Exelon Generation
4300 Winfield Road
Warrenville, IL 60555

www.exeloncorp.com

Exelon Nuclear

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U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Dresden Nuclear Power Station, Units 2 and 3
Facility Operating License Nos. DPR-19 and DPR-25
NRC Docket Nos. 50-237 and 50-249

Quad Cities Nuclear Power Station, Units 1 and 2
Facility Operating License Nos. DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: Additional Electrical Information Supporting the License Amendment Request to Permit Uprated Power Operation at Dresden Nuclear Power Station and Quad Cities Nuclear Power Station

References: (1) Letter from R. M. Krich (Commonwealth Edison Company) to U. S. NRC, "Request for License Amendment for Power Uprate Operation," dated December 27, 2000

(2) Letter from U. S. NRC to O. D. Kingsley (Exelon Generation Company, LLC), "Quad Cities and Dresden – Extended Power Uprate , Electrical Request for Additional Information," dated March 2, 2001

(3) Letter from R. M. Krich (Exelon Generation Company, LLC) to U. S. NRC, "Additional Electrical Information Supporting the License Amendment Request to Permit Uprated Power Operation at Dresden Nuclear Power Station and Quad Cities Nuclear Power Station," dated April 6, 2001

In Reference 1, Commonwealth Edison (ComEd) Company, now Exelon Generation Company (EGC), LLC, submitted a request for changes to the operating licenses and Technical Specifications (TS) for Dresden Nuclear Power Station (DNPS), Units 2 and 3, and Quad Cities Nuclear Power Station (QCNPS), Units 1 and 2, to allow operation at uprated power levels. In Reference 2, the NRC requested additional information regarding these requested changes. The requested information was provided in Reference 3. In a telephone conference call between representatives of EGC and Mr. L. W. Rossbach and other members of the NRC on June 15, 2001, the NRC requested additional information regarding the Reference 3 response. This letter provides the requested information.

A001

Should you have any questions related to this letter, please contact Mr. Allan R. Haeger at (630) 657-2807.

Respectfully,

K. A. Ainger for

R. M. Krich
Director – Licensing
Mid-West Regional Operating Group

Attachments:

Affidavit
Additional Electrical Information Supporting the License Amendment Request to Permit Uprated Power Operation at Dresden Nuclear Power Station, Units 2 and 3, and Quad Cities Nuclear Power Station, Units 1 and 2

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Dresden Nuclear Power Station
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station
Office of Nuclear Facility Safety – Illinois Department of Nuclear Safety

STATE OF ILLINOIS	)	
COUNTY OF DUPAGE	)	
IN THE MATTER OF	)	
EXELON GENERATION COMPANY, LLC	)	**Docket Numbers**
DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3	)	**50-237 AND 50-249**
QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2)		**50-254 AND 50-265**

SUBJECT: Additional Plant Systems Information Supporting the License Amendment Request to Permit Uprated Power Operation

AFFIDAVIT

I affirm that the content of this transmittal is true and correct to the best of my knowledge, information and belief.

R. M. Krich
Director – Licensing
Mid-West Regional Operating Group

Subscribed and sworn to before me, a Notary Public in and for the State above named, this 9th day of July, 2001.

Notary Public

" OFFICIAL SEAL "
Timothy A. Byam
Notary Public, State of Illinois
My Commission Expires 11/24/2001

ATTACHMENT

Additional Electrical Information Supporting the License Amendment Request
to Permit Uprated Power Operation at
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Quad Cities Nuclear Power Station, Units 1 and 2

Question

1. *Provide an update to the Reference 1 response regarding the results of the study by the transmission and distribution entity. Also provide an update regarding reactive power (i.e., MVAR) support available in the transmission and distribution system.*

Response

As discussed in Reference 1, the transmission and distribution entity of Exelon Energy Delivery Company (EDC) began a review of the impact of the extended power uprate (EPU) on the power grid. As a result of this review, the transmission and distribution entity of EDC has approved the connection of the uprated Dresden Nuclear Power Station (DNPS) Unit 2 and Quad Cities Nuclear Power Station (QCNPS) Unit 2 to the power grid. These are the units that will connect to the grid under EPU conditions in the years 2001 and 2002. The approval shows that sufficient MVAR support will be available. The approvals for the remaining units will be obtained before the additional load is supplied to the grid. Additional MVAR support can be accomplished by having any of the generating units on the system (i.e., either Exelon Generation Company (EGC), LLC, units or other units) reduce their MW output and increase their MVAR output.

Question

2. *Provide an update to the Reference 1 response regarding the results of additional testing to upgrade the switchgear and breaker to a higher momentary current rating and any other information related to upgrading the breaker rating.*

Response

As discussed in Reference 1, General Electric (GE) Company Industrial Systems Division was contracted to modify the switchgear bracing and perform the momentary rating test. The test applied current that had a first peak of 154.8 kA for 17 cycles before being interrupted by the station breaker. The test was successful in demonstrating that, with the modified bracing, the switchgear and the breaker can meet the EPU momentary current requirements of 151.6 kA for the first peak. The bracing of the switchgear for the load cubicles will be modified to reflect the tested configuration.

As discussed in Reference 2, Attachment E, "Power Uprate Safety Analysis Report," Section 6.1.2, "On-Site Power," the modification to add the six cycle time delay on the short circuit interruption will also be implemented. The six cycle time delay will be accomplished by disconnecting the instantaneous trip from the overcurrent protection for the load breakers. This modification will not affect the existing coordination.

