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U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
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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 Plant Systems Information Supporting the License Amendment Request to Permit Uprated Power Operation, Dresden Nuclear Power Station and Quad Cities Nuclear Power Station

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

In the referenced letter, Commonwealth Edison 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, Units 2 and 3, and Quad Cities Nuclear Power Station, Units 1 and 2, to allow operation at uprated power levels. In a telephone conference on August 31, 2001, between representatives of EGC and Mr. L. W. Rossbach and other members of the NRC, the NRC requested additional information regarding these proposed changes. The attachment to this letter provides the requested information.

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

Respectfully,

K. A. Ainger

K. A. Ainger
Director – Licensing
Mid-West Regional Operating Group

A001

Attachments:

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

AFFIDAVIT

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

K. A. Ainger
Director – Licensing
Mid-West Regional Operating Group

Subscribed and sworn to before me, a Notary Public in and

for the State above named, this 5th day of

September, 2001.

Notary Public

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

Attachment
Additional Plant Systems Information Supporting the License Amendment Request to Permit Uprated Power Operation,
Dresden Nuclear Power Station, Units 2 and 3
Quad Cities Nuclear Power Station, Units 1 and 2

Question

1. *Describe the bounding conditions used to evaluate heat removal by evaporation (e.g., air temperature, humidity level, and ventilation flow rate) and how operators verify that actual conditions are within these bounds prior to approaching the maximum spent fuel pool (SFP) decay heat rates.*

Response

The following bounding conditions were used for the evaporation calculations.

Air temperature: 100 °F
Humidity: 100 %
No forced air circulation assumed.

As noted in the referenced letter, the calculation of SFP temperatures following core offloads for extended power uprate (EPU) conditions credited evaporative cooling. This was intended to be a bounding calculation to demonstrate the capability of the fuel pool cooling system under EPU conditions. Dresden Nuclear Power Station (DNPS) and Quad Cities Nuclear Power Station (QCNPS) normally perform cycle-specific analyses of fuel pool cooling capability prior to offloading any portion of the reactor core. If the bounding analysis is relied upon to demonstrate fuel pool capability for future offloads of any portion of the reactor core, or if cycle-specific analyses credit the use of evaporative cooling, EGC will institute procedural controls to verify the assumptions of the applicable analyses (e.g., air temperature and humidity) are not exceeded.

Question

2. *Describe how the configuration of the SFPs and interfacing systems at Dresden and Quad Cities are controlled to provide availability of SFP cooling and makeup systems consistent with the analysis applicable to each plant. This relates to the timing of closure of gates between the reactor cavity and the SFP, the availability of shutdown cooling at Dresden with the SFP isolated and fuel in the reactor vessel, and the position of gates between the SFPs during refueling outages at Quad Cities.*

Response

For DNPS, with the SFP isolated from the reactor cavity and fuel in the reactor vessel, Technical Specifications govern the operability of the shutdown cooling system for the reactor vessel. In this configuration, DNPS can also align a train of shutdown cooling to the SFP. The availability of the shutdown cooling system for these purposes was discussed in the referenced letter.

For QCNPS, the gates between the Unit 1 and 2 SFPs are normally open. This makes all four trains of the spent fuel pool cooling and cleanup system available to both unit SFPs. Should future conditions require these gates to be closed during a core offload, a cycle-specific analysis will be performed to ensure heat removal capability is adequate to meet the temperature acceptance criteria stated in the referenced letter.

Attachment
Additional Plant Systems Information Supporting the License Amendment Request to Permit Uprated Power Operation,
Dresden Nuclear Power Station, Units 2 and 3
Quad Cities Nuclear Power Station, Units 1 and 2

Question

3. *Provide the actual capacity of makeup water sources for each SFP and how that capacity was established (e.g., test or calculation). Although the response dated August 13, 2001, describes makeup rates, the values presented match values described in each facility's UFSAR for the calculated boil-off rate rather than makeup capacity. For example, Section 9.1.3.3 of the Quad Cities UFSAR, Revision 5, June 1999, states that makeup water can be delivered, via the condensate transfer pumps and the skimmer surge tanks, to the SFP at a rate of 550 gpm and that the maximum boil-off rate is 51 gpm. The response dated August 13, 2001, states that Quad Cities has an existing system capacity of 51 gpm for each unit.*

Response

Both DNPS and QCNPS have a SFP make up capacity far in excess of the calculated boil-off rate for the EPU which is 51 gallons per minute (gpm) for QCNPS and 70 gpm for DNPS, as noted in the referenced letter.

At QCNPS, makeup to the SFP is provided by the normally running 2 condensate transfer pumps via the skimmer surge tanks. Each pump, at its design operating point, is expected to deliver 275 gpm. This is based on manufacturer's pump performance data of 275 gpm at 235 feet of head, which bounds the plant installation configuration.

DNPS makeup to the SFP is provided by the condensate transfer pumps via the skimmer surge tanks with one pump normally in operation and one backup pump. A test performed at DNPS shows that one pump is capable of delivering in excess of 400 gpm to the skimmer surge tanks.

Additionally, for both QCNPS and DNPS, water can be supplied directly to the SFP using hose drops located on the refueling floor from three separate water supplies, including the condensate transfer system, the clean demineralized water system, and the fire protection system. A calculation performed shows that the minimum capacity of each hose is in excess of 100 gpm.

Question

4. *Describe the methodology and acceptance criteria that Exelon commits to employ when evaluating planned refueling conditions that exceed the evaluated heat load for a partial-core offload during refueling, such as back-to-back partial-core offload refuelings at Quad Cities with the SFPs cross-tied or full-core offload refuelings at either facility.*

Response

When evaluating planned refueling conditions that exceed the evaluated heat loads described in the response to Question 31 in the referenced letter, DNPS and QCNPS will perform a cycle-specific analysis of SFP cooling capability. Regarding methodology, the values of the input parameters for external conditions, such as cooling water temperature, will be based on conservative values representing current conditions. The values of parameters under control of the station, such as time following shutdown to begin offload and offload rate, will be adjusted as necessary to ensure that the SFP bulk temperature acceptance criteria will be met.

Attachment
Additional Plant Systems Information Supporting the License Amendment Request to Permit Uprated Power Operation,
Dresden Nuclear Power Station, Units 2 and 3
Quad Cities Nuclear Power Station, Units 1 and 2

Regarding acceptance criteria, the SFP bulk temperature acceptance criteria described in the referenced letter will continue to be met.

Reference:
Letter from K. A. Ainger (Exelon Generation Company, LLC) to U. S. NRC, "Additional Plant Systems Information Supporting the License Amendment Request to Permit Uprated Power Operation, Dresden Nuclear Power Station and Quad Cities Nuclear Power Station," dated August 13, 2001