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FACIL:STN-50-529 Palo Verde Nuclear Station, Unit 2, Arizona Publi 05000529
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RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 91-002-00:on 910619,daily engineering review of reactor coolant pump (RCP) vibration data missed due to personnel error.RCP vibration analysis completed & personnel counseled.No abnormalities noted.W/910717 ltr.

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TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:Standardized plant. 05000529

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

JAMES M. LEVINE
VICE PRESIDENT
NUCLEAR PRODUCTION

192-00730-JML/TRB/RKR
July 17, 1991

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Mail Station P1-37
Washington, D.C. 20555

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 2
Docket No. STN 50-529 (License No. NPF-51)
Licensee Event Report 91-002-00
File: 91-020-404

Attached please find Licensee Event Report (LER) No. 91-002-00 prepared and submitted pursuant to Facility Operating License NPF-51 and 10CFR50.73. In accordance with 10CFR50.73(d), we are forwarding a copy of the LER to the Regional Administrator of the Region V office.

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

Very truly yours,

James M Levine

JML/TRB/RKR/nk

Attachment

cc: W. F. Conway (all with attachment)
J. B. Martin
D. H. Coe
A. C. Gehr
A. H. Gutterman
INPO Records Center



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NRC Form 366
(9 83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

# LICENSEE EVENT REPORT (LER)

| FACILITY NAME (1) | DOCKET NUMBER (2) | PAGE (3) |
|---|---|---|
| Palo Verde Unit 2 | 0 5 0 0 0 5 2 9 | 1 OF 0 5 |

TITLE (4)

Daily Reactor Coolant Pump Vibration Data Engineering Evaluation Missed

| EVENT DATE (5) | | | LER NUMBER (6) | | | REPORT DATE (7) | | | OTHER FACILITIES INVOLVED (8) | |
|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | DAY | YEAR | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | MONTH | DAY | YEAR | FACILITY NAMES | DOCKET NUMBER(S) |
| | | | | | | | | | N/A | 0 5 0 0 0 |
| 0 6 | 1 9 | 9 1 | 9 1 | 0 0 2 | 0 0 | 0 7 | 1 7 | 9 1 | N/A | 0 5 0 0 0 |

| OPERATING MODE (9) | 1 | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) | | | |
|---|---|---|---|---|---|
| POWER LEVEL (10) | 1 0 0 | 20.402(b) | 20.405(c) | 50.73(a)(2)(iv) | 73.71(b) |
| | | 20.405(a)(1)(i) | 50.36(c)(1) | 50.73(a)(2)(v) | 73.71(c) |
| | | 20.405(a)(1)(ii) | 50.36(c)(2) | 50.73(a)(2)(vii) | X OTHER (Specify in Abstract below and in Text, NRC Form 366A) |
| | | 20.405(a)(1)(iii) | 50.73(a)(2)(i) | 50.73(a)(2)(viii)(A) | Facility Operating License |
| | | 20.405(a)(1)(iv) | 50.73(a)(2)(ii) | 50.73(a)(2)(viii)(B) | |
| | | 20.405(a)(1)(v) | 50.73(a)(2)(iii) | 50.73(a)(2)(x) | |

LICENSEE CONTACT FOR THIS LER (12)

| NAME | TELEPHONE NUMBER |
|---|---|
| Thomas R. Bradish, Compliance Manager | AREA CODE 6 0 2 3 9 3 - 2 5 2 1 |

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPRDS | | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPRDS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| SUPPLEMENTAL REPORT EXPECTED (14) | | EXPECTED SUBMISSION DATE (15) | MONTH | DAY | YEAR |
|---|---|---|---|---|---|
| YES (If yes, complete EXPECTED SUBMISSION DATE) | X NO | | | | |

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)


On June 19, 1991, at approximately 1745 MST, Palo Verde Unit 2 was in Mode 1 (POWER OPERATION) at approximately 100 percent power when the Unit 2 Shift Technical Advisor (STA) discovered that the daily engineering review of Reactor Coolant Pump (RCP) vibration data for June 18, 1991, had not been completed pursuant to item IV.A.2 of the Unit 2 Confirmatory Order Modifying Facility Operating License NPF-51 dated November 19, 1987. The STA reviewed the RCP vibration data for June 18, 1991, and determined that it met the acceptance criteria for RCP vibration.

The cause of this event was a cognitive personnel error by the STA on the previous shift who did not complete the engineering evaluation on June 18, 1991. To prevent recurrence, the STA was counseled and this event was discussed with all STAs.

There was a previous similar event reported in Unit 1 LER 528/89-001-00.

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| Palo Verde Unit 2 | 0 5 0 0 0 5 2 9 | 9 1 | — 0 0 2 | — 0 0 | 0 2 OF 0 5 |

TEXT

I. DESCRIPTION OF WHAT OCCURRED:

A. Initial Conditions:

On June 18 and 19, 1991, Palo Verde Unit 2 was in Mode 1 (POWER OPERATION) at 100 percent power.

