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 FACIL:STN-50-528 Palo Verde Nuclear Station, Unit 1, Arizona Publi 05000528
 AUTH.NAME AUTHOR AFFILIATION
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 LEVINE,J.M. Arizona Public Service Co. (formerly Arizona Nuclear Power
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 93-004-00:on 930520,ASME section XI testing of charging pumps not in compliance w/code requirements due to personnel error.C/As:testing in accordance w/ASME section XI code requirements.W/930621 ltr.

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

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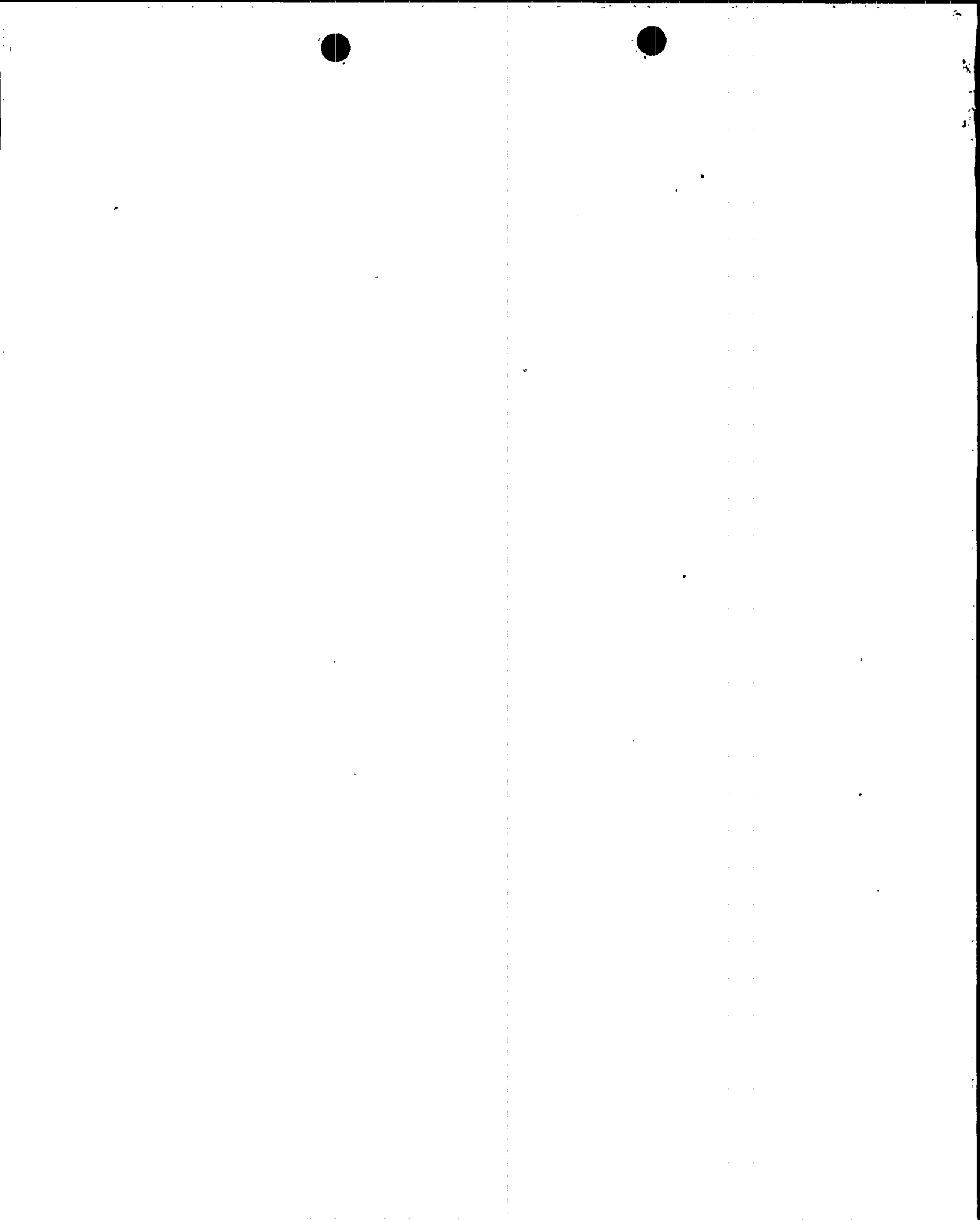
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JAMES M. LEVINE
VICE PRESIDENT
NUCLEAR PRODUCTION

