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U. S. Nuclear Regulatory Commission
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BRUNSWICK STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-324/LICENSE NO. DPR-62
FEEDWATER SPARGER AND NOZZLE EXAMINATION RESULTS

Gentlemen:

In accordance with an NRC letter dated March 16, 1995, Carolina Power & Light (CP&L) Company is submitting a summary of examination results for feedwater sparger and nozzle examinations performed during Refueling Outage 13 (i.e., B214R1) for the Brunswick Steam Electric Plant (BSEP), Unit No. 2. The summary of the examination results is provided in Enclosure 1. An evaluation of the examination results is documented in Engineering Service Request (ESR) 98-00333, "Unit 2 Feedwater Sparger Evaluation Based On B214R1 IVVI Examination Results," a copy of which is provided in Enclosure 2.

Please refer any questions regarding this submittal to Mr. Warren J. Dorman, Supervisor - Licensing, at (910) 457-2068.

Sincerely,

Keith R. Jury
Manager - Regulatory Affairs
Brunswick Steam Electric Plant

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Enclosures:

1. Summary of Examination Results
2. Engineering Service Request 98-00333, "Unit 2 Feedwater Sparger Evaluation Based On B214R1 IVVI Examination Results"

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cc (with enclosures):

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ENCLOSURE 1

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NO. 2 DOCKET NO. 50-324/LICENSE NO. DPR-62 FEEDWATER SPARGER AND NOZZLE EXAMINATION RESULTS

Summary of Feedwater Sparger and Nozzle Examination Results

In accordance with an NRC letter dated March 16, 1995, Carolina Power & Light (CP&L) Company is submitting the following summary of examination results for feedwater sparger and nozzle examinations performed during Refueling Outage 13 (i.e., B214R1) for the Brunswick Steam Electric Plant (BSEP), Unit No. 2.

I. START-UP/SHUTDOWN CYCLES EXPERIENCED:

BSEP, Unit No. 2 has experienced 172 start-up/shutdown cycles since initial start-up. This quantity includes five start-up/shutdown cycles since the Refueling Outage 12 (i.e., B213R1) inspections.

II. NON-DESTRUCTIVE EXAMINATION RESULTS:

Engineering Service Request (ESR) 98-00333, "Unit 2 Feedwater Sparger Evaluation Based On B214R1 IVVI Examination Results," documents the examination results for the feedwater spargers conducted at the BSEP, Unit No. 2 during Refueling Outage 13. A copy of ESR 98-00333 is provided in Enclosure 2 of this letter.

The eight circumferential welds connecting the sparger arms to the junction boxes and the four circumferential welds connecting the spargers to the thermal sleeves were visually inspected, to the extent possible, with a remote camera. There has been no appreciable change in the observed indications from the previous inspection. For five operating cycles, there have been no observed changes in the largest previously measured circumferential crack connecting the sparger arm to the sparger tee.

The flow holes in each of the feedwater spargers were visually inspected. No relevant indications were noted during the VT-3 examination of the sparger pipe for lost parts and general structural integrity. However, as in previous inspections, relevant indications were noted around the sparger flow holes during the examinations. Cracks at selected flow holes were compared to previous inspection results. This comparison indicates minimal, and in most cases unobservable, change in crack lengths since the last inspection.

Additionally, the nozzle blend radii of each of the four feedwater nozzles were visually inspected for cracking. These inspections yielded no recordable indications.

III. NON-DESTRUCTIVE EXAMINATION METHODS:

In June 1992, CP&L submitted the results from the non-destructive examination of the BSEP, Unit No. 2 feedwater spargers, performed during Refueling Outage 9, to the NRC for review. Also, with the results, CP&L proposed to monitor the crack growth during Refueling Outage 10 (i.e., B211R1) by visual examination using a high resolution remote camera instead of using a liquid penetrant (LP) technique. The NRC concurred with the visual inspection in a letter dated June 24, 1993.

Subsequently, by letter dated February 3, 1995, CP&L requested NRC concurrence with plans to perform visual (i.e., VT-1) examinations during future inspections of the BSEP, Unit Nos. 1 and 2 feedwater spargers in lieu of LP examinations. NRC concurrence with these plans was documented in a letter dated March 16, 1995.

The four feedwater spargers were visually examined during the refueling outage using a high resolution remote underwater camera. The spargers were examined for gross defects and missing fragments. The feedwater sparger flow holes were inspected for loose or missing parts and cracking. The circumferential welds were inspected to the extent possible with the remote camera. The video tapes of the visual inspections during this outage were compared with video tapes of the inspections performed during the previous outage with no significant changes identified.

IV. SYSTEM MODIFICATIONS AFFECTING FEEDWATER FLOW AND/OR TEMPERATURE:

A Digital Feedwater Control system was installed in BSEP, Unit No. 2 in 1994. This system provides improved stability in feedwater flow control, i.e., fewer flow fluctuations during low power operation.

V. ON-LINE LEAKAGE MONITORING:

An on-line leakage monitoring system for the detection of feedwater leakage past the feedwater thermal sleeves has not been installed in BSEP, Unit No. 2.