

March 2, 2007

Mr. Christopher M. Crane  
President and Chief Nuclear Officer  
Exelon Nuclear  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: ANNUAL ASSESSMENT LETTER - BYRON STATION, UNITS 1 AND 2  
(05000454/2007001; 05000455/2007001)

Dear Mr. Crane:

On February 14, 2007, the NRC staff completed its performance review of Byron 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, 2006. 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 physical protection information. A separate letter designated as "Exempt from Public Disclosure in Accordance with 10 CFR 2.390" and marked as "Official Use Only - Security-Related Information" will include the physical protection review and resultant inspection plan.

Overall, Byron Station Unit 1 operated in a manner that preserved public health and safety and fully met all cornerstone objectives. Plant performance for the most recent quarter, as well as for the first three quarters of the assessment cycle, 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 process baseline inspections at Unit 1.

Overall, Byron Station Unit 2 operated in a manner that preserved public health and safety and fully met all cornerstone objectives. Plant performance for Byron Station Unit 2 for the most recent quarter was within the Regulatory Response column of the NRC's Action Matrix. This conclusion was based on the fact that the first submittal of Mitigating Systems Performance Index (MSPI) results for the Unit 2 Auxiliary Feedwater System was White during the second quarter of 2006. The MSPI remained White during the third and fourth quarters. In our Mid-Cycle assessment we informed you that we would conduct a supplemental inspection using Inspection Procedure 95001, "Inspection for One or Two White Inputs in a Strategic Performance Area," because of the second quarter White MSPI. We conducted the supplemental inspection during the week of February 5, 2007, which was outside of the 2006 assessment cycle. The results of the inspection will be issued in a separate report.

Because we have already conducted the supplemental inspection, early in the 2007 assessment period, we plan only to conduct reactor oversight process baseline inspections at Unit 2.

The enclosed inspection plan details the inspections, less those related to physical protection scheduled through June 30, 2008. 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), 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 this 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/**

Mark A. Satorius, Director  
Division of Reactor Projects

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

Enclosure: Byron Station Inspection/Activity Plan

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**Byron**  
**Inspection / Activity Plan**  
**03/01/2007 - 06/30/2008**

Unit Number	Inspection Activity	Title	No. of Staff on Site	Planned Dates Start	Planned Dates End	Inspection Type
	<b>71121.02 - ALARA - OUTAGE</b>		<b>1</b>			
1,2	IP 7112102	ALARA Planning and Controls		04/02/2007	04/13/2007	Baseline Inspections
	<b>ISI - ISI BASELINE INSPECTION</b>		<b>2</b>			
2	IP 7111108P	Inservice Inspection Activities - PWR		04/09/2007	04/20/2007	Baseline Inspections
	<b>EP BI - BASELINE EP EXERCISE INSP</b>		<b>2</b>			
1,2	IP 7111401	Exercise Evaluation		06/18/2007	06/22/2007	Baseline Inspections
1,2	IP 71151-EP01	Drill/Exercise Performance		06/18/2007	06/22/2007	Baseline Inspections
1,2	IP 71151-EP02	ERO Drill Participation		06/18/2007	06/22/2007	Baseline Inspections
1,2	IP 71151-EP03	Alert & Notification System		06/18/2007	06/22/2007	Baseline Inspections
	<b>PI&amp;R - PROBLEM IDENTIFICATION AND RESOLUTION</b>		<b>3</b>			
1,2	IP 71152	Identification and Resolution of Problems		07/16/2007	08/03/2007	Baseline Inspections
	<b>71122.03 - REMP AND RAM CONTROL</b>		<b>1</b>			
1,2	IP 7112203	Radiological Environmental Monitoring Program (REMP) And Radioactive Material Control P		11/05/2007	11/09/2007	Baseline Inspections
	<b>FPI - FIRE PROTECTION INSPECTION - TRIENNIAL</b>		<b>3</b>			
1,2	IP 7111105T	Fire Protection [Triennial]		11/12/2007	11/30/2007	Baseline Inspections
	<b>MOD50.59 - MODIFICATION/50.59 INSPECTION</b>		<b>2</b>			
1,2	IP 7111102	Evaluation of Changes, Tests, or Experiments		01/14/2008	02/01/2008	Baseline Inspections
1,2	IP 711117B	Permanent Plant Modifications		01/14/2008	02/01/2008	Baseline Inspections
	<b>EP - EP PROG AND PI INSP</b>		<b>1</b>			
1,2	IP 7111402	Alert and Notification System Testing		04/07/2008	04/11/2008	Baseline Inspections
1,2	IP 7111403	Emergency Response Organization Augmentation Testing		04/07/2008	04/11/2008	Baseline Inspections
1,2	IP 7111405	Correction of Emergency Preparedness Weaknesses and Deficiencies		04/07/2008	04/11/2008	Baseline Inspections
1,2	IP 71151	Performance Indicator Verification		04/07/2008	04/11/2008	Baseline Inspections
	<b>ISI - ISI INSPECTION</b>		<b>1</b>			
1	IP 7111108P	Inservice Inspection Activities - PWR		03/17/2008	04/11/2008	Baseline Inspections
	<b>7112101 - OUTAGE ALARA</b>		<b>1</b>			
1,2	IP 7112101	Access Control to Radiologically Significant Areas		03/24/2008	03/28/2008	Baseline Inspections
	<b>FY 2008 - BYRON INITIAL LIC ON-SITE VALIDATION</b>		<b>6</b>			
1	W90180	BYRON - INITIAL EXAM - APRIL/MAY 2008		04/28/2008	05/02/2008	Not Applicable
	<b>FY 2008 - BYRON INITIAL LICENSE EXAM (05/19 - 30)</b>		<b>6</b>			
1	W90122	OL - INITIAL EXAM - BYRON - MAY/JUN 2006		05/19/2008	05/30/2008	Not Applicable