



Carolina Power & Light Company

SERIAL: NLS-86-080

APR 04 1986

Director of Nuclear Reactor Regulation
Attention: Mr. Dan Muller, Director
BWR Project Directorate #2
Division of BWR 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
SAFETY PARAMETER DISPLAY SYSTEM

Dear Mr. Muller:

In a letter dated February 18, 1986, your staff transmitted the summary of a meeting held on January 14, 1986, regarding current licensing issues for the Brunswick plant. This letter included a request for additional information regarding the Safety Parameter Display System (SPDS) completion schedule. Enclosure 1 contains the Company's response to this request.

Please refer any further questions regarding this matter to Mr. Sherwood R. Zimmerman at (919) 836-6242.

Yours very truly,

A. B. Cutter - Vice President
Nuclear Engineering & Licensing

ABC/N.AT/ccc (3517MAT)

Enclosure

*cc: Mr. W. H. Ruland (NRC-BNP)
Dr. J. Nelson Grace (NRC-R11)
Mr. E. Sylvester (NRC)

* with enclosure

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ENCLOSURE 1
TO SERIAL: NLS-86-080

NRC REQUEST

The staff concluded that in order to approve the proposed schedule for the SPDS and ERF, CP&L would be required to provide as a basis the following information:

- a. An explanation of the circumstances that lead to the schedule for the SPDS completion.
- b. A cost-benefit evaluation of the SPDS schedule. This should include what measure of safety could be gained if the SPDS completion is earlier by one refueling outage and the cost, both economic and other, of providing the SPDS one outage sooner.
- c. Assurance that the current schedule could and would be met.
- d. Justification for completion of the SPDS on the proposed schedule.

COMPANY RESPONSE

Discussion of SPDS Schedule

Carolina Power & Light Company has made significant progress toward completion of the SPDS at Brunswick. Following the TMI incident, the NRC issued several documents concerning TMI related items. Recommendations regarding SPDS installation were provided in NUREG-0660 issued in May 1980. Subsequent to issuance of NUREG-0660, the Company committed to install a process oriented SPDS. Such a system was ordered for both the Brunswick and Robinson facilities and engineering was in progress when, in August 1980, NUREG-0696 was issued, further clarifying the SPDS guidance. NUREG-0696 inferred that the SPDS should be a multi-processor, database oriented system. Discussions were held with the vendor concerning their ability to provide an SPDS which met the design and system availability guidance of NUREG-0696. The original vendor offered a system, expanded beyond that which was originally ordered, which they believed would meet the functional intent of NUREG-0696.

During the same time period, CP&L built an onsite Technical Support Center based on the guidelines in NUREG-0660. The revised guidance of NUREG-0696 forced the Company to design a new facility. In light of these events, CP&L was reluctant to purchase the expanded SPDS proposed by the original vendor which might not have fulfilled the NUREG-0696 guidance. Therefore, the original vendor order was cancelled at a significant cancellation cost to CP&L.

The Company continued preliminary specification work throughout 1982 until the final NRC resolution was issued in NUREG-0737, Supplement 1, in December 1982. NUREG-0737, Supplement 1 recognized the difficulties of implementing generic deadlines and proposed that plant specific schedules be established which take into account the unique status of each plant. Carolina Power & Light Company has approached SPDS installation with this in mind and has steadily progressed toward completion of an Emergency Response Capability Program that will fulfill NRC requirements. The Safety Parameter Display System is a part of the overall Emergency

Response Capability Program which also includes expanded post-accident monitoring capabilities, completion of a detailed control room design review, upgrading of the emergency operating procedures, and completion of the emergency response facilities.

As of January 1, 1986, the Company has spent approximately \$15,500,000 on the Emergency Response Capability Program at Brunswick. An additional \$16,370,000 is budgeted for Emergency Response Capability projects in 1986. The following progress has been made on this program:

- The EOF/TSC building has been completed, including the necessary SPDS computer room modifications and the installation of an uninterruptible power supply (common to both units).
- The computer equipment for Brunswick-2 has been installed, energized, and is being tested.
- The duct bank and wireways from the EOF/TSC building to the cable spreading rooms have been installed (common to both units).
- Conduit and cable tray installation from the Brunswick-2 cable spreading room to the multiplexer cabinets in the Brunswick-2 electronic equipment room is complete.
- The required fiber optic cables (100 total) and both of the required power cables have been pulled from the EOF/TSC building to the Brunswick-2 electronic equipment room (1600 feet in length). The fiber optic cable terminations at the computer are in place.
- The raised floor in the Brunswick-2 electronic equipment room, including the installation of the cable tray system underneath the floor is scheduled for completion by the end of the current refueling outage.
- The required multiplexer cabinets (5 total) have been installed in the Brunswick-2 electronic equipment room.

