

ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

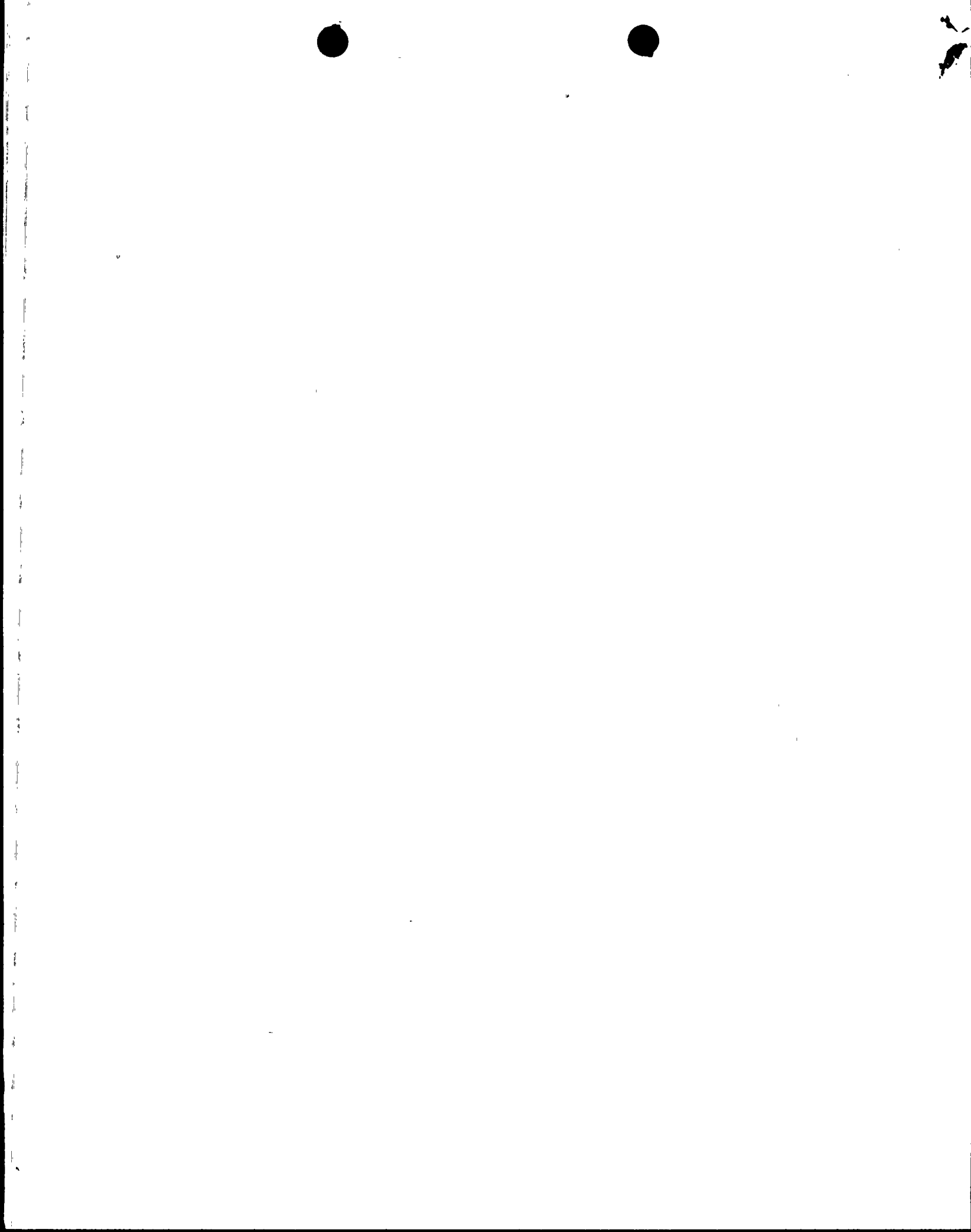
ACCESSION NBR:8809070301 DOC.DATE: 88/08/29 NOTARIZED: NO DOCKET #
 FACIL:STN-50-528 Palo Verde Nuclear Station, Unit 1, Arizona Publi 05000528
 STN-50-529 Palo Verde Nuclear Station, Unit 2, Arizona Publi 05000529
 STN-50-530 Palo Verde Nuclear Station, Unit 3, Arizona Publi 05000530
 AUTH.NAME AUTHOR AFFILIATION
 KARNER,D.B. Arizona Nuclear Power Project (formerly Arizona Public Serv
 RECIP.NAME RECIPIENT AFFILIATION
 Document Control Branch (Document Control Desk)

