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AUTH.NAME AUTHOR AFFILIATION
SHRIVER,T.D. Arizona Public Service Co. (formerly Arizona Nuclear Power
HAYNES,J.G. Arizona Public Service Co. (formerly Arizona Nuclear Power
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 89-014-00:on 890601,special rept missed on seismic monitoring sys.

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192-00500-JGH/TDS/RJR
July 21, 1989

U. S. Nuclear Regulatory Commission
NRC Document Control Desk
Washington, D.C. 20555

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 1
Docket No. STN 50-528 (License No. NPF-41)
Licensee Event Report 89-014-00
File: 89-020-404

Attached please find Licensee Event Report (LER) No. 89-014-00 prepared and submitted pursuant to 10CFR 50.73. In accordance with 10CFR 50.73(d), we are herewith forwarding a copy of the LER to the Regional Administrator of the Region V office.

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

Very truly yours,

for

J. G. Haynes
Vice President
Nuclear Production

JGH/TDS/RJR/kj

Attachment

cc: W. F. Conway (all w/a)
D. B. Karner
E. E. Van Brunt, Jr.
J. B. Martin
T. J. Polich
M. J. Davis
A. C. Gehr
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 1	0 5 0 0 0 5 2 8	1 OF 0 7

TITLE (4)
Special Report Missed on Seismic Monitoring System

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)
0 6	0 1	8 9	8 9	0 1 4	0 0	0 7	2 1	8 9	Palo Verde Unit 2	0 5 0 0 0 5 2 9
									Palo Verde Unit 3	0 5 0 0 0 5 3 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)					
POWER LEVEL (10)	0 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)	X	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)		
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	Special Report		
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)			

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER	
	AREA CODE	
Timothy D. Shriver, Compliance Manager	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 22, 1989 it was discovered that the Seismic Monitor located on the Reactor Coolant Pump had been disconnected and thus, inoperable since April 22, 1989. A Special Report was required on June 1, 1989 and was not submitted. A historical review showed the same seismic monitor had also been disconnected between October 16, 1987 and December 17, 1987 without the submission of a Special Report.

The root cause was determined to be a procedural failure which allowed disconnecting of the leads to the Seismic Monitor without the appropriate approvals.

As corrective action, the procedure for removal of the Reactor Coolant Pump Motor is being revised to alert personnel that removal of the 2B Reactor Coolant Pump in Unit 1 also renders the Seismic Monitor System inoperable.

A previous similar event was identified in LER 528/88-001-00.

I. DESCRIPTION OF WHAT OCCURRED:

A. Initial Conditions:

On June 22, 1989, Palo Verde Unit 1 was in a refueling outage with the reactor core off-loaded to the spent fuel pool, Palo Verde Unit 2 was in Mode 3 (Hot Standby), and Palo Verde Unit 3 was in a refueling outage with the reactor core off-loaded to the spent fuel pool.

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

Event Classification: A condition prohibited by the Plant's Technical Specifications.

On June 22, 1989, during the investigation of an event wherein the Seismic Monitoring System (IN) was inoperable since May 17, 1989 for preparation of a Special Report, it was discovered the Seismic Monitoring System had actually been inoperable since April 22, 1989. The ACTION statement of Technical Specification 3.3.3.3 states, "With one or more seismic monitoring instruments inoperable for more than 30 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days...". Thus, a Special Report was required on June 1, 1989 and was not submitted.

Located on the Unit 1 2B Reactor Coolant Pump motor (AV)(MO) is a strong motion accelerometer (IN)(18A). The strong motion accelerometer (SMA) unit is of triaxial configuration consisting of three single axis accelerometers. The accelerometers continuously sense the ambient vibrations and are connected to a recording system. When one of three seismic triggers exceeds the preset threshold level, the recording system is enabled to record the output of the SMA. These accelerometers are located in Unit 1 and serve all three units.

On April 22, 1989, the 2B Reactor Coolant Pump motor was being electrically determinated in preparation for removal of the pump motor. The removal of the motor was necessary for replacement of the pump shaft. Part of this work included determinating the Seismic Monitor located on the motor. The authorized work document was reviewed by the releasing organization, but the actual leads to be determinated were not included at the time of review.

