

April 25, 2001

Oliver D. Kingsley, President
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Exelon Generation Company, LLC
1400 Opus Place, Suite 500
Downers Grove, IL 60515

SUBJECT: DRESDEN AND QUAD CITIES - EXTENDED POWER UPRATE - HEALTH
PHYSICS REQUEST FOR ADDITIONAL INFORMATION (TAC NOS. MB0844,
MB0845, MB0842 AND MB0843)

Dear Mr. Kingsley:

By letter dated December 27, 2000, Exelon Generation Company (EGC) submitted license amendment requests for extended power uprates for the Dresden and Quad Cities nuclear power stations. The staff has identified additional information that is needed in order to complete their review of these submittals in the health physics area. These questions were mailed electronically to EGC on April 5, 2001, and they were discussed with members of your staff on April 12, 2001. Based on these discussions, we revised some of our questions. Your staff agreed to respond to this request for additional information (RAI) within thirty days of the date of this letter.

Should your staff have any questions about this RAI, please contact me at (301) 415-2863.

Sincerely,

/RA/

Lawrence W. Rossbach, Project Manager, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-237, 50-249, 50-254 and 50-265

Enclosure: Health Physics RAI

cc w/encl: See next page

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Enclosure: Health Physics RAI

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**DRESDEN AND QUAD CITIES EXTENDED POWER UPRATE
REQUEST FOR ADDITIONAL INFORMATION - HEALTH PHYSICS**

All of the following questions apply to both Dresden and Quad Cities:

1. The Dresden 2 & 3 and Quad Cities 1 & 2 skyshine offsite external dose components (related to the 40 CFR 190 annual dose limit of 25 mrem) over the past three years (1997-99) have increased by about a factor of two and seven, respectively. What are the underlying reasons for these increases, and how will the extended power uprate (EPU) impact this apparent trend? Please identify the dose receptor for the skyshine component. Is it a member of the public in a nearby private residence, or a non-occupational licensee employee (a member of the public) working onsite?
2. The recent refueling outage at Quad Cities demonstrated a significant unexpected adverse effect following the noble metal injection process (NMIP). Rather than reducing area dose rates, as expected, external dose rates in some work areas were significantly elevated. The EPU application takes credit for an effective NMIP by assuming a net reduction in hydrogen gas injection rate, thereby reducing the resultant N-16 radiation levels during plant operations and in the plant environs.

What corrective, remedial actions are planned or have been initiated (and what is the estimated time frame) to ensure the NMIP process positively contributes to a reduction in radiation levels? Describe the overall impact on radiation levels (from an occupational and 40 CFR 190 skyshine perspective) given the unexpected adverse effect following the NMIP.

3. NUREG-0737, Item II.B.2, states that the occupational dose guidelines in GDC 19, 10 CFR 50, Appendix A shall not be exceeded during the course of the accident. This ensures that operators can access and perform required duties and actions in designated vital areas. In Section 8.5.3, Post-Accident, the applicant notes that the change in post-accident source term and resulting radiation levels due to EPU are not expected to increase by more than the percentage increase in power level. Additionally, a coincident change to a 24-month fuel cycle also impacts post-accident dose rate levels.

The staff requests that the applicant provide a summary of the vital area gamma dose estimates (whole body, deep dose equivalent) for all the identified tasks (missions) in the current licensing basis; and compare these mission doses with the calculated Post-Uprate/24-month fuel cycle doses for the same missions. Some of these missions may include, for example, sample collections for gaseous effluent release points, and PASS sampling and in-lab analysis. Clarify and explain the changes (from the original "conservative" methods) in dose estimate methodology used for the calculation of post-uprate post-accident operator doses resulting from duties and actions in designated vital areas and for dose rates in the technical support center and emergency operations facility.

4. A previous Boiling Water Reactor power uprate submittal projected that activation, corrosion and wear product (ACWP) would increase in the reactor coolant by the square of the percentage of the power uprate. This would result in up to 37% and 39% ACWP increases above existing coolant concentration for Dresden and Quad Cities, respectively.

Given these calculated increases, provide the impact on the ACWP design basis after EPU. What is the overall projected resultant percentage increase of the ACWP design basis? If this squared function was not used, explain the basis that was used to estimate dose rate increases, curie loading for resin waste shipments and other related issues.

Enclosure