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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 95 TO FACILITY OPERATING LICENSE NPF-35

AND AMENDMENT NO. 89 TO FACILITY OPERATING LICENSE NPF-52

DUKE POWER COMPANY, ET AL.

CATAWBA NUCLEAR STATION, UNITS 1 AND 2

DOCKET NOS. 50-413 AND 50-414

1.0 INTRODUCTION

On June 25, 1990, the Nuclear Regulatory Commission (NRC) issued Generic Letter 90-06, "Resolution Of Generic Issue 70, 'Power-Operated Relief Valve and Block Valve Reliability,' and Generic Issue 94, 'Additional Low-Temperature Overpressure Protection for Light-Water Reactors,' Pursuant to 10 CFR 50.54(f)." The generic letter represented the technical resolution of the above mentioned generic issues.

Generic Issue 70, "Power-Operated Relief Valve and Block Valve Reliability," involves the evaluation of the reliability of power-operated relief valves (PORVs) and block valves, and their safety significance in PWR plants. The generic letter discussed how PORVs are increasingly being relied on to perform safety-related functions and the corresponding need to improve the reliability of both PORVs and their associated block valves. Proposed staff positions and improvements to the plant technical specifications were recommended to be implemented at all affected facilities. This issue is applicable to all Westinghouse, Babcock & Wilcox, and Combustion Engineering designed facilities with PORVs.

Generic Issue 94, "Additional Low-Temperature Overpressure Protection for Light-Water Reactors," addresses concerns with the implementation of the requirements set forth in the resolution of Unresolved Safety Issue (USI) A-26, "Reactor Vessel Pressure Transient Protection (Overpressure Protection)." The generic letter discussed the continuing occurrence of overpressure events and the need to further restrict the allowed outage time for a low-temperature overpressure protection channel in operating modes 4, 5, and 6. This issue is only applicable to Westinghouse and Combustion Engineering facilities.

By letter dated May 9, 1991, Duke Power Company, et al. (the licensee), proposed changes to the Catawba Nuclear Station, Units 1 and 2, Technical Specifications in response to Generic Letter 90-06. By letter dated December 18, 1991, the NRC provided clarifications and requested revisions to the licensee's submittal. By letter dated February 6, 1992, the licensee responded with revisions that are consistent with the guidance of GL 90-06. The February 6, 1992, letter provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

2.1 Evaluation For Generic Issue 70

The actions proposed by the NRC staff to improve the reliability of PORVs and block valves represent a substantial increase in overall protection of the public health and safety and a determination has been made that the attendant costs are justified in view of this increased protection. The technical findings and the regulatory analysis related to Generic Issue 70 are discussed in NUREG-1316, "Technical Findings and Regulatory Analysis Related to Generic Issue 70, 'Evaluation of Power-Operated Relief Valve Reliability in PWR Nuclear Power Plants.'"

The Technical Specification (TS) changes in response to Generic Issue 70, "Power-Operated Relief Valve and Block Valve Reliability," consist of changes to TS 3/4.4.4, Relief Valves. An assessment of the proposed TS against the model TS of Generic Letter (GL) 90-06 for a Westinghouse plant with three PORV's follows.

Action statement a. is changed to require that power be maintained to the block valves when they are closed due to excessive PORV leakage.

Action statements a., b., c., and d. have been modified such that they terminate in HOT SHUTDOWN within six hours of the preceding action instead of terminating in COLD SHUTDOWN within 30 hours of the preceding action.

Action statement b. is changed to include the case where one or two PORVs (versus one before) are inoperable. Action statement c. is changed to require that at least one PORV must be restored, etc., with three PORVs inoperable instead of requiring each PORV to be restored, etc., when more than one is inoperable.

The licensee states that the change submitted for action statement d. deviates slightly from the guidance in the GL in that the action statement only applies when the block valves are inoperable and not closed (per the addition of the phrase "and not closed"). The licensee considers that if the block valves are inoperable while closed, then the PORV flow path itself would be considered to be inoperable, and accordingly, action statement b. or c. would govern the required action.

Action statement d. also deviates from the GL in the directions for positioning of the PORV switches in the event of inoperable block valves(s). The GL guidance was to place the PORV (with an operable block valve) in manual control to preclude its automatic opening and subsequent potential for a stuck-open PORV. The Catawba PORV switches are labeled "open," "close," and "auto" so the license submits that its proposal to place the PORV switches in the "close" position in such circumstances will likewise preclude automatic PORV opening and the subsequent potential for a stuck-open PORV when the block valve is inoperable and not closed.

The licensee's initially proposed Surveillance Requirement (SR) 4.4.4.1 for operating the PORV through one complete cycle of full travel did not include the stipulation that this be done in MODES 3 or 4. The licensee stated that it does stroke the valves during MODE 4, but concludes that it would not be appropriate to include an SR for a MODE 4 action in this TS since the TS's applicability is only to MODES 1, 2, and 3. This was addressed by a letter

from the NRC staff dated December 18, 1991. The licensee's response dated February 6, 1992, indicates that this testing will be done at temperatures greater than 200°F which is consistent with entry into MODE 4 conditions. This is an acceptable response to this concern.

The licensee's proposed SR 4.4.4.1 does not require operating the solenoid air control valves and check valves on accumulators in PORV control systems through a complete cycle of full travel. This is because the action required by SR 4.4.4.3., fully stroking the PORVs while aligned to the emergency nitrogen supply, cycles the necessary valves. Therefore, the licensee did not expand SR 4.4.4.1 to include this requirement.

