June 20, 2000

Mr. Joseph E. Venable
Vice President Operations
Entergy Operations, Inc.
17265 River Road
Killona, LA 70066-0751

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 - REQUEST FOR ADDITIONAL INFORMATION RELATED TO TECHNICAL SPECIFICATION CHANGE REGARDING REVISION OF LETDOWN LINE BREAK DOSE CONSEQUENCES (TAC NO. MB3231)

Dear Mr. Venable:

By letter dated October 15, 2001, Entergy Operations, Inc. proposed changes to the Waterford Steam Electric Station, Unit 3 (Waterford 3) Technical Specifications, which would revise letdown line break consequences.

After reviewing your request, the Nuclear Regulatory Commission staff has determined that additional information is required to complete the review. On June 5, 2002, this was discussed by telephone and your staff stated that Waterford 3 is, in view of the changes required, planning to submit a supplement along with a new no significant hazards evaluation within 60 days of receipt of this letter.

If you have any questions, please call me at (301) 415-1480.

Sincerely,

/RA/

N. Kalyanam, Project Manager, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosure: Request for Additional Information

cc: See next page

June 20, 2002

Mr. John T. Herron
Vice President Operations
Entergy Operations, Inc.
17265 River Road
Killona, LA 70066-0751

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 - REQUEST FOR ADDITIONAL INFORMATION RELATED TO TECHNICAL SPECIFICATION CHANGE REGARDING REVISION OF LETDOWN LINE BREAK DOSE CONSEQUENCES (TAC NO. MB3231)

Dear Mr. Herron:

By letter dated October 15, 2001, Entergy Operations, Inc. proposed changes to the Waterford Steam Electric Station, Unit 3 (Waterford 3) Technical Specifications, which would revise letdown line break consequences.

After reviewing your request, the Nuclear Regulatory Commission staff has determined that additional information is required to complete the review. On June 5, 2002, this was discussed by telephone and your staff stated that Waterford 3 is, in view of the changes required, planning to submit a supplement along with a new no significant hazards evaluation within 60 days of receipt of this letter.

If you have any questions, please call me at (301) 415-1480.

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

Docket No. 50-382

Enclosure: Request for Additional Information

cc: See next page

<u>DISTRIBUTION</u>

PUBLIC	PDIV-1 r/f	Rids OgcRp
RidsAcrsAcnwACRS	RidsNrrDlpmLpdiv1 (RGramm)	RidsNrrPMNKalyanam
RidsNrrLADJohnson	Summer Sun	M. Hart
RidsRgn4MailCenter (KBrockman)		

Accession No.: ML021750109

OFFICE	PDIV-1/PM	PDIV-1/LA	PDIV-1/SC
NAME	NKalyanam	DJohnson	RGramm
DATE	06/17/02	06/17/02	06/18/02

OFFICIAL RECORD COPY

REQUEST FOR ADDITIONAL INFORMATION

ENTERGY OPERATIONS, INC.

WATERFORD STEAM ELECTRIC STATION, UNIT 3

1. The reanalysis was performed with the CESEC-III code, while the code for the existing analysis was CEFLASH-4AS. Please provide a discussion to address the compliance with the applicable restrictions specified in the Nuclear Regulatory Commission (NRC) safety evaluation report for use of the CESEC-III code and verify that the thermal-hydraulic conditions of the analysis were within the applicable range of the approved code.

2. The values for the initial power level, reactor coolant system (RCS) inlet temperature, pressure and flow used in the reanalysis were increased to the maximum values in the allowable range shown in Final Safety Analysis Report (FSAR) Table 15.0-4. The initial conditions were determined to maximize the total RCS mass release. While an increase in the values for the initial power level, RCS inlet temperature and pressure will increase the RCS flow and result in a increase in the RCS mass release. However, the increase in RCS flow will also increase the heat removal capability from the RCS primary to secondary side and result in a decrease in the RCS pressure and thus, a smaller RCS mass release. Please justify if the use of a higher initial RCS flow is a conservative assumption in the calculations to maximize the RCS mass release.

3. The reanalysis credited the Core Protection Calculator (CPC) hot leg saturation trip against the CPC low departure from nucleate boiling ratio (DNBR) trip for the FSAR analysis. The NRC's regulatory requirements related the inclusion of a Limiting Condition for Operation (LCO) in Technical Specifications (TS) are set forth in 10 CFR 50.36(c)(2)(ii). Specifically, Criterion 3 of 10 CFR 50.36(c)(2)(ii) states that an LCO is required for "A structure, system, or component that is a part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier." Please address how the reanalysis complies with Criterion 3 of 10 CFR 50.36(c)(2)(ii) for the CPC hot leg saturation trip.

