

AEC DISTRIBUTION FOR PART 50 DOCKET MATERIAL

(TEMPORARY FORM)

CONTROL NO: 8140

FILE:

FROM: Duke Power Company Charlotte, N.C. 28201 Mr. A.C. Thies			DATE OF DOC 7-30-74	DATE REC'D 8-5-74	LTR X	TWX	RPT	OTHER
TO: A. Giambusso			ORIG 1 signed	CC	OTHER	SENT AEC PDR XXX SENT LOCAL PDR XXX		
CLASS	UNCLASS XXX	PROP INFO	INPUT XXX	NO CYS REC'D 40	DOCKET NO: 50-269/270/287			
DESCRIPTION: Ltr requesting an amdt to the tech specs to delete the restriction limiting Oconee Unit #1 to 7500 effective full Power hours..... NOTE: Input on 269 only PLANT NAME: Oconee				ENCLOSURES: Proposed changes to tech specs.... ACKNOWLEDGED (40 cys encl rec'd) DO NOT REMOVE				

FOR ACTION/INFORMATION

8-6-74

JB

BUTLER (L)	SCHWENCER (L)	ZIEMANN (L)	REGAN (E)
W/ CYS	W/ CYS	W/ CYS	W/ CYS
CLARK (L)	STOLZ (L)	DICKER (E)	
W/ CYS	W/ CYS	W/ CYS	W/ CYS
FARR (L)	VASSALLO (L)	KNIGHTON (E)	
W/ CYS	W/ CYS	W/ CYS	W/ CYS
KNIEL (L)	✓ PURPLE (L)	YOUNGBLOOD (E)	
W/ CYS	W/9 CYS	W/ CYS	W/ CYS

INTERNAL DISTRIBUTION

✓ REG FILE	TECH REVIEW	DENTON	LIC ASST	A/T IND
✓ AEC-PDR	HENDRIE	GRIMES	DIGGS (L)	BRAITMAN
✓ OGC	SCHROEDER	GAMMILL	GEARIN (L)	SALTZMAN
✓ MUNTZING/STAFF	MACCARY	KASTNER	GOULBOURNE (L)	B. HURT
CASE	KNIGHT	BALLARD	KREUTZER (E)	
GIAMBUSSO	PAWLICKI	SPANGLER	LEE (L)	PLANS
BOYD	SHAO		MAIGRET (L)	MCDONALD
MOORE (L)(LWR-2)	STELLO	ENVIRO	REED (E)	CHAPMAN
DEYOUNG (L)(LWR-1)	HOUSTON	MULLER	SERVICE (L)	✓ DUBE w/input
SKOVHOLT (L)	NOVAK	DICKER	✓ SHEPPARD (L)	✓ E. COUPE
✓ GOLLER (L)	ROSS	KNIGHTON	SLATER (E)	✓ Schemel /
P. COLLINS	IPPOLITO	YOUNGBLOOD	SMITH (L)	D. THOMPSON (2)
DENISE	TEDESCO	REGAN	TEETS (L)	KLECKER
✓ REG OPR	LONG	✓ PROJECT MGR	WILLIAMS (E)	EISENHUT
FILE & REGION (2)	LAINAS	✓ Scaletti	WILSON (L)	
MORRIS	BENAROYA	HARLESS		
STEELE	VOLLMER			

EXTERNAL DISTRIBUTION

✓ 1 - LOCAL PDR /Walhalla, S.C.	(1)(2)(10)-NATIONAL LABS	1-PDR-SAN/LA/NY
✓ 1 - TIC (ABERNATHY)	1-ASLBP(E/W Bldg, Rm 529)	1-BROOKHAVEN NAT LAB
✓ 1 - NSIC (BUCHANAN)	1-W. PENNINGTON, Rm E-201 GT	1-G. ULRIKSON, ORNL
1 - ASLB	1-B&M SWINEBROAD, Rm E-201 GT	1-AGMED (RUTH GUSSMAN)
1 - P. R. DAVIS	1-CONSULTANTS	Rm B-127 GT
✓ 16 - ACRS HOLDING Sent to Sheppard 8-6-74	NEWMARK/BLUME/ACBABLON	1-RD..MUELLER, Rm F-309 GT

