



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, IL 60532-4352

December 14, 2009

Mr. Charles G. Pardee  
Senior Vice President, Exelon Generation Company, LLC  
President and Chief Nuclear Officer (CNO), Exelon Nuclear  
4300 Winfield Road  
Warrenville IL 60555

SUBJECT: CLINTON POWER STATION  
BASELINE EMERGENCY PREPAREDNESS BIENNIAL EXERCISE  
INSPECTION REPORT 05000461/2009502(DRS)

Dear Mr. Pardee:

On November 20, 2009, the U. S. Nuclear Regulatory Commission (NRC) completed a Baseline Emergency Preparedness Biennial Exercise inspection at your Clinton Power Station. The enclosed report documents the inspection results, which were discussed on November 19, 2009, 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.

Based on the results of this inspection, one NRC-identified finding of very low safety significance was identified. This finding was reviewed using the NRC Enforcement Policy and involved a violation of NRC requirements. However, because the finding associated with this violation was of very low safety significance and because the issue has been entered into your Corrective Action Program (CAP), the NRC is treating the issue as a Non-Cited Violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy.

If you contest the subject or severity of an NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial to the U. S. Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region III; the Director, Office of Enforcement, U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Clinton Power Station. In addition, if you disagree with the characterization of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement to the Regional Administrator, Region III, and the NRC Resident Inspector at Clinton Power Station. The information you provide will be considered in accordance with Inspection Manual Chapter 0305, "Operating Reactor Assessment Program."

In accordance with 10 CFR 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/**

Hironori Peterson, Chief  
Operations Branch  
Division of Reactor Safety

Docket No. 50-461  
License No. NPF-62

Enclosure: Inspection Report No. 05000461/2009502(DRS)  
w/Attachment: Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-461

License No: NPF-62

Report No: 05000461/2009502

Licensee: AmerGen Energy Company, LLC

Facility: Clinton Power Station

Location: Clinton, Illinois

Dates: November 16 through 20, 2009

Inspectors: Robert Jickling, Sr. Emergency Preparedness Inspector  
Regina Russell, Emergency Preparedness Inspector  
Brian Kemker, Sr. Resident Inspector

Approved by: Hironori Peterson, Chief  
Operations Branch  
Division of Reactor Safety

Enclosure

## SUMMARY OF FINDINGS

IR 05000461/2009502; 11/16/2009 - 11/20/2009; Clinton Power Station; Baseline Emergency Preparedness Biennial Exercise Inspection

This report covers a one week period of announced baseline inspection by two regional inspectors and one resident inspector. One Severity Level IV Non-Cited Violation (NCV) was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 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 4, dated December 2006.

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

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

- Severity Level IV. The inspectors identified a NCV of 10 CFR 50.54(q) associated with 10 CFR 50.47(b)(2) because the licensee failed to obtain prior NRC approval for a change made to its emergency plan that decreased the effectiveness of the plan. Specifically, the licensee removed staffing and capabilities from the minimum on-shift emergency response staffing requirements from the Clinton Power Station Emergency Plan Annex, Section 2, Table B-1. The licensee entered this issue into their corrective action program and replaced staffing back on-shift as required by the 1998 emergency plan annex.

This finding was more than minor and of very low safety-significance using IMC 0609, Appendix B, because the finding was associated with the Emergency Preparedness Cornerstone attribute of emergency response organization readiness for minimum on-shift emergency response staffing. Because the finding affected the NRC's ability to perform its regulatory function, the inspectors evaluated the significance using the traditional enforcement process. This finding was determined to be a Severity Level IV violation because the licensee failed to meet an emergency planning requirement not directly related to assessment and notification. The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance, decision making because the licensee did not initially recognize that the removal of minimum on-shift emergency response staffing decreased the effectiveness of the emergency plan (H.1.(b)) (Section 1EP3).

### B. Licensee-Identified Violations

No violations of significance were identified.

