UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 14, 2009

Mr. Charles G. Pardee
President and Chief Nuclear Officer
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3 - REQUEST FOR ADDITIONAL INFORMATION RELATED TO GENERIC LETTER 2008-01, "MANAGING GAS ACCUMULATION IN EMERGENCY CORE COOLING, DECAY HEAT REMOVAL, AND CONTAINMENT SPRAY SYSTEMS" (TAC NOS. MD7822 AND MD7823)

Dear Mr. Pardee:

The Nuclear Regulatory Commission (NRC) staff issued Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," to request that each licensee evaluate the licensing basis, design, testing, and corrective action programs for the Emergency Core Cooling, Decay Heat Removal, and Containment Spray systems, to ensure that gas accumulation is maintained less than the amount that challenges operability of these systems, and that appropriate action is taken when conditions adverse to quality are identified.

On October 14, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML082880706), Exelon Generation Company, LLC (EGC) responded to the GL for all units within its fleet, including Dresden Nuclear Power Station (DNPS), Units 2 and 3. On January 20, 2009 (ADAMS Accession No. ML090210304), EGC submitted supplemental information for, among other EGC plants, DNPS Unit 3, following the completion of its fall 2008 refueling outage.

The NRC staff is reviewing the information you have submitted and has determined that additional information is required to complete the review. The specific information requested is addressed in the enclosure to this letter. During a discussion with your staff on September 10, 2009, it was agreed that you would provide a response within 45 days from the date of this letter.

The NRC staff considers that timely responses to requests for additional information help ensure sufficient time is available for staff review and contribute toward the NRC's goal of efficient and effective use of staff resources. If circumstances result in the need to revise the requested response date, please contact me at (301) 415-1055.

Sincerely,

Christopher Gratton, Senior Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-237 and 50-249

Enclosure:
Request for Additional Information

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3

DOCKET NOS. 50-237 AND 50-249

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Guidance on NRC staff expectations is provided by Reference (Ref.) 1, which is generally consistent with Nuclear Energy Institute (NEI) guidance provided to industry in Ref. 2, as clarified in later NEI communications. The NRC staff recommends that the licensee consult Ref. 1 when responding to the following questions:

1. DNPS determined that the following systems are within the scope of GL 2008-01:

   - High Pressure Coolant Injection (HPCI),
   - Low Pressure Coolant Injection (LPCI), including Containment Spray,
   - Core Spray (CS) and Emergency Core Cooling System (ECCS) Keepfill, and
   - Shutdown Cooling (SDC).

The licensee stated in Ref. 3 that the SDC system is designed to cool and maintain the reactor water temperature following a normal reactor cooldown using the main condenser, and that it is not required for mitigation of any event or accident evaluated in the Updated Final Safety Analysis Report (UFSAR), and is not an ECCS. It was further stated that the SDC system is procedurally filled and vented prior to being put into service, and that the SDC system is only required to be free of gas accumulation prior to being put into service. Therefore, the system is vented prior to use, and there are no current licensing basis (CLB) requirements for periodic venting of the system. The licensee's review concluded that no changes to the CLB for the SDC system are needed to address the potential for gas accumulation.

The NRC staff, however, reiterates that the information request in the GL was intended for all modes and all operating conditions, and it is not limited to events and accidents evaluated in the UFSAR. The staff, therefore, believes that since SDC has been specifically identified as being within the scope of the GL, it needs to be addressed as part of your response. The staff believes that following the principles of defense-in-depth, SDC would be relied upon as a backup for long-term operations in certain events. Please clarify whether SDC is relied upon for any

potential reactor vessel drain down event during shutdown cooling. If SDC is relied upon, please address whether operators would be able, or have sufficient time, to vent the piping during such events.

2. Ingestion of gas from the Condensate Storage Tank and/or Suppression Pool into the ECCS pumps is a potential concern that should be addressed as part of the GL 2008-01 response. Please provide a summary description of operating and surveillance procedures that includes specific criteria, not just a statement that it has been accomplished.

3. The licensee stated that DNPS technical specifications (TSs) require verification that ECCS piping (i.e., HPCI, LPCI, and CS) is filled with water from the pump discharge valve to the injection valve every 31 days. The TS Bases state that maintaining the pump discharge lines of the HPCI system, CS system, and LPCI subsystems full of water ensures that the ECCS will perform properly, injecting its full capacity into the Reactor Coolant System upon demand.