We estimate that the total cost of the Emergency Response Capability Program at Brunswick will exceed \$40,000,000. This financial commitment and the work in place to date is indicative of Carolina Power & Light Company's commitment to implement NUREG-0737, Supplement 1 in a timely manner, concurrent with other NRC requirements.

Cost Benefit Evaluation

Carolina Power & Light Company plans to complete installation of the SPDS during Reload 6 for Brunswick-1 and Reload 7 for Brunswick-2. Forced early completion of the SPDS installation would have extremely adverse affects on the Brunswick Units' outage schedules. Completing hardware installation of the Brunswick-2 SPDS during the current Reload 6 outage would require at least an additional 10 to 12 weeks of outage time. This would delay the currently scheduled June 13, 1986 startup to August 1986. However, even if all hardware installation were completed in August 1986, SPDS for Unit 2 would not be completely operable until the fall of 1987 when the plant-specific software package will be ready for implementation. The vendor supplied software required for SPDS will be available in July 1986. This vendor supplied software is based on Revision 2 of the Emergency Procedure Guidelines (EPGs) issued February 4, 1983 but will be

modified by CP&L to incorporate Revision 4 of the EPGs after its issuance. This modification along with software testing and operator training is not expected to be completed until the fall of 1987 at which time SPDS could be declared operational if all hardware installation were complete. Brunswick-2 is currently scheduled to begin Reload 7 in January 1988. As such, extending the current Brunswick-2 outage to complete the remaining SPDS hardware installation would result in a gain of only a few months of SPDS operability over that which would be achieved by the Company's currently proposed schedule due to lack of availability of plant-specific software.

To complete SPDS installation during Reload 5 for Brunswick-1 would require extending that outage to at least 22 weeks. This outage has already been increased from 12 to 16 weeks primarily to perform emergency response capability work. As is the case with Brunswick-2, the SPDS software and training will not be complete until the fall of 1987. The Brunswick-1, Reload 5 outage is scheduled for completion in May of 1987. Again, software would not be available at that time even if hardware installation is complete.

Outage extensions of the magnitude required to complete the emergency response capability work in one outage would impose extreme financial hardships on the Company. Brunswick-2 would be out of service during a portion of the 1986 summer peak, requiring the purchase of substantial amounts of replacement power at a cost of approximately \$250,000 per day.

Earlier than planned completion of the SPDS would not provide any measurable increase in the ability to handle emergencies at the Brunswick plant. Carolina Power & Light Company has demonstrated its emergency response capabilities at Brunswick during numerous emergency exercises. We have not been cited for any violations regarding our data acquisition techniques and, in fact, Inspection Report 85-20 stated that the Technical Support Center and the Emergency Operation Facility were provided with adequate equipment for support of the assigned staff and that status boards were strategically located to facilitate viewing by the staff. These boards were updated as required to chronicle changes in plant status and accident assessment and mitigation throughout the exercise. The inspectors noted that a status board dedicated to trending of simulated plant systems and engineering data was consistently maintained and updated during the accident sequence. In addition, Emergency Operating Procedures exist to ensure that operators have the capability of quickly determining the cause of any abnormal operating transient. Based on these findings, early completion of the Emergency Response Program at Brunswick would not provide a significant increase in the public's health and safety.

In view of our existing emergency response capabilities, the Company believes that the cost of replacement power required as a result of the outage extensions outweighs any benefit derived from early completion of the Emergency Response Capability Program.

Assurance of Meeting Current Schedule

Carolina Power & Light Company is committed to completion of the Emergency Response Capability Program by the current schedule. As stated earlier, the Company expects to spend approximately \$40,000,000 on the Emergency Response Capability Program. During 1985, CP&L increased the ERFIS/SPDS budget by approximately \$2,600,000 to maximize the amount of pre-outage work accomplished on Brunswick-2 as well as perform some dual unit activities. The Company has worked diligently toward completion of the Brunswick Emergency Response Capability Program as evidenced by the work which has already been accomplished. The EOF/TSC building has been completed and the Brunswick-2 computer equipment has been installed. The required

fiber optic and power cables for Brunswick-2 are in place. CP&L intends to proceed with the same diligence until the program is complete. Much of the work remaining on Brunswick-1 has already been completed on Brunswick-2, which provides the advantage of "lessons learned" to ensure timely completion. The majority of the work remaining on Brunswick-2 after the current outage will consist of completion of signal input terminations and performance of the acceptance testing of the completed system. This work should not be a major obstacle to completion and has been included in the long range plan for both units, which forms the basis for our commitment to this schedule. Carolina Power & Light Company will make every effort to complete the Emergency Response Capability Program in a timely manner, consistent with our current schedule.

Justification

Based on the above reasoning, Carolina Power & Light Company believes that the proposed completion schedule is justified.