



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

March 3, 2010

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: ANNUAL ASSESSMENT LETTER - BRAIDWOOD STATION, UNITS 1 AND 2,
(05000456/2010001; 05000457/2010001)

Dear Mr. Pardee:

On February 10, 2010, the NRC staff completed its performance review of Braidwood Station, Units 1 and 2. Our technical staff reviewed performance indicators (PIs) for the most recent quarter and inspection results for the period from January 1 through December 31, 2009. The purpose of this letter is to inform you of our assessment of your safety performance during this period and our plans for future inspections at your facility.

This performance review and enclosed inspection plan do not include security information. A separate letter designated and marked as "Official Use Only - Security Information" will include the Security Cornerstone review and resultant inspection plan.

Overall, Braidwood Station operated in a manner that preserved public health and safety and fully met all cornerstone objectives.

Plant performance for the most recent quarter at Braidwood Station Unit 1 was within the Regulatory Response Cornerstone column of the NRC's Action Matrix, based on one inspection finding being classified as having low-to-moderate safety significance (White) and all PIs indicating performance at a level requiring no additional NRC oversight (Green). The White finding involved the failure of the containment sump suction isolation valve to fully open.

When you notify us of your readiness, we will conduct a supplemental inspection for Braidwood Unit 1 using Inspection Procedure 95001, "Inspection for One or Two White Inputs in a Strategic Performance Area." In addition, we plan to conduct reactor oversight program (ROP) baseline inspections at Braidwood Unit 1.

Plant performance for the most recent quarter, as well as the first three quarters of the assessment periods at Braidwood Station Unit 2, was within the Licensee Response column of the NRC's Action Matrix, based on all inspection findings being classified as having very low safety significance (Green) and all PIs indicating performance at a level requiring no additional NRC oversight (Green). Therefore, we plan to conduct reactor oversight program (ROP) baseline inspections at Braidwood Station Unit 2.

The NRC also plans to conduct several special and infrequently performed inspection procedures (IPs), which include inspections related to the pre-operational testing and operation of the Independent Spent Fuel Storage Installation.

In the mid-cycle performance review letter dated September 1, 2009, [ML092440402], we advised you of a substantive cross-cutting issue in the area of human performance. The substantive cross-cutting issue was the result of several findings that involved deficiencies in human performance throughout the station. In response to the identified cross-cutting issues, you had provided us your Human Performance Improvement Plan and specific actions that you planned to take to correct the cross-cutting issue performance deficiencies.

Nevertheless, the staff has continued to have concerns with your human performance. During this assessment period, you have had three of these findings in the human performance area that shared the common cross-cutting aspect of failure to make conservative assumptions and demonstrating the proposed action is safe (H.1(b)). These findings were from more than one cornerstone (Mitigating Systems and Initiating Events). Moreover, your Human Performance Improvement Plan actions have not yet proven effective in substantially mitigating the cross-cutting theme even though a reasonable duration of time has passed. Therefore, this substantive cross-cutting issue remains open until your corrective actions have resulted in a positive sustainable improvement in the area and the number of findings in the theme is reduced or maintained. Please provide a status update of the progress that was made to improve the human performance during the annual end-of-cycle public meeting to be scheduled at a later date. We will also access the human performance related issues as a Problem Identification and Resolution follow-up inspection item in accordance with IP 71152, "Identification and Resolution of Problems," Section 03.02, "Selected Issue Follow-up Inspection."

The enclosed inspection plan details the inspections, less those related to physical protection, scheduled through June 30, 2011. Please note that we plan on conducting two infrequently performed IPs: IP 60854.1, "Preoperational Testing of an Independent Spent Fuel Storage Facility Installation at Operating Plants," and IP 60855.1, "Operation of an Independent Spent Fuel Storage Installation at Operating Plants," this year at your Braidwood Station. The inspection plan is provided to allow for the resolution of any scheduling conflicts and personnel availability issues well in advance of inspector arrival onsite. Routine resident inspections are not listed due to their ongoing and continuous nature. The inspections in the last 9 months of the inspection plan are tentative and may be revised at the mid-cycle review.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

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If circumstances arise which cause us to change this inspection plan, we will contact you to discuss the change as soon as possible. Please contact Richard A. Skokowski at 630-829-9620 with any questions you may have regarding this letter or the inspection plan.

