

June 19, 1985

Docket No. 50-324

MEMORANDUM FOR: Harold R. Denton, Director  
Office of Nuclear Reactor Regulation

FROM: Hugh L. Thompson, Jr., Director  
Division of Licensing  
Office of Nuclear Reactor Regulation

SUBJECT: MEETING REQUESTED BY CP&L TO DISCUSS AN EXTENSION  
OF TIME TO COMPLETE THE ENVIRONMENTAL QUALIFICATION

Re: Brunswick Steam Electric Plant, Unit 2

### Background

On September 28, 1984 an extension of time was granted to Carolina Power & Light Company (CP&L) for Brunswick Unit 2 to complete the environmental qualification (EQ). The extension was to November 30, 1985, the maximum permitted by the rule although additional time may be granted by the Commission for exceptional cases. CP&L indicated to the staff as early as April 1984 that it may need to request an additional extension to the normal refueling date for Unit 2 of March 31, 1986.

Although CP&L is prepared to shut down Unit 2 on November 30, 1985 to complete its EQ program, it plans to formally request an extension to March 31, 1986 from the Commission. The meeting with me was for the purpose of elaborating on the exceptional circumstances at Brunswick, which form a basis for the CP&L position, prior to a meeting with Mr. Dircks on June 20, 1985. Attendees at this meeting are listed in the Enclosure.

### Meeting Summary

CP&L presented the exceptional circumstances as a basis for an extension until March 31, 1986. The points they enumerated and which we discussed are as follows:

1. Unique elements of plant design such as concrete encased torus, the Reactor Instrument Penetration System, and the use of terminal blocks at electrical penetrations inside containment which have increased the scope and complexity of the EQ program.
2. The availability of compensatory measures to provide added assurance of public health and safety.
3. The potential impact on the public and employees of a November 30, 1985 outage compared to a March 30, 1986 scheduled refueling outage. Areas impacted include: outage resource overlap; ALARA concerns, and CP&L system reliability.

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Compensatory measures mentioned by CP&L included:

1. Tightened Drywell Leak Detection Criteria - Notwithstanding the Standard Technical Specifications (STS) requirements, reactor coolant system leakage, as measured at the drywell sump, is limited to a 2 gpm increase in unidentified leakage within any 24-hour period, about 16% of the STS limit. This provides additional assurance of early detection of any leak which could become a precursor for a high-energy line break.
2. Additional Personnel in the Reactor Building - The reactor building is under observation throughout all phases of operations by a number of groups. Auxiliary operators, operations management personnel, health physics technicians, fire watch personnel, and security personnel routinely enter and provide a nearly continuous presence in most areas. Health physics technicians are present in the reactor building during approximately 90% of the day shift and 40% of the night shift.
3. Existing Instrumentation for Steam Leak Detection - Instrumentation currently is in place which provides added assurance of early detection of steam leaks in several auxiliary systems. This instrumentation is identified in the Technical Specifications. Experience has shown that these instruments are very reliable and tend to fail conservatively if at all.

The impacts of a November outage as outlined by CP&L included:

1. Outage Resource Overlap - A 37-week outage for Unit 1 will be followed immediately by an outage of similar length for Unit 2 making a total of about 14 continuous months of outage during which at least one unit will be shut down.
2. ALARA Concerns - Historical perspective indicates that the ability to incorporate "Lessons learned" from the performance of a particular job into the controlling procedures and modification work packages for subsequent work can have substantial effect on the ability to reduce the accumulated exposure. For steam generator replacement, this experience has led to 25% or more dose reduction. Historically, for all types of work, this is generally about 10%.
3. CP&L System Reliability - Removing Unit 2 from service on November 30, 1985 reduces reserve margins during the winter peak period.
4. Refueling Complications - Refueling of Unit 2 is planned during the same outage. Refueling of Unit 2 in November would occur about 1800 megawatt days per ton short of the end of full power reactivity of the core. Because of critical path EQ items, it is more practical to complete the refueling along with EQ in November, rather than completing EQ starting in November and completing the reload at the time that the reactor is ready to refuel. Due to this "underburn" on

the existing core, up to 24 bundles would have to be discharged after only one cycle in the reactor in order to achieve an acceptable shutdown margin. The alternative cost is about twelve additional weeks of shutdown.

Items which have been identified or have changed in scope since September 22, 1984 include:

1. System Reliability - The January 1985 load exceeded projections significantly which increases the desirability of having both units operating over the winter peak.
2. Outage Resource Overlap - The outage resource overlap was previously identified but the postponement of the piping change was believed to relieve the problem. Detailed planning of the Unit 1 outage showed that this is not the case.
3. On April 29, 1985, CP&L submitted a request for an amendment to the Brunswick operating licenses for a "living schedule" which included EQ. The NRC review of the plan is essentially completed and a draft schedule has been reviewed. The proposed change in date from November 1985 to March 1986 would change the projected "living schedule" considered as a part of that amendment request. CP&L intends to present a schedule showing the proposed March 31, 1986 refueling date, consistent with the intent to apply for an extension of time for the environmental qualification of Unit 2.

Original Signed by  
Hugh L. Thompson, Jr.

Hugh L. Thompson, Jr., Director  
Division of Licensing  
Office of Nuclear Reactor Regulation

Enclosure:  
As stated

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ENCLOSURE

ATTENDANCE LIST FOR MEETING WITH CP&L

RE: EXTENSION OF TIME TO COMPLETE THE ENVIRONMENTAL QUALIFICATION

CP&L

A. B. Cutter

S. Zimmerman

NRC

H. Thompson

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