



Carolina Power & Light Company  
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AUG 29 2000

10 CFR 50.46(a)(3)(ii)

SERIAL: BSEP 00-0119

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-325 AND 50-324/LICENSE NOS. DPR-71 AND DPR-62  
REPORTING OF CHANGES AND ERRORS IN PLANT-SPECIFIC EMERGENCY CORE  
COOLING SYSTEM (ECCS) EVALUATION MODELS

Gentlemen:

#### Summary

In accordance with 10 CFR 50.46(a)(3)(ii), Carolina Power & Light (CP&L) Company is submitting an annual report summarizing the effect of changes and errors in the limiting loss-of-coolant accident (LOCA) Emergency Core Cooling System (ECCS) evaluation model for the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2. Also, in accordance with 10 CFR 50.46(a)(3)(ii), CP&L is submitting information on the estimated effects of a change and three errors recently identified in the limiting ECCS evaluation model for BSEP, Unit Nos. 1 and 2.

#### Background

10 CFR 50.46(a)(3)(i) defines a "significant" change or error as "one which results in a calculated peak cladding temperature (PCT) different by more than 50°F from the temperature calculated for the limiting transient using the last acceptable model, or a cumulation of changes and errors such that the sum of the absolute magnitudes of the respective temperature changes is greater than 50°F." 10 CFR 50.46(a)(3)(ii) specifies reporting requirements based on the sum of the absolute value of the changes and errors in calculated PCT. The regulation requires reporting, at least annually, of the estimated effect of changes or errors on the limiting LOCA ECCS evaluation. In addition, 10 CFR 50.46(a)(3)(ii) requires that a significant change or error be reported within 30 days, and that the report include a proposed schedule for providing a reanalysis of the evaluation model.

The limiting ECCS evaluation model of record for BSEP, Unit Nos. 1 and 2, is the Global Nuclear Fuels (GNF) SAFER/GESTR Loss-of-Coolant Accident (LOCA) evaluation contained in the following documents:

ADD1

- General Electric Nuclear Energy Topical Report NEDC-31624P, Revision 2, "Brunswick Steam Electric Plant Units 1 and 2 SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis (Revision 2)," dated July 1990 for the GE7 fuel type, which bounds the GE8, GE9, and GE10 fuel types.
- General Electric Nuclear Energy NEDC-31624P, Supplement 3, Revision 0, "Brunswick Steam Electric Plant Units 1 and 2 SAFER/GESTER-LOCA Loss-of-Coolant Accident Analysis: Application to GE 13 Fuel," dated January 1996, for the GE 13 fuel type.

General Electric Nuclear Energy Reports NEDC-31624P, Revision 2, and NEDC-31624P, Supplement 3, Revision 0, were provided to the NRC as part of CP&L's letters dated September 6, 1990 (Serial: NLS-90-121), and November 1, 1996 (Serial: BSEP 96-0353).

Previous annual reports of limiting evaluation model changes and errors for BSEP were submitted in letters dated October 27, 1998 (Serial: BSEP 98-0198), and October 4, 1999 (Serial: BSEP 99-0157). In addition, a CP&L letter dated February 26, 1999 (Serial: BSEP 99-0020), submitted a 30-day notification based on a cumulation of changes and errors that exceeded 50°F. Additional information relating to 10 CFR 50.46 was submitted by CP&L's letters dated March 10, 1997 (Serial: BSEP 97-0085) and February 25, 1998 (Serial: BSEP 98-0045).

### Annual Report

In a notification letter from G. A. Watford (GNF) to the NRC Document Control Desk, "Summary of Changes and Errors in ECCS Evaluation Models," dated June 30, 2000, FLN-2000-06, one ECCS evaluation model error was identified which relates to heat slab modeling for BWR/6 plants. CP&L has determined that this error does not apply to BSEP.

