REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8410290145 DOC.DATE: 84/10/22 NOTARIZED: NO DOCKET #
FACIL:50-269 Oconee Nuclear Station, Unit 1, Duke Power Co. 05000269
50-270 Oconee Nuclear Station, Unit 2, Duke Power Co. 05000270
50-287 Oconee Nuclear Station, Unit 3, Duke Power Co. 05000287
AUTH.NAME AUTHOR AFFILIATION
TUCKER,H.B. Duke Power Co.
RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. Office of Nuclear Reactor Regulation, Director
STOLZ,J.F. Operating Reactors Branch 4

SUBJECT: Forwards addl info to 831007 ltr transmitting Topical Rept BAW-1781P, "Rancho Seco Cycle 7 Reload Rept Volume 1:Mark BZ Fuel Assembly Design Rept." Info applies generically to all 177FA lowered-loop plants w/Mark BZ cores.

DISTRIBUTION CODE: A001D COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 4
TITLE: OR Submittal: General Distribution

NOTES:AEOD/Ornstein:1cy. 05000269
OL:02/06/73
AEOD/Ornstein:1cy. 05000270
OL:10/06/73
AEOD/Ornstein:1cy. 05000287
OL:07/19/74

	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL
	NRR ORB4 BC	01	7	7				
INTERNAL:	ADM/LFMB		1	0	ELD/HDS4		1	0
	NRR/DE/MTEB		1	1	NRR/DL DIR		1	1
	NRR/DL/ORAB		1	0	NRR/DSI/METB		1	1
	NRR/DSI/RAB		1	1	REG FILE	04	1	1
	RGN2		1	1				
EXTERNAL:	ACRS	09	6	6	LPDR	03	1	1
	NRC PDR	02	1	1	NSIC	05	1	1
	NTIS		1	1				
NOTES:			1	1				

TOTAL NUMBER OF COPIES REQUIRED: LTTR 27 ENCL 24

DUKE POWER COMPANY
P.O. BOX 33189
CHARLOTTE, N.C. 28242

HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

TELEPHONE
(704) 373-4531

October 22, 1984

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. John F. Stolz, Chief
Operating Reactors Branch No. 4

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

Dear Sir:

On October 7, 1983, Duke Power submitted the B&W report, "Rancho Seco Cycle 7 Reload Report-Volume 1. Mark BZ Fuel Assembly Design Report", April 1983, BAW-1781P. This submittal was made in order to facilitate Staff approval of the Mark BZ fuel assembly prior to the Technical Specification submittal for Oconee Unit 1, Cycle 9. The proposed amendment request for Unit 1, Cycle 9, containing the reload analysis, was submitted by Duke on September 11, 1984.

Duke understands that SMUD has submitted BAW-1781P in support of the Rancho Seco Cycle 7 reload. In view of the bearing which Staff decisions on the Rancho Seco Cycle 7 reload may have on Oconee Unit 1, Cycle 9, Duke has monitored the correspondence between the NRC and SMUD on the subject of Zircaloy grids and the Mark BZ design. As a result, Duke is submitting the attached information as a supplement to my October 7, 1983 letter which transmitted report BAW-1781P for NRC review and approval. The attached information was formulated by B&W and applies generically to all 177FA lowered-loop plants utilizing transition or full Mark BZ cores.

Since this submittal consists of a supplement to a previously submitted amendment request, as yet unapproved, Duke considers additional license fees to be unjustified.

