



Crystal River Nuclear Plant
Docket No. 50-302
Operating License No. DPR-72

Ref: 10 CFR 50.46(a)(3)

November 20, 2003
3F1103-04

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

Subject: Crystal River Unit 3 – 10 CFR 50.46 Loss-Of-Coolant Accident Evaluation
Model Change and Peak Clad Temperature Change Report

References: 1) Framatome ANP Topical Report BAW-10241P, Revision 0, "BHTP DNB
Correlation Applied with LYNXT," December 2002
2) Framatome ANP Topical Report BAW-10164P-A, Revision 4,
"RELAP5/MOD2-B&W – An Advanced Computer Program for LWR LOCA
and Non-LOCA Transient Analysis," November 2002

Dear Sir:

Pursuant to 10 CFR 50.46(a)(3), Progress Energy Florida, Inc. (PEF) hereby provides notification of a change in peak clad temperature (PCT) greater than 50°F in the Crystal River Unit 3 (CR-3) Cycle 14 large break loss of coolant accident (LBLOCA) analysis. The changes are due to new methodologies employed and a new fuel design for Cycle 14. This change is greater than 50°F and, therefore, is considered significant and is reportable under 10 CFR 50.46(a)(3).

In developing the analysis for Cycle 14 for Mark-B-HTP fuel, two new topical reports were utilized, BAW-10241, Revision 0 (Reference 1) and BAW-10164P-A, Revision 4 (Reference 2). These topical reports were approved for use at CR-3 in License Amendment 211. The analysis also considered the use of M5 advanced alloy cladding approved in License Amendment 210. The use of the new methodologies accounts for a large portion of the change to PCT. The remaining change in PCT is due to design differences between the existing Mark-B10 fuel and the new Mark-B-HTP fuel. The change in PCT for Large Break Loss-Of-Coolant Accidents (LBLOCAs) was a net increase of 86°F. The change in PCT for Small Break Loss-Of-Coolant Accidents (SBLOCAs) was a net decrease of 152°F. A breakdown of the individual changes to PCT is included in the attachment to this letter. The resulting maximum PCTs remain with the limits of 10 CFR 50.46.

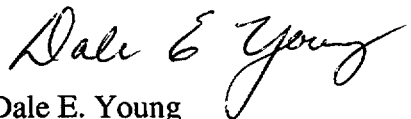
Progress Energy Florida, Inc.
Crystal River Nuclear Plant
15760 W. Powerline Street
Crystal River, FL 34428

AC001

No new regulatory commitments are made in this letter.

If you have any questions regarding this submittal, please contact Mr. Sid Powell, Supervisor, Licensing and Regulatory Programs at (352) 563-4883.

Sincerely,

A handwritten signature in cursive script that reads "Dale E. Young".

Dale E. Young
Vice President
Crystal River Nuclear Plant

DEY/pei

Attachment: Summary of Changes to Evaluation Models and PCT for LBLOCA and SBLOCA

xc: NRR Project Manager
Regional Administrator, Region II
Senior Resident Inspector

PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50 - 302 / LICENSE NUMBER DPR - 72

ATTACHMENT

**Summary of Changes to Evaluation Models and PCT for
LBLOCA and SBLOCA**

Large Break Loss-of-Coolant Accident (LBLOCA) Peak Clad Temperature (PCT)

The application of BAW-10164P-A resulted in a reduction in PCT of 146°F. This enabled the linear heat rate limit (LHR) to be increased by 0.6 kW/ft (with an associated PCT increase of 120°F) to provide more flexibility in core design. The transition core effects and the BHTP Departure from Nucleate Boiling (DNB) correlation resulted in an increase of 112°F for a total net increase in LBLOCA PCT of 86°F.

CR3 LB LOCA PCT Change Summary (Introduction of the Mark B-HTP Fuel Assembly)				
	Delta PCT (°F)		PCT (°F)	
Fuel Design	Mark-B10	Mark-B-HTP	Mark-B10	Mark-B-HTP
Previously Reported PCT	N/A	N/A	1937	N/A
Base (or starting) PCT	N/A	N/A	1937	1937
Application of BAW-10164P-A, Revision 4	N/A	-146	1937	1791
LHR Change (+0.6 kW/ft).	N/A	+120	1937	1911
Introduction of Mark-B-HTP fuel assembly for transition core	+0	+107	1937	2018
Incorporation of the BHTP DNB correlation into BAW-10164P-A, Revision 4 for the Mark-B-HTP fuel assembly	N/A	+5	1937	2023
Cumulative Change	0	86		
Sum of absolute magnitude of changes	0	378		

Small Break LOCA (SBLOCA) PCT

The SBLOCA analyses are not flow dominated events, therefore, the model is less sensitive to fuel assembly design changes. As a result, the decrease in PCT due to the adoption of BAW-10164, Revision 4, overcame the 6°F increase due to the transition core effects, for a net decrease in PCT of 152°F.

CR3 SB LOCA PCT Change Summary (Introduction of the Mark B-HTP Fuel Assembly)				
	Delta PCT (°F)		PCT (°F)	
Fuel Design	Mark-B10	Mark-B-HTP	Mark-B10	Mark-B-HTP
Previously Reported PCT	N/A	N/A	1400	N/A
Base (or starting) PCT	N/A	N/A	1400	1400
Application of BAW-10164P-A, Revision 4	N/A	-158	1400	1242
Incorporation of the BHTP DNB correlation into BAW-10164P-A, Revision 4 for the Mark-B-HTP fuel assembly	N/A	+0	1400	1242
Introduction of Mark-B-HTP fuel assembly for transition core.	+0	+6	1400	1248
Cumulative Change	0	-152		
Sum of absolute magnitude of changes	0	164		