The work documents normally describe the components to be determinated but do not include the actual leads to be disconnected. In this case, the work order steps only discussed that the Reactor Coolant Pump motor and auxiliary boxes were to be

disconnected and did not specifically address the additional determination of the Seismic Monitor. The determination that occurred between approximately 1100 and 1730 MST on April 22, 1989, rendered the Reactor Coolant Pump Seismic Monitor inoperable and the ACTION statement to Technical Specification 3.3.3.3 should have been entered. This requirement was not recognized.

At approximately 1436 MST on May 17, 1989, one of the Seismic recorders (IN)(XR) was determined to be inoperable and the appropriate ACTION statement of Technical Specification 3.3.3.3 was entered. The appropriate documentation was prepared to troubleshoot the recorder and to ensure that any reports were completed if the recorder remained inoperable for greater than thirty days.

On June 14, 1989 at approximately 0947 MST the Seismic recorder had been adjusted and the Calibration Surveillance Test and the Functional Surveillance Test were performed. During the Functional Surveillance Test the 2B Reactor Coolant Pump Seismic monitor was discovered to have been removed for the outage. The Shift Technical Advisor (utility, licensed) closed the documentation which described an inoperable Seismic recorder and opened a new tracking document to describe the removed monitor on the Reactor Coolant Pump. In so doing, the time of inoperability entered was the same time described in the document generated on May 17,1989. Thus, the actual time of inoperability was not recognized at this time. The document actually stated that the thirty day clock to restore the monitor to an operable status expired at 1436 on June 16, 1989. In accordance with Technical Specification 3.3.3.3 the Special Report would then be due on June 26, 1989.

On June 16, 1989, the appropriate document was delivered for preparation of the Special Report. During the investigation of this event the appropriate work orders were reviewed. It was determined at approximately 1626 MST on June 22, 1989, that the Special Report was actually due on June 1, 1989, and that the missing of this date now required a Licensee Event Report (LER).

Since this was the second refueling outage of Unit 1 and since the 2B Reactor Coolant Pump had also been removed during the first refueling outage, a review was conducted on June 23, 1989, to determine how this condition was addressed during the first refueling outage. On October 16, 1987, the leads for the 2B Reactor Coolant Pump motor were determinated to support the removal of the Reactor Coolant Pump (AB)(P) for shaft inspection. The approved work document did not include the specific leads being removed and the Assistant Shift Supervisor (utility, licensed) was not aware that the Seismic monitor would be disconnected.

On November 25, 1987, at approximately 0700 MST, the Special Report

describing the inoperability of the reactor Coolant Pump Seismic monitor was due. Once again, since the removal of the leads to this monitor was not recognized, this report was not issued.

On December 17, 1987, between 0001 and 0530 MST, the leads for the 2B Reactor Coolant Pump were reterminated in accordance with the same work document which had determinated the leads. Thus, the Seismic monitor was reconnected at this time. Since the same work document was in use, no further reviews were necessary to continue work. The Functional Surveillance performed about February 29, 1988 restored the monitor to OPERABILITY.

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 which contributed to this event.

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

Not applicable - no component or system failures were involved. However, an authorized work document was issued to troubleshoot the inoperable seismic monitor recorder. The seismic monitor was readjusted and restored to service.

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 failures 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 were no component or system failures or procedural errors.

I. Cause of Event:

The Administrative Control procedure for Work Control (30AC-9ZZ01) defines responsibilities associated with the scheduling of work. Among these is the responsibility of the Releasing Organization. The Releasing Organization in the Unit is the on-shift operating crew. Thus, the Shift Supervisor/Assistant Shift Supervisor is responsible for "ensuring that Technical Specification (Tech Spec) requirements are identified and performed when applicable." Thus, these events occurred because the Releasing Organization did not identify that Technical Specification requirements were exceeded. The root cause however, has been determined to be a procedural failure in that the applicable procedures did not require the specific component or system to be disconnected be specified in the Work Order.

The work document for the 2B Reactor Coolant Pump stated, "This work order is for determinating/reterminating reactor coolant pump motor and aux. [auxiliary] boxes." The term "aux boxes" provided sufficient latitude to allow the electricians to determinate any cabling necessary for the removal of the Reactor Coolant Pump motor. The requirement to specify systems or components for determination was not specifically addressed in the Work Planning procedure or in the "determ/reterm" procedure. Had the work order included the specific subsystems or components to be determinated, the releasing organization would have had the opportunity to address the seismic monitors.

