

RS-05-162

10 CFR 50.90

December 5, 2005

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

LaSalle County Station, Units 1 and 2
Facility Operating License Nos. NPF-11 and NPF-18
NRC Docket Nos. 50-373 and 50-374

Subject: Additional Information Supporting the Request for Amendment to Technical Specifications Section 5.6.5, "Core Operating Limits Report (COLR)"

- References:
1. Letter from K. R. Jury (Exelon Generation Corporation, LLC) to U.S. NRC, "Request for Amendment to Technical Specifications Section 5.6.5, 'Core Operating Limits Report (COLR),' " dated March 7, 2005
 2. Letter from U.S. NRC to C. M. Crane (Exelon Generation Corporation, LLC), "LaSalle County Power Station, Units 1 and 2 – Request for Additional Information Related to Amendment Request," dated November 23, 2005

In Reference 1, Exelon Generation Company, LLC, (EGC), requested an amendment to Appendix A, Technical Specifications (TS), of Facility Operating License Nos. NPF-11 and NPF-18 for LaSalle County Station, Units 1 and 2, respectively. Specifically, the proposed change requested the addition of two NRC approved topical report references to the list of analytical methods in TS 5.6.5, "Core Operating Limits Report (COLR)," that can be used to determine core operating limits.

In Reference 2, the NRC requested additional information to complete the review of the license amendment. This request pertained to the demonstration of the effects of any changes in an acceptable Loss of Coolant Accident (LOCA) evaluation model or in the application of such a model to determine if the change is significant. A significant change is defined as a peak fuel cladding temperature difference of more than 50°F from the temperature calculated for the limiting transient using the last acceptable model.

Attachment 1 of this letter provides the requested information.

EGC has reviewed the information supporting a finding of no significant hazards consideration that was previously provided to the NRC in Attachment 1 of Reference 1. The supplemental information provided in this submittal does not affect the bases for concluding that the proposed license amendment does not involve a significant hazards consideration.

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There are no regulatory commitments contained in this letter. Should you have any questions concerning this letter, please contact Ms. Alison Mackellar at (630) 657-2817.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 5th day of December 2005.

Respectfully,

A handwritten signature in cursive script, reading "Keith R. Jury". The signature is written in dark ink and is positioned above the printed name and title.

Keith R. Jury
Director, Licensing and Regulatory Affairs

Attachment 1: Response to Request for Additional Information

ATTACHMENT 1
Response to Request for Additional Information

Question

Was a new Loss of Coolant Accident (LOCA) analysis performed using the proposed EXEM BWR-2000 evaluation model to determine if there is a peak fuel temperature change of more than 50°F from the temperature calculated for the limiting transient using the current acceptable model?

- a. If yes,
- i. please provide the key input parameters used in both the current analysis of record, and for EXEM BWR-2000 and,

Response

A new LOCA analysis was performed with the proposed EXEM BWR-2000 evaluation model. From the results of these calculations it was determined that there is a peak clad temperature (PCT) change of more than 50°F from that calculated for the limiting transient using the currently applicable EXEM BWR model. The key input parameters used in the EXEM BWR-2000 and EXEM BWR analyses are listed in Tables 1 through 5.

- ii. submit the peak fuel temperature results for the new analysis using EXEM BWR-2000 as well as the peak fuel temperature results for the current analysis of record.

Response

LaSalle County Station, (LSCS), Units 1 and 2, currently use a mixture of Framatome ANP ATRIUM-9B, ATRIUM-10 and Global Nuclear Fuel (GNF) GE14 fuel in the core. Starting with LSCS Unit 1 Cycle 12, scheduled for operation in March 2006, and LSCS Unit 2 Cycle 12, scheduled for operation in March 2007, all ATRIUM-9B fuel will be discharged from both cores.

The NRC approved EXEM BWR methodology will continue to be the applicable licensing basis method for the ATRIUM-9B fuel until they are all discharged from both LSCS units. The PCT result, calculated with the EXEM BWR method for the ATRIUM-9B fuel is 1832°F.

The ATRIUM-10 PCT results, calculated using the EXEM BWR-2000 and the currently applicable EXEM BWR analysis methods are 1729°F and 1807°F, respectively. EXEM BWR-2000 will be the licensing basis method for ATRIUM-10 fuel starting with LSCS Unit 1 Cycle 12 and Unit 2 Cycle 12.

The NRC approved GE SAFER/GESTR analysis method will continue to be the applicable licensing basis method for the GNF GE14 fuel product line. The PCT result, calculated with the SAFER/GESTR method, for the GE14 fuel is 1400°F.

