REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8510020380 DOC.DATE: 85/09/30 NOTARIZED: NO DOCKET #
FACIL:STN-50-528 Palo Verde Nuclear Station, Unit 1, Arizona Publi 05000528
STN-50-529 Palo Verde Nuclear Station, Unit 2, Arizona Publi 05000529
STN-50-530 Palo Verde Nuclear Station, Unit 3, Arizona Publi 05000530
AUTH.NAME AUTHOR AFFILIATION
VAN BRUNT,E.E. Arizona Nuclear Power Project (formerly Arizona Public Serv
RECIP.NAME RECIPIENT AFFILIATION
KNIGHTON,G.W. Licensing Branch 3

SUBJECT: Provides addl info confirming that facility small break LOCA spectrum conforms to criteria of 10CFR50.46 & bounded by limiting large break LOCA.

DISTRIBUTION CODE: A001D COPIES RECEIVED:LTR 1 ENCL 0 SIZE: 2
TITLE: OR Submittal: General Distribution

NOTES:Standardized plant. 05000528
OL:12/31/84
Standardized plant. 05000529
Standardized plant. 05000530

	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL
	NRR LB3 BC	01	7	7				
INTERNAL:	ACRS	09	6	6	ADM/LFMB		1	0
	ELD/HDS3		1	0	NRR/DE/MTEB		1	1
	NRR/DL DIR		1	1	NRR/DL/ORAB		1	0
	NRR/DL/TSRG		1	1	NRR/DSI/METB		1	1
	NRR/DSI/RAB		1	1	REG FILE	04	1	1
	RGN5		1	1				
EXTERNAL:	24X		1	1	EG&G BRUSKE,S		1	1
	LPDR	03	1	1	NRC PDR	02	1	1
	NSIC	05	1	1				

TOTAL NUMBER OF COPIES REQUIRED: LTTR 28 ENCL ~~25~~ 9

Arizona Nuclear Power Project
P.O. BOX 52034 • PHOENIX, ARIZONA 85072-2034

Director of Nuclear Reactor Regulation
Attention: Mr. George W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

September 30, 1985
ANPP-33609-EEVB/KLM

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Docket Nos. STN 50-528 (License No. NPF-41)/529/530
Limiting Small Break LOCA Analysis-Additional Information
File: 85-056-026; G.1.01.10

References: (A) Letter to G. W. Knighton, NRC, from E. E. Van Brunt, Jr., ANPP, dated April 15, 1985 (ANPP-32401); Subject: Revised Chapter 15 Analyses

(B) Letter to G. W. Knighton, NRC, from E. E. Van Brunt, Jr., ANPP, dated December 19, 1984 (ANPP-31535); Subject: Post-FDA Proposed CESSAR Changes

Dear Mr. Knighton:

This letter provides additional information confirming that the PVNGS small break LOCA spectrum conforms to the criteria of 10CFR 50.46 and is bounded by the limiting large break LOCA. This information supplements the evaluation provided in the Reference (A) which addressed the Staff's concerns stated in PVNGS Operating License NPF-34 Condition 2.C.(21) and was discussed with members of your staff in a meeting held on August 29, 1985.

The limiting small break analyzed in the spectrum presented in CESSAR is a $0.05ft^2$ break in the Reactor Coolant Pump (RCP) discharge leg. This break was reanalyzed to evaluate the results of PVNGS plant specific changes. The results of this reanalysis yielded a Peak Cladding Temperature (PCT) of 1630°F which was presented in Reference (B). Discussion was provided in Reference (A) to demonstrate that this $0.05ft^2$ break would remain the most limiting break analyzed in the small break spectrum.

To resolve a NRC concern that another break size, not currently analyzed, could yield more adverse results than currently presented, further evaluation was conducted. As stated in Reference (A), the most limiting small break LOCA would be the size which results in the maximum RCS depressurization possible without the Safety Injection Tanks (SITs) acting to mitigate the PCT. An engineering calculation indicated that a break size of $0.07ft^2$ would provide this performance.

A001
1/0

This break size was then analyzed using the NRC approved small break LOCA evaluation model. The results yielded a PCT of 1230°F. This was lower than the $0.05ft^2$ result because of beneficial effects of an additional loop seal blowing out, resulting in redistribution of water to the reactor vessel. As predicted, however, RCS depressurization for the $0.07ft^2$ break was such that the maximum PCT was achieved just before SIT actuation. To conservatively define an upper limit on PCT for small break LOCA, core uncovery and depressurization were estimated using a hand calculation which assumed the same loop seal behavior as the $0.05ft^2$ case. This calculation resulted in a PCT of approximately 1870°F occurring at 1365 seconds into the transient. SIT actuation was estimated to occur coincident with the maximum PCT.

These results indicate that the most limiting analyzed break in the small break LOCA spectrum remains the $0.05ft^2$ case. Although a break larger than $0.05ft^2$ should exist which results in a higher PCT than the $0.05ft^2$ case, an engineering evaluation has confirmed that the large break LOCA results bound the small break LOCAs. The PVNGS changes which resulted in Unit 1 license NPF-34 condition 2.C.(21) have, therefore, been demonstrated to result in consequences which preserve the licensing conclusions presented by the NRC in the PVNGS Safety Evaluation Report.

Please contact Mr. W. F. Quinn, of my staff, if you have any questions concerning this matter.

Very truly yours,

E. E. Van Brunt

E. E. Van Brunt, Jr.
Executive Vice President
Project Director

EEVB/KLM/bg

cc: E. A. Licitra
R. P. Zimmerman
A. C. Gehr