



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

September 1, 2010

Mr. Michael J. Pacilio
Senior Vice President, Exelon Generation Company, LLC
President and Chief Nuclear Officer (CNO), Exelon Nuclear
4300 Winfield Road
Warrenville IL 60555

**SUBJECT: MID-CYCLE PERFORMANCE REVIEW AND INSPECTION PLAN -
BRAIDWOOD STATION, UNITS 1 AND 2**

Dear Mr. Pacilio:

On August 4, 2010, the Nuclear Regulatory Commission (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 July 1, 2009, through June 30, 2010. 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.

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 in the Mitigating Systems Cornerstone 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. This finding caused Braidwood Unit 1 to transition from the Licensee Response column to the Regulatory Response column in the fourth quarter of 2009.

On July 22, 2010, we were notified by your staff of your readiness for the NRC to conduct a supplemental inspection to review the actions taken to address the White finding. Therefore, we plan to conduct a supplemental inspection for Braidwood Unit 1 using Inspection Procedure (IP) 95001, "Inspection for One or Two White Inputs in a Strategic Performance Area," and we will notify your staff when it is scheduled. In addition to this supplemental inspection, 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 period, 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 ROP baseline inspections at Braidwood Unit 2.

In our mid-cycle performance review letter [ML092440402] dated September 1, 2009, and the 2009 end-of-cycle assessment letter [ML100610223] dated March 3, 2010, we discussed a substantive cross-cutting issue in the area of human performance (HP) with a cross-cutting aspect of conservative decision-making (H.1.(b)). During this period, you had implemented a number of corrective actions, and the number of findings within the cross-cutting area of HP was reduced. Additionally, we have assessed the corrective actions taken in response to the substantive cross-cutting issue and observed a positive improvement in the area of conservative decision-making. Based on the corrective actions taken by you and the decrease in the number of findings, this substantive cross-cutting issue is closed. Nonetheless, continued management oversight is warranted to ensure sustained performance regarding conservative decision-making.

The enclosed inspection plan details the inspections, less those related to physical protection scheduled through December 31, 2011. In addition to the baseline inspection activities, we also plan to conduct several special and infrequently performed IPs, which include inspections related to the pre-operational testing and operation of the Independent Spent Fuel Storage Installation. 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 end-of-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).

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

Sincerely,

/RA by Gary L. Shear for/

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
09/01/2010 - 12/31/2011

Planned Dates		Inspection Activity	Title	No. of Staff on Site
Start	End			
		SUP - 95001 - SUMP SUCTION VALVE		2
10/25/2010	10/29/2010	IP 95001	Supplemental Inspection For One Or Two White Inputs In A Strategic Performance Area	
		ER SIT - EVENT RESPONSE - SPECIAL INSPECTION TEAM		4
08/17/2010	09/03/2010	IP 93812	Special Inspection	
		BI PI&R - BIENNIAL PI&R INSPECTION		4
08/30/2010	09/17/2010	IP 71152B	Identification and Resolution of Problems	
		BI ENG - INSERVICE INSPECTION		1
10/04/2010	10/29/2010	IP 2515/172	Reactor Coolant System Dissimilar Metal Butt Welds	
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	
		TI - TI 2515/177 GAS ACCUMULATION		2
11/15/2010	12/03/2010	IP 2515/177	Managing Gas Accumulation In Emergency Core Cooling, Decay Heat Removal & Containment Spray System	
		ISFSI - ISFSI INSPECTION. - SCHEDULE DEPENDENT		2
01/01/2011	06/30/2011	IP 60854.1	Preoperational Testing of Independent Spent Fuel Storage Facility Installation at Operating Plants	
04/01/2011	06/30/2011	IP 60856.1	Review of 10 CFR 72.212(b) Evaluations at Operating Plants	
05/01/2011	06/30/2011	IP 60856	Review of 10 CFR 72.212(b) Evaluations	
06/01/2011	08/31/2011	IP 60855.1	Operation of an Independent Spent Fuel Storage Installation at Operating Plants	
		BI EP - EP ROUTINE INSPECTION / PI VERIFICATION		2
01/31/2011	02/04/2011	IP 7111402	Alert and Notification System Testing	
01/31/2011	02/04/2011	IP 7111403	Emergency Preparedness Organization Staffing and Augmentation System	
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	
		BI RP - RADIATION PROTECTION BASELINE INSPECTI		1
03/28/2011	04/01/2011	IP 71124.03	In-Plant Airborne Radioactivity Control and Mitigation	
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 - INSERVICE INSPECTION - UNIT 2		1
04/18/2011	05/05/2011	IP 7111108P	Inservice Inspection Activities - PWR	

Braidwood
Inspection / Activity Plan
09/01/2010 - 12/31/2011

Planned Dates		Inspection Activity	Title	No. of Staff on Site
Start	End			
		BI RP - RADIATION PROTECTION BASELINE INSPECTI		1
05/23/2011	05/27/2011	IP 71124.06	Radioactive Gaseous and Liquid Effluent Treatment	
05/23/2011	05/27/2011	IP 71151	Performance Indicator Verification	
		OL PREP - BRAIDWOOD INIT PREP - 05/2011		2
05/30/2011	06/03/2011	W90226	OL - INITIAL EXAM - JUN 2011 - BRAI	
		OL EXAM - BRAIDWOOD INIT EXAM - 06/2011		2
06/20/2011	07/01/2011	W90226	OL - INITIAL EXAM - JUN 2011 - BRAI	
		BI RP - RADIATION PROTECTION BASELINE INSPECTI		1
07/11/2011	07/15/2011	IP 71124.01	Radiological Hazard Assessment and Exposure Controls	
07/11/2011	07/15/2011	IP 71124.02	Occupational ALARA Planning and Controls	
		BI OL - BIENNIAL REQUAL PROGRAM INSPECTION		2
08/08/2011	08/12/2011	IP 7111111B	Licensed Operator Requalification Program	
		BI ENG - TRIENNIAL HEAT SINK INSPECTION		1
08/22/2011	08/26/2011	IP 7111107T	Heat Sink Performance	
		BI ENG - MODIFICATIONS / 50.59 INSPECTION		4
10/24/2011	11/10/2011	IP 7111117T	Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications	
		BI RP - RADIATION PROTECTION BASELINE INSPECTI		1
11/14/2011	11/18/2011	IP 71124.07	Radiological Environmental Monitoring Program	
		BI RP - RADIATION PROTECTION BASELINE INSPECTI		1
12/05/2011	12/09/2011	IP 71124.01	Radiological Hazard Assessment and Exposure Controls	
12/05/2011	12/09/2011	IP 71124.02	Occupational ALARA Planning and Controls	
12/05/2011	12/09/2011	IP 71151	Performance Indicator Verification	

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Letter to M. Pacilio from S. West dated September 1, 2010.

SUBJECT: MID-CYCLE PERFORMANCE REVIEW AND INSPECTION PLAN -
BRAIDWOOD STATION, UNITS 1 AND 2

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