January 24, 2007

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

SUBJECT: NOTICE OF ENFORCEMENT DISCRETION FOR EXELON GENERATION COMPANY LLC REGARDING DRESDEN NUCLEAR POWER STATION, UNIT 2 (NOED 07-3-01; TAC MD4044)

Dear Mr. Crane:

By letter dated January 22, 2007, you requested that the U.S. Nuclear Regulatory Commission (NRC) exercise discretion to not enforce compliance with the actions required in Technical Specification (TS) 3.1.7, "Standby Liquid Control (SLC) System." Your letter documented information previously discussed with the NRC in a telephone conference on January 19, 2007, at 3:45 a.m. (All times discussed in this letter refer to Central Standard Time). You stated that on January 19, 2007, at 5:10 a.m., Dresden Unit 2 would not be in compliance with TS 3.1.7 Required Action B.1 which would require Exelon to place Unit 2 in Mode 3 (Hot Shutdown) per Required Action C.1 on or before 5:10 p.m. on January 19, 2007. You requested that a Notice of Enforcement Discretion (NOED) be granted pursuant to the NRC's policy regarding exercise of discretion for an operating facility, set out in Section VII.C of the NRC Enforcement Policy, and be effective for the period from 5:10 a.m. on January 19, 2007, to 5:10 a.m. on January 22, 2007. This letter documents our telephone conversation on January 19, 2007, when we orally issued this NOED at 5:03 a.m. We understand that the condition causing the need for this NOED was corrected and you exited from TS 3.1.7 Required Action B.1 and from this NOED on January 20, 2007, at 12:15 a.m.

The principal NRC staff members who participated in that telephone conference included: Steve West, Deputy Director, Division of Reactor Projects (DRP), RIII; John Lubinski, Deputy Director, Division of Operating Reactor Oversight and Licensing, Office of Nuclear Reactor Regulation (NRR); Mark Ring, Branch Chief, Reactor Projects Branch 1, DRP, RIII; Charles Phillips, Senior Resident Inspector, Dresden; Joe Williams, Project Manager, NRR; David Hills, Branch Chief, Engineering Branch 1, Division of Reactor Safety (DRS), RIII; Allen Hiser, Chief, SG Tube Integrity and Chemical Engineering Branch, NRR; Terence Chan, Chief, Piping and NDE Branch, NRR; Harold Chernoff, Chief, Plant Licensing Branch I-1, NRR; Mel Holmberg, Senior Metallurgical Inspector, DRS, RIII; Sonia Burgess, Senior Risk Analyst, DRS, RIII; and John Kramer, Senior Risk Analyst, NRR.

Your staff requested enforcement discretion to preclude a required entry into Mode 3 (Hot Shutdown) by 5:10 p.m. on January 19, 2007. To accomplish this, you requested that the 8-hour Completion Time for TS 3.1.7 Required Action B.1 be extended by 72 hours to 5:10 a.m. on January 22, 2007, to accomplish restoration of the SLC system to an operable status. With this extended Completion Time, the unit would have been required by TS 3.1.7 Required Action C.1 to enter Mode 3 (Hot Shutdown) by 5:10 p.m. on January 22, 2007, if both SLC subsystems remained inoperable.

Technical Specification Limiting Condition for Operation 3.1.7, "Standby Liquid Control (SLC) System," states that "Two SLC subsystems shall be OPERABLE." This specification is applicable in MODES 1 and 2. Technical Specification 3.1.7 Condition B provides required actions for two SLC subsystems inoperable. If two SLC subsystems are inoperable under Condition B, action is required to restore one SLC subsystem to operable status within 8 hours. Technical Specification 3.1.7 Condition C requires the unit to be placed in Mode 3 (Hot Shutdown) within the next 12 hours if Condition B is not met.

