

August 19, 2004

MEMORANDUM TO: Charles E. Mullins
Senior Attorney
Office of the General Counsel

FROM: N. Kalyanam, Project Manager, Section 1/**RA**/
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 RE: LOUISIANA
PUBLIC SERVICE COMMISSION PROCEEDING U-25333 (ENTERGY)
- G20040532 (TAC NO. MC3938)

The purpose of this memorandum is to place into ADAMS, the attached documentation containing the response to the questions in the Louisiana (LA) Public Service Commission (PSC) letter dated August 2, 2004.

Docket No. 50-382

Attachment: Response to Questions in LA PSC letter

cc w/att: P. Shea

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NAME	NKalyanam	DBaxley	RGramm
DATE	08/16/04	08/16/04	08/16/04

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1. Has the NRC performed an analysis or has Entergy submitted an analysis to the NRC related to the High Pressure Safety Injection ("HPSI") flow at Waterford since 1995? If yes, please provide a copy of that analysis or analyses or state the conclusions reached by the analysis or analyses.

Response

No, NRC did not perform any analysis related to HPSI.

The licensee, in 1998, showed an informal calculation to an NRC Inspection team to evaluate HPSI system performance at 108% power to support a possible power uprate request using an NRC approved new small break loss-of-coolant accident (SBLOCA) methodology. This calculation appears to have been done in early 1998. With an acceptable peak cladding temperature and a HPSI flow of 621.8 gallons per minute, the licensee reasoned that a reduction in HPSI flow accounting for additional uncertainties was acceptable. The NRC does not have a copy of the analysis. However, the "informal" "1998" SBLOCA model had not been demonstrated to apply to Waterford at the uprated power. Also the analyses may have taken credit for unqualified equipment, which would not have been acceptable in a licensing basis loss-of-coolant accident analysis.

2. Did Entergy submit any application to uprate the Waterford 3 nuclear facility in the period 1997-2001? If so, did the NRC disapprove the application for safety reasons?

Response

In September 2001, Entergy submitted a 1.5% power uprate request. The application was approved in March 2002.

3. Did Entergy initiate contacts with the NRC in the period 1997 - May, 2001 to determine whether the NRC would consider a request for approval of an uprate project for Waterford 3?

Response

By letter dated July 16, 1996, Entergy requested NRC to commit resources for the review of a planned 8% Waterford 3 power uprate license amendment, which was scheduled to be submitted in April 1997. On July 23, 1996, Entergy personnel were at the NRC offices to discuss the scope of the uprate project. However, no application was submitted during this period.

4. In the period 1997 - May, 2001, did Entergy submit any documentation to the NRC of the HPSI Injection flow "margin" for Waterford 3 and approaches that could increase that margin? If so, did the NRC approve, reject or otherwise comment on the submission?

Response

A licensee self-assessment of the HPSI system in 1996 identified a shortfall from the design values of the HPSI minimum flow. The licensee estimated that the peak fuel cladding temperature would exceed 2200 °F. Title 10 of the *Code of Federal*

Regulations Section 50.46 exceedance was submitted to NRC as an Licensee Event Report in January 1998. Hardware and re-analysis fixes restored the HPSI flow to that assumed in the then design power level, which justified continued operation at the then licensed power level but not necessarily uprated power operation. This issue was addressed in NRC Inspection Report 50-382/97-25 dated March 12, 1998.

5. Does the NRC have any information to indicate that there were technical issues associated with the ability of the Waterford HPSI system to provide adequate flow for a thermal power increase that Entergy could not be resolved by May 2001?

Response

Probably not then. However, we do now have such information - such as inadequacy of atmospheric dump valves, lack of sensitivity studies on S2M code, lack of SBLOCA methodology which had been shown to apply at the extended power uprates, could have prevented a thermal power increase request.

6. Is it correct that an eight percent uprate for Waterford would have been a first of a kind technical review for a Combustion Engineering [(CE)] designed reactor prior to 2001?

Response

Yes.

7. If the HPSI system could not support an 8% power uprate, could it have accommodated a lesser uprate? If so what level could the HPSI system at Waterford 3 have supported?

Response

Waterford 3 could have possibly accommodated an uprate less than 8% - possibly 3% or so. The NRC staff does not have calculations to rigorously confirm this.

8. Could the HPSI system have been modified to accommodate an 8% or lower power uprate at Waterford 3? If so, how long would it have taken to accomplish the modification to the HPSI system?

Response

With the hardware modifications alone, done in 1997-1998 time period, and without introduction of CE computer codes such as S2M for SBLOCA (approved by NRC in 1997-1998 time period) and updated large break loss-of-coolant accident evaluation model (approved in 2000), a 8% uprate might have been difficult to justify.

9. Has Entergy applied for an approval of an uprate to Waterford 3?

Response

In September 2001, Entergy submitted a 1.5% power uprate request. The application was approved in March 2002. In November 2003, Entergy submitted an 8% extended power uprate request. They have requested the review of this submittal be completed in time for the spring 2005 outage.

10. Is the NRC aware of any other issues that would have precluded the approval of an uprate at Waterford 3, if Entergy had sought that approval?

Response

No.

11. Has the NRC granted or denied for any reason any request for a power uprate to a nuclear facility of similar design to Waterford 3 by any other utility between 1997 and 2001? If yes, please describe the circumstances surrounding that approval or denial.

Response

San Onofre Nuclear Generating Station, Units 2 and 3, both CE plants, similar to Waterford 3, were granted a 1.4% power uprate in July 2001. Regarding the question of whether the NRC denied any power uprate applications between 1997 and 2001, the answer is no.

12. Does Mr. William T. Russell have the authority to speak on behalf of the NRC?

Response

No, Mr. William T. Russell no longer works for the NRC and does not have the authority to speak on behalf of the NRC.