Enclosure 1 provides the annual report of changes and errors in the BSEP ECCS evaluation model identified during the period from July 1, 1999, through June 30, 2000. This report also includes a summary of the change to the licensing basis PCT resulting from currently identified changes and errors. For the reporting period, no errors applicable to the limiting LOCA ECCS evaluation model for BSEP were identified. However, because CP&L received and evaluated the June 30, 2000, notification from GNF described above, this notification has been included in the BSEP annual report.

### 30 Day Report

On July 31, 2000, GNF verbally notified CP&L that a change and three new errors in the ECCS evaluation model for BSEP, Unit Nos. 1 and 2, had been identified. The new change and errors were identified during the performance of a reanalysis of the limiting ECCS evaluation model for BSEP. Enclosure 2 provides a summary of the new change and errors, and a summary of the change to the licensing-basis PCT resulting from the change and errors.

The estimated PCT effect of the change and three errors, and the changes and errors previously reported by CP&L's letters dated March 10, 1997, February 25, 1998, October 27, 1998, February 26, 1999, and October 4, 1999, is +171°F for the GE7 fuel type and +158°F for the GE13 fuel type.

For BSEP, Unit No. 1, the maximum licensing basis LOCA PCT is estimated to be 1704°F for the GE7 fuel type and 1693°F for the GE13 fuel type, which is well within the 2200°F acceptance criterion specified in 10 CFR 50.46. For BSEP, Unit No. 2, the maximum licensing basis LOCA PCT is estimated to be 1708°F for the GE7 fuel type and 1693°F for the GE13 fuel type, which is well within the 2200°F acceptance criterion specified in 10 CFR 50.46. Because the calculated ECCS performance remains in conformance with the acceptance criteria specified in 10 CFR 50.46(b), the identified condition does not constitute a reportable condition as described in 10 CFR 50.72 and 10 CFR 50.73.

Proposed Schedule For ECCS Evaluation Reanalysis

As previously stated, on July 31, 2000, Global Nuclear Fuels verbally notified CP&L that a change and three new errors in the ECCS evaluation model for BSEP, Unit Nos. 1 and 2, had been identified. A reanalysis of the limiting ECCS evaluation model for BSEP, Unit Nos. 1 and 2, is currently in progress. CP&L expects to submit the results of the evaluation model reanalysis by October 31, 2000.

Please refer any questions regarding this submittal to Mr. Leonard R. Beller, Supervisor - Licensing, at (910) 457-2073.

Sincerely,



Warren J. Dorman  
Manager - Regulatory Affairs  
Brunswick Steam Electric Plant

WRM/wrm

Enclosures:

1. Summary of ECCS Evaluation Model Changes and Errors From July 1, 1999, to June 30, 2000
2. Summary of ECCS Evaluation Model Changes and Errors From July 1, 2000, to August 8, 2000
3. List of Regulatory Commitments

cc (with enclosures):

U. S. Nuclear Regulatory Commission, Region II  
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U. S. Nuclear Regulatory Commission  
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U. S. Nuclear Regulatory Commission  
ATTN: Mr. Allen G. Hansen (Mail Stop OWFN 8G9)  
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Ms. Jo A. Sanford  
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# ENCLOSURE 1

## BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2 DOCKET NOS. 50-325 AND 50-324/LICENSE NOS. DPR-71 AND DPR-62 REPORTING OF CHANGES AND ERRORS IN PLANT-SPECIFIC EMERGENCY CORE COOLING SYSTEM (ECCS) EVALUATION MODELS

### Summary of ECCS Evaluation Model Changes and Errors From July 1, 1999, to June 30, 2000

Summary of SAFER/GESTR-LOCA ECCS Analysis Change/Errors (July 1, 1999, to June 30, 2000)								
Change or Error Notice	Notice or Document Date	Period Covered	Change or Error Description	GE BWR Estimated Licensing PCT Impact	Estimated BNP Licensing PCT Impact and Estimated PCT	Cumulative BNP Licensing PCT Change	Is BNP Licensing PCT Change Greater than 50°F?	
							Incremental	Cumulative
FLN-2000-06	6/30/00 (Received 7/6/00)	7/1/99 – 6/30/00	Error in vessel heat slab model heat transfer areas	0 to -45°F	NA  U1 1606°F GE7*  U2 1610°F GE7*  U1 1595°F GE13  U2 1595°F GE13	+73°F GE7*  +60°F GE13	NA	NA
* GE7 bounds GE8, GE9 and GE10								