## **REPORT DETAILS**

### **1. REACTOR SAFETY**

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

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

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

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

The inspectors reviewed the November 18, 2009, biennial emergency preparedness exercise's 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 the plan. The inspectors also reviewed records of other drills and exercises conducted in 2007, 2008, and 2009, to verify that those drills' scenarios were sufficiently different from the scenario used in the November 18, 2009, exercise.

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

- Control Room Simulator (CRS);
- Technical Support Center (TSC); and
- Emergency Operations Facility (EOF).

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 CRS, TSC, and EOF to evaluate the licensee's initial self-assessment of their exercise performance. The inspectors later met with the licensee's lead exercise evaluators and managers to obtain the licensee's findings and assessments of their 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 their 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) 71114.01-05.

##### **b. Findings**

No findings of significance were identified.

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

.1 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

The inspectors reviewed actions taken to resolve Unresolved Item 05000461/2008002-05 identified during the 2008 biennial emergency preparedness (EP) program inspection. This inspection did not represent an inspection sample.

b. Findings

Changes to Minimum On-Shift Emergency Response Staffing Levels without Prior NRC Approval

Introduction: The inspectors identified a Severity Level IV NCV of 10 CFR 50.54(q) related to a staffing change in the emergency plan. Specifically in 2002, the licensee changed the Clinton Power Station Emergency Plan Annex minimum on-shift emergency response staffing to remove one radiation protection technician, one radiation protection supervisor, and one mechanical maintenance department repairman from the emergency plan annex, Section 2, Table B-1, and replaced them with equipment operators. The equipment operators did not have the same capabilities and qualifications as the positions they replaced. The license did not submit an emergency plan change request for removing of these minimum on-shift emergency response staff to the NRC for prior approval.

Description: In response to problems identified during a declared Alert on February 13, 1998, related to achieving minimum staffing, the licensee revised their emergency plan requirements and added five positions to the ten required on-shift Emergency Response Organization (ERO) staffing positions, removed the eleven 30-minute ERO augmentation positions, and added six positions to the seventeen 60-minute ERO augmentation positions.

During the 2008 EP program inspection, the inspectors opened an unresolved item because several positions had been removed from the Table B-1 minimum on-shift staffing requirement since 1998. Specifically, in 1998 three radiation protection technicians and one radiation protection supervisor were required for minimum on-shift ERO positions. One of the four radiation protection personnel were to provide on-shift radiological accident assessment and operational accident assessment support, including in-plant surveys during a radiological emergency and the radiation protection supervisor was to provide senior health physics expertise. The other two radiation protection personnel were designated to provide protective actions during an emergency including access control, health physics coverage for repair, corrective actions, search and rescue, first aid, and firefighting, as well as personnel monitoring and dosimetry.

During the 2008 review of the Clinton Power Station Emergency Plan Annex, Section 2.1, On-Shift Emergency Response Organization Assignments, Table B-1, Minimum Staffing Requirements for the On-Shift Clinton Station ERO, the inspectors identified that the radiation protection supervisor and radiation protection technician positions had been replaced with equipment operators. The licensee entered this issue

into its corrective action program as Issue Report 00752769 and Action Requests 00783717 and 00921726.

Action Request 00921726 assigned an action to revise the Clinton Station Emergency Plan Annex to comply with the 1998 on-shift staffing requirements. One radiation protection supervisor, one radiation protection technician, and one mechanical maintenance department repairman have been returned to on-shift duty to comply with the 1998 minimum staffing requirements.

Analysis: The inspectors determined the failure to request prior NRC approval for the removal of these minimum on-shift emergency response persons decreased the effectiveness of the emergency plan and was a performance deficiency. The inspectors also determined that this issue was within the licensee's ability to foresee and correct during the emergency plan change process. The deficiency was determined to be more than minor because it was associated with the Emergency Preparedness Cornerstone attribute of emergency response organization readiness for minimum on-shift emergency response staffing and affected the cornerstone objective of ensuring that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency.

