



ENTERGY

Entergy Operations, Inc.
P.O. Box 8
Kilgus, LA 70066
Tel 504 739-6774

R. J. Surski
District
Plant Safety
Waterford 3

W3F1-91-0044
A4.05
QA

March 14, 1991

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

Subject: Waterford 3 SES
Docket No. 50-382
License No. NPF-38
Request for Temporary Waiver of Compliance
Technical Specification 3/4.7.1, Turbine Cycle

Gentlemen:

This letter provides written documentation to followup Entergy Operations, Inc.'s verbal request on March 14, 1991, regarding a temporary waiver of compliance from Waterford 3 Technical Specification 3/4.7.1, "Turbine Cycle," Limiting Condition for Operation, 3.7.1.1. The temporary waiver of compliance is requested for a period of 48 hours to allow plant operation until the planned shutdown to be initiated at 2400 on March 15, 1991. The basis for this request is attached; it has been reviewed by the Plant Operations Review Committee and approved by the General Manager - Plant Operations.

Should you have further questions concerning the attached information, please contact me or L.W. Laughlin at (504) 739-6331.

Very truly yours,

RFB/TWG/ssf
Attachment

cc: Messrs. D.L. Wigginton, NRC-NRR
E.L. Blake
R.B. McGehee
NRC, Document Control Room
NRC Resident Inspectors Office

91-592

9103260018 910315
PDR ADOCK 05000382
P PDR

Waterford 3 Temporary Waiver of Compliance
for Technical Specification 3/4.7.1,
"Turbine Cycle"

Limiting Condition for Operation

Waterford 3 Technical Specification 3/4.7.1 has a limiting condition for operation based upon the operability of the main steam line safety valves. Limiting Condition for Operation 3.7.1.1 states that:

"All main steam line code safety valves shall be OPERABLE with lift settings as specified in Table 3.7-1.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With both reactor coolant loops and associated steam generators in operation and with one or more main steam line code safety valves inoperable, operation in MODES 1, 2, and 3 may proceed provided, that within 4 hours, either the inoperable valve is restored to OPERABLE status or the Linear Power Level-High trip setpoint is reduced per Table 3.7-2; otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. The provisions of Specification 3.0.4 are not applicable."

Basis of Request for Temporary Waiver

Entergy Operations, Inc. has identified a condition at Waterford 3 where literal compliance with the Technical Specifications will result in an unnecessary reduction in plant power output. Furthermore, with the reactor operating near the end of the current operating cycle, any reduction in power to satisfy the associated Technical Specification ACTION statement would most likely result in a Xenon transient that would ultimately result in a plant shutdown.

As part of a detailed analysis prior to a scheduled surveillance, the Waterford 3 plant staff has noted a condition which could, in the final analysis, result in 8 main steam line code safety valves being set below the Technical Specification allowable band of +/- 1 per cent.

In preparation for the scheduled main steam safety valve lift pressure surveillance, Waterford 3 maintenance personnel conducted a detailed review of safety valve data, including the results of previous surveillance efforts. This included a comparison between the vendor supplied information for the safeties and the information that Furmanite Testing used to calculate the setpoints.

This review indicates that previous setpoint adjustments for the safety valves may have been below the Technical Specification allowable band because the setpoint calculations were based on dimensional information that has been found to be in error.

Specifically, it appears that the vendor that performed the most recent setpoint adjustment used an incorrect dimension for the valve seat outside diameter.

Waterford 3's main steam line code safety valves are set using a "mean seat diameter" that is a straight average of the outside diameter of the valve seat and the inside diameter of the nozzle throat. The "mean seat area" is then derived from the calculated "mean seat diameter."

The actual outside diameter of the valve seat used in the Waterford 3 main steam safeties is 7.230 inches. Review of the data used to calculate the lift pressure setpoint indicates that the vendor that performed the testing used an outside diameter of 6.812 inches for the valve seat.