The guidance contained in the GL for SR 4.4.4.3 indicates that motive and control power for the PORVs and block valves should be manually transferred from the normal to the emergency power bus. This would be directly applicable to a design wherein non-safety related electrical power supplies for both motive and control power are provided for these valves. However, the Catawba PORVs are air operated; the block valves are electrically powered from an essential (emergency or safety related) bus, and control power is from essential sources for the PORV and the block valves. The Catawba SR 4.4.4.3, as currently written, appropriately addresses the PORV motive power transfer from normal (air) to the emergency (nitrogen) supply to demonstrate operability of the emergency nitrogen supply. Since the block valves' motive and control power is normally from essential electrical power, their inclusion in SR 4.4.4.3 is extraneous and the licensee has proposed its removal from SR 4.4.4.3.

The NRC staff has reviewed the licensee's proposed modifications to the Catawba Nuclear Station Technical Specifications. Since the proposed modifications are consistent with the staff's position previously stated in the GL and found to be justified in the above mentioned regulatory analysis, the staff finds the proposed modifications to be acceptable.

The licensee has also expanded the BASES Section 3/4.4.4 to identify the major function of the PORVs and block valves as follows:

1) Manual control of Reactor Coolant System pressure following accidents,

2) Maintaining reactor coolant pressure boundary integrity by controlling leakage,

3) Manual control of block valves to isolate and unblock PORVs (for manual pressure control and for controlling PORV seat leakage),

4) Automatic control of Reactor Coolant System pressure, except for limited periods when the PORV has been isolated due to excessive seat leakage and except for limited periods where the PORV and/or block valve is closed because of testing and is fully capable of being returned to its normal alignment at any time, provided that this evolution is covered by an approved procedure. This is a function that reduces challenges to the code safety valves for overpressurization events.

5) Manual control of block valves to isolate a stuck-open PORV.

These expanded BASES are consistent with the guidance of GL 90-06.

2.2 Evaluation For Generic Issue 94

The actions proposed by the NRC staff improve the availability of the low-temperature overpressure protection (LTOP) system represents a substantial increase in the overall protection of the public health and safety and a determination has been made that the attendant costs are justified in view of this increased protection. The technical findings and the regulatory analysis related to Generic Issue 94 are discussed in NUREG-1326, "Regulatory Analysis for the Resolution of Generic Issue 94, 'Additional Low-Temperature Overpressure Protection for Light-Water Reactors.'"

The TS changes in response to Generic Issue 94, "Additional Low-Temperature Overpressure Protection for Light Water Reactors," include changes to TS 3/4.4.9.3, "Overpressure Protection Systems." An assessment of the proposed TS against the model TS of GL 91-06 for a Westinghouse plant follows.

The licensee notes that the GL TS proposes that the APPLICABILITY of the Limiting Condition for Operating (LCO) for TS 3.4.9.3 be changed to exclude MODE 6 when the Reactor Coolant System (RCS) is adequately vented and that the depressurizing and venting of the RCS not be classified as an overpressure protection system. The GL also proposes that an additional action statement be added to specify verifying the vent pathway when the RCS is depressurized and vented. The licensee concludes that this proposed structure appears inappropriate, because once the RCS is vented, LCO 3.4.9.3. would no longer apply and the action statement requiring verification of the vent pathway would, therefore, not have to be entered. For this reason, the licens - proposed that the present structure of the Catawba TS be maintained in that the depressurizing and venting of the RCS will continue to be classified as an overpressure protection system and the requirement to verify the vent pathway when the system is depressurized and vented will continue to be governed by SR 4.4.9.3.2.

The NRC staff has considered the licensee's proposal and agrees with it since it would not be consistent with the intent of the GL to fail to verify the vent pathway when the vent is being used for overpressure protection. Therefore, the TSs proposed by the licensee in its item 3.4.9.3.b and 4.4.9.3.2 are acceptable.

The licensee proposes to change the language of the APPLICABILITY statement from "...with the reactor vessel head on." to "...when the head is on the reactor vessel.," consistent with the language of the GL. This is acceptable.

Action statement a. is proposed to be modified to clarify that it is only applicable in MODE 4. This is consistent with the guidance in the GL and is acceptable.

Action statement b. is added to reduce the allowable outage time for an inoperable PORV in MODES 5 or 6 from 7 days to 24 hours. This is consistent with a key position of GL 90-06 for the resolution of Generic Issue 94 and is acceptable.

Action statement a., new statement b., and renumbered statement c. are clarified by inclusion of the words "...complete depressurization and venting of..." in lieu of "...depressurize and vent..." This clarifies that these actions must be completed within the specific period. This clarification proposed by the licensee is acceptable.

The licensee proposes to simplify SR 4.4.9.3 by removing requirements that exist because of general requirements applicable to all surveillance requirements as specified in Section 4.0 of the TS. This is consistent with GL 90-06 guidance and is acceptable.

The NRC staff has reviewed the licensee's proposed modifications to the Catawba Nuclear Station Technical Specifications. Since the proposed modifications are consistent with the staff's position previously stated in the generic letter and justified in the above mentioned regulatory analysis, the staff finds the proposed modifications to be acceptable.

3.0 STATE CONSULTATION

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

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements 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 amendments involve 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 amendments involve no significant hazards consideration, and there has been no public comment on such finding (56 FR 31433). Accordingly, the amendments meet 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 amendments.

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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

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