In accordance with Section 2.2.e of Appendix B to IMC 0609, the failure to request NRC approval of the emergency plan change potentially impeded the NRC's regulatory oversight process; therefore, was evaluated using the guidance in Section IV of the NRC Enforcement Policy rather than the Reactor Oversight Process's Significance Determination Process. The example in Part D to Supplement VIII of the NRC Enforcement Policy for a failure to meet or implement any emergency planning standard or requirement not directly related to assessment and notification applied to this issue and resulted in a Severity Level IV violation.

The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance decision making because the licensee did not initially recognize that the removal of minimum on-shift emergency response staffing decreased the effectiveness of the emergency plan (H.1.(b)).

Enforcement: Title 10 CFR 50.54(q) requires, in part, that licensees authorized to possess and operate a nuclear power reactor shall follow and maintain in effect emergency plans which meet the standards in 10 CFR 50.47(b) and the requirements in Appendix E of this part. Title 10 CFR 50.54(q) also allows the nuclear power reactor licensee to make changes to their plans without Commission approval only if the changes do not decrease the effectiveness of the plans and the plans, as changed, continue to meet the standards of 10 CFR 50.47(b), and Appendix E to this part. Title 10 CFR 50.47(b)(2) requires, in part, that adequate staffing to provide initial facility accident response in key functional areas is maintained at all times.

Contrary to the above, in 2002, the licensee removed one radiation protection supervisor, one radiation protection technician, and one mechanical maintenance repairman from the Clinton Power Station Emergency Plan Annex, Section 2.1, On-Shift Emergency Response Organization Assignments, Table B-1, Minimum Staffing Requirements without prior approval from the NRC and replaced the positions with

on-shift equipment operators not qualified to perform all the required functions. This failure to comply with the requirements of 10 CFR 50.54(q) was identified as a Severity Level IV violation in accordance with Supplement VIII (Emergency Preparedness) of the Enforcement Policy. The violation involved the licensee's failure to meet an emergency planning requirement not directly related to assessment and notification. Because the violation was entered into the licensee's Corrective Action Program as Issue Report 00752769 and Action Requests 00783717 and 00921726, and the on-shift minimum staffing was returned to 1998 requirements, the finding is being treated as a Non-Cited Severity Level IV violation consistent with Section VI.A of the Enforcement Policy (NCV 05000461/2009502-01). The Unresolved Item 05000461/2008002-05, "Changes to ERO On-Shift and Augmentation Staffing Levels and Position Titles" is closed.

#### **4. OTHER ACTIVITIES**

##### **4OA1 Performance Indicator (PI) Verification (71151)**

###### **.1 Drill/Exercise Performance**

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

The inspectors sampled licensee submittals for the Drill/Exercise Performance PI for the period from the first quarter 2008 through third quarter 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's records associated with the performance indicator 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 drill/exercise performance sample as defined in IP 71151-05.

###### **b. Findings**

No findings of significance 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 period from the first quarter 2008 through third quarter 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, 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 2008 and 2009 exercises and drills; and revisions of the roster of personnel assigned to key emergency response organization 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 of significance 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 2008 through third quarter 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, 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 alert and notification system sample as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

.1 (Closed) NRC Temporary Instruction 2515/175 "Emergency Response Organization, Drill/Exercise Performance Indicator, Program Review"

The inspector performed Temporary Instruction (TI) 2515/175, ensured the completeness of the TI's Attachment 1, and then forwarded the data to NRC, Headquarters.

4OA6 Management Meetings

.1 Exit Meeting Summary

On November 19, 2009, the inspectors presented the inspection results to Mr. M. Kanavos, 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 November 20, 2009, the inspector 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 in Clinton, Illinois.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee

