



SEP 04 2014

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

Serial: BSEP 14-0101

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

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

Reference: Letter from Annette H. Pope (Duke Energy Progress, Inc.) to the USNRC, *Annual Report of Emergency Core Cooling System Evaluation Model Changes and Errors*, dated September 5, 2013, ADAMS Accession Number ML13261A293

Ladies and Gentlemen:

In accordance with 10 CFR 50.46, *Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors*, paragraph (a)(3)(ii), Duke Energy Progress, Inc., is submitting the annual report of the emergency core cooling system (ECCS) evaluation model changes and errors for the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2. The enclosed report covers the period from August 6, 2013, through August 5, 2014.

Both BSEP units employ a mixed core design containing co-resident AREVA ATRIUM-10 and ATRIUM 10XM fuel.

No regulatory commitments are contained in this letter. Please refer any questions regarding this submittal to Mr. Lee Grzeck, Manager – Regulatory Affairs, at (910) 457-2487.

Sincerely,

Annette H. Pope  
Director – Organizational Effectiveness  
Brunswick Steam Electric Plant

A002  
NRR

MAT/mat

Enclosure: 10 CFR 50.46 Report for Brunswick Units 1 and 2

cc (with enclosure):

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  
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**10 CFR 50.46 Report  
 for Brunswick Units 1 and 2**

Plant: Brunswick Steam Electric Plant, Units 1 and 2  
 Report Revision Date: August 5, 2014  
 Current Operating Cycles: Unit 1 – Cycle 20  
 Unit 2 – Cycle 21  
 Evaluation Model: EMF-2361(P)(A), Revision 0  
 EXEM BWR-2000 ECCS Evaluation Model, May 2001  
 Fuel: ATRIUM-10 (A10)

	Net PCT Effect	Absolute PCT Effect
A. Cumulative 10 CFR 50.46 Changes and Error Corrections – Previously Reported	+1°F	1°F
B. 10 CFR 50.46 Changes and Error Corrections – This Reporting Period  None	--	--
C. Absolute Sum of 10 CFR 50.46 Changes and Error Corrections (based on licensing basis PCT of 1904°F)	+1°F	1°F

D. Evaluated Effective Licensing Basis PCT including Changes and Error Corrections				
Fuel Type	Licensing Basis PCT	Cumulative Incremental Change in PCT	Estimated PCT	Estimated PCT ≤ 2200°F
A10	1904°F	+1°F	1905°F	Yes

**10 CFR 50.46 Report  
for Brunswick Units 1 and 2**

Plant: Brunswick Steam Electric Plant (BSEP), Units 1 and 2  
 Report Revision Date: August 5, 2014  
 Current Operating Cycles: Unit 1 – Cycle 20  
 Unit 2 – Cycle 21  
 Evaluation Model: EMF-2361(P)(A), Revision 0  
 EXEM BWR-2000 ECCS Evaluation Model, May 2001  
 Fuel: ATRIUM 10XM (A10XM)

	Net PCT Effect	Absolute PCT Effect
A. Cumulative 10 CFR 50.46 Changes and Error Corrections – Previously Reported	0°F	0°F
B. 10 CFR 50.46 Changes and Error Corrections – This Reporting Period		
1. LOCA re-analysis establishing a new licensing basis PCT of 1878°F (Reference: AREVA Report ANP-2943(P), Revision 1)	--	--
2. Implementation of ACE correlation in RELAX error (Reference: AREVA Report FS1-0015388, Revision 1)	+2°F	2°F
C. Absolute Sum of 10 CFR 50.46 Changes and Error Corrections (based on licensing basis PCT of 1878°F)	+2°F	2°F

D. Evaluated Effective Licensing Basis PCT including Changes and Error Corrections				
Fuel Type	Licensing Basis PCT	Cumulative Incremental Change in PCT	Estimated PCT	Estimated PCT ≤ 2200°F
A10XM	1878°F	+2°F	1880°F	Yes