This report also addresses the Special Report requirements of Technical Specification 3.3.3.3 in that the seismic monitor for the 2B Reactor Coolant pump was INOPERABLE for a period in excess of thirty days on November 15, 1987, and again on May 22, 1989. Both of these occurrences were caused by planned maintenance requiring removal of the 2B Reactor Coolant Pump motor for inspection or replacement of the pump shaft. In the first occurrence the Seismic Monitor was reterminated on December 17, 1987 as part of the determination of the Reactor Coolant Pump motor and functionally tested OPERABLE on or about February 29, 1988. In the second instance, the Seismic monitor was determinated on April 22, 1989, and remains determinated pending completion of the work on the reactor coolant pump during the present refueling outage.

J. Safety System Response:

Not applicable - no safety system response was expected from this system and none was received.

K. Failed Component Information:

Not applicable - no failed components were involved in this event.

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

The bases of Technical Specification 3.3.3.3 state as follows:

> The OPERABILITY of the seismic instrumentation ensures that sufficient capability is available to promptly determine the magnitude of a seismic event and evaluate the response of those features important to safety. This capability is required to permit comparison of the measured response to that used in the design basis for the facility to determine if plant shutdown is required pursuant to Appendix A of 10 CFR Part 100. The instrumentation is consistent with the recommendations of Regulatory Guide 1.12, "Instrumentation for Earthquakes," April 1974 as identified in the PVNGS FSAR.

The Seismic Monitoring System does not have any interfaces with those systems designed to shutdown the reactor and maintain it in a safe shutdown condition. Further, the Seismic Monitoring System does not interface with any system designed to control the release of radioactive material to the environment.

The Seismic Monitoring System consists in part of six triaxial accelerometers including the ones on the Tendon Gallery Floor and on the 2B Reactor Coolant Pump and the one on the Tendon Gallery Floor as described in LER 528/88-001-00. Although impaired by the inoperability of two of these, the other four were functional throughout both events. The triaxial accelerometer on the Tendon Gallery Floor has remained functional throughout the April 22, 1989 event. Thus, the bases for the Technical Specification could still be met in the event of an earthquake. The inoperability of this system does not affect the health and safety of the public.

III. CORRECTIVE ACTIONS:

A. Immediate:

This report includes the Special Reports required by Technical Specification 3.3.3.3 to report the inoperability of the Seismic monitors on the 2B Reactor Coolant Pump on October 16, 1987 and April 22, 1989. Thus, the corrective action includes submission of this report.

The other two units have been informed of the impaired capability of the Seismic Monitoring System since this system is only located in Unit 1.

B. Action to Prevent Recurrence:

The actual removal of the Reactor Coolant Pump motor is controlled

by an approved Maintenance Procedure. The use of the Work Document is only for the removal of power and instrumentation when called for by the procedure. The procedure is being revised to alert the maintenance personnel that Operations needs to be notified that determination of the 2B Reactor Coolant Pump in Unit 1 also renders the Seismic monitor associated with the pump inoperable. This revision is expected by September 30, 1990.

To effectively deal with the generic problem, the Determination/Retermination procedure will be enhanced to require the Planner-Coordinator to identify the cable, terminations, components or subsystems in which determination will occur. This enhancement is expected by November 30, 1989. The maintenance personnel performing the work will then only be allowed to determinate those components or subsystems designated in the work order. This will allow the Releasing Organization to effectively evaluate those components which will be deenergized for maintenance with regard to the Technical Specifications.

IV. PREVIOUS SIMILAR EVENTS:

LER 528/88-001-00 described an event where a Special Report required pursuant to Technical Specification 3.3.3.3 had not been submitted within the time frame prescribed. The corrective action taken involved a review of the event by appropriate personnel to ensure awareness of the requirements for potential event reporting.

In the event reported in this LER, the disconnecting of leads to the Reactor Coolant Pump Seismic monitor was not recognized; therefore, the corrective action from LER 528/88-001-00 could not have prevented this event.