



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

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

March 4, 2011

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: ANNUAL ASSESSMENT LETTER - BRAIDWOOD STATION,  
UNITS 1 AND 2, (REPORT 05000456/2011001 AND 05000457/2011001)

Dear Mr. Pacilio:

On February 16, 2011, the Nuclear Regulatory Commission (NRC) staff completed its end-of-cycle performance review of Braidwood Station, Units 1 and 2. The NRC reviewed the most recent quarterly performance indicators (PIs) in addition to inspection results and enforcement actions from January 1, 2010, through December 31, 2010. This letter informs you of the NRC's assessment of your facility during this period and its plans for future inspections at your facility. This performance review and enclosed inspection plan do not include security information. A separate letter will include the NRC's assessment of your performance in the Security Cornerstone and its security-related inspection plan.

The NRC determined that plant performance at Braidwood Station Unit 1 at the beginning of the most recent quarter was within the Regulatory Response column of the NRC's Reactor Oversight Process (ROP) 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 Unit 1 Train B containment sump suction isolation valve to fully open during surveillance testing. This White finding was closed on November 26, 2010, as documented in our Assessment Follow-up letter to you dated December 2, 2010 [ML103360350]. Therefore, on December 2, 2010, Unit 1 returned to the Licensee Response column of the ROP Action Matrix.

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, the NRC determined that, overall, Braidwood Station, Units 1 and 2, operated in a manner that preserved public health and safety and met all objectives. As a result, the NRC plans to conduct ROP baseline inspections at Braidwood Station. The NRC also plans to conduct several special and infrequently performed inspection procedures (IPs) related to the pre-operational testing and operation of the Independent Spent Fuel Storage Installation. These inspections include IP 60854.1, "Preoperational Testing of Independent Spent Fuel Storage Facility Installations at Operating Plants," IP 60855.1, "Operation of an Independent Spent Fuel Storage Installation at Operating Plants," and IP 60856.1, "Review of 10 CFR 72.212(b) Evaluations at Operating Plants."

The enclosed inspection plan lists the inspections scheduled through June 30, 2012. Routine inspections performed by resident inspectors are not included in the inspection plan. The inspections listed during the last 9 months of the inspection plan are tentative and may be revised at the mid-cycle performance review. The NRC provides the inspection plan to allow for the resolution of any scheduling conflicts and personnel availability issues. The NRC will contact you as soon as possible to discuss changes to the inspection plan should circumstances warrant any changes.

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).

Please contact Eric Duncan 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**  
**03/01/2011 - 06/30/2012**

Planned Dates		Inspection Activity	Title	No. of Staff on Site
Start	End			
		<b>ISFSI</b>	<b>- ISFSI INSPECTIONS. - SCHEDULE DEPENDENT</b>	<b>3</b>
01/01/2011	06/30/2011	IP 60854.1	Preoperational Testing of Independent Spent Fuel Storage Facility Installation at Operating Plants	
04/01/2011	05/31/2011	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	
		<b>BI RP</b>	<b>- RADIATION PROTECTION BASELINE INSPECTI</b>	<b>1</b>
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	
		<b>BI ENG</b>	<b>- INSERVICE INSPECTION - UNIT 2</b>	<b>1</b>
04/18/2011	05/05/2011	IP 7111108P	Inservice Inspection Activities - PWR	
		<b>BI RP</b>	<b>- RADIATION PROTECTION BASELINE INSPECTION</b>	<b>1</b>
04/18/2011	04/22/2011	IP 71124.01	Radiological Hazard Assessment and Exposure Controls	
04/18/2011	04/22/2011	IP 71124.02	Occupational ALARA Planning and Controls	
		<b>BI RP</b>	<b>- RADIATION PROTECTION BASELINE INSPECTI</b>	<b>1</b>
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	
		<b>OL PREP</b>	<b>- BRAIDWOOD INIT PREP - 06/2011</b>	<b>3</b>
05/30/2011	06/03/2011	W90226	OL - INITIAL EXAM - JUN 2011 - BRAI	
		<b>OL EXAM</b>	<b>- BRAIDWOOD INIT EXAM - 06/2011</b>	<b>3</b>
06/20/2011	07/01/2011	W90226	OL - INITIAL EXAM - JUN 2011 - BRAI	
		<b>BI ENG</b>	<b>- TRIENNIAL HEAT SINK INSPECTION</b>	<b>2</b>
08/22/2011	08/26/2011	IP 7111107T	Heat Sink Performance	
		<b>BI OL</b>	<b>- BIENNIAL REQUAL PROGRAM INSPECTION</b>	<b>2</b>
08/29/2011	09/23/2011	IP 7111111B	Licensed Operator Requalification Program	
		<b>BI ENG</b>	<b>- TRIENNIAL PERM MODS/50.59</b>	<b>3</b>
09/12/2011	09/30/2011	IP 7111117T	Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications	
		<b>BI RP</b>	<b>- RADIATION PROTECTION BASELINE INSPECTI</b>	<b>1</b>
11/14/2011	11/18/2011	IP 71124.07	Radiological Environmental Monitoring Program	
		<b>BI RP</b>	<b>- RADIATION PROTECTION BASELINE INSPECTI</b>	<b>1</b>
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	
		<b>BI EP</b>	<b>- EP EXERCISE INSPECTION / PI VERIFICATION</b>	<b>2</b>
03/05/2012	03/09/2012	IP 7111401	Exercise Evaluation	

