



Progress Energy

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

SEP 24 2008

SERIAL: BSEP 08-0121

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

Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Docket Nos. 50-325 and 50-324/License Nos. DPR-71 and DPR-62
Annual 10 CFR 50.46 Report of Emergency Core Cooling System
Evaluation Model Changes and Errors

References:

1. Letter from Randy C. Ivey (CP&L) to U.S. Nuclear Regulatory Commission, "Annual Report of Emergency Core Cooling Systems Evaluation Model Changes and Errors," dated September 11, 2007, ADAMS Accession Number ML072620146
2. Letter from the U.S. Nuclear Regulatory Commission to Benjamin Waldrep (CP&L), "Brunswick Steam Electric Plant, Units 1 and 2 – Issuance of Amendments to Support Transition to AREVA Fuel and Methodologies (TAC Nos. MD4063 and MD4064)," dated March 27, 2008, ADAMS Accession Number ML080870478

Ladies and Gentlemen:

The purpose of this letter is to submit the annual 10 CFR 50.46 reporting information for the Brunswick Steam Electric Plant (BSEP), Units 1 and 2. The enclosed reports fulfill the annual reporting requirements of the emergency core cooling system (ECCS) evaluation model changes and errors for BSEP, Units 1 and 2, for the period from August 16, 2007, through August 15, 2008.

By letter dated September 11, 2007, Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., reported an estimated fuel peak cladding temperature (PCT) of $< 1567^{\circ}\text{F}$ for Global Nuclear Fuel (GNF) fuel being used in BSEP, Units 1 and 2. For the current reporting period, there is no change in the PCT for the GNF fuel.

By letter dated March 27, 2008, the NRC approved license amendments supporting the transition to AREVA NP fuel and core design methodologies. Beginning with Cycle 17, Brunswick Unit 1 is operating with a mixed core design comprised of co-resident GNF and AREVA fuel. BSEP Unit 2 has not yet begun operation with AREVA fuel. For the current reporting period, there is no change in the reported PCT of $\leq 1900^{\circ}\text{F}$ for AREVA fuel.

Progress Energy Carolinas, Inc.
Brunswick Nuclear Plant
PO Box 10429
Southport, NC 28461

A002
NRR

The results of the loss-of-coolant accident (LOCA) analyses of record for both GNF and AREVA fuel are within all of the acceptance criteria set forth in 10 CFR 50.46.

No regulatory commitments are contained in this letter. Please refer any questions regarding this submittal to Mr. Gene Atkinson, Supervisor - Licensing/Regulatory Programs, at (910) 457-2056.

Sincerely,

A handwritten signature in black ink, appearing to read "Philip Leich". The signature is written in a cursive, flowing style.

Philip A. Leich
Manager - Support Services
Brunswick Steam Electric Plant

WRM/wrm

Enclosures:

1. Brunswick Units 1 and 2 10 CFR 50.46 Report (GNF Fuel)
2. Brunswick Units 1 and 2 10 CFR 50.46 Report (AREVA Fuel)

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cc (with enclosures):

U. S. Nuclear Regulatory Commission, Region II
ATTN: Mr. Luis A. Reyes, Regional Administrator
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW, Suite 23T85
Atlanta, GA 30303-8931

U. S. Nuclear Regulatory Commission
ATTN: Mr. Joseph D. Austin, NRC Senior Resident Inspector
8470 River Road
Southport, NC 28461-8869

U. S. Nuclear Regulatory Commission **(Electronic Copy Only)**
ATTN: Mrs. Farideh E. Saba (Mail Stop OWFN 8G9A)
11555 Rockville Pike
Rockville, MD 20852-2738

Chair - North Carolina Utilities Commission
P.O. Box 29510
Raleigh, NC 27626-0510

Brunswick Units 1 and 2 10 CFR 50.46 Report (GNF Fuel)

PLANT: Brunswick Steam Electric Plant, Units 1 and 2
ECCS EVALUATION MODEL: SAFER/GESTR LOCA
REPORT REVISION DATE: August 15, 2008
CURRENT OPERATING CYCLES: B1C17 and B2C18

ANALYSIS OF RECORD

Evaluation Model: NEDE-24011-P-A-15, "General Electric Standard Application for Reactor Fuel," September 2005, and the U.S. Supplement NEDE-24011-P-A-15-US, September 2005.

Fuel: GE14

Estimated PCT: < 1567°F

GNF SAFER/GESTR-LOCA Analysis Evaluation Model Reporting Period: August 16, 2007 to August 15, 2008		
Description	Estimated Incremental Change in PCT	Absolute Cumulative Change in PCT
10 CFR 50.46 Report dated September 11, 2007	+10°F	+20°F
Notices for Current Report Period (August 16, 2007 – August 15, 2008): <ul style="list-style-type: none">None	0°F	0°F
Estimated Change in PCT (As of August 15, 2008)	+10°F	+20°F

Estimated PCT Impact Reporting Period Ending August 15, 2008*				
Fuel Type	Licensing Basis PCT	Cumulative Incremental Change in PCT	Estimated PCT	Estimated PCT ≤ 2200°F
GE14	< 1557°F	+10°F	< 1567°F	Yes

***LOCA Results presented for Unit 2, which bounds Unit 1**

Brunswick Units 1 and 2 10 CFR 50.46 Report (AREVA Fuel)

PLANT: Brunswick Steam Electric Plant, Units 1 and 2
ECCS EVALUATION MODEL: EXEM BWR-2000 Evaluation Model
REPORT REVISION DATE: August 15, 2008
CURRENT OPERATING CYCLES: B1C17

ANALYSIS OF RECORD

Evaluation Model: EMF-2361(P)(A), Revision 0, EXEM BWR-2000 ECCS Evaluation Model, May 2001.

Fuel: ATRIUM-10

Estimated PCT: $\leq 1900^{\circ}\text{F}$

AREVA EXEM BWR-2000 LOCA Analysis Evaluation Model Reporting Period: August 16, 2007 to August 15, 2008		
Description	Estimated Incremental Change in PCT	Absolute Cumulative Change in PCT
10 CFR 50.46 Report dated September 11, 2007	N/A	N/A
Notices for Current Report Period (August 16, 2007 – August 15, 2008):		
<ul style="list-style-type: none"> AREVA 2007 Annual Notice (March 24, 2008) 	0°F	0°F
Estimated Change in PCT (As of August 15, 2008)	0°F	0°F

Estimated PCT Impact Reporting Period Ending August 15, 2008*				
Fuel Type	Licensing Basis PCT	Cumulative Incremental Change in PCT	Estimated PCT	Estimated PCT $\leq 2200^{\circ}\text{F}$
ATRIUM-10	$\leq 1900^{\circ}\text{F}$	0°F	$\leq 1900^{\circ}\text{F}$	Yes

***LOCA Results presented for Unit 2, which bounds Unit 1**