BSEP Licensing Basis PCT Change Summary (Through June 30, 2000)			
Unit and Fuel Type	Greatest Licensing Basis PCT Reported in a LOCA Document Submitted to the NRC	Current Estimated Licensing Basis PCT	Change From Reported Licensing Basis PCT
Unit 1 GE7*	1533°F	1606°F	+73°F
Unit 1 GE13	1535°F	1595°F	+60°F
Unit 2 GE7*	1537°F	1610°F	+73°F
Unit 2 GE13	1535°F	1595°F	+60°F
*GE7 bounds GE8, GE9, and GE10.			

## ENCLOSURE 2

### BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2 DOCKET NOS. 50-325 AND 50-324/LICENSE NOS. DPR-71 AND DPR-62 REPORTING OF CHANGES AND ERRORS IN PLANT-SPECIFIC EMERGENCY CORE COOLING SYSTEM (ECCS) EVALUATION MODELS

#### Summary of ECCS Evaluation Model Changes and Errors From July 1, 2000, to August 8, 2000

Summary of SAFER/GESTR-LOCA ECCS Analysis Change/Errors (July 1, 2000, to August 8, 2000)								
Change or Error Notice	Notice or Document Date	Period Covered	Change or Error Description	GE BWR Estimated Licensing PCT Impact	Estimated BNP Licensing PCT Impact and Estimated PCT	Cumulative BNP Licensing PCT Change	Is BNP Licensing PCT Change Greater than 50°F?	
							Incremental	Cumulative
WHH: 2000-053	8/9/00 (received 8/10/00)	7/1/00 – 8/8/00	<b>Errors:</b> +5°F for Heat Conduction Time Step Size  +1°F for GESTR Fuel File Interpolation  +90°F for LPCI Condensation  <b>Changes:</b> +2°F for Low Water Level Setpoint	98°F	98°F  U1 1704°F GE7*  U2 1708°F GE7*  U1 1693°F GE13  U2 1693°F GE13	+171°F GE7*  +158°F GE13	Yes	Yes
* GE7 bounds GE8, GE9 and GE10								

Licensing PCT Change Summary (Through August 8, 2000)			
Unit and Fuel Type	Greatest Licensing PCT Reported in a LOCA Document Submitted to the NRC	Current Estimated Licensing PCT	Change from reported Licensing PCT
BNP1 GE7*	1533°F	1704°F	+171°F
BNP1 GE13	1535°F	1693°F	+158°F
BNP2 GE7*	1537°F	1708°F	+171°F
BNP2 GE13	1535°F	1693°F	+158°F
* GE7 bounds GE8, GE9 and GE10			

ENCLOSURE 3

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-325 AND 50-324  
LICENSE NOS. DPR-71 AND DPR-62  
REPORTING OF CHANGES AND ERRORS IN  
PLANT-SPECIFIC EMERGENCY CORE COOLING SYSTEM (ECCS)  
EVALUATION MODELS

List of Regulatory Commitments

The following table identifies those actions committed to by Carolina Power & Light (CP&L) Company in this document. Any other actions discussed in the submittal represent intended or planned actions by CP&L. They are described for the NRC's information and are not regulatory commitments. Please notify the Manager - Regulatory Affairs at the Brunswick Steam Electric Plant of any questions regarding this document or any associated regulatory commitments.

Commitment	Committed date or outage
1. Submit the results of reanalysis of the limiting ECCS evaluation model for the Brunswick Steam Electric Plant, Unit Nos. 1 and 2.	10/31/00