



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO.130 TO

FACILITY OPERATING LICENSE NO. NPF-38

ENERGY OPERATIONS, INC.

WATERFORD STEAM ELECTRIC STATION. UNIT 3

DOCKET NO. 50-382

1.0 INTRODUCTION

By application dated March 27, 1997, as supplemented by letter dated May 6, 1997, Entergy Operations, Inc. (the licensee), submitted a request for changes to the Waterford Steam Electric Station, Unit 3 (Waterford 3), Technical Specifications (TSs). The requested changes would revise Technical Specification 3/4.5.2, "ECCS Subsystems - Modes 1, 2, and 3." The proposed changes add a surveillance requirement to verify the Emergency Core Cooling System (ECCS) piping is full of water at least once per 31 days, and clarifies wording of surveillance requirement 4.5.2.j. The licensee also requested to revise the TS Bases 3/4.5.2 and 3/4.5.3 to reflect new changes.

The May 6, 1997, letter provided additional information that did not change the scope of the initial proposed no significant hazards consideration determination.

2.0 EVALUATION

The ECCS or Safety Injection System (SIS) is designed to operate following a Loss of Coolant Accident (LOCA). The SIS is comprised of the High Pressure Safety Injection System (HPSI), Low Pressure Safety Injection System (LPSI) and Safety Injection Tanks (SITs). The SIS is activated by the Safety Injection Actuation Signal (SIAS) which is initiated by either low pressurizer pressure or high containment pressure. The SIAS automatically starts the HPSI and LPSI pumps and opens the motor operated valves that provide a flow path from the discharge of these pumps to the reactor coolant system (RCS). The HPSI and LPSI pumps initially take suction from the Refueling Water Storage Pool (RWSP) and deliver borated water to the RCS for the removal of heat generated in the reactor core.

When RCS pressure drops below the SIT cover pressure, the four SITs automatically discharge their contents into the RCS. This independent phase of operation does not rely on operator action or an electrical signal. Check valves inside containment isolate the SITs from the rest of the ECCS systems. From the SI flow control valves outside containment the SI piping rises before entering the containment penetrations forming local piping high points at the

containment penetrations. When the SITs are pressurized, nitrogen laden water may leak past the check valves inside containment and depressurize allowing the nitrogen to come out of solution forming nitrogen gas pockets (voids) at the local piping high point.

Some events in December 1996, and January 1997, at Waterford 3 have revealed that some nitrogen gas pockets are accumulating in the LPSI system piping at the containment penetrations. Vents were not provided in this portion of the LPSI piping during the original Waterford 3 design. To eliminate these voids, the licensee is installing vents in this portion of the LPSI piping during current Refueling Outage (RFO) 8. Similar events have not been identified in the High Pressure Safety Injection (HPSI) system. However, due to similar piping configurations, the licensee indicated that vents will also be added to the HPSI system during RFO 8.

The proposed change to TS 3/4.5.2 will verify that the ECCS is filled with water at least once per 31 days. Verifying the ECCS is full of water at least once per 31 days will provide additional assurance that the system will perform properly, injecting its full capacity into the RCS upon demand. This will also prevent water hammer, pump cavitation, and pumping of noncondensable gas (e.g., air, nitrogen, or hydrogen) into the reactor vessel following an SIAS or during the shutdown cooling mode of operation. The 31 day frequency takes into consideration the gradual nature of gas accumulation in the ECCS piping and the adequacy of the procedural controls governing system operation. This surveillance requirement and frequency are based on the ECCS Specification in NUREG 1432, "Standard Technical Specifications - Combustion Engineering Plants". Therefore, the staff concludes that the proposed change is acceptable.

By letter dated May 6, 1997, licensee requested to clarify wording of surveillance requirement 4.5.2.j to make it consistent with the wording in surveillance requirement 4.5.2.b.2. The proposed change will verify that ECCS piping is full of water. This is a clarification of the requirement and it is acceptable to the staff.

The proposed changes to TS Bases 3/4.5.2 and 3/4.5.3 to reflect new surveillance requirement are also acceptable to the staff.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Louisiana State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no

significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding (62 FR 17234). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Date: June 11, 1997