SUBJECT: Forwards addl info re evaluation results for auxiliary *Bulletin*
 feedwater pumps & status of review for remaining pumps. *88-04*

DISTRIBUTION CODE: IE11D COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 2
 TITLE: Bulletin Response (50 DKT)

NOTES:Standardized plant. 05000528
 Standardized plant. 05000529
 Standardized plant. 05000530

RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
PD5 LA	1 0	PD5 PD	1 1
LICITRA,E	1 1	DAVIS,M	1 1
INTERNAL: AEOD/DOA	1 1	AEOD/DSP	1 1
AEOD/DSP/TPAB	1 1	NRR ALEXION,T	1 1
NRR RIVENBARK,G	1 1	NRR/DEST/ADE 8H	1 1
NRR/DEST/ADS 7E	1 1	NRR/DEST/MEB 9H	1 1
NRR/DOEA/EAB 11	1 1	NRR/DOEA/GCB 11	1 1
NRR/DREP/EPB 10	1 1	NRR/PMAS/ILRB12	1 1
NUDOCS-ABSTRACT	1 1	<u>REG FILE</u> 02	1 1
RES/DSIR/EIB	1 1	RGN5 FILE 01	1 1
EXTERNAL: LPDR	1 1	NRC PDR	1 1
NSIC	1 1		
NOTES:	1 1		





Arizona Nuclear Power Project

P.O. BOX 52034 • PHOENIX, ARIZONA 85072-2034

161-01270-DBK/BJA
August 29, 1988

Docket Nos. STN 50-528/529/530

Document Control Desk
U. S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D.C. 20555

References: (1) Letter from Charles E. Rossi, NRC, to All Holders of Operating Licenses or Construction Permits for Nuclear Power Reactors dated May 5, 1988. Subject: NRC Bulletin No. 88-04, Potential Safety-Related Pump Loss.
(2) Letter from E. E. Van Brunt, Jr., ANPP, to USNRC Document Control Desk dated July 8, 1988 (161-01159). Subject: Response to NRC Bulletin No. 88-04.

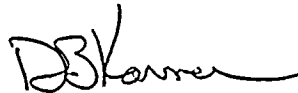
Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2 and 3
Additional Response to NRC Bulletin No. 88-04
File: 88-A-056-026, 88-055-026

The NRC has issued NRC Bulletin No. 88-04 via Reference (1). This bulletin concerns the potential loss of safety related pumps due to deficiencies in the minimum flow recirculation design for the pumps. ANPP's initial response to this bulletin was provided to the NRC by Reference (2). In this initial response, ANPP committed to provide an additional response after the pump vendors' evaluations were received and reviewed by ANPP. At this time, the vendor evaluation of the auxiliary feedwater pumps has been received by ANPP. The attachment to this letter provides a summary of the evaluation results for the auxiliary feedwater pumps and the status of the review for the remaining pumps.

If you have any additional questions on this matter, please contact Mr. A. C. Rogers at (602) 371-4041.

