

Docket Nos. 50-325/324

Mr. E. E. Utley
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Dear Mr. Utley:

SUBJECT: EVALUATION OF THE JUSTIFICATION FOR LACK OF MAIN STACK RADIATION MONITOR TECHNICAL SPECIFICATIONS - BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 (TAC NOS. 65316/65317)

The staff issued a Safety Evaluation (SE), dated March 5, 1987, which approved the Carolina Power & Light Company's proposed design to meet the requirements of NUREG-0737, Item II.E.4.2(7), at the Brunswick Steam Electric Plant. However, two conditions were imposed on the licensee by the staff in the SER. They were: (1) to provide operability Technical Specifications (TS) for the main stack radiation isolation signal circuitry; and (2) to establish a set-point on the stack monitor for the purge and vent line isolation signal which does not exceed a small fraction (10%) of the guideline values of 10 CFR Part 100. The need for the TS requirement for this Item is noted Enclosure 2 of NUREG-0737.

You evaluated the staff's SE, and responded by letter dated April 23, 1987 where you indicated that: (1) additional TS for the operability of the main stack monitor are unnecessary, and (2) setpoints on the stack monitor are listed and controlled in the Brunswick Offsite Dose Calculation Manual.

The staff has completed its review of your April 23 response, and its evaluation and conclusion are provided in the attached SE (Enclosure 1). The staff has determined that you should submit TS for the operability of the main stack monitor signal circuitry to isolate containment purge and vent valves. The existing stack monitor setpoints are approved since they are more conservative than 10 CFR Part 100. The licensee should submit the TS within 45 days of receipt of this letter.

Sincerely,

¹⁵¹
Ernest D. Sylvester, Sr. Project Manager
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Enclosure:
As stated

cc w/encl:
See next page (LTR. TO UTLEY FROM SYLVESTER)

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Units 1 and 2

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SAFETY EVALUATION BY THE OFFICE OF NRR
RELATING TO TECHNICAL SPECIFICATION CHANGES FOR
MAIN STACK RADIATION MONITOR
BRUNSWICK STEAM ELECTRIC PLANT UNITS 1 AND 2
DOCKET NOS. 50-325/324

1.0 INTRODUCTION

NUREG-0737, TMI Action Item II.E.4.2, "Containment Isolation Dependability," states that the containment isolation dependability should include Position (7), "Containment Purge and Vent Isolation Valves must close on a high radiation signal." This was one of the Post-TMI Requirements transmitted to all licensees by the staff in 1980. As part of this requirement, Enclosure 2 of NUREG-0737 notes that Technical Specifications (TS) should also be provided.

By letter dated December 16, 1983, the licensee, Carolina Power & Light Company (CP&L) committed to provide drywell purge and vent valve isolation on primary containment high radiation signals in accordance with NUREG-0737, Item II.E.4.2(7). By letters dated August 26, 1986 and December 17, 1986, CP&L provided a description of the plant modifications that they plan in order to implement the requirements of Item II.E.4.2(7) at the Brunswick Steam Electric Plant (BSEP), Units 1 and 2. A high radiation signal from the BSEP main stack monitor will be used to isolate the containment purge and vent valves. Because the main stack monitor is in the common release pathway for both Unit 1 and Unit 2, a release from either unit will result in the isolation of both units. A manual override capability will be provided to allow purge and vent valves of the unaffected unit to be returned to their normal status once the cause of the isolation is determined.

On March 5, 1987, the staff completed its review of the above mentioned submittals, and issued a Safety Evaluation (SE), in which the staff determined that using the stack monitor for the high radiation signal to isolate the containment purge and vent valves complies with Item II.E.4.2(7) of NUREG-0737. However, the staff requested that TS be submitted for the operability of the high radiation isolation signal circuitry and that these TS include stack monitor setpoints corresponding to radiation dose limits at the Brunswick exclusion area and low population zone boundaries, i.e., not to exceed a small fraction (10%) of the guideline values of 10 CFR Part 100 for whole-body and thyroid doses.

In response to the staff's request, the licensee stated, in a letter dated April 23, 1987, that the main stack radiation setpoints are listed and controlled in the Brunswick Offsite Dose Calculation Manual, which is

submitted to the staff as part of the Semi-Annual Radioactive Effluent Release Report in accordance with Technical Specification 6.1.3.2. In addition, CP&L has revised Abnormal Operating Procedure 6.2 to address this isolation capability.