192-00847-JML/TRB/NLT
June 21, 1993

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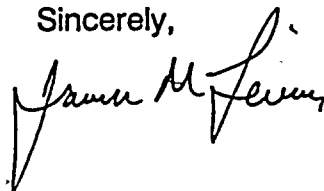
Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 1
Docket No. STN 50-528 (License No. NPF-41)
Licensee Event Report 93-004-00
File: 93-020-404

Attached please find Licensee Event Report (LER) 93-004-00 prepared and submitted pursuant to 10CFR50.73. This LER reports that the inservice testing of the ASME Code Class 2 charging pumps had not been performed in accordance with the ASME Boiler and Pressure Vessel Code, Section XI, Paragraph IWP-4120, as required by Technical Specification Surveillance Requirement 4.0.5, 4.1.2.3, and 4.1.2.4. In accordance with 10CFR50.73(d), a copy of this LER is being forwarded to the Regional Administrator, NRC Region V.

If you have any questions, please contact T. R. Bradish, Manager, Nuclear Regulatory Affairs at (602) 393-5421.

Sincerely,



JML/TRB/rv
Attachment

cc: W. F. Conway (all with attachment)
B. H. Faulkenberry
J. A. Sloan
INPO Records Center

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PDR ADDCK 05000528
S PDR

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11

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Palo Verde Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 5 2 8	PAGE (3) 1 OF 0 5
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TITLE (4)
ASME Section XI Testing of Charging Pumps Not In Compliance with Code Requirements

EVENT DATE (5)			LER NUMBER (6)		REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	DOCKET NUMBER(S)
0 5	2 0	9 3	9 3	0 0 4	0 0	0 6	2 1	9 3	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) 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)(vi)		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)(vii)(A)			
	20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(vii)(B)			
20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)				

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER	
NAME Thomas R. Bradish, Manager, Nuclear Regulatory Affairs		AREA CODE 6 0 2	3 9 3 - 5 4 2 1

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)											
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs		