Very truly yours,



D. B. Karner
Executive Vice President

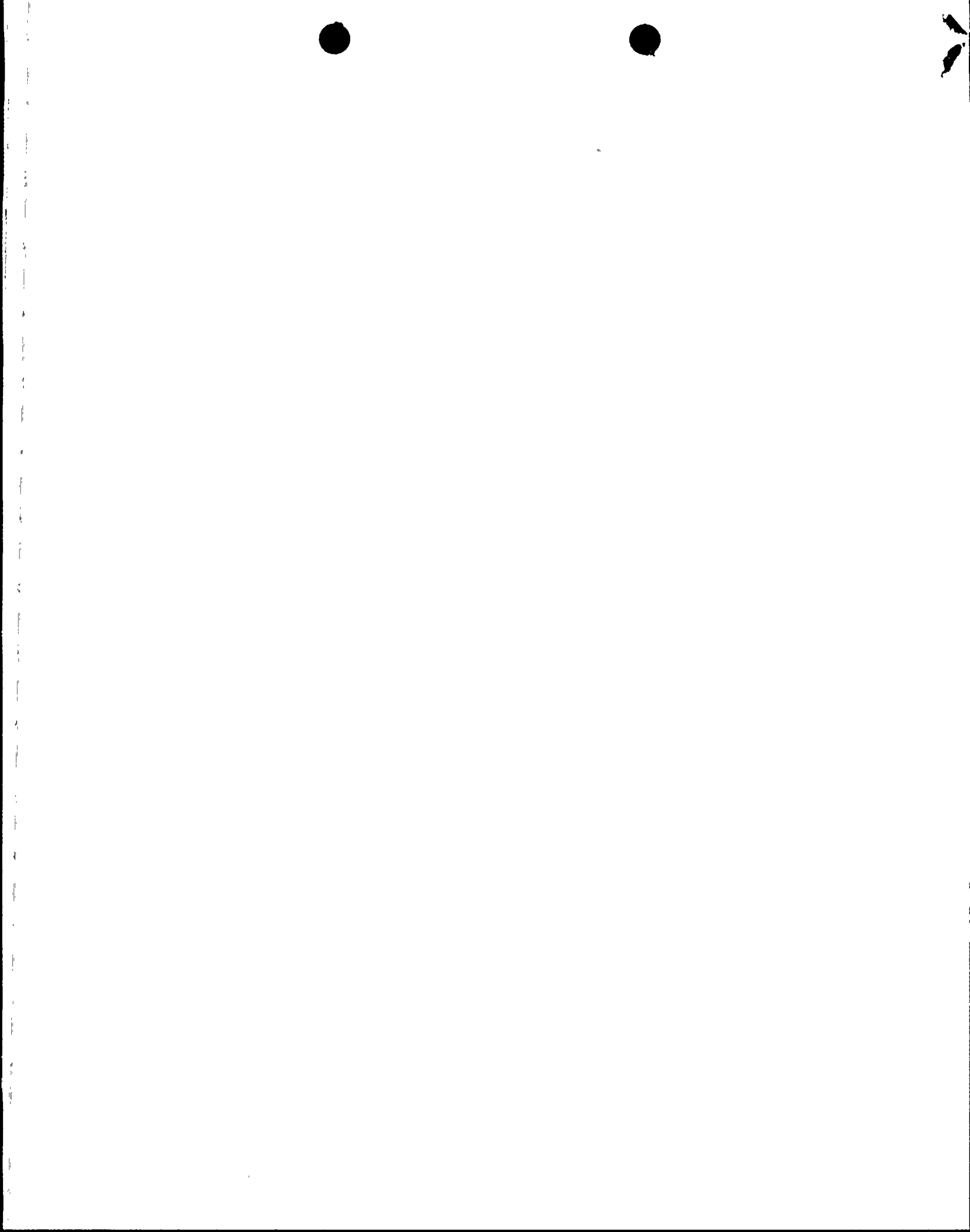
8809070301 880829
PDR ADDCK 05000528
Q PNU

DBK/BJA/dlm

Attachment

cc: G. W. Knighton (all w/a)
M. J. Davis
J. B. Martin
T. J. Polich
A. C. Gehr

IE11
111



ATTACHMENT

PUMP VENDOR EVALUATION RESULTS

ANPP requested assistance from the applicable pump vendors to complete our evaluation for NRC Bulletin 88-04. Two pump vendors were involved with the evaluation. Sulzer Bingham Pumps, Inc. supplied the auxiliary feedwater pumps to PVNGS. Ingersoll-Rand Company supplied the condensate transfer pumps and the safety injection pumps (containment spray, low pressure safety injection, and high pressure safety injection) to PVNGS. Each of the pump vendors was asked to determine if the existing minimum flow rates were sufficient to preclude pump damage during minimum flow operations. The results of the vendor evaluations are provided below.

- 1) Auxiliary Feedwater Pumps: Sulzer Bingham Pumps, Inc. was provided with information on the amount of time that the pumps are expected to be operated at minimum flow conditions for the 40 year life of the plant. The pumps have a minimum flowrate of approximately 240 gpm or higher. The pump vendor's evaluation indicated that a short term minimum flowrate of no less than 165 gpm would be sufficient to prevent excessive internal wear to the pumps. The short term condition is where the pumps are operated at the minimum flowrate for 2 hours or less in 24 hours. The vendor also stated that the continuous minimum flowrate for the pumps is 240 gpm or higher. In conclusion, since the pumps at PVNGS have a minimum flowrate that is approximately the same or higher than the continuous minimum flowrate required by the pump vendor, the current minimum flowrate is acceptable. No further actions are required for the auxiliary feedwater pumps at PVNGS.

- 2) Condensate Transfer Pumps and Safety Injection Pumps

Ingersoll-Rand has not completed their evaluation of the minimum flow rates for the condensate transfer and safety injection pumps. Ingersoll-Rand is in the process of developing prediction methods to estimate pump life versus low flow operations. However, based on their review of the existing minimum flowrates at PVNGS, they have informed ANPP that the current minimum flowrates are adequate to prevent short-term damage to the pumps. Ingersoll-Rand's additional evaluation will investigate the potential for long-term pump damage.

Ingersoll-Rand has informed ANPP that they will complete their evaluation by mid-October, 1988. The results of this evaluation will be provided to the NRC following ANPP's review of the vendor's evaluation.