Very truly yours,

Hal B. Tucker

Hal B. Tucker

RFH:slb

Attachment

A001
1/1

cc: Mr. James P. O'Reilly, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Ms. Helen Nicolaras
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Mr. J. C. Bryant
NRC Resident Inspector
Oconee Nuclear Station

Duke Power Company
Oconee Nuclear Station
Mark BZ Fuel Assembly
Supplemental Information

The PCT increase for Mark BZ fuel has been estimated on the basis of calculations performed for Mark B fuel. Similarities in the grid geometry and conservatisms in the analysis justify this approach. The following conservatisms were included in the Mark B PCT analysis:

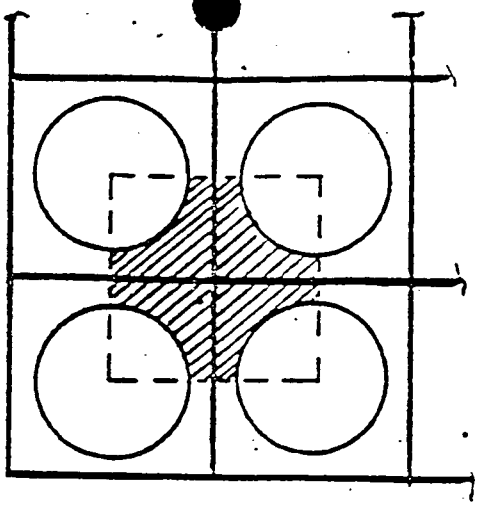
- The dynamic response analyses showed that the maximum horizontal impact forces and maximum flow area reduction occur on the two mid-height spacer grids for Mark B and Mark BZ fuel assemblies. The PCT analysis assumed the maximum flow area reduction along the entire assembly.

- The maximum flow area reduction used in the PCT analysis for Mark B fuel is 41%. The calculated value for Mark BZ fuel is 37%.

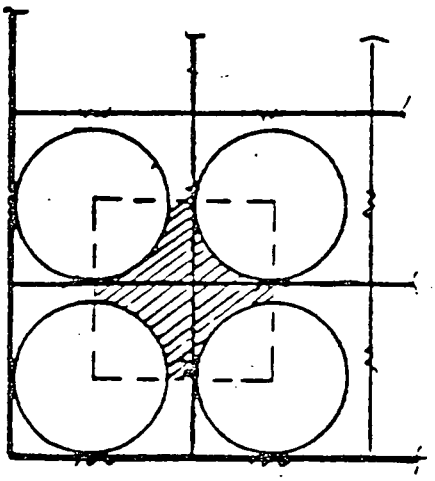
The structural characteristics of racking and crushing failure modes are illustrated in Figure 1. Figure 1A) shows a normal unit flow area. Figure 1B) shows the crushing mode where the grid strips have yielded and resulted in a decrease in the dimensions of the unit flow area. Figure 1C) shows the racking mode where the perimeter of the unit flow area is unchanged but the orientation of grid strips and fuel rods has been altered.

The PCT increase was evaluated for the racking mode only since this case results in the maximum flow area reduction. The increase in PCT for Mark B fuel is 12°F. For reasons mentioned above, this is expected to bound the PCT increase for the Mark BZ fuel. Since the maximum horizontal impact forces occur in a peripheral fuel assembly, any racking or crushing failures would also be observed there.

Mark-B/BZ Unit Cell Flow Area

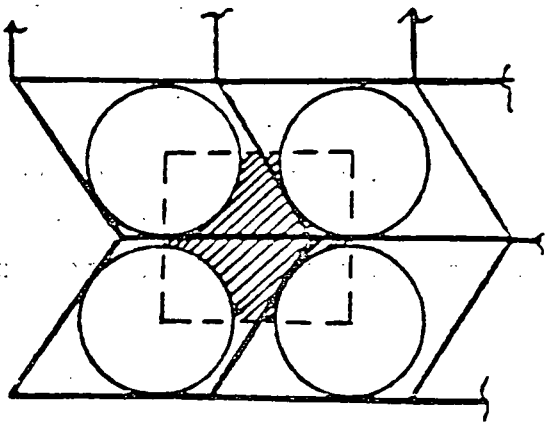


A) Undeformed Unit Flow Area



B) Crushing Mode

37% Flow Area Reduction



C) Racking Mode

41% Flow Area Reduction