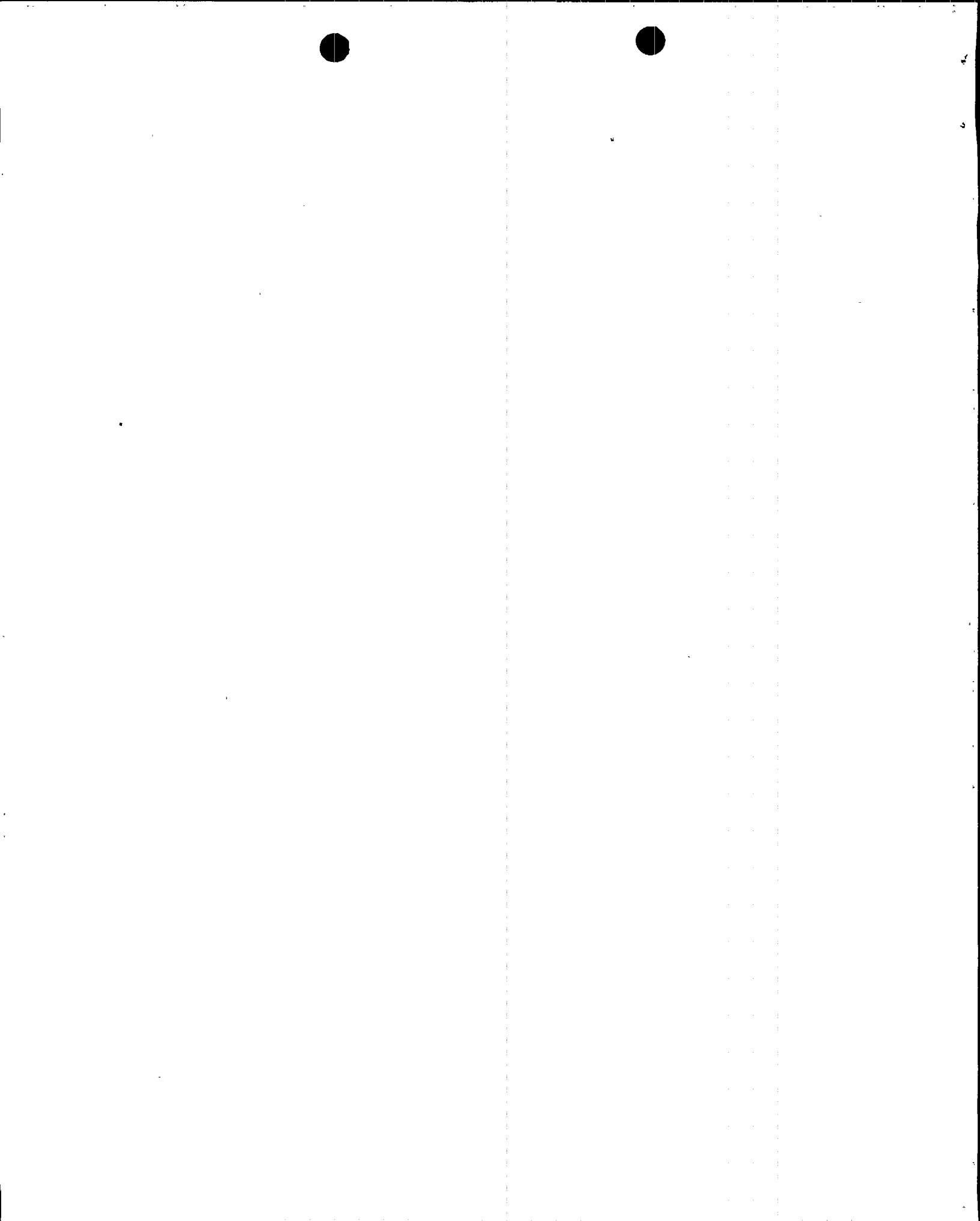
SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO					

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

On May 20, 1993, at approximately 1340 MST, Units 1 and 3 were in Mode 1 (POWER OPERATION), operating at approximately 100 percent power, and Unit 2 was in Mode 6 (REFUELING) with the Reactor Coolant System at approximately 95 degrees Fahrenheit and at atmospheric pressure, when APS Engineering personnel determined that Technical Specification (TS) Surveillance Requirement (SR) 4.0.5, for performing the inservice testing of the ASME Code Class 2 charging pumps, had not been performed in accordance with the ASME Boiler and Pressure Vessel Code, Section XI. TS SR 4.1.2.3 and 4.1.2.4 are satisfied by ASME Section XI testing in accordance with SR 4.0.5.

ASME Section XI, Paragraph IWP-4120 requires the full-scale range of each surveillance test instrument to be less than or equal to three times the reference value. To be in compliance with Paragraph IWP-4120, the charging pump flow indicator full-scale range should be less than or equal to 132 gallons per minute (gpm) in Units 1 and 2, and less than or equal to 129 gpm in Unit 3. The full-scale range of the charging pump flow indicator used during all previous Section XI testing was 150 gpm.

Subsequent testing in accordance with Paragraph IWP-4120 indicated that the Unit 1 and Unit 3 charging pumps have been and continue to be capable of performing their intended safety function. Unit 2 testing will be performed during the current refueling outage. There have been no previous similar events reported pursuant to 10CFR50.73.