At 9:10 p.m. on January 18, 2007, your staff determined that a small linear crack leaking on the Unit 2 SLC tank temperature alarm sensor rendered both SLC subsystems inoperable. This placed Unit 2 in TS 3.1.7 Condition B, "Two SLC Subsystems Inoperable." The 8-hour Completion Time of TS 3.1.7 Required Action B.1 expired at 5:10 a.m. on January 19, 2007. At the expiration of this Completion Time, action was required to place Unit 2 in Mode 3 (Hot Shutdown) within the next 12 hours (i.e., 5:10 p.m. on January 19, 2007).

Your staff provided the following information in your letter:

> While performing a Senior Manager Overview of Training Activities in the plant, personnel identified sodium pentaborate crystallization surrounding the circumference of the thermowell. The thermowell contains a sensor that inputs to indication only and a main control room annunciator. The cracked component was stainless steel. Your staff suspected that the crystallization was due to a crack on a bushing into which the thermowell was mounted. The SLC tank is a stainless steel, American Society of Mechanical Engineers (ASME) Section XI Class 2 structure that is vented to the atmosphere.
>
> Technical Specification surveillances consistently confirmed that requirements for volume (daily) and concentration (monthly) continued to be met.
>
> During Dresden Maintenance Outage Number 12 (D2M12) in November 2006, the SLC atom weight concentration was increased as part of a modification. A minor leak on the thermowell on a threaded connection was repaired while the tank was drained. You suspected that the repair process in D2M12 initiated a flaw which eventually cracked and led to this leak. However, the root cause of the leak will be confirmed through NDE analyses, or possibly by material removal for offsite analysis.

You stated that recent industry issues involving operational leakage in ASME Code components resulted in a heightened awareness that these crystals could be symptomatic of a tank integrity concern. Consequently, your staff determined that the Code Class 2 pressure boundary was not intact and the SLC operability requirement per TS 3.1.7 was, therefore, not met. As a result, a repair plan was developed that will satisfy the ASME Code requirements. The required time to implement this repair was estimated to be 72 hours. No extent of condition issues have been identified (walkdowns of the Unit 2 and Unit 3 SLC tanks have not detected any similar issues).

Two repair options were evaluated. The primary option involved an external repair, while the secondary option involved an internal repair. The primary option was to perform a modification to remove the thermocouple from the well and install a pipe cap over the thermowell head and coupling. The new pipe cap would be welded to the boss protruding from the tank. The pipe cap, installed in accordance with applicable ASME Code requirements, would remove the leaking coupling from the code boundary. The primary option allows the SLC system to remain available throughout the repair and testing process.

The secondary option involved removing the SLC tank from service, draining the tank, and replacing the thermowell. Following thermowell replacement and associated NDE, the tank would be refilled and the solution parameters restored to TS limits. During a portion of this repair option, the SLC system would be drained and unavailable.

The decision to abort the preferred, primary option and proceed with the secondary option would be based on Engineering review of the feasibility of the primary option. You stated that you would pursue both options in parallel to the extent possible to ensure aggressive execution of the secondary option, should it be necessary.

You stated that based on further engineering review, the decision was made to pursue the external option which removed the thermocouple from the well and installed a pipe cap over the thermowell head and coupling.

Your staff requested this NOED after consideration of the safety significance and potential consequences of such an action. A bounding risk assessment of operating Unit 2 with SLC tank unavailable was performed. The results of the risk assessment for operating for a short duration (i.e., 72 hours) with the SLC tank unavailable showed that there would be no net increase in radiological risk to the public.

Your staff stated that the baseline risk for Dresden Unit 2 using the zero maintenance probabilistic risk assessment (PRA) model yields a core damage frequency (CDF) value of 3.69E-6 and a large early release frequency (LERF) value of 5.17E-7. The estimated increase in risk for the incremental conditional core damage probability (ICCDP) associated with a postulated 72-hour extension is 3.2E-8. The ICCDP values for Unit 2 are less than the threshold of 5E-7 specified in regulatory issue summary (RIS) 2005-01. In addition, the estimated increase in risk for incremental conditional large early release

probability (ICLERP) is 1.7E-8. The ICLERP values for Unit 2 are also less than the threshold of 5E-8 specified in RIS 2005-01. These calculated risk increases are consistent with the site's normal work control levels; and therefore, there is no net increase in radiological risk to the public. A Region III Senior Risk Analyst reviewed this risk analysis and determined the values to be appropriate.

