



Carolina Power & Light Company

JUL 18 1985

SERIAL: NLS-85-249

Director of Nuclear Reactor Regulation
Attention: Mr. D. B. Vassallo, Chief
Operating Reactors Branch No. 2
Division of Licensing
United States Nuclear Regulatory Commission
Washington, DC 20555

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-325 & 50-324/LICENSE NOS. DPR-71 & DPR-62
RECOMBINER CAPABILITY REQUIREMENTS

Dear Mr. Vassallo:

On May 29, 1985 a meeting was held between members of your staff and Carolina Power & Light Company (CP&L) to discuss Recombiner Capabilitiy Requirements at Brunswick. During that meeting, CP&L agreed to provide responses to the following issues raised by your staff:

- 1) What procedures and controls exist or are proposed to ensure that oxygen concentrations will not be above 4 percent by volume at the start of a design basis accident?
- 2) Explain why Brunswick does not use a pumpback system.
- 3) Complete a cost benefit analysis on the installation of a nitrogen pumpback or a direct nitrogen supply system.

Carolina Power & Light Company's response to these items is as follows:

- 1) The existing Brunswick Technical Specifications, operating procedures, administrative controls, and system design features all provide a means for assuring that oxygen concentration in the primary containment does not reach an unacceptable value prior to a postulated design basis accident.

The Brunswick Technical Specifications require that the primary containment atmosphere oxygen concentration be less than 4 percent by volume during operational condition 1. This requirement applies during the period from within 24 hours after exceeding 15 percent power until within 24 hours prior to reducing power below 15 percent. If this Technical Specification cannot be met, the unit is required to be in the startup mode within 8 hours.

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Brunswick operating procedures require the operator to verify that the primary containment oxygen concentration is less than the 4 percent Technical Specification limit at least once per 8 hours. Should primary containment atmosphere oxygen concentration exceed the 4 percent limit, the oxygen concentration must be restored to acceptable limits or unit shutdown must be initiated. In addition, an alarm in the control room will alert the operator when primary containment atmosphere oxygen concentration exceeds 3.7 percent by volume.

The only source of oxygen leakage into primary containment during normal operation is the non-interruptible instrument air system supply lines. This system, by original plant design, was installed with the capability of supplying the safety-related instrument air requirements during any design basis event. The piping associated with this system consists of 2-inch schedule 80 carbon steel headers feeding 3/4-inch or smaller stainless steel tubing pressurized to approximately 125 psig and was designed to Seismic Class I requirements. Instantaneous failure of this type of piping system without prior detectable leakage is very unlikely. Leakage of the air system would be readily detected by the redundant, safety grade oxygen analyzers that monitor oxygen concentration in the primary containment. Recorders are installed which allow trending of potentially abnormal drywell oxygen concentration increases. These primary containment oxygen monitors are required to be operable by the Brunswick Technical Specifications during operational conditions 1 and 2.

The Boiling Water Reactor Owners' Group study was submitted on June 21, 1982 as NEDO-22155, "Generation and Mitigation of Combustible Gas Mixtures in Inerted BWR Mark I Containments." This study assumes that the unit has a primary containment atmosphere oxygen concentration of 4 percent by volume at the initiation of the accident. As noted earlier, the Brunswick Technical Specification limit on primary containment atmosphere oxygen concentration is 4 percent by volume, and the oxygen monitor alarms at 3.7 percent.

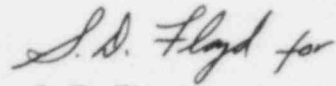
The design of the instrument air system, the frequency of monitoring oxygen concentration in the primary containment, the redundant oxygen analyzers with their alarms and recorders, and the Technical Specification limits provide assurance that the Brunswick primary containment oxygen concentration will be maintained within safe, conservative limits prior to and during any postulated design basis accident.

- 2) Brunswick did evaluate the pumpback approach employed by other BWR plants in meeting the criteria of Generic Letter 84-09. Brunswick's original design incorporated a non-interruptible instrument air system designed as an essential system, meeting redundancy and seismic Category I requirements. The non-interruptible instrument air (RNA) system was designed to operate during all design basis events and meet all regulatory requirements in effect at the time of plant construction.
- 3) Carolina Power & Light Company has performed an economic evaluation and study of other pneumatic systems to reduce nitrogen consumption. It has been determined that cost savings attributed to reduction of nitrogen consumption does not, at this time, adequately offset installation and maintenance costs.

As stated previously, CP&L believes that the modifications being performed at the Brunswick Plant will preclude development of combustible gas mixtures, as was the intent of Generic Letter 84-09.

Should you have any further questions on this matter, please contact Mr. R. J. Fasnacht at (919) 836-7318.

Yours very truly,

A handwritten signature in cursive script, appearing to read "S. R. Zimmerman for".

S. R. Zimmerman
Manager
Nuclear Licensing Section

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cc: Mr. W. H. Ruland (NRC-BNP)
Dr. J. Nelson Grace (NRC-R11)
Mr. M. Grotenhuis (NRC)