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TEXT

I. DESCRIPTION OF WHAT OCCURRED:

A. Initial Conditions:

At 1340 MST on May 20, 1993, Units 1 and 3 were in Mode 1 (POWER OPERATION), operating at approximately 100 percent power, and Unit 2 was in Mode 6 (REFUELING) with the Reactor Coolant System at approximately 95 degrees Fahrenheit and at atmospheric pressure.

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

Event Classification: Condition prohibited by the plant's Technical Specifications (TS).

On May 20, 1993, at approximately 1340 MST, Units 1 and 3 entered TS ACTION Statements for Limiting Conditions for Operation (LCO) 3.0.3, 3.1.2.4, and 3.3.3.5, due to not testing Charging Pumps (CB)(P) A, B, and E, in accordance with the ASME Section XI Code requirement of Paragraph IWP-4120. TS Surveillance Requirement (SR) 4.0.3 was invoked to provide an additional 24 hours to complete the required surveillance testing prior to implementing the actions of TS LCO 3.0.3.

There are three charging pumps in each unit. The pumps are positive displacement pumps with a rated flow of approximately 44 gpm each. The pumps are part of the Chemical and Volume Control System (CB) and are used to provide charging flow from the Volume Control Tank (CB)(TK), Refueling Water Tank (BQ)(TK), or Spent Fuel Pool (ND), to the Reactor Coolant System (AB), and are required by Technical Specifications to provide boron injection.

Prior to the event, APS Engineering personnel (utility, nonlicensed) determined that the inservice testing of the ASME Code Class 2 charging pumps had not been performed in accordance with ASME Boiler and Pressure Vessel Code, Section XI, Paragraph IWP-4120, as required by TS SR 4.0.5, 4.1.2.3, and 4.1.2.4. Paragraph IWP-4120 requires the full-scale range of each surveillance test instrument to be less than or equal to three times the reference value. Reference values are defined as one or more fixed sets of values as measured or observed when the equipment is known to be operating acceptably. The reference value for flow rate, determined during preoperational testing, is 44 gallons per minute (gpm) for the Unit 1 and Unit 2 charging pumps and 43 gpm for the Unit 3 charging pumps. Therefore, to be in compliance with Paragraph IWP-4120, the charging pump flow indicator (CB)(FI) full-scale range of each test instrument should

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TEXT

be 132 gpm or less for Units 1 and 2, and 129 gpm or less for Unit 3. The full-scale range of the charging pump flow indicator used in each unit during all previous Section XI testing was 150 gpm.

The Unit 1 and the Unit 3 charging pump flow transmitters (CB)(FT) were recalibrated for a span of 100 gpm and the charging pump flow rate of each individual pump was measured in Units 1 and 3 to reestablish full qualification of the pumps. The flow rate associated with each charging pump was measured by taking the average voltage readings at the output of the instrument loop's current-to-voltage converters. These average voltage measurements were then converted to equivalent pump flow rates using a conversion relationship provided in the appropriate work document. All pumps were determined to be operating within the acceptable limits. Following the test, the transmitters were returned to their original 150 gpm span.

On May 20, 1993, at approximately 1340 MST, the Unit 2 charging pumps were declared inoperable and will be tested in a manner similar to the Units 1 and 3 pumps before being returned to operable status. Testing will be performed prior to returning to Mode 4 after the current refueling outage.

On May 20, 1993, at approximately 2155 MST, the work associated with the flow transmitter calibrations and the charging pump testing was completed in both Unit 1 and Unit 3, and all three charging pumps in each unit were declared operable. TS SR 4.0.3 was revoked and the actions associated with charging pump inoperability for TS LCO 3.0.3, 3.1.2.4, and 3.3.3.5 were exited.

