

August 31, 2006

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

SUBJECT: MID-CYCLE PERFORMANCE REVIEW AND INSPECTION PLAN -
BYRON STATION

Dear Mr. Crane:

On August 7, 2006, the NRC staff completed its performance review of Byron Station for the first half of the calendar year 2006 assessment cycle. Our technical staff reviewed performance indicators (PIs) for the most recent quarter and inspection results over the previous 12 months. 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 and marked as "Exempt from Public Disclosure in accordance with 10 CFR 2.390" will include the physical protection review and resultant inspection plan.

Plant performance for the most recent quarter at the Byron Station Unit 1 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 (ROP) baseline inspections at Unit 1.

Plant performance for the most recent quarter on Unit 2 was within the Regulatory Response column of the NRC's Action Matrix. This conclusion is based on the fact that the first submittal of Mitigating Systems Performance Index (MSPI) results for the Auxiliary Feedwater System was White during the second quarter of CY 2006. Therefore, for Unit 2, in addition to the ROP baseline inspections, we plan to conduct a supplemental inspection using Inspection Procedure 95001, "Inspection for One or Two White Inputs in a Strategic Performance Area."

In our mid-cycle assessment letter dated August 30, 2005, (ML052420448), we advised you of a substantive cross-cutting issue in the area of human performance, involving inadequate personnel performance. In our end-of-cycle assessment letter dated March 2, 2006, (ML060610443), we advised you of the continuation of this substantive cross-cutting issue. The mid-cycle assessment of this substantive cross-cutting issue included a review of inspection results over the 12-month period of July 1, 2005, to June 30, 2006. During this

period, we noted that you no longer meet the criteria for the number of human performance findings. Although four low level findings associated with aspects of human performance were identified, there were three different causal factors for the four findings, indicating there was no common cause. Additionally, the Byron Station has demonstrated timely and effective corrective actions following implementation of the human performance improvement program. Therefore, we have concluded that the cross-cutting issue may be closed. However, continued management oversight is warranted in the area of human performance at the Byron Station to ensure sustained improvement and we will continue to monitor your performance in this area during NRC baseline inspections.

The enclosed inspection plan details the inspections, less those related to physical protection scheduled through March 31, 2008. Significant inspections planned include a "Component Design Basis Inspection" in October 2006, and a "Triennial Fire Protection Inspection" in November 2007. In addition, the resident inspectors plan to perform Temporary Inspections 2515/166, "Pressurized Water Reactor Containment Sump Blockage" on Unit 1 in September 2006, and on Unit 2 in Spring 2007; and 2515/169, "Mitigating Systems Performance Index (MSPI) Verification," before the end of calendar year 2006. 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), 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 A. 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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| NAME | RSkokowski:dtp | | MSatorius | | | | |
| DATE | 08/30/06 | | 08/31/06 | | | | |

OFFICIAL RECORD COPY

cc w/encl: Site Vice President - Byron Station
Plant Manager - Byron Station
Regulatory Assurance Manager - Byron Station
Chief Operating Officer
Senior Vice President - Nuclear Services
Vice President - Mid-West Operations Support
Vice President - Licensing and Regulatory Affairs
Director Licensing
Manager Licensing - Braidwood and Byron
Senior Counsel, Nuclear
Document Control Desk - Licensing
Assistant Attorney General
Illinois Emergency Management Agency
State Liaison Officer, State of Illinois
State Liaison Officer, State of Wisconsin
Chairman, Illinois Commerce Commission
B. Quigley, Byron Station
President, Village of Leaf River
President, Village of Davis Junction
President, Village of Stillman Valley
Ogle County Board Chairman
Ogle County Sheriff/EMA Coordinator
EMA Coordinator, Winnebago County
Winnebago County Board Chair
Winnebago County Sheriff/ESDA
Mayor of Oregon
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Byron
 Inspection / Activity Plan
 09/01/2006 - 03/31/2008

| Unit Number | Inspection Activity | Title | No. of Staff on Site | Planned Dates Start | Planned Dates End | Inspection Type |
|-------------|---------------------|---|----------------------|---------------------|-------------------|----------------------|
| | ISI | - BYRON UNIT 1 ISI INSPECTION | 1 | | | |
| 1 | IP 7111108P | Inservice Inspection Activities - PWR | | 09/11/2006 | 09/29/2006 | Baseline Inspections |
| | 71121.02 | - ALARA PLANNING (OUTAGE) | 1 | | | |
| 1 | IP 7112102 | ALARA Planning and Controls | | 09/11/2006 | 09/15/2006 | Baseline Inspections |
| | CDBI | - COMPONENT DESIGN BASES INSPECTION | 6 | | | |
| 1 | IP 7111121 | Component Design Bases Inspection | | 10/30/2006 | 12/01/2006 | Baseline Inspections |
| | 71111.11 | - LIC OPERATOR REQUAL PROGRAM EVALUATION | 2 | | | |
| 1,2 | IP 7111111B | Licensed Operator Requalification Program | | 10/30/2006 | 11/03/2006 | Baseline Inspections |
| | HEATSINK | - HEAT SINK INSPECTION | 1 | | | |
| 1,2 | IP 7111107B | Heat Sink Performance | | 02/05/2007 | 02/09/2007 | Baseline Inspections |
| | 71121.01 | - ACCESS CONTROL | 1 | | | |
| 1,2 | IP 7112101 | Access Control to Radiologically Significant Areas | | 02/12/2007 | 02/16/2007 | Baseline Inspections |
| | 71121.02 | - ALARA - OUTAGE | 1 | | | |
| 1,2 | IP 7112102 | ALARA Planning and Controls | | 04/02/2007 | 04/13/2007 | Baseline Inspections |
| | ISI | - ISI BASELINE INSPECTION | 1 | | | |
| 2 | IP 7111108P | Inservice Inspection Activities - PWR | | 04/09/2007 | 04/20/2007 | Baseline Inspections |
| | ISI | - ISI BASELINE INSPECTION | 1 | | | |
| 2 | IP 7111108P | Inservice Inspection Activities - PWR | | 04/09/2007 | 04/20/2007 | Baseline Inspections |
| | ISI | - ISI BASELINE | 1 | | | |
| 2 | IP 7111108P | Inservice Inspection Activities - PWR | | 04/16/2007 | 04/20/2007 | Baseline Inspections |
| | EP BI | - BASELINE EP EXERCISE INSP | 1 | | | |
| 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 |
| | 71122.03 | - REMP AND RAM CONTROL | 1 | | | |
| 1,2 | IP 7112203 | Radiological Environmental Monitoring Program (REMP) And Radioactive Material Control P | | 11/05/2007 | 11/09/2007 | Baseline Inspections |
| | FPI | - FIRE PROTECTION INSPECTION - TRIENNIAL | 3 | | | |
| 1,2 | IP 7111105T | Fire Protection [Triennial] | | 11/12/2007 | 11/30/2007 | Baseline Inspections |

This report does not include INPO and OUTAGE activities.
 This report shows only on-site and announced inspection procedures.