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Waterford 3

W3F1-2001-0083
A4.05
PR

September 4, 2001

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

Subject: Waterford 3 SES
Docket No. 50-382
License No. NPF-38
Technical Specification Bases Update to the NRC
For the Period June 12, 2001 through August 31, 2001

Gentlemen:

Pursuant to Waterford Steam Electric Station Unit 3 Technical Specification 6.16, Entergy Operations, Inc. (EOI) hereby submits an update of all changes made to Waterford 3 Technical Specification Bases since the last submittal per letter W3F1-2001-0047, dated June 25, 2001. This TS Bases update is consistent with the update frequency listed in 10 CFR 50.71(e).

This letter does not contain any commitments. Should you have any questions or comments concerning this submittal, please contact Ron Williams at (504) 739-6255.

Very truly yours,

A.J. Harris
Director
Nuclear Safety Assurance

A001

AJH/RLW/cbh
Attachment Waterford 3 Technical Specification Bases Revised Pages

cc: E.W. Merschoff (NRC Region IV), N. Kalyanam (NRC-NRR),
J. Smith, N.S. Reynolds, and NRC Resident Inspectors Office

ATTACHMENT 1
TO W3F1-2001-0083

Waterford 3 Technical Specification Bases Revised Pages

T.S. Bases Change No.	Implement Date	Affected TS Bases Pages	Topic of Change
Bases Change No. 6	8/17/01	B 3/4 6-6, B 3/4 6-6a (new page), and B 3/4 6-6b (new page)	Implementation of TS Amendment 171, Revise TS 3/4.6.5, Vacuum Relief Valves.

3/4.6.4 COMBUSTIBLE GAS CONTROL

The OPERABILITY of the equipment and systems required for the detection and control of hydrogen gas ensures that this equipment will be available to maintain the hydrogen concentration within containment below its flammable limit during post-LOCA conditions. Either recombiner unit is capable of controlling the expected hydrogen generation associated with (1) zirconium-water reactions, (2) radiolytic decomposition of water, and (3) corrosion of metals within containment. These hydrogen control systems are consistent with the recommendations of Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a LOCA," March 1971.

SURVEILLANCE REQUIREMENT SR 4.6.4.2.a requires performance of a system functional test for each hydrogen recombiner to ensure that the recombiners are operational and can attain and sustain the temperature necessary for hydrogen recombination. In particular, this SR requires verification that the minimum heater sheath temperature increases to $\geq$ 700°F in $\leq$ 90 minutes. After reaching 700°F, the power is increased to maximum for approximately 2 minutes and verified to be $\geq$ 60 kW.

SURVEILLANCE REQUIREMENT SR 4.6.4.2.b ensures that there are no physical problems that could affect recombiner operation. Since the recombiners are mechanically passive, they are not subject to mechanical failure. The only credible failures involve loss of power, blockage of the internal flow path, missile impact, etc. A visual inspection is sufficient to determine abnormal conditions that could cause such failures.

SURVEILLANCE REQUIREMENT SR 4.6.4.2.c requires performance of a resistance to ground test for each heater phase to ensure that there are no detectable grounds in any heater phase. This is accomplished by verifying that the resistance to ground for any heater phase is $\geq$ 10,000 ohms.

3/4.6.5 VACUUM RELIEF VALVES

The vacuum relief valves protect the containment vessel against negative pressure (i.e., a lower pressure inside than outside). Excessive negative pressure inside containment can occur if there is an inadvertent actuation of Containment Spray System. Multiple equipment failures or human errors are necessary to have inadvertent actuation.

The containment pressure vessel contains two 100% vacuum relief lines installed in parallel that protect the containment from excessive external loading. The vacuum relief lines are 24 inch penetrations that connect the shield building annulus to the containment. Each vacuum relief line is isolated by a pneumatically operated butterfly valve in series with a check valve located on the containment side of the penetration.

3/4.6.5 VACUUM RELIEF VALVES (Continued)

Each butterfly valve is actuated by a separate pressure controller that senses the differential pressure between the containment and the annulus. Each butterfly valve is provided with an air accumulator that allows the valve to open following a loss of instrument air.

The combined pressure drop at rated flow through either vacuum relief line will not exceed the containment pressure vessel design external pressure differential of 0.65 psi.

Design of the vacuum relief lines involves calculating the effect of an inadvertent containment spray actuation that can reduce the atmospheric temperature (and hence pressure) inside containment (Ref. FSAR Chapter 6.2). Conservative assumptions are used for pertinent parameters in the analysis. The containment was designed for an external pressure load equivalent to 0.65 psi. The inadvertent actuation of the Containment Spray System was analyzed assuming one of the two vacuum relief lines failed to open. The resulting external pressure load on containment was less than the allowed design load.

The vacuum relief valves must also perform the containment isolation function in a containment high pressure event. For this reason, the system is designed to take the full containment positive design pressure and the containment design basis accident (DBA) environmental conditions (temperature, pressure, humidity, radiation, chemical attack, etc.) associated with the containment DBA.

The vacuum relief valves satisfy Criterion 3 of the 10 CFR 50.36(c)(2)(ii).

The LCO establishes the minimum equipment required to accomplish the vacuum relief function following the inadvertent actuation of the Containment Spray System. Two vacuum relief lines are required to be OPERABLE to ensure that at least one is available, assuming one or both valves in the other line fail to open.

In MODES 1, 2, 3, and 4, the containment cooling features, such as the Containment Spray System, are required to be OPERABLE to mitigate the effects of a DBA. Excessive negative pressure inside containment could occur whenever these systems are required to be OPERABLE due to inadvertent actuation of these systems. Therefore, the vacuum relief lines are required to be OPERABLE in MODES 1, 2, 3, and 4 to mitigate the effects of inadvertent actuation of the Containment Spray System.

In MODES 5 and 6, the probability and consequences of a DBA are reduced due to the pressure and temperature limitations of these MODES. The Containment Spray System is not required to be OPERABLE in MODES 5 and 6. Therefore, maintaining OPERABLE vacuum relief lines is not required in MODE 5 or 6.

3/4.6.5 VACUUM RELIEF VALVES (Continued)

With one of the required vacuum relief lines inoperable, the inoperable line must be restored to OPERABLE status within 72 hours. The specified time period is consistent with other LCOs for the loss of one train of a system required to mitigate the consequences of a LOCA or other DBA.

If the vacuum relief line cannot be restored to OPERABLE status within the required Allowed Outage Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within the following 30 hours. The Allowed Outage Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

The SR references TS 4.0.5 (Inservice Testing Program), which establishes the requirement that inservice testing of the ASME Code Class 1, 2, and 3 pumps and valves shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda. Therefore, SR Frequency is governed by the Inservice Testing Program.