Regulatory Docket File

DUKE POWER COMPANY

POWER BUILDING

422 SOUTH CHURCH STREET, CHARLOTTE, N. C. 28201

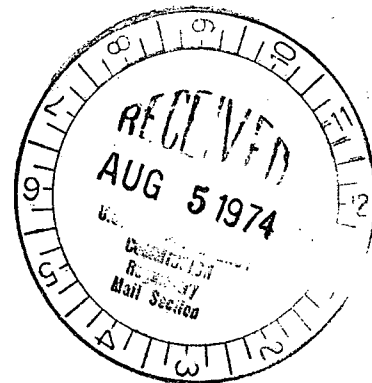
A. C. THIES
SENIOR VICE PRESIDENT
PRODUCTION AND TRANSMISSION

P. O. Box 2178

July 30, 1974

Mr. Angelo Giambusso
Deputy Director for Reactor Projects
Directorate of Licensing
Office of Regulation
U. S. Atomic Energy Commission
Washington, D. C. 20545

Re: Oconee Nuclear Station
Docket Nos. 50-269 -270, -287



Dear Mr. Giambusso:

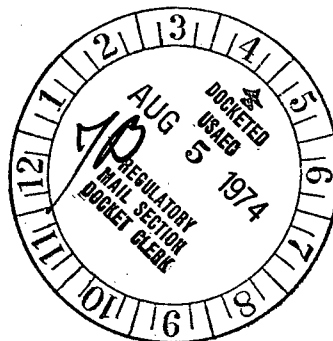
Oconee Nuclear Station Technical Specification 3.11, "Maximum Power Restriction," limits first fuel cycle operation until supporting analyses and data pertinent to fuel clad collapse under fuel densification conditions have been approved by the Directorate of Licensing. On May 31, 1974, Babcock & Wilcox submitted their proprietary report BAW-10084, "Program to Determine In-Reactor Performance of B&W Fuels-Cladding Creep Collapse." The techniques defined in this report were utilized to perform cladding collapse analyses for Oconee Unit 1. Attachment 1, "Oconee 1 Clad Collapse Analysis," presents the results of this analysis and supports three-cycle operation of Oconee Unit 1.

Pursuant to 10CFR50.59, it is requested that the restriction limiting Oconee Unit 1 to 7500 effective full power hours be deleted from Technical Specification 3.11. Attachment 2 is the proposed replacement page 3.11-1 for the Oconee Nuclear Station Technical Specifications.

Very truly yours,

A. C. Thies

ACT:vr



8140

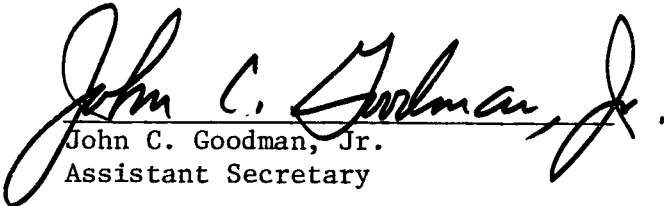
Mr. Angelo Giambusso
Page 2
July 30, 1974

A. C. THIES, being duly sworn, states that he is Senior Vice President of Duke Power Company; that he is authorized on the part of said Company to sign and file with the Atomic Energy Commission this request for amendment of the Oconee Nuclear Station Technical Specifications, Appendix A to Facility Operating Licenses DPR-38, DPR-47, and DPR-55; and that all statements and matters set forth therein are true and correct to the best of his knowledge.



A. C. Thies, Senior Vice President

ATTEST:

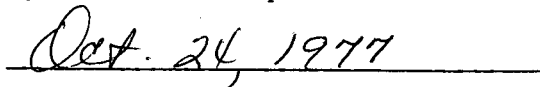

John C. Goodman, Jr.
Assistant Secretary

Subscribed and sworn to before me this 30th day of July, 1974.



Notary Public

My Commission Expires:



ATTACHMENT 1
OCONEE 1 CLAD COLLAPSE ANALYSIS

The analysis of Oconee 1 3-cycle fuel assemblies for cladding creep collapse is complete and indicates no collapse of fuel rod cladding into axial gapped regions of the fuel. The analysis was performed according to Section 4, design analysis procedures, of Topical Report BAW-10084 "Program to Determine In-Reactor Performance of B&W Fuel - Cladding Creep Collapse", May, 1974.

