercise – Procedure Quality; Dated May 26, 2015

IR 02505526; Byron HAB Exercise – NRC Notification for 50.54(x); Dated May 26, 2015

IR 02507134; Byron 2015 HAB Exercise – Lessons Learned; Dated May 29, 2015

1EP8 Exercise Evaluation – Scenario Review (71114.08)

Byron Station 2015 HAB Exercise 60 Day Submittal; Dated February 2015

4OA1 Performance Indicator Verification (71151)

ERO Drill Participation; Second Quarter 2014 – First Quarter 2015

DEP Opportunities; Second Quarter 2014 – First Quarter 2015

ANS Reliability; Second Quarter 2014 – First Quarter 2015

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
ANS	Alert and Notification System
CFR	<i>Code of Federal Regulations</i>
DEP	Drill/Exercise Performance
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 Mr. Bryan C. Hanson from Mr. Steven K. Orth dated June 22, 2015

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