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Byron Station, Units 1 and 2  
Facility Operating License Nos. NPF-37 and NPF-66  
NRC Docket Nos. 50-454 and 50-455

Subject: Response to Substantive Cross-Cutting Issue concerning Human Performance

Reference: NRC Annual Assessment Letter and Inspection Plan – Byron Station, dated  
March 2, 2006

In the referenced letter, the NRC noted a substantive cross-cutting issue in the area of human performance. This issue was originally identified during the 2005 mid-cycle assessment and remained an identified concern through the 2005 end-of-cycle assessment.

Exelon Generation Company, (EGC) LLC, acknowledges that human performance events have occurred at Byron Station and as a result of self-identified and externally identified human performance issues several long-term corrective actions have been identified.

A Common Cause Analysis (CCA) of the human performance events was performed that resulted in a comprehensive Human Performance Improvement Plan (HPIP) being generated in the third quarter of 2005. The CCA reviewed, in detail, all of the findings which resulted in the substantive cross-cutting human performance issues as well as the events that reset the Byron Station Event Free Clock from 2003 to 2005. The HPIP focused on basic fundamentals of Human Performance that establish the framework for continuous improvement. The HPIP is a living document that was developed with new and existing Station initiatives and actions from individual departmental human performance improvement plans that applied throughout the site. Results from Corrective Action Program (CAP) products were incorporated into the plan as well.

The CCA of the events identified two common causes and the HPIP has specific actions to address these common causes. The first common cause was inadequate supervisory oversight; specifically, supervision during work and the use of pre-job briefs. The second common cause dealt with procedure quality and recognition of procedure issues. In general, the HPIP covers six main areas that are designed to address supervisory oversight, pre-job briefings and procedures.

- Communications – assure that the workforce is knowledgeable of the cross-cutting issue as well as the actions from the HPIP
- Execution – the use of human performance error prevention tools. These include pre-job briefings, post-job critiques, radiation worker practices, procedure adherence and procedure quality
- Monitoring – supervisory oversight of work activities and the performance management aspects needed to improve standards. Actions also include monitoring performance data to identify additional actions. Actions to improve Human Performance Review Boards (HURB) are also identified.
- Training – training to improve human performance, including the use of dynamic learning activities.
- Technical Human Performance – improvement of the performance of technical work that produces a product, usually a document.
- Outage Human Performance – improving the performance of the supplemental workforce. The highest volume of supplemental workforce activities occur during outages; however, the actions are also assigned for permanently allocated vendors and contractors.

A Human Performance Panel (HUP) has been formed that includes individuals from a cross-section of the workforce. The panel reviews activities and recent events to identify additional actions to be considered for the HPIP. Members from the HUP participate in Human Performance Review Boards. A senior manager level Human Performance Steering Committee (HUSC) has been put in place to oversee the implementation of the HPIP.

To increase participation in identifying and implementing human performance improvements, an action from the aforementioned CCA was the development of First Line Supervisor (FLS) networking groups. These consist of eight separate cross-functional groups of FLSs and senior managers. These groups meet on a bi-weekly basis to discuss a common human performance related topic and work on an assigned project relating to improving human performance.

The implementation of the HPIP has resulted in overall improvement in human performance of the station with respect to rate of occurrence of events. The following is a tabulation of human performance event free clock reset data from 2004 to present. The first item shows the site event free clock resets, and the remainder are departmental level event free clock resets for major departments.

**Event Clock Reset Data**

<b>Department</b>	<b>2004</b>	<b>2005</b>	<b>2006 (YTD)</b>
Station	1	4	0
Operations	14	11	1
Maintenance	51	52	3
Engineering	24	8	0
Radiation Protection	8	8	2
Chemistry	7	3	1

The above data indicates improvement in most of the departments between 2004 and 2005 with Station Event Free Clock resets being the most notable exception. In 2005, the Site experienced an increase in the number of clock resets when compared to 2004. This negative trend was recognized early in 2005 and a dedicated Human Performance (HU) Coordinator position was established. The HU Coordinator initially assisted with the departmental improvement plans and subsequently was instrumental in coordinating the development of the HPIP. All of the 2005 resets occurred prior to May 24, 2005 and as of March 20, 2006, the site has achieved 300 days without resetting the Station Event Free Clock. The implementation of the departmental improvement plans, the site wide HPIP and the Human Performance Coordinator have improved performance.

Also, the number of NRC findings related to personnel human performance has decreased over the last half of 2005. There was one NRC finding associated with personnel human performance in the last half of 2005, compared to six in the first half of the year.

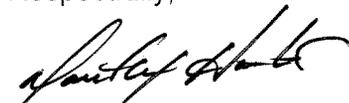
In addition to the higher level performance improvement noted above, additional performance metrics have shown improvement in the area of human performance.

- An increased focus in the use of Technical Human Performance tools and independent third party reviews have resulted in no errors in Engineering Change packages for 2006 year to date.
- The efforts of the configuration control team, in conjunction with efforts from the HPIP, have reduced the number of configuration control events. There has been one low level configuration control event in 2006, compared to three for the same timeframe in 2005.
- Attention to detail errors have been reduced in the Procurement Engineering area due to the use of an observation tool employed by supply management.
- Detailed procedure reviews with members of the Radiation Protection workforce, along with focused training has reduced the number of procedure adherence events in the Radiation Protection (RP) Department from nine in the first half of 2005 to three in the second half of the year. The steps that the RP department utilized have been shared with other groups through the HUSC.

Ongoing assessment of the sites performance is conducted during the bi-weekly meeting of the HUSC. On a quarterly basis, the HUSC review CAP and observation data to identify new issues and trends as well as additional corrective actions. This monitoring will aid in the early detection of performance gaps and avoidance of future declining performance such that corrective actions can be taken to reverse any trends. Additionally an effectiveness review of the corrective action from the previously mentioned common cause analysis will be conducted in the first quarter of 2007. The effectiveness review, as part of the corrective action program, will assess the site's performance throughout 2006.

If you have any questions concerning this letter, please contact Mr. William Grundmann, Byron Station Regulatory Assurance Manager, at 815-406-2800.

Respectfully,



David M. Hoots  
Site Vice President  
Byron Nuclear Generating Station

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