In the same April 23, 1987 submittal, CP&L evaluated the staff's SE of March 5, 1987, and determined that the additional TS on the main stack monitor operability requested by the staff are unnecessary. The licensee asserted that the existing TS for the stack radiation monitor provide sufficient assurance of operability. Further, the licensee used three criteria in the Commission's published Proposed Policy Statement on Technical Specification Improvements for Nuclear Power Reactors (52 FR 3788, dated February 6, 1987), as bases that the staff's requested TS are unnecessary. As discussed in this Policy Statement, the Commission does not intend that these criteria be used as the basis for relocation of individual Limiting Conditions for Operation (LCOs) in the TS. LCOs which fail to meet any one or more of the criteria may be removed from the TS. These three criteria are:

Criterion 1. Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

Criterion 2. A process variable that is an initial condition of a Design Basis Accident (DBA) or Transient Analysis (TA) that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Criterion 3. A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a DBA or Transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The licensee reviewed the requested TS against the Commission's criteria and asserted that:

1. The installed radiation isolation signal circuitry is not used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary. This function is performed by the existing drywell area radiation monitors, low reactor water level instrumentation, and high containment pressure instrumentation. The stack monitor and the associated logic circuitry are considered nonsafety-related. The nonsafety-related circuit is isolated from the existing safety-related circuit and, as such, will not affect the existing safety-related isolation signals.
2. The modification does not affect any process variable that is an initial condition of a DBA or TA that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. As stated above, the isolation signal circuitry is isolated from the existing safety-related circuit and, therefore, will not affect the existing safety-related isolation signals.

3. The installed nonsafety-related isolation signal circuitry is not part of the primary success path which functions to mitigate a loss-of-coolant accident inside containment. The safety-related low reactor water level and high containment pressure isolation signals fulfill this function. Technical Specifications 3.3.2, 3.3.5.3, 3.3.5.9, 3.11.2.1, and 3.11.2.8 govern the operability of the water level and drywell pressure instrumentation as well as the operability of the main stack radiation monitor and the drywell area radiation monitor, venting and purging procedures, and gaseous radioactive effluent activity.

2.0 EVALUATION

The staff has reviewed the licensee's April 23, 1987 submittal and the associated background information. The staff has determined that the main stack radiation setpoints listed and controlled in the Brunswick Offsite Dose Calculation Manual are based on the guideline values of 10 CFR Part 20 and 10 CFR Part 50, which are more conservative than those of 10 CFR Part 100. Therefore, the staff approves the use of these setpoints provided that its testing requirements be incorporated in the TS.

The staff initiated a conference call on August 20, 1987, to clarify the reasons for the licensee's position of not having TS for the main stack monitor. During the conference call, the licensee stated that:

- ° The main stack monitor signal is not the primary method for isolation of containment purge and vent valves. The primary methods are signals from the existing drywell area radiation monitors, low reactor water level instrumentation, and high containment pressure instrumentation. There are existing TS for these primary isolation signals.
- ° The main stack monitor and the associated logic circuitry are nonsafety-related equipment and therefore, TS are not appropriate.
- ° The main stack monitor signal has not been used as a reference signal in any DBA analysis.
- ° The Commission's Policy Statement on Technical Specification Improvements for Nuclear Power Reactors (52 FR 3788, dated February 6, 1987) provided three criteria that CP&L interpreted as criteria upon which the TS for the main stack monitor signal were deemed unnecessary.

The staff has concluded that TS which address this monitor are necessary. The reasons are as follows:

- ° The main stack monitor signal to isolate the containment purge and vent valves was identified and approved as an additional and equal method for isolation, not a secondary method. Therefore, Brunswick should have TS and surveillance requirements to ensure the operability of the main stack monitor signal circuitry to isolate the containment purge and vent valves.

- ° The main stack monitor and associated logic circuitry are nonsafety-related equipment; but they perform a safety-related function and, therefore, should still be in TS. This is consistent with previous licensing actions.
- ° The stack monitor signal is incorporated in DBA analysis because the DBA analysis assumes a timely isolation signal from either main stack monitor, low reactor water level, or high drywell pressure.
- ° In reviewing the main stack monitor as a primary method to isolate the containment purge and vent valves against the Commission's Policy Statement criteria, the staff finds that the main stack monitor signal is used to detect and indicate a significant abnormal degradation of the reactor coolant pressure boundary, is used to isolate containment purge and vent valves which are fission product barriers, and is part of the primary success path to mitigate the consequences of a loss-of-coolant accident inside containment. Therefore, the main stack monitor signal meets the criteria of the Commission's Policy Statement to have TS. Further, NUREG-0737 Enclosure 2 recognized that changes to the TS would be required.

The staff also reviewed the existing Brunswick TS 3.3.5.9 and the surveillance requirements in 4.3.5.9 to verify that the LCO actions and surveillance test did not include requirements for the main stack monitor signal circuitry to isolate containment purge and vent valves.

3.0 CONCLUSION

On the basis of the above evaluation, the staff has determined that TS should be submitted on the operability of the main stack monitor signal circuitry to isolate containment purge and vent valves. In addition, the existing stack monitor setpoints that are listed in the Brunswick Offsite Dose Calculation Manual are acceptable provided that the testing requirements are incorporated into the TS.

Principal Contributor: A. Chu

Dated: **JUN 03 1988**