



Carolina Power & Light Company

P.O. Box 10429  
Southport, NC 28461

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ROY A. ANDERSON  
Vice President  
Brunswick Nuclear Plant

SERIAL: BSEP 93-0108

United States Nuclear Regulatory Commission  
ATTENTION: Document Control Desk  
Washington, DC 20555

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-325 & 50-324/LICENSE NOS. DPR-71 & DPR-62  
SUPPLEMENTAL RESPONSE - MISCELLANEOUS STEEL VERIFICATION PROGRAM  
TORNADO WIND LOADS ON RB FAN ROOM MISCELLANEOUS STEEL FRAMING

Gentlemen:

The purpose of this letter is to provide supplemental information concerning tornado wind loads on the Reactor Building Fan Room miscellaneous steel framing for the partition walls. In the initial stages of the miscellaneous steel verification program (MSVP) for the Brunswick Steam Electric Plant, Unit Nos. 1 and 2 (BSEP), the governing loading condition with regard to plant safety was established as Dead Load (DL) plus Live Load (LL) plus DBE. During program finalization with the NRC, the question of tornado pressure effects on miscellaneous steel was raised. On August 7, 1992, Carolina Power & Light Company (CP&L) submitted a response to the NRC addressing this concern (NLS-92-224). Specifically, Item 2 of the Technical Issues portion of this response stated that tornado loads were not a factor for the verification of the miscellaneous steel for plant restart based on the following conditions:

1. The MSVP for the Reactor Building is limited to miscellaneous steel below the 117-foot elevation.
2. Below this elevation, the exterior walls are reinforced concrete designed to resist the effects of tornado winds.
3. Interior floors have vent paths (stairways, hatches, and other openings) to relieve pressure from depressurization.
4. The MSVP for the Reactor Buildings has two distinct classes of steel (miscellaneous steel outside the Drywells, and platforms inside the Drywells).

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5. Miscellaneous steel outside the Drywells consists primarily of open horizontal members separated by several feet at various elevations providing no defined barrier for measurable differential pressure.
6. Effects of wind or depressurization are precluded from the Drywell platforms by the design of the Drywell, which is sealed for pressures much higher than 3 psi.

Based on the above conditions, tornado loading effects were excluded from the MSVP Design Criteria for restart evaluations.

During the evaluation of irregularities associated with the miscellaneous steel in the Unit 1 Reactor Building Fan Room, it was discovered through review of the associated design drawings that the vertical steel partition wall frames were designed for tornado wind loading of 400 psf. The evaluation calculations and drawings for Unit 2 were reviewed, and it was found that the corresponding steel was also subjected to the same loading conditions, but was evaluated for DBE loading conditions only in keeping with the MSVP Design Criteria.

Upon confirmation that the tornado loads are the governing load case for the Fan Room partition wall framing, the following plan was developed and initiated:

1. Review of the Unit 2 Fan Room components with irregularities and assessment of their ability to resist the tornado loads while remaining within UFSAR allowables.
2. Review of the original design (drawing details) and assessment of its capability to resist the tornado loads while remaining within UFSAR allowables.
3. Review of Unit 2 Reactor Building drawings for any other cases where miscellaneous steel could be subjected to wind or differential pressure loadings.
4. Determination of how the tornado loading condition on the Fan Room miscellaneous steel was not included in the MSVP.
5. Documentation of the reviews/results and revision/issuance of appropriate Unit 2 calculations addressing this issue.
6. Revision of the MSVP to include tornado loading, where appropriate, and address it in the Unit 1 Restart effort.

Upon completion of the assessment of the Unit 2 Fan Room component irregularities, the components were found to be capable of resisting the tornado loads (400 psf) while remaining within UFSAR allowables. Typical member/connection design details were assessed for the tornado loading conditions (400 psf) and found capable of resisting the resultant forces while remaining within UFSAR allowables. Further verification of such capability was evidenced by determination that the components with irregularities were found to be capable of resisting tornado loads.

Unit 2 Reactor Building drawings (excluding Drywell) have been reviewed and no further instances have been found of any conditions or configurations which would potentially subject the miscellaneous steel to wind or pressurization loadings. The drawings were also reviewed for any notes depicting design loading conditions that are inconsistent with the MSVP Design Criteria for restart.

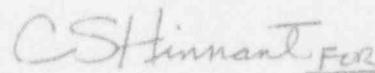
A review of the initial stages of the MSVP revealed that the uniqueness (subjected to tornado loads and design loads noted on the drawing) of the Fan Room miscellaneous steel was overlooked. This review, based on plant drawings, and plant walk-throughs, concluded that miscellaneous steel in the Reactor Building consisted only of platforms and horizontal grid works designed to support commodity loads. This was subsequently confirmed for the miscellaneous steel in the Reactor Building (over 7,000 components) except for the Fan Room partition wall framing.

Assessments of the original design and of the affected irregularities have established that the miscellaneous steel in the Unit 2 Reactor Building Fan Room is adequate for resisting postulated tornado loads (400 psf), while remaining within UFSAR allowables. The Reactor Building Fan Rooms are unique cases where miscellaneous steel is subjected to tornado loads, and where design loading conditions are stated on the drawings as opposed to other design documents.

The MSVP will be revised to address tornado loads on Reactor Building Fan Room miscellaneous steel prior to Unit 1 restart. Tornado loads will be addressed in the post-restart Phase II portion of the MSVP.

Please refer any questions regarding this submittal to Mr. W. Levis at (919) 457-2404.

Yours very truly,

Handwritten signature of R. A. Anderson in cursive, with the word "FOR" written in a smaller font below the signature.

R. A. Anderson

JCP/jcp (BSEP 93-0108)

cc: Mr. S. D. Ebnetter  
Mr. P. D. Milano  
Mr. R. L. Prevatte