Define the meaning of the phrase "full of water." The licensee did not address the pump suction lines in its submittal, as it should have according to Ref. 1. Has DNPS considered potential gas accumulation possibilities in the suction piping and concluded that it will not exist? If DNPS has concluded that gas will not accumulate, what is the basis for that conclusion?

4. The licensee stated that the 31-day frequency is based on the gradual nature of void buildup in the ECCS piping, the procedural controls governing system operation, and operating experience. It is not clear how surveillance frequencies are revisited when voids are found and how they are addressed in the corrective action program (CAP). Describe how DNPS CAP identifies, trends, and corrects identified void problems and how the findings are used to adjust the surveillance intervals.

5. The NRC staff has noted that level instrumentation error, valve leakage, and in-leakage from valve mechanisms were not addressed as potential gas intrusion mechanisms. How is DNPS addressing level instrumentation error, valve leakage, and in-leakage from valve mechanisms?

6. Confirm if all high points are equipped with vents; and if not, justify why each high point location does not need a vent.

7. Void acceptance criteria, such as "sufficiently full," or "acceptable void volumes," as used for DNPS, are not specific and should be clarified. The licensee should describe the method used to determine void volumes, and provide void acceptance criteria consistent with Sections 3.4.3 and 3.4.4 of Ref. 1.

8. On page 4 of the submittal (Ref. 3), the licensee stated regarding ultrasonic testing (UT) examinations, "UT examinations were not performed on areas where an assessment concluded they were not necessary (e.g., a determination was made that voiding in the piping location would not impact the system's ability to perform its specified safety function, a determination was made that system flow rates during periodic testing would be adequate to remove voids)." Confirm whether the pump test flow rates are adequate to move any voids. If not, would the maximum flow rate achieved during actual events move any potential remaining voids? Did

DNPS consider the difference? Provide Froude numbers associated with the test and maximum flow rates.

9. DNPS procedures do not specify gas volume acceptance criteria that must be met to satisfy the surveillance. Rather, the current procedure requires vent valves to be opened, and a solid stream of water must be observed while venting. Justify how the current procedure is adequate to meet acceptance criteria for system operability and to ensure that all voids, including trapped voids, are sufficiently vented.

10. DNPS plans to implement a graded approach for performing periodic UT examinations as part of venting verifications of accessible high points. Describe the "graded approach" for performing the UTs.

11. On page 2 of the submittal (Ref. 3), the licensee stated, "EGC is actively supporting the industry TSTF [Technical Specification Task Force] and NEI Gas Accumulation Management Team activities regarding resolution of generic TS issues. EGC will evaluate resolution of TS issues with respect to the elements contained in the TSTF, and submit a license amendment request, if deemed necessary based on this evaluation, within 180 days following NRC approval of the TSTF."

Identify what supplementary actions to address control of voids in the subject systems (that are not covered by the current DNPS TS requirements; such as, the use of procedures and other processes) will be used until the resolution of the TS issues related to GL 2008-01 are complete,

12. Consistent with Section 3.7 of Ref. 1, briefly discuss the training that is "considered to be a necessary part of applying procedures and other activities when addressing the issues identified in the GL. "

REFERENCES

1. Ruland, William H., "Preliminary Assessment of Responses to Generic Letter 2008-01, 'Managing Gas Accumulation in emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems,' and Future NRC Staff Review Plans," NRC letter to James H. Riley, Nuclear Energy Institute, ML091390637, May 28, 2009.

2. Riley, James H., "Generic Letter (GL) 2008-01, 'Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Contain Spray Systems' Evaluation and 3 Month Response Template," Letter to Administrative Points of Contact from Director, Engineering , Nuclear Generation Division, Nuclear Energy Institute, Enclosure 2, "Generic Letter 2008-01 Response Guidance," March 20, 2008.

3. K. R. Jury, "Dresden Nuclear Power Station (DNPS) Units 2 and 3 – Nine-Month Response to Generic Letter 2008-01," Vice President — Licensing and Regulatory Affairs Exelon Generation Company, LLC, AmerGen Energy Company, LLC, October 14, 2008.

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Sincerely,

/RA/

Christopher Gratton, Senior Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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