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A. B CUTTER
Vice President
Nuclear Services Department

United States Nuclear Regulatory Commission
ATTENTION: Document Control Desk
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RESPONSE TO NRC GENERIC LETTER 89-19
REQUEST FOR ACTION RELATED TO RESOLUTION OF
UNRESOLVED SAFETY ISSUE A-47, "SAFETY
IMPLICATION OF CONTROL SYSTEMS IN LWR
NUCLEAR POWER PLANTS"

Gentlemen:

On September 20, 1989, the NRC Staff issued Generic Letter 89-19 which provided recommendations concerning automatic steam generator overfill protection for all PWR plants and automatic reactor vessel overfill protection for all BWR plants. The Generic Letter also recommended that plant procedures and technical specifications for all plants should include provisions to verify periodically the operability of the overfill protection and to assure that automatic overfill protection is available to mitigate main feedwater (MFW) overfeed events during reactor power operation. The Generic Letter requires licensees to provide notification to NRC by March 19, 1990 of intent to implement the recommendations of the Generic Letter, including anticipated schedule for implementation; or provide appropriate justification for not implementing these recommendations.

CP&L responses to the Generic Letter for the H. B. Robinson Steam Electric Plant, Unit No. 2 (HBR2), the Shearon Harris Nuclear Power Plant (SHNPP), and the Brunswick Steam Electric Plant (BSEP) are as follows:

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Generic Letter 89-19 Recommendations for PWRs - Enclosure 2

(2) Westinghouse-Designed PWR Plants

(a) It is recommended that all Westinghouse plant designs provide automatic steam generator overfill protection to mitigate MFW overfeed events. The design for the overfill protection system should be sufficiently separate from the MFW control system to ensure that the MFW pump will trip on a reactor high-water-level signal when required, even if a loss of power, a loss of ventilation, or a fire in the control portion of the MFW control system should occur. Common-mode failures that could disable overfill protection and the feedwater control system, but would still result in the feedwater pump trip, are considered acceptable failure modes.

(b) It is recommended that plant procedures and technical specifications for all Westinghouse plants include provisions to periodically verify the operability of the MFW overfill protection and ensure that the automatic overfill protection is operable during reactor power operation. The instrumentation should be demonstrated to be operable by the performance of a channel check, channel functional testing, and channel calibration, including setpoint verification. The technical specifications should include appropriate LCOs. These technical specifications should be commensurate with existing plant technical specification requirements for channels that initiate protective actions. Plants that have previously approved technical specifications for surveillance intervals for overfill protection are considered acceptable.

HBR2 Response

The steam generator overfill protection system for HBR2 has a two-out-of-three initiating logic which is safety grade, but uses one of the three channels for both control and protection. This design is encompassed by Group I of Westinghouse-Designed PWR Plants discussed in Enclosure 2 to the Generic Letter.

CP&L has reviewed the design for HBR2 and found that the overfill protection system is sufficiently separate from the control portion of the MFW control system per Generic Letter recommendations, with the possible exception of cable routing as explained below.

Each HBR2 steam generator has three narrow range level transmitters out of which transmitters LT-476 for steam generator "A", LT-486 for steam generator "B" and LT-496 for steam generator "C" are utilized as inputs for the overfill

protection system and MFW Control System.

The power supplies for the MFW Control System and overfill protection are fed through different circuits off the same instrument buses. Since power to these instrument buses is provided from a reliable source, with an alternate power supply available during all plant conditions, power supply through different circuits to these two systems are considered separate. With respect to the routing of power supply cables to these systems, HBR2 cable and conduit lists indicate that these cables are routed through the same trays. Routing of these power supply cables through the same cable trays will be verified by performing a plant walkdown during HBR2 Refueling Outage No. 13, currently scheduled to begin in September 1990. If this plant walkdown indicates that corrective action is required per Generic Letter recommendations, a schedule for completion of the appropriate corrective action shall be provided to NRC by CP&L within 60 days from the date of restart from HBR2 Refueling Outage No. 13.

Process instruments (cards) for these two systems are located in different Analog Instrument Racks. Though the initiating level transmitter for channel III is common for the overfill protection system and MFW Control System, the MFW Control System derives the input through a signal isolator to ensure signal separation between these two systems.