Sincerely,

/RA/

Steven West, Director
Division of Reactor Projects

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

Enclosure: Braidwood Station Inspection/Activity Plan

cc w/encl: Distribution via ListServ

Braidwood
Inspection / Activity Plan
03/01/2010 - 06/30/2011

Planned Dates		Inspection Activity	Title	No. of Staff on Site
Start	End			
		BI ENG - COMPONENT DESIGN BASIS INSPECTION		8
03/01/2010	04/02/2010	IP 7111121	Component Design Bases Inspection	
		BI EP - EP EXERCISE INSPECTION / PI VERIFICATION		3
03/22/2010	03/26/2010	IP 7111401	Exercise Evaluation	
03/22/2010	03/26/2010	IP 71151-EP01	Drill/Exercise Performance	
03/22/2010	03/26/2010	IP 71151-EP02	ERO Drill Participation	
03/22/2010	03/26/2010	IP 71151-EP03	Alert & Notification System	
		BI RP - RADIATION PROTECTION BASELINE INSPECTI		1
06/14/2010	06/18/2010	IP 71124.05	Radiation Monitoring Instrumentation	
06/14/2010	06/18/2010	IP 71151-BI01	Reactor Coolant System Activity	
		BI RP - RADIATION PROTECTION BASELINE INSPECTI		1
07/12/2010	07/16/2010	IP 71124.08	Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation	
07/12/2010	07/16/2010	IP 71151-PR01	RETS/ODCM Radiological Effluent	
		BI PI&R - BIENNIAL PI&R INSPECTION		4
08/30/2010	09/17/2010	IP 71152B	Identification and Resolution of Problems	
		BI ENG - ENGINEERING INSERVICE INSPECTION		1
10/04/2010	10/29/2010	IP 7111108P	Inservice Inspection Activities - PWR	
		BI RP - RADIATION PROTECTION BASELINE INSPECTION		1
10/18/2010	10/22/2010	IP 2515/179	Verification of Licensee Responses to NRC Requirement for Inventories of Materials Tracked in NSTS	
10/18/2010	10/22/2010	IP 71124.01	Radiological Hazard Assessment and Exposure Controls	
10/18/2010	10/22/2010	IP 71124.02	Occupational ALARA Planning and Controls	
10/18/2010	10/22/2010	IP 71151-OR01	Occupational Exposure Control Effectiveness	
		BI ENG - POLAR CRANE SINGLE FAILURE PROOF UPGRADE		1
11/15/2010	12/03/2010	IP 7111120	Refueling and Other Outage Activities	
		BI EP - EP ROUTINE INSPECTION / PI VERIFICATION		2
01/31/2011	02/04/2011	IP 7111402	Radiological Environmental Monitoring Program	
01/31/2011	02/04/2011	IP 7111403	Emergency Response Organization Augmentation Testing	
01/31/2011	02/04/2011	IP 7111405	Correction of Emergency Preparedness Weaknesses and Deficiencies	
01/31/2011	02/04/2011	IP 71151-EP01	Drill/Exercise Performance	
01/31/2011	02/04/2011	IP 71151-EP02	ERO Drill Participation	
01/31/2011	02/04/2011	IP 71151-EP03	Alert & Notification System	
		ISFSI - ISFSI INSPECTION. - SCHEDULE DEPENDENT		2
03/01/2011	06/30/2011	IP 60854.1	Preoperational Testing of Independent Spent Fuel Storage Facility Installation at Operating Plants	
06/01/2011	08/31/2011	IP 60855.1	Operation of an Independent Spent Fuel Storage Installation at Operating Plants	

Braidwood
Inspection / Activity Plan
03/01/2010 - 06/30/2011

Planned Dates		Inspection Activity	Title	No. of Staff on Site
Start	End			
BI RP - RADIATION PROTECTION BASELINE INSPECTI				
03/28/2011	04/01/2011	IP 71124.03	In-Plant Airborne Radioactivity Control and Mitigation	1
03/28/2011	04/01/2011	IP 71124.04	Occupational Dose Assessment	
03/28/2011	04/01/2011	IP 71151-BI01	Reactor Coolant System Activity	
BI ENG - ENGINEERING INSERVICE INSPECTION - U2				
04/18/2011	05/05/2011	IP 7111108P	Inservice Inspection Activities - PWR	1
BI RP - RADIATION PROTECTION BASELINE INSPECTI				
05/23/2011	05/27/2011	IP 71124.06	Radioactive Gaseous and Liquid Effluent Treatment	1
05/23/2011	05/27/2011	IP 71151	Performance Indicator Verification	
OL PREP - BRAIDWOOD INIT PREP - 05/2011				
05/30/2011	06/03/2011	W90226	OL - INITIAL EXAM - JUN 2011 - BRAI	2
OL EXAM - BRAIDWOOD INIT EXAM - 06/2011				
06/20/2011	07/01/2011	W90226	OL - INITIAL EXAM - JUN 2011 - BRAI	2

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Steven West, Director
Division of Reactor Projects

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Enclosure: Braidwood Station Inspection/Activity Plan

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Letter to C. Pardee from S. West dated March 3, 2010.

SUBJECT: ANNUAL ASSESSMENT LETTER - BRAIDWOOD STATION, UNITS 1 AND 2,
(05000456/2010001; 05000457/2010001)

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