Using the smaller value for the outside diameter results in a smaller value for the "mean seat area." Assuming an actual seat area that is larger than the seat area used in the calculations, it follows that any attempt to set the relief valve will result in an actual lift pressure that is less than the intended lift pressure. It appears as if the 0.418 inch difference between the actual diameter and the diameter assumed in the setpoint adjustment has the effect of reducing the typical lift pressure by approximately 10 to 12 psig.

This condition has most likely existed at Waterford 3 since the first Refueling Outage as Furmanite has done the Trevitesting on the main steam line safety valves in the plant. It appears that the root cause of this problem is that Furmanite used valve dimensions from a valve that is similar- but not identical- to the valves installed at Waterford 3. This error has not been previously identified, mainly because the exact valve dimensions are considered proprietary information by the manufacturer, the Crosby Valve and Gage Co. In fact, the exact valve dimensions have generally not been made available to Waterford 3 engineers.

Safety Significance and Potential Consequences

An engineering evaluation concluded that this request does not involve a significant increase in the probability or consequences of an accident previously evaluated in the FSAR. The change in lift pressure does not alter the probability of an event occurring. The reduction in pressure is small enough so that the likelihood of an inadvertent safety valve actuation is not significant. Although the safety valves will lift earlier during a given event, this will have a negligible effect on dose release during the event.

In addition, an engineering evaluation concluded that this request does not create the possibility of a new or different kind of accident from any accident previously evaluated in FSAR. The lower lift pressure of the safety valve does not create a new accident; spurious opening of a main steam safety is currently analyzed in the FSAR.

The engineering evaluation further concluded that this request does not involve a significant reduction in the margin of safety. In fact, the lower lift pressure increases the margin in safety for overpressure transients in the steam generator. It also increases the removal rate of decay heat since slightly more steam will be released for given lift transient. The additional steam has a negligible effect on dose released.

The engineering evaluation also concluded that operation in deviation from Technical Specification 3/4.7.1 can be accomplished without irreversible environmental consequences because the main steam activity level is low under normal operating conditions.

Finally, this request for waiver is for 48 hours when all main steam safety valves can be tested and reset to the Technical Specification required condition. Testing of the safety valves is currently in progress. It is scheduled to be complete by 2300 on March 15, 1991.

Until testing is complete and correct settings can be verified for the main steam safety valves, the lift setpoints for the safeties may be approximately 1 percent low. The early opening of main steam safety valves during any potential event has a negligible impact on the consequences of that event.

TABLE 3.7-1

STEAM LINE SAFETY VALVES PER LOOP

	<u>VALVE NUMBER</u>		<u>LIFT SETTING ($\pm 1\%$)[*]</u>	<u>ORIFICE SIZE</u>
	<u>Line No. 1</u>	<u>Line No. 2</u>		
a.	2MS-R613A (MS-106A)	2MS-R619B (MS-106B)	1070 psig	26 in ²
b.	2MS-R614A (MS-108A)	2MS-R620B (MS-109B)	1085 psig	26 in ²
c.	2MS-R615A (MS-110A)	2MS-R621B (MS-110B)	1100 psig	26 in ²
d.	2MS-R616A (MS-112A)	2MS-R622B (MS-112B)	1115 psig	26 in ²
e.	2MS-R617A (MS-113A)	2MS-R623B (MS-113B)	1125 psig	26 in ²
f.	2MS-R618A (MS-114A)	2MS-R624B (MS-114B)	1135 psig	26 in ²

*

The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

TABLE 3.7-2MAXIMUM ALLOWABLE LINEAR POWER LEVEL-HIGH TRIP SETPOINT WITH INOPERABLE
STEAM LINE SAFETY VALVES DURING OPERATION WITH BOTH STEAM GENERATORSMAXIMUM NUMBER OF INOPERABLE SAFETY
VALVES ON ANY OPERATING STEAM GENERATORMAXIMUM ALLOWABLE LINEAR POWER
LEVEL-HIGH TRIP SETPOINT
(PERCENT OF RATED THERMAL POWER)

1	86.8
2	69.4
3	52.1
4	34.7