

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8811220237 DOC. DATE: 88/11/09 NOTARIZED: NO DOCKET #  
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 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) 566

SUBJECT: Forwards engineering analysis of equipment functionality w/ essential chiller sys imoperable & summary of analysis. 186

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## Arizona Nuclear Power Project

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

DONALD B. KARNER  
EXECUTIVE VICE PRESIDENT

161-01476-DBK/ACR  
November 9, 1988

Docket No. STN 50-528

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

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)  
Unit 1,  
Analysis of Essential Chilled Water System  
LER 88-017-01  
File: 88-020-404; 88-056-026

In accordance with your request to forward the subject analyses, please find the following documents:

1. Engineering Analysis of Equipment Functionality with Essential Chiller System Inoperable:
  - a. Summary
  - b. Mechanical Evaluation Volumes I & II
  - c. Electrical Evaluation
  - d. Instrumentation & Controls Evaluation
  - e. Reliability Analysis Evaluation
2. Summary Analysis for Dose to Technician

In addition, you have requested that we specifically address the potential radiation exposure to a maintenance person dispatched to determine the reason the chilled water system was not functioning and the heat stress on personnel during the time from the initiation of the event until repair was completed.

A conservative estimate of the whole body and thyroid dose to a maintenance technician respectively are 20 REM and 106 REM. A summary copy of the analysis is attached.

A review of the heat stress to the maintenance technician and the control room operators was also performed. Since the chiller trouble shooting is

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Page 2

161-01476-DBK/ACR  
November 9, 1988

done in the below grade portion of the control building, and since this area contains a relatively low heat load, it is expected that the temperature will not significantly rise above the maximum design temperature of 104F. Our review of this event indicates that temperatures in the control room will not exceed 110F in the time period that the control room operators must take corrective action, nor will the temperature in the chiller room exceed 110F during the time period that the chiller technicians must perform corrective action. Studies (e.g., NUMARC 87-00) suggest that long term occupancy in higher temperature environments does not prevent performance of tasks of various difficulties. Such studies have been the basis of guidance in the heating and ventilating industry handbooks (e.g., ASHVE [1950] and ASHRAE [1985]). ASHRAE, in particular, correlates temperature, humidity, and pressure and concludes that light work at 110F and relative humidities up to 50% would not be intolerable. Therefore, it is not expected that operator actions would be impacted significantly by the projected temperature and humidity conditions.

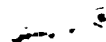
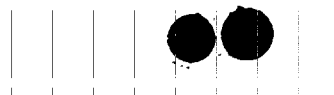
If you have questions about the analysis, please contact Gautam Sen (602) 371-4322.

Very truly yours,



DBK/ACR/rw  
Attachments

cc: J. B. Martin  
M. J. Davis Jr. (w/attachments by overnight mail)  
T. J. Polich  
A. C. Gehr  
INPO Records Center  
G. W. Knighton



DISTRIBUTION  
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February 17, 1989

DOCKET NO(S). STN 50-528

Mr. Donald B. Karner  
Executive Vice President  
Arizona Nuclear Power Project  
Post Office Box 52034  
Phoenix, Arizona 85072-2034

SUBJECT: ARIZONA PUBLIC SERVICE COMPANY, ET AL  
PALO VERDE NUCLEAR GENERATING STATION, UNITS 1

The following documents concerning our review of the subject facility are transmitted for your information.

- ☐ Notice of Receipt of Application, dated \_\_\_\_\_.
- ☐ Draft/Final Environmental Statement, dated \_\_\_\_\_.
- ☐ Notice of Availability of Draft/Final Environmental Statement, dated \_\_\_\_\_.
- ☐ Safety Evaluation Report, or Supplement No. \_\_\_\_\_ dated \_\_\_\_\_.
- ☐ Environmental Assessment and Finding of No Significant Impact, dated \_\_\_\_\_.
- ☐ Notice of Consideration of Issuance of Facility Operating License or Amendment to Facility Operating License, dated \_\_\_\_\_.
- ☒ Bi-Weekly Notice; Applications and Amendments to Operating Licenses Involving No Significant Hazards Considerations, dated 2/8/89 [see page(s)] 6214.
- ☐ Exemption, dated \_\_\_\_\_.
- ☐ Construction Permit No. CPPR-\_\_\_\_\_, Amendment No. \_\_\_\_\_ dated \_\_\_\_\_.
- ☐ Facility Operating License No. \_\_\_\_\_, Amendment No. \_\_\_\_\_ dated \_\_\_\_\_.
- ☐ Order Extending Construction Completion Date, dated \_\_\_\_\_.
- ☐ Monthly Operating Report for \_\_\_\_\_ transmitted by letter dated \_\_\_\_\_.
- ☐ Annual/Semi-Annual Report- \_\_\_\_\_  
\_\_\_\_\_ transmitted by letter dated \_\_\_\_\_.

Office of Nuclear Reactor Regulation

Enclosures:  
As stated

cc: See next page

OFFICE	DRSP/PD5						
SURNAME	JLee						
DATE	2/17/89						