As recommended by the Generic Letter, HBR2 plant procedures and technical specifications include provisions to periodically verify the operability of the MFW overfill protection and ensure that the automatic overfill protection is operable during reactor power operation(Table 4.1-1, Technical Specifications for HBR2, Item 11). The HBR2 technical specifications include appropriate LCOs for this purpose and are commensurate with technical specification requirements for channels that initiate protective action.

SHNPP Response

Automatic steam generator overfill protection has always been a design feature of the Shearon Harris Nuclear Power Plant Engineered Safety Features Actuation System. The steam generator overfill protection system for SHNPP originally had a two-out-of-three initiating logic which was safety grade. This design is encompassed by Group I of the Westinghouse-Designed PWR Plants discussed in Enclosure 2 to the Generic Letter.

During the SHNPP Operating License Review, the NRC staff contended that the two-out-of-three logic for isolation of feedwater and turbine trip on high steam generator level was not completely adequate because one of the three channels was also used for control functions. By letter dated July 15,

1983, CP&L committed to add a fourth steam generator level channel and utilize a two-out-of-four logic for isolation of feedwater and turbine trip on high steam generator level.

This action was completed prior to receipt of the SHNPP operating license and is part of the SHNPP licensing basis. The design feature is discussed in FSAR Section 7.2.2.3.5 and is shown on FSAR Figure 7.3.1-1. In addition, the feature is covered by SHNPP Technical Specification 3/4.3.2. As recommended by the Generic Letter, SHNPP procedures and technical specifications include provisions to periodically verify the operability of the MFW overfill protection and ensure that the automatic overfill protection is operable during reactor power operation. The SHNPP technical specifications include appropriate LCOs for this purpose and are commensurate with technical specification requirements for channels that initiate protective action.

Generic Letter 89-19 Recommendations for BWRs - Enclosure 2

Generic Letter 89-19 contains recommendations that all GE boiling water-reactor (BWR) plant designs such as BSEP, provide automatic reactor vessel overfill protection to mitigate main feedwater overfeed events. The Generic Letter recommends that BWR plant designs with no automatic reactor vessel overfill protection be upgraded by providing a commercial grade (or better) MFW isolation system actuated from at least a one-out-of-one reactor vessel high-water-level system, or justify the design on some defined basis. A reassessment of BWR plant operator procedures and operator training with appropriate modification as required to ensure that operators can mitigate reactor vessel overfill events that may occur via the condensate booster pumps during reduced pressure operation of the system is also recommended by the Generic Letter.

For BWR plants with main feedwater overfill protection, the Generic Letter recommends that plant procedures and technical specifications include provisions to verify periodically the operability of overfill protection and ensure that automatic overfill protection to mitigate main feedwater overfeed events is operable during power operation.

BSEP Response

The BWR Owner's Group (BWROG) is preparing a generic response to Generic Letter 89-19 and anticipates submittal of this response to the NRC by the March 19, 1990 response date required by the Generic Letter. CP&L is participating in the BWROG effort of preparing this generic response. It is CP&L's understanding that the NRC has verbally approved the BWROG request of February 16, 1990, that the March 19, 1990, deadline for BWR responses to the Generic Letter be extended to May 4, 1990. (conversation between Mr. J. G. Partlow,

USNRC and Mr. L. Gifford, General Electric Company). CP&L will provide a response for BSEP to Generic Letter 89-19 requirements per the specifics of the generic response developed on this issue by the BWROG, by May 4, 1990.

Yours very truly,

A. B Cutter

A. B Cutter, having been first duly sworn, did depose and say that the information contained herein is true and correct to the best of his information, knowledge and belief; and the sources of his information are officers, employees, contractors, and agents of Carolina Power & Light Company.

Lewis S. Rowell
Notary (Seal)

My commission expires: 7/12/94

JCP/ecc
Enclosures (648ECC)

cc: Mr. R. A. Becker
Mr. S. D. Ebneter
Mr. L. Garner (NRC - HBR)
Mr. N. B. Le
Mr. R. Lo
Mr. W. H. Ruland
Mr. J. E. Tedrow