4. The letdown charging flow of 144 gallons per minute (gpm), from three charging pumps, was assumed in the reanalysis. The charging flow was increased from 44 gpm for the FSAR analysis in order to maximize the total RCS mass release. However, a lower charging flow rate maximizes the fluid temperature at the break thereby resulting in a higher flashing fraction for the fluid at the break. This in turn maximizes the offsite dose release due to the increased steam release at the break. The licensee is requested to provide a discussion to address the effects of the flashing fraction and total mass release on the offsite dose release and show that the assumed higher letdown charging flow (of 144 gpm) results in a higher offsite dose release and thus, is conservative.

5. Provide a discussion of the results of DNBR calculations and demonstrate that the applicable acceptance fuel failure criteria in Standard Review Plan 15.6.2, "Radiological Consequences of the Failure of Small Lines Carrying Primary Coolant Outside Containment," are met.

6. The proposed TS changes revise the LCO limits on specific activity of the reactor coolant . The licensee stated that the changes were based on the results of the letdown line break (LDLB) reanalysis. The licensee is requested to confirm that the LDLB event is the limiting event for establishing the acceptance limits for RCS specific activity. Considering that different methods and computer codes, values of input parameters were used in the LDLB reanalysis, the staff requests the licensee to provide information discussing all the events that were considered in determination of the limiting case, and discuss applicable analytical results to demonstrate that the LDLB reanalysis is limiting and conservative.

7. On page 2 of 12 of the submittal, it states that the pre-accident letdown flow assumed in the development of the iodine spiking model depicted in FSAR Figure 15.1-75 was determined by you to be non-conservative. The reasoning was that the original model assumed the normal configuration of 1 charging pump being in operation, whereas during periods of elevated activity levels in the RCS, the letdown flow will be maximized for RCS cleanup in accordance with site off normal procedures. Therefore, two, or possibly three, charging pumps may be in operation. You revised the iodine spiking model to bound the letdown flow expected from 3 charging pumps being in operation.

   The standard model of the accident-induced iodine spike (as documented in Standard Review Plan (SRP) 15.6.2 for small line breaks) assumes that the iodine appearance rate from the fuel rods to the primary coolant increases to a value 500 times greater than the appearance rate corresponding to the iodine concentration at the equilibrium value stated in the TS. The letdown flow rate used in the calculation of the accident induced iodine spike should therefore be based on normal operating conditions, which is, for Waterford 3, one charging pump in operation. By performing this calculation in this manner, the dose from an accident-induced spike should be shown to be below the acceptance criteria of a small fraction of Part 100 for offsite dose. The justification given in the submittal for the dose being higher than the SRP 15.6.3 acceptance criteria is not acceptable to the staff.

8. A control room habitability analysis is not done for this submittal. Considering that the revised Exclusion Area Boundary thyroid doses for the pre-existing iodine spike are calculated to be higher than that for the LOCA, which is the basis for the current control room habitability analysis, why weren’t the control room doses calculated?

If Waterford 3 is planning to submit a supplement to address the above questions, it should address the following points/factors:

1. The new isolation valve closure time (which was the issue that started it all)

2. Dose conversion factors

3. Initial RCS activity

4. Calculation with a pre-existing Iodine spike (which was not done by Waterford 3 before, and there is an internal condition report on the issue).

5. Finally, once these changes are made, a dose analysis with the changes need to be submitted.

cc:

Mr. Michael E. Henry, Administrator
and State Liaison Officer
Department of Environmental Quality
P. O. Box 82135
Baton Rouge, LA 70884-2135

Vice President, Operations Support
Entergy Operations, Inc.
P. O. Box 31995
Jackson, MS 39286-1995

Director
Nuclear Safety Assurance
Entergy Operations, Inc.
17265 River Road
Killona, LA 70066-0751

Wise, Carter, Child & Caraway
P. O. Box 651
Jackson, MS 39205

General Manager Plant Operations
Waterford 3 SES
Entergy Operations, Inc.
17265 River Road
Killona, LA 70066-0751

Licensing Manager
Entergy Operations, Inc.
17265 River Road
Killona, LA 70066-0751

Winston & Strawn
1400 L Street, N.W.
Washington, DC 20005-3502

Resident Inspector/Waterford NPS
P. O. Box 822
Killona, LA 70066-0751

Regional Administrator, Region IV
U. S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

Parish President Council
St. Charles Parish
P. O. Box 302
Hahnville, LA 70057

Executive Vice-President
and Chief Operating Officer
Entergy Operations, Inc.
P. O. Box 31995
Jackson, MS 39286-1995

Chairman
Louisiana Public Services Commission
Baton Rouge, LA 70825-1697