ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9003080060 DOC.DATE: 90/02/23 NOTARIZED: NO DOCKET #
FACIL:STN-50-530 Palo Verde Nuclear Station, Unit 3, Arizona Publi 05000530
AUTH.NAME AUTHOR AFFILIATION
LEVINE,J.M. Arizona Public Service Co. (formerly Arizona Nuclear Power
RECIP.NAME RECIPIENT AFFILIATION
NRC - No Detailed Affiliation Given

SUBJECT: Special Rept 3-SR-90-002 re inoperable loose parts detection sys.

DISTRIBUTION CODE: IE22D COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 3
TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:Standardized plant. 05000530

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL
	PD5 LA	1	1	PD5 PD	1	1
	PETERSON,S.	1	1			
INTERNAL:	ACNW	2	2	ACRS	2	2
	AEOD/DOA	1	1	AEOD/DSP/TPAB	1	1
	AEOD/ROAB/DSP	2	2	DEDRO	1	1
	NRR/DET/ECMB 9H	1	1	NRR/DET/EMEB9H3	1	1
	NRR/DET/ESGB 8D	1	1	NRR/DLPQ/LHFB11	1	1
	NRR/DLPQ/LPEB10	1	1	NRR/DOEA/OEAB11	1	1
	NRR/DREP/PRPB11	2	2	NRR/DST/SELB 8D	1	1
	NRR/DST/SICB 7E	1	1	NRR/DST/SPLB8D1	1	1
	NRR/DST/SRXB 8E	1	1	REG FILE 02	1	1
	RES/DSIR/EIB	1	1	RGN5 FILE 01	1	1
EXTERNAL:	EG&G WILLIAMS,S	4	4	L ST LOBBY WARD	1	1
	LPDR	1	1	NRC PDR	1	1
	NSIC MAYS,G	1	1	NSIC MURPHY,G.A	1	1
	NUDOCS FULL TXT	1	1			
NOTES:		1	1			

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM P1-37 (EXT. 20079) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

TOTAL NUMBER OF COPIES REQUIRED: LTTR 38 ENCL 38

RIDS/ADDS

RIDS/ADDS

IA 2

Arizona Public Service Company
PALO VERDE NUCLEAR GENERATING STATION
P.O. BOX 52034 • PHOENIX, ARIZONA 85072-2034

JAMES M. LEVINE
VICE PRESIDENT
NUCLEAR PRODUCTION

192-00633-JML/TRB/DAJ
February 23, 1990

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 3
Docket No. STN 50-530 (License No. NPF-74)
Special Report 3-SR-90-002
File: 90-020-404

Attached please find Special Report 3-SR-90-002 prepared and submitted pursuant to Technical Specifications 3.3.3.7 ACTION "a" and 6.9.2. This report discusses an inoperable Loose Parts Detection System.

If you have any questions, please contact T. R. Bradish, (Acting) Compliance Manager at (602) 393-2521.

Very truly yours,

James M Levine

JML/TRB/DAJ/kj

Attachment

cc: W. F. Conway (all with attachment)
J. B. Martin
E. E. Van Brunt
D. H. Coe
T. L. Chan
A. C. Gehr
J. R. Newman

9003080060 900223
PDR ADOCK 05000530
S PDC

PALO VERDE NUCLEAR GENERATING STATION UNIT 3

Loose Part Detection Instrumentation

License No. NPF-74

Docket No. 50-530

Special Report 3-SR-90-002

This special Report is being submitted pursuant to Technical Specification 3.3.3.7, ACTION "a" and Technical Specification 6.9.2 to report the Loose Part Detection System being inoperable for more than thirty (30) days. This specification is applicable in Mode 1 (POWER OPERATION) and Mode 2 (STARTUP). The 30 day period for returning the channel to an operable status was exceeded at approximately 0002 MST on January 18, 1990.

The Palo Verde Unit 3 Loose Part Detection System consists of eight (8) channels. Each channel consists of a piezoelectric crystal monitor sensor and associated amplification, indication, and recording circuitry. The sensors are positioned in the following locations: two (2) mounted on the Reactor Vessel upper head, two (2) mounted on the Reactor Vessel lower incore nozzle, and one (1) on each of the two (2) Steam Generators' inlet and outlet nozzles. The piezoelectric sensors detect loose parts using acoustic signals which are generated when loose parts impact a Reactor Coolant System component or structure. Signals in excess of the alarm setpoint will result in an alarm condition. The alarms are the "latch on" type, i.e., the alarm will remain on when the system returns to normal and will not clear until the alarm is manually reset. There is one alarm indicator in the Control Room for the eight channels. In addition to the alarm in the Control Room, a tape recorder will start. There are two tape recorders: each tape recorder receives input from four system channels.

Channel response is susceptible to excitation energy from the Reactor Coolant System (RCS). APS has observed that, at different power levels and during different plant transients, RCS excitation energies vary which affect the response of the Loose Parts Detection System. Also, other sources (e.g., flow vortexing, core barrel bypass flow, etc.) can produce energy waves which excite the accelerometers. In many cases, it takes a significant length of time after a plant transient for the RCS to "stabilize" to the point where spurious alarms do not occur.

During the recent Unit 3 refueling outage, the Loose Parts Detection System channels were calibrated. In order to properly calibrate the channels, the Reactor Coolant Pumps must be secured. Following the refueling outage, Palo Verde Unit 3 entered Mode 2 at approximately 0002 MST on January 18, 1990. Subsequent startup testing and resolution of unrelated problems precluded full power operation until February 18, 1990. Since startup, Loose Parts Detection System Channel 1 (reactor vessel upper head), Channel 6 (Steam Generator No. 1 cold leg nozzle), and Channel 8 (Steam Generator No. 2 cold leg nozzle) have been in an alarm condition. Spectral analysis, aural analysis, and trend analysis of channels 1, 6, and 8 output has determined that no loose parts exist and that

background noise or noise resulting from an instrumentation deficiency has caused the alarm conditions. Stable RCS conditions at full power have not existed for an adequate time period to allow an evaluation to determine the cause of the alarm condition. Since the automatic alarm function of the system has been disabled, the Shift Technical Advisors have been aurally monitoring system output at least daily.

An engineering investigation of Loose Parts Detection System response and troubleshooting to determine if the problem is a hardware deficiency are in progress. Based upon the results of the engineering investigation and troubleshooting, the need for more frequent monitoring of system output will be evaluated. These evaluations are expected to be completed by March 30, 1990. The results of APS's evaluations and the plans for restoring the system to an operable status will be described in a supplement to this report. The supplement is expected to be submitted by April 30, 1990.