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Question (cont'd)

- b. If a new LOCA analysis was not performed, provide justification or perform a new LOCA analysis using the EXEM BWR-2000 evaluation model and
 - i. please provide the key input parameters used in both the current analysis of record, and for EXEM BWR-2000 and,

Response

Not applicable. The new LOCA analysis was performed with EXEM BWR-2000.

- ii. submit the peak fuel temperature results for the new analysis using EXEM BWR-2000 as well as the peak fuel temperature results for the current analysis of record.

Response

Not applicable. The new LOCA analysis was performed with EXEM BWR-2000.

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Table 1 Initial Conditions

Parameter	EXEM BWR-2000 Value	EXEM BWR Value
Reactor power (% of rated)	102	102
Total core flow (% of rated)	105	105
Reactor power (MWt) ¹	3797	3796.44
Total core flow (Mlb/hr)	113.9	113.9
ATRIUM-10 MAPLHGR limit (kw/ft)	12.5	12.5

¹ The EXEM BWR-2000 and EXEM BWR LOCA power levels of 3797 (rounded up) and 3796.44 MWt are conservatively based on 102% of what was an EGC planned 12% uprate to 3721 MWt. The actual implemented power uprate was only 5% to 3489 MWt (which would result in a 102% value of 3559 MWt).

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Table 2 High-Pressure Core Spray (HPCS) Parameters

Parameter	EXEM BWR-2000 Value	EXEM BWR Value
<i>Initiating Signals and Setpoints</i>		
Water level (in) ¹	-97.9	-97.9
High drywell pressure (psig)	Not credited	Not credited
<i>Time Delays</i>		
Time for HPCS pump to reach rated speed and injection valve wide open (sec)	47	46
<i>Coolant Flow Rate Versus Pressure</i>		
Vessel to Drywell ΔP (psid)	Flow Rate (gpm)	Flow Rate (gpm)
0	5200	5400
200	5200	5400
1130	550	750
1160	0	0
> 1160	0	0

¹ With respect to instrument zero elevation (527.5 inches above vessel zero).

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Table 3 Low-Pressure Coolant Injection (LPCI) Parameters

Parameter	EXEM BWR-2000 Value	EXEM BWR Value
Reactor pressure permissive for opening valves - analytical (psia)	450	450
<i>Initiating Signals and Setpoints</i>		
Water level (in) ¹	-161.5	-161.5
High drywell pressure (psig)	Not credited	Not credited
<i>Time Delays</i>		
Time for LPCI pumps to reach rated speed (maximum) (sec)	66	65
LPCI injection valve stroke time (sec)	40	40
<i>Coolant Flow Rate Versus Pressure</i>		
Vessel to Drywell ΔP (psid)	Flow Rate Per Loop (gpm)	Flow Rate Per Loop (gpm)
0	5907	5987
20	5907	5987
200	0	0
>200	0	0

¹ With respect to instrument zero elevation (527.5 inches above vessel zero).

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Table 4 Low-Pressure Core Spray (LPCS) Parameters

Parameter	EXEM BWR-2000 Value	EXEM BWR Value
Reactor pressure permissive for opening valves - analytical (psia)	450	450
<i>Initiating Signals and Setpoints</i>		
Water level (in) ¹	-161.5	-161.5
High drywell pressure (psig)	Not credited	Not credited
<i>Time Delays</i>		
Time for LPCS pumps to reach rated speed (maximum) (sec)	66	65
LPCS injection valve stroke time (sec)	40	40
<i>Coolant Flow Rate Versus Pressure</i>		
Vessel to Drywell ΔP (psid)	Flow Rate (gpm)	Flow Rate (gpm)
0	6900	7000
122	5500	5600
255	0	0
>255	0	0

¹ With respect to instrument zero elevation (527.5 inches above vessel zero).

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**Table 5 Automatic Depressurization System (ADS)
Parameters**

Parameter	EXEM BWR-2000 Value	EXEM BWR Value
Number of valves installed	7	7
Number of valves available ¹	5	6
Minimum flow capacity of available valves (Mlbm/hr at psig)	4.308 at 1150	5.17 at 1150
<i>Initiating Signals and Setpoints</i>		
Water level (in) ²	-161.5	-161.5
High drywell pressure (psig) ³	2.5	2.5
<i>Time Delays</i>		
ADS timer (delay time from initiating signal to time valves are open) (sec)	121	120

¹ For EXEM BWR-2000 only 5 valves are assumed operable in the analyses to support 1 ADS Valve Out of Service (ADSVOOS) operation and the potential single failure of 1 ADS valve during the LOCA. For EXEM BWR 6 valves are assumed operable in the analyses to support 1 ADSVOOS during the LOCA.

² With respect to instrument zero elevation (527.5 inches above vessel zero).

³ The drywell high-pressure setpoint is exceeded before the water level setpoint is reached. Therefore, the ADS timer is assumed to start when the water level setpoint is reached.