Question

3. *Clarify the effect of EPU on the margin in the battery capacity for the batteries (i.e., 24/48 volt, 125 volt and 250 volt DC) during the station black out (SBO) event discussed in the Reference 1 response.*

Response
As discussed in Reference 1, the time for high pressure coolant injection (HPCI) operation following EPU is slightly longer than the pre-EPU value due to the increase in decay heat. This increase in operation time has a minimal impact on the pre-EPU 250 volt battery margin of at least 5% discussed in Reference 1. This margin remains above 5% for EPU.

EPU also has a minimal effect on the existing 14% margin for the 125 volt and 24/48 volt batteries (i.e., the effect is to reduce the margin by less than 1%).

Question

4. *Provide an update to the Reference 1 response regarding the results of the completed equipment qualification (EQ) studies. Include an updated table providing the methods used to qualify equipment that did not meet qualification requirements on initial review. Include locations (i.e., inside or outside primary containment) for equipment.*

Response for DNPS
Reviews of EQ equipment were performed and shown to meet the revised environmental parameters following the EPU. Qualification was shown by one or more of the following approaches. These are all industry standard methods for EQ reviews.

1. Existing documentation was used to show that the current qualification test temperature profile and radiation dose bound the EPU conditions.
2. An additional test report was obtained for the equipment.
3. New test data on materials was used to demonstrate qualification.
4. The equipment was replaced with qualified equipment.
5. An equipment unique radiation calculation was performed.

Most equipment was shown to be qualified for EPU conditions with little or no additional analysis, as identified in item 1 above.

The following is the EQ equipment installed outside primary containment which required more rigorous evaluation, using one or more of the methods identified in items 2 through 5 above, to qualify for the revised EPU environmental conditions.

Equipment	Qualification Parameter	Methodology Used to Qualify
Rosemount Pressure Transmitter	Radiation exposure	Test data from additional test report.

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Equipment	Qualification Parameter	Methodology Used to Qualify
GE/MAC Flow Transmitter	Temperature Radiation exposure	Not qualified. Items FT 2(3)-1549A, FT 2(3)-1549B, FT 2(3)-1461A and FT 2(3)-1461B will be replaced with qualified equipment (Rosemount Pressure Transmitter 1153D).
Mobil DTE Oil	Temperature	Not qualified. The item will be replaced with a higher viscosity Mobil DTE oil.
Static-O-Ring Switches	Radiation exposure	Material analysis.
GE Switchgear Components	Temperature Radiation exposure	Additional test reports, qualification data from other EQ binders, and material analysis were used.
Circuit Breaker Systems Motor Operated Control Switch	Radiation exposure	Used material analysis and qualification data obtained from other EQ binders.

The following is the EQ equipment installed inside primary containment which required more rigorous evaluation, using one or more of the methods identified in items 2 through 5 above, to qualify for the revised EPU environmental conditions.

Equipment	Qualification Parameter	Methodology Used to Qualify
Electrical Penetration Assemblies	Radiation exposure	Material analysis and data from additional test reports were utilized.
Cables	Radiation exposure	Equipment unique radiation dose analysis performed to demonstrate adequacy of cables.

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Response for QCNPS

Reviews of EQ equipment were performed and shown to meet the revised environmental parameters following the EPU. Qualification was shown by one or more of the following approaches. These are all industry standard methods for EQ reviews.

1. Existing documentation was used to show that the qualification test temperature profile and radiation dose bound the EPU conditions.
2. An additional test report was obtained for the equipment.
3. New test data on materials was used to demonstrate qualification.
4. An equipment unique radiation calculation was performed.

Most equipment was shown to be qualified for EPU conditions with little or no additional analysis, as identified in item 1 above.

The following is the EQ equipment installed outside primary containment which required more rigorous evaluation, using one or more of the methods identified in items 2 through 4 above, to qualify for the revised EPU environmental conditions.

Equipment	Qualification Parameter	Methodology Used to Qualify
Rosemount Pressure Transmitter	Radiation exposure	Location specific radiation dose calculation to determine specific total integrated dose for the transmitter.

The following is the EQ equipment installed inside primary containment which required more rigorous evaluation, using one or more of the methods identified in items 2 through 4 above, to qualify for the revised EPU environmental conditions.

Equipment	Qualification Parameter	Methodology Used to Qualify
Electrical Penetration Assemblies	Radiation exposure	Material analysis and data from other test reports were utilized.
Cables	Radiation Exposure	Equipment unique radiation dose analysis performed to demonstrate adequacy of cables.

The Target Rock safety relief valve previously listed in the Reference 1 response was shown to be qualified using existing documentation to show that the qualification test temperature profile and radiation dose bound the EPU conditions.

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Question

5. *Provide an update to the Reference 1 response regarding the changes required to the isolated phase bus duct cooling system for DNPS.*

Response

A modification has been developed to replace the existing air handling units at DNPS. The replacement units will include new fans and new cooling coils with a higher heat removal rating. The modification will also reconfigure the air flow path through the three phases. Currently, air from the cooling unit is routed from the main generator to the main power transformer along the "B" phase and returns via the "A" and "C" phases. The new configuration will send air from the cooling unit along all three phases, and back to the cooling unit via a common return duct. This change will reduce system pressure drop, allowing a higher air flow rate through the bus duct.

Detailed evaluations completed since submittal of Reference 1 indicate that these cooling system enhancements are required year round under EPU conditions. Therefore, the modification will be completed prior to unit startup from the EPU refueling outage.

References

1. Letter from R. M. Krich (EGC) to U. S. NRC, "Additional Electrical Information Supporting the License Amendment Request to Permit Uprated Power Operation at Dresden Nuclear Power Station and Quad Cities Nuclear Power Station," dated April 6, 2001

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