As for compensatory measures, during the time the SLC system was inoperable, your staff committed to the following: (1) the SLC system would be restored to available status within the bounding 72 hour time period to ensure online risk is maintained within the assessment assumptions; (2) both anticipated transient without scram (ATWS) Recirculation Pump Trip systems would be protected; (3) the reactor protection system (RPS) would be protected; (4) all production risk activities would be prohibited; and (5) if the external repair option is utilized, the SLC tank would remain available during the entire activity. In addition to the compensatory actions to minimize risk previously described, your staff committed to the following additional actions during the period of the enforcement discretion: (1) provided the repair leaves the SLC available, the frequency for Surveillance Requirement (SR) 3.1.7.1, which requires verification of available SLC tank volume, would be increased from once per 24 hours to once per 8 hours; (2) systems that impact production risk would not be removed from service for preventive maintenance; and (3) Nuclear Oversight personnel would oversee the NOED activities.

The NRC reviewed your written request for enforcement discretion dated January 22, 2007, and verified consistency between your oral and written requests. The NRC's basis for this discretion considered the information discussed above including: (1) the compensatory measures taken to reduce the probability of a plant transient while assuring the availability of other safety related equipment; and, (2) the qualitative and quantitative risk evaluation of the condition which determined that the calculated risk increases were consistent with normal work control levels and, therefore, would not increase the radiological risk to the public.

Based on the above considerations, the NRC staff concluded that Criterion B.2.1.1.a and the applicable criteria in Section D.4 to NRC Manual Chapter 9900, "Technical Guidance, Operations – Notice of Enforcement Discretion," were met. Criterion B.2.1.1.a states that for an operating plant, the NOED is intended to avoid unnecessary transients as a result of compliance with the license condition and, thus, minimize potential safety consequences and operational risks.

On the basis of the staff's evaluation of your request, we have concluded that granting this NOED was consistent with the Enforcement Policy and staff guidance, and had no adverse impact on public health and safety or the environment. Therefore, we exercise discretion to not enforce compliance with TS 3.1.7 Required Action C.1 for entry into Mode 3 (Hot Shutdown) by 5:10 p.m. on January 19, 2007, until January 22, 2007, at 5:10 p.m. A follow-up license amendment request is not required.

As stated in the Enforcement Policy, action will be taken, to the extent that violations were involved, for the root cause that led to the noncompliance for which this NOED was necessary.

Sincerely,

/RA by K. Steven West for/

Mark A. Satorius, Director
Division of Reactor Projects

Docket No. 50-237
License No. DPR-19

cc: Site Vice President - Dresden Nuclear Power Station
Dresden Nuclear Power Station Plant Manager
Regulatory Assurance Manager - Dresden
Chief Operating Officer
Senior Vice President - Nuclear Services
Senior Vice President - Mid-West Regional Operating Group
Vice President - Mid-West Operations Support
Vice President - Licensing and Regulatory Affairs
Director Licensing - Mid-West Regional Operating Group
Manager Licensing - Dresden and Quad Cities
Senior Counsel, Nuclear, Mid-West Regional Operating Group
Document Control Desk - Licensing
Assistant Attorney General
Illinois Emergency Management Agency
State Liaison Officer
Chairman, Illinois Commerce Commission

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Sincerely,

Mark A. Satorius, Director
Division of Reactor Projects

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cc: Site Vice President - Dresden Nuclear Power Station
Dresden Nuclear Power Station Plant Manager
Regulatory Assurance Manager - Dresden
Chief Operating Officer
Senior Vice President - Nuclear Services
Senior Vice President - Mid-West Regional Operating Group
Vice President - Mid-West Operations Support
Vice President - Licensing and Regulatory Affairs
Director Licensing - Mid-West Regional Operating Group
Manager Licensing - Dresden and Quad Cities
Senior Counsel, Nuclear, Mid-West Regional Operating Group
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