B. Reportable Event Description (Including Dates and Approximate Times of Major Occurrences):

Event Classification: Violation of an order modifying the Facility Operating License.

At approximately 1745 MST on June 19, 1991, the Unit 2 Shift Technical Advisor (utility, nonlicensed) discovered that the performance of an engineering review of the Reactor Coolant Pump (RCP)(P)(AB) vibration data for the previous day, June 18, 1991, had not been completed pursuant to item IV.A.2 of the Confirmatory Order Modifying Facility Operating License NPF-51 dated November 19, 1987. On June 18, 1991, the Unit 2 STA (utility, licensed) did not complete the engineering review which is required by an approved procedure. The STA who identified the missed engineering review on June 19, 1991 then completed the engineering review of the previous day's RCP vibration data and determined that it was within the acceptance criteria.

By letter dated October 8, 1987, APS informed the Commission that European RCPs, similar to the Palo Verde RCPs in design and manufacture, had exhibited shaft cracking. As a result, APS inspected the four (4) pump shafts at Palo Verde Unit 1 during the first refueling outage, October 1987 to January 1988. The inspection revealed that cracks of varying depths and lengths were present on the shafts of all four RCPs. Shaft failures have not been experienced at Palo Verde. However, the European data, as well as the information obtained from Palo Verde Unit 1, indicated an increased probability of RCP shaft failure. Based on this information, PVNGS committed to implement an augmented RCP vibration monitoring program to provide an early warning trend if a crack has started and is propagating. This program includes monitoring and recording RCP vibration data every four (4) hours and a daily engineering evaluation of the RCP vibration data. On November 19, 1987, a Confirmatory Order Modifying Facility Operating License NPF-51 was issued to require implementation of the RCP vibration monitoring program. The RCP vibration monitoring is implemented in accordance with approved procedures.

C. Status of structures, systems, or components that were inoperable at the start of the event that contributed to the event:

Not applicable - no structures, systems, or components were inoperable at the start of the event which contributed to this event.

D. Cause of each component or system failure, if known:

Not applicable - no component or system failures were involved.

E. Failure mode, mechanism, and effect of each failed component, if known:

Not applicable - no component failures were involved.

F. For failures of components with multiple functions, list of systems or secondary functions that were also affected:

Not applicable - no component failures were involved.

G. For a failure that rendered a train of a safety system inoperable, estimated time elapsed from the discovery of the failure until the train was returned to service:

Not applicable - no failures were involved.

H. Method of discovery of each component or system failure or procedural error:

Not applicable - there have been no component or system failures or procedural errors identified.

I. Cause of Event:

The cause of this event was a cognitive personnel error by the Unit 2 STA (utility, licensed) who did not complete the daily engineering review of the RCP vibration data (SALP Cause Code A: Personnel Error). This was contrary to an approved procedure. There were no procedure errors that contributed to this event. There were no unusual characteristics of the work location (e.g., noise, heat, poor lighting) which contributed to this event.

J. Safety System Response:

Not applicable - there were no safety system response and none was expected or received.

K. Failed Component Information:

Not applicable - no failed components were involved.

II. ASSESSMENT OF THE SAFETY CONSEQUENCES AND IMPLICATIONS OF THIS EVENT:

The data for June 18, 1991, was retrieved and evaluated. No unusual trends or readings were found. Thus, this event does not have any consequences adversely affecting the health and safety of the public.

III. CORRECTIVE ACTION:

A. Immediate:

The engineering review of the June 18, 1991 RCP vibration analysis was completed and no abnormalities were noted.

B. Action to Prevent Recurrence:

1. The STA who did not complete the required engineering evaluation was counseled in accordance with the APS Positive Discipline Program.

2. This event has been discussed with all STAs.

IV. PREVIOUS SIMILAR EVENTS:

A previous similar event was reported by Unit 1 LER 528/89-001-00. As discussed in Section I.I, the cause of the event reported in this LER was a cognitive personnel error. The cause of the previous event was also a cognitive personnel error. Previous corrective actions were evaluated and determined to be adequate. Cognitive personnel errors that are the result of mental lapses are not normally correctable with revised procedures or additional training. Therefore, the corrective actions for the previous event would not have prevented this event.

| FACILITY NAME | DOCKET NUMBER | LER NUMBER | | | PAGE |
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TEXT

V. ADDITIONAL INFORMATION:

Based on the RCP shaft cracking discussed in section I.B, APS has replaced the RCP shafts in Units 1, 2, and 3 with modified RCP shafts. Crack inititation was found to be primarily caused by chrome plating in highly stressed areas of the RCP shaft. The RCP shafts were modified to reduce stress, chrome plating was removed from high stress areas, and the shafts were center bored to facilitate ultrasonic testing.