



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 47 TO FACILITY OPERATING LICENSE NO. NPF-86
NORTH ATLANTIC ENERGY SERVICE CORPORATION
SEABROOK STATION, UNIT NO. 1
DOCKET NO. 50-443

1.0 INTRODUCTION

By application dated September 22, 1995, North Atlantic Energy Service Corporation (North Atlantic/the licensee) proposed an amendment to the Appendix A Technical Specifications (TSs) for the Seabrook Station, Unit 1 (Seabrook). The proposed change would modify Technical Specification 3.3.2, Table 3.3-3, Engineered Safety Features Actuation System Instrumentation. Specifically, ACTION 18 would be changed to ACTION 15 for Functional Unit 8.b, Automatic Switchover to Containment Sump - RWST Level Low-Low.

ACTION 15 would require placing an inoperable channel in the bypassed condition instead of the tripped condition as currently required by ACTION 18. ACTION 15 does not specify a time interval for placing the channel into bypass whereas ACTION 18 specifies the affected channel is to be placed in the tripped condition within 6 hours. However, North Atlantic has stated that ACTION statements without explicit time requirements are interpreted to be performed immediately. North Atlantic asserts that the proposed change would correct an error that should have been identified during review and acceptance of the Technical Specifications.

2.0 EVALUATION

The Seabrook Emergency Core Cooling System (ECCS) consists of the centrifugal charging pumps (CCPs), safety injection (SI) pumps, the residual heat removal (RHR) pumps and heat exchangers, safety injection accumulators, the refueling water storage tank (RWST), and associated valves and piping. If a small leak of coolant from the reactor coolant system (RCS) develops, the small capacity high head CCPs will be used to replace the coolant lost. If the leak is larger than the capacity of the CCPs, the pressurizer level will decrease until the low level setpoint is reached. This will initiate a reactor trip and a safety injection signal which will start the CCPs, the SI pumps, and the RHR pumps, and align suction of these pumps to the RWST. During the injection phase, water from the RWST will be injected into the RCS to cool the reactor. As water is injected from the RWST, the level will decrease. When two out of four RWST level channels indicate a RWST level less than the low-low setpoint coincident with the safety injection signal, automatic changeover to the recirculation phase will be initiated. The changeover to the recirculation

phase will open the containment sump recirculation isolation valves to align the RHR pumps to take suction from the containment sump. Manual operator action is required to align the CCPs to operate in series with the RHR pumps to complete the changeover.

Initially, the containment sump is dry, but as the loss of coolant accident continues and coolant is lost from the RCS, the sump will begin to fill and the RWST level will decrease. The switchover to the sump must occur before the RWST is empty to prevent damage to the ECCS pumps and subsequent loss of cooling capability. For the same reasons, the switchover must not occur until there is sufficient water in the sump to support operation of the pumps. Additionally, the proper timing of the switchover assures that sufficient borated water from the RWST will have been injected (and leaked to the sump) to assure the reactor will remain shut down in the recirculation mode. Thus, the condition where two channels of the RWST low-low level protection function are prematurely tripped is not conservative.

If an inoperable Functional Unit 8.b. channel were tripped as required by ACTION 18 and a single active failure of another channel of Functional Unit 8.b. occurs in the presence of an SI signal, the containment sump recirculation isolation valves could open prematurely potentially adversely affecting the ECCS function. North Atlantic asserts that placing the inoperable channel in bypass, as required by ACTION 15, precludes premature switchover to recirculation in the event of a single active failure of another Functional Unit 8.b. channel in the presence of an SI signal. With the inoperable channel in bypass, the output logic is changed to two out of three from two out of four. The proposed change to ACTION 15 would not alter the minimum number of channels required to be operable.

The proposed change as described above would be consistent with the corresponding table in NUREG-0452, Rev. 4, *Standard Technical Specifications for Westinghouse Pressurized Water Reactors*, Fall 1981. The proposed change would also be consistent with Table 3.3.2-1 of NUREG-1431, Rev. 1, *Standard Technical Specifications Westinghouse Plants*.

The staff has reviewed the proposed change and concludes that premature switchover to the containment sump has the potential to cause damage to the ECCS pumps or could result in air binding of the pumps. The staff, further, concludes that placing an inoperable channel of Functional Unit 8.b. in the tripped condition could, in the event of a single active failure of another Functional Unit 8.b. channel in the presence of an SI signal, result in premature switchover. This can be precluded by placing the inoperable channel in bypass. With the channel in bypass, the protective function will still be provided with redundancy, and the minimum number of channels required to be operable will be unchanged.

Therefore, based upon this review and the consistency of the proposed change to the Standard Westinghouse Technical Specifications (NUREG-0452 and NUREG-1431), the staff finds the proposed change acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New Hampshire and Massachusetts State officials were notified of the proposed issuance of the amendment. The State officials 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. 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 (60 FR 62493). 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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