**Braidwood**  
**Inspection / Activity Plan**  
**03/01/2011 - 06/30/2012**

Planned Dates		Inspection Activity	Title	No. of Staff on Site
Start	End			
		<b>BI EP - EP EXERCISE INSPECTION / PI VERIFICATION</b>		<b>2</b>
03/05/2012	03/09/2012	IP 71151	Performance Indicator Verification	
		<b>BI RP - RADIATION PROTECTION BASELINE INSPECTION</b>		<b>1</b>
03/26/2012	03/30/2012	IP 71124.03	In-Plant Airborne Radioactivity Control and Mitigation	
03/26/2012	03/30/2012	IP 71124.04	Occupational Dose Assessment	
03/26/2012	03/30/2012	IP 71151-OR01	Occupational Exposure Control Effectiveness	
		<b>BI ENG - INSERVICE INSPECTION - UNIT 1</b>		<b>1</b>
04/09/2012	05/02/2012	IP 7111108P	Inservice Inspection Activities - PWR	
		<b>BI RP - RADIATION PROTECTION BASELINE INSPECTION</b>		<b>1</b>
04/16/2012	04/20/2012	IP 71124.01	Radiological Hazard Assessment and Exposure Controls	
04/16/2012	04/20/2012	IP 71124.02	Occupational ALARA Planning and Controls	
		<b>BI RP - RADIATION PROTECTION BASELINE INSPECTION</b>		<b>1</b>
06/25/2012	06/29/2012	IP 71124.07	Radiological Environmental Monitoring Program	
06/25/2012	06/29/2012	IP 71151-PR01	RETS/ODCM Radiological Effluent	

Therefore, the NRC determined that, overall, Braidwood Station, Units 1 and 2, operated in a manner that preserved public health and safety and met all objectives. As a result, the NRC plans to conduct ROP baseline inspections at Braidwood Station. The NRC also plans to conduct several special and infrequently performed inspection procedures (IPs) related to the pre-operational testing and operation of the Independent Spent Fuel Storage Installation. These inspections include IP 60854.1, "Preoperational Testing of Independent Spent Fuel Storage Facility Installations at Operating Plants," IP 60855.1, "Operation of an Independent Spent Fuel Storage Installation at Operating Plants," and IP 60856.1, "Review of 10 CFR 72.212(b) Evaluations at Operating Plants."

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Letter to M. Pacilio from S. West dated March 4, 2011.

SUBJECT: ANNUAL ASSESSMENT LETTER - BRAIDWOOD STATION,  
UNITS 1 AND 2 (REPORT 05000456/2011001 AND 05000457/2011001)

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