M. Kanavos, Plant Manager  
K. Alshire, Corporate Emergency Preparedness Manager  
K. Appel, Corporate Emergency Preparedness Manager  
S. Butler, Emergency Preparedness Manager  
T. Chalmers, Operations Director  
A. Darelus, Emergency Preparedness Manager  
S. Deal, Nuclear Oversight  
P. Dohm, Emergency Preparedness Drill and Exercise Coordinator  
J. Ellis, Work Management Director  
G. Evans, Maintenance  
R. Frantz, Regulatory Assurance Representative  
S. Gackstetter, Training Director  
G. Hall, Performance Improvement  
B. Harris, Communications  
M. Hayworth, Emergency Preparedness Equipment and Facilities Coordinator  
D. Hunt, Training  
N. Hightower, Radiological Operations Manager  
D. Kemper, Regulatory Assurance Manager  
S. Merrell, Emergency Preparedness Program Coordinator  
R. Mika, Emergency Preparedness Drill and Exercise Coordinator  
S. O'Riley, Emergency Preparedness Coordinator  
S. Rao, Emergency Preparedness Radiological Coordinator  
J. Rappenport, Chemistry Manager  
M. Reandeau, Shift Operations Superintendent  
R. Rohrscheib, Nuclear Oversight  
R. Schenck, Site Project Manager  
C. VanDenburgh, Nuclear Oversight Manager  
R. VanHorn, Emergency Preparedness Drill and Exercise Coordinator  
R. Weber, Site Engineering Director  
C. Williamson, Security Director  
C. Wilson, Nuclear Oversight

#### Nuclear Regulatory Commission

B. Kemker, Senior Resident Inspector

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

05000461/2009502-01	NCV	Implementation of a Change which Decreased the Effectiveness of the Emergency Plan
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### Closed

05000461/2008002-01	NCV	Implementation of a Change which Decreased the Effectiveness of the Emergency Plan
00500461/2008002-05	URI	Changes to ERO On-Shift and Augmentation Staffing Levels and Position Titles.

### Discussed

None

## LIST OF DOCUMENTS REVIEWED

The following is a 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

Clinton Station 2009 NRC Graded Exercise Scenario Manual; November 11, 2009

Clinton Station 2009 NRC Graded Exercise Critique; November 19, 2009

Drill and Exercise Scenario Timelines; September 2007 - November 2009

List of Drill and Exercise Corrective Action Program Items; September 2007 - November 2009

AR 00995996; Exercise Issue - TSC Failed Demonstration Criteria for Dose Assessment

AR 00995992; Exercise Issue - TSC No Plant Announcements for Eating and Drinking Bans

AR 00995985; Exercise Issue - TSC Ban on Eating and Drinking Too Early

AR 00995972; Exercise Issue - TSC Core Damage Assessment was Late

AR 00995489; Exercise Issue - Failure to Declare an Alert

1EP4 Emergency Action Level and Emergency Plan Changes

AR 00921726; NRC Identification of Potential Violation for Emergency Plan Change  
AR 00783717; NRC URI 2008002-05, Changes to ERO Staffing Levels and Titles

4OA1 Performance Indicator Verification

LS-AA-2130; Monthly Data Elements for NRC Alert and Notification System Reliability;  
January 2008 - September 2009

Clinton Power Monthly Siren Availability Reports; January 2008 - September 2009

LS-AA-2120; Monthly Data Elements for NRC Drill/Exercise Performance; January 2008  
September 2009

LS-AA-2110; Monthly Data Elements for NRC Emergency Response Organization Drill  
Participation; March 2008 - September 2009

Key ERO Participation and Stability Monthly Data Reporting Elements; March 2008 -  
September 2009

**LIST OF ACRONYMS USED**

ADAMS	Agency-wide Documents Access and Management System
ANS	Alert and Notification System
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
CRS	Control Room Simulator
EOF	Emergency Operations Facility
EP	Emergency Preparedness
ERO	Emergency Response Organization
IMC	Inspection Manual Chapter
IP	Inspection Procedure
KI	Potassium Iodide
MC	Manual Chapter
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U. S. Nuclear Regulatory Commission
OSC	Operations Support Center
PAR	Protective Action Recommendation
PARS	Publicly Available Records
PI	Performance Indicator
SDP	Significance Determination Process
TI	Temporary Instruction
TSC	Technical Support Center

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Sincerely,

/RA/

Hironori Peterson, Chief  
Operations Branch  
Division of Reactor Safety

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