Densification was assumed to occur in two ways. The first method was to assume densification occurred immediately at beginning of life while the second assumed the fuel densified slowly and was complete at 2400 hours. Section 4 of BAW-10084 specifies that densification be assumed complete in 2000 hours, however in this analysis 2400 hours was used for calculational convenience and introduces only a slight conservative effect.

Power histories of the 3-cycle assemblies in the core were used as input for cladding temperature determination and in calculating the flux and internal pressure histories. Because of symmetry, one eighth of the core is representative of all 3-cycle assemblies. The appropriate nuclear uncertainty factors were applied to the power histories.

The fuel rod geometry, initial prepressure level, and the prepressure level after densification were determined from Oconee 1 as-built data.

Attached are the predicted times to collapse (Table 1) and the flux, pin pressure, and cladding temperature histories for the worst case assembly (Table 2).

TABLE 1

<u>ASSEMBLY *</u>	<u>TIMES TO COLLAPSE, EFPH</u> <u>DENSIFICATION ASSUMED COMPLETE AT:</u>	
	<u>TIME = 0</u>	<u>TIME = 2400</u>
A	>30,000	>30,000
B	>30,000	>30,000
C	>30,000	>30,000
D	>30,000	28,640
E	28,490	25,650
G	>30,000	28,790
H	>30,000	>30,000
I	>30,000	28,480

3-Cycle Time = 21,500 Hours

*The eight different cases calculated represent all core locations for Batch 3 when symmetry is considered.

TABLE 2

ASSEMBLY E INPUT TIME HISTORY
DENSIFICATION AT TIME = 0 HOURS

<u>TIME, EFPH</u>	<u>CLAD TEMP., F</u>		<u>PIN PRESSURE, PSI</u>	<u>FLUX*, n/cm²/sec x 10¹³</u>
	<u>I.D.</u>	<u>O.D.</u>		
0	605.8	604.4	675	9.04
96	606.9	605.4	676	9.40
1200	608.0	606.5	681	9.58
2400	615.5	613.9	699	11.10
3600	616.6	614.9	706	10.40
4800	615.5	613.9	706	10.30
6000	615.6	613.9	711	10.40
6840	617.7	616.0	716	9.43
7439	617.7	616.0	718	9.43
7441	612.8	610.3	704	8.27
7536	610.3	608.1	699	7.83
8040	610.3	608.1	698	7.76
8640	616.0	613.6	712	8.63
9840	613.8	611.3	710	8.27
11040	612.8	610.3	712	8.27
12240	616.0	613.6	714	8.12
13800	616.0	613.6	725	8.63
14399	598.4	596.8	727	8.63
14401	598.4	596.8	718	6.66
14496	598.4	596.8	655	6.66
15000	598.3	596.8	655	6.66
15600	598.4	596.8	655	6.66
16800	599.4	597.8	655	6.74
18000	600.6	598.9	655	6.90
19200	600.8	599.0	660	6.98
20803	643.2	638.6	750	13.48
21403	638.9	635.0	740	12.91

CLADDING GEOMETRY:

Wall Thickness, h = 0.0262 inches

Initial Ovality, W_0 = 0.62 mils

Outside Diameter, O.D. = 0.43 inches

*Flux greater than 1 MEV at indicated EFPH considering boron dilution, rod position, and refueling.

Attachment 2

3.11 MAXIMUM POWER RESTRICTION

Applicability

Applies to the nuclear steam supply system of Units 2 and 3 reactors.

Objective

To maintain core life margin in reserve until the system has performed under operating conditions and design objectives for a significant period of time.

Specification

- 3.11.1 The first reactor core in Unit 2 may not be operated beyond 11,040 effective full power hours until supporting analysis and data pertinent to fuel clad collapse under fuel densification conditions have been approved by the Directorate of Licensing.
- 3.11.2 The first reactor core in Unit 3 may not be operated beyond 10,944 effective full power hours until supporting analysis and data pertinent to fuel clad collapse under fuel densification conditions have been approved by the Directorate of Licensing.

Bases

The licensing staff has reviewed the effects of fuel densification for the first core in Oconee Units 2 and 3 and concluded that clad collapse will not take place within the first fuel cycle (11,040 effective full power hours for Unit 2 and 10,944 effective full power hours for Unit 3). However, the clad collapse model used is questionable for extrapolation of clad collapse time out beyond the first fuel cycle because of limited experimental verification.