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

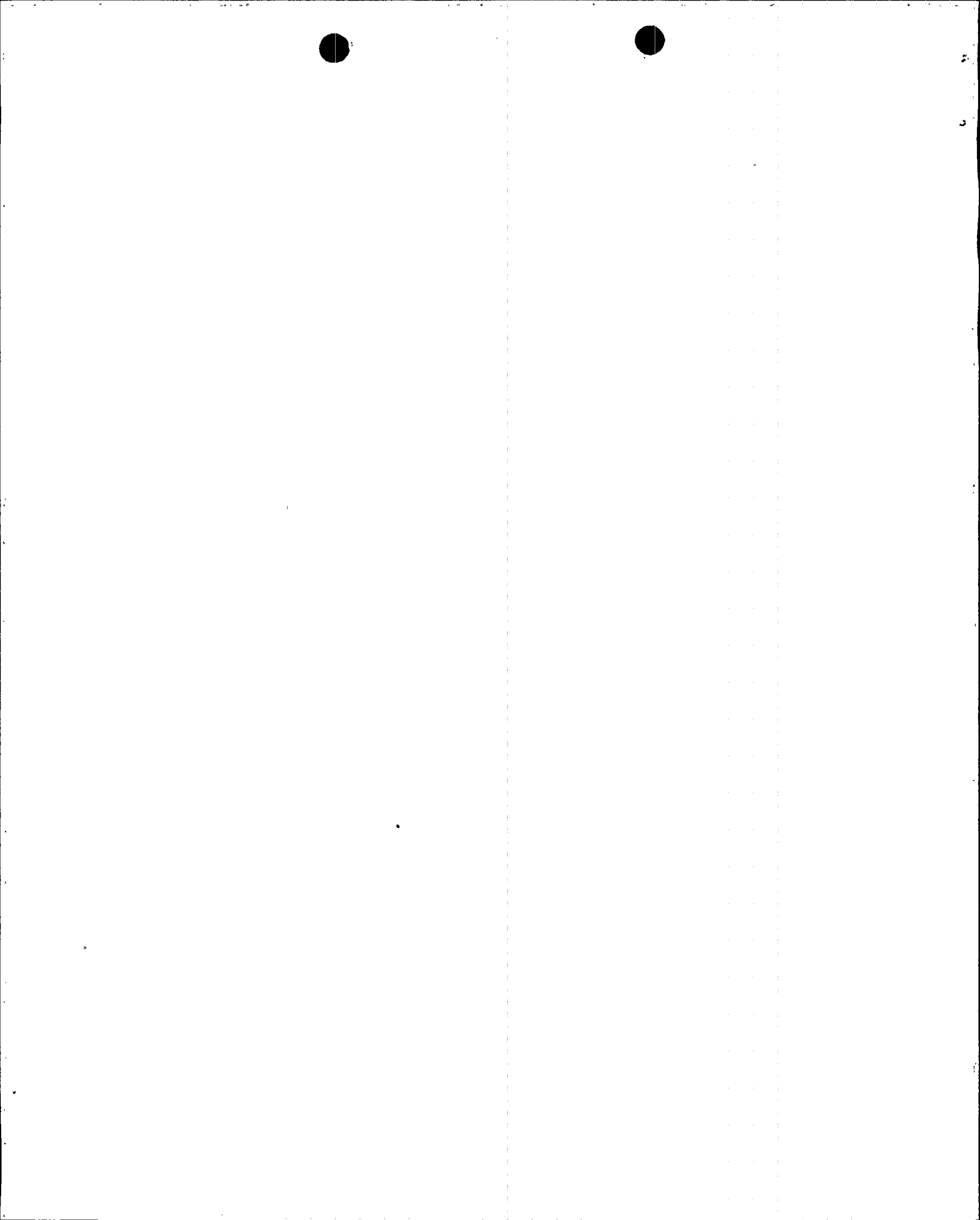
Not applicable - no structures, systems, or components were inoperable at the start of the event which contributed to this event.

- 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.



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

Not applicable - no failures of components with multiple functions 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 that rendered a train of a safety system inoperable 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 ASME Section XI Pump and Valve Inservice Testing Program was developed by APS personnel and was approved by the NRC in November 1988. It was not identified during the development of this program that the use of the installed flow indicator would constitute a deviation from the code and that NRC relief from the code would be required. Therefore, the cause of this event is cognitive personnel error (SALP Cause Code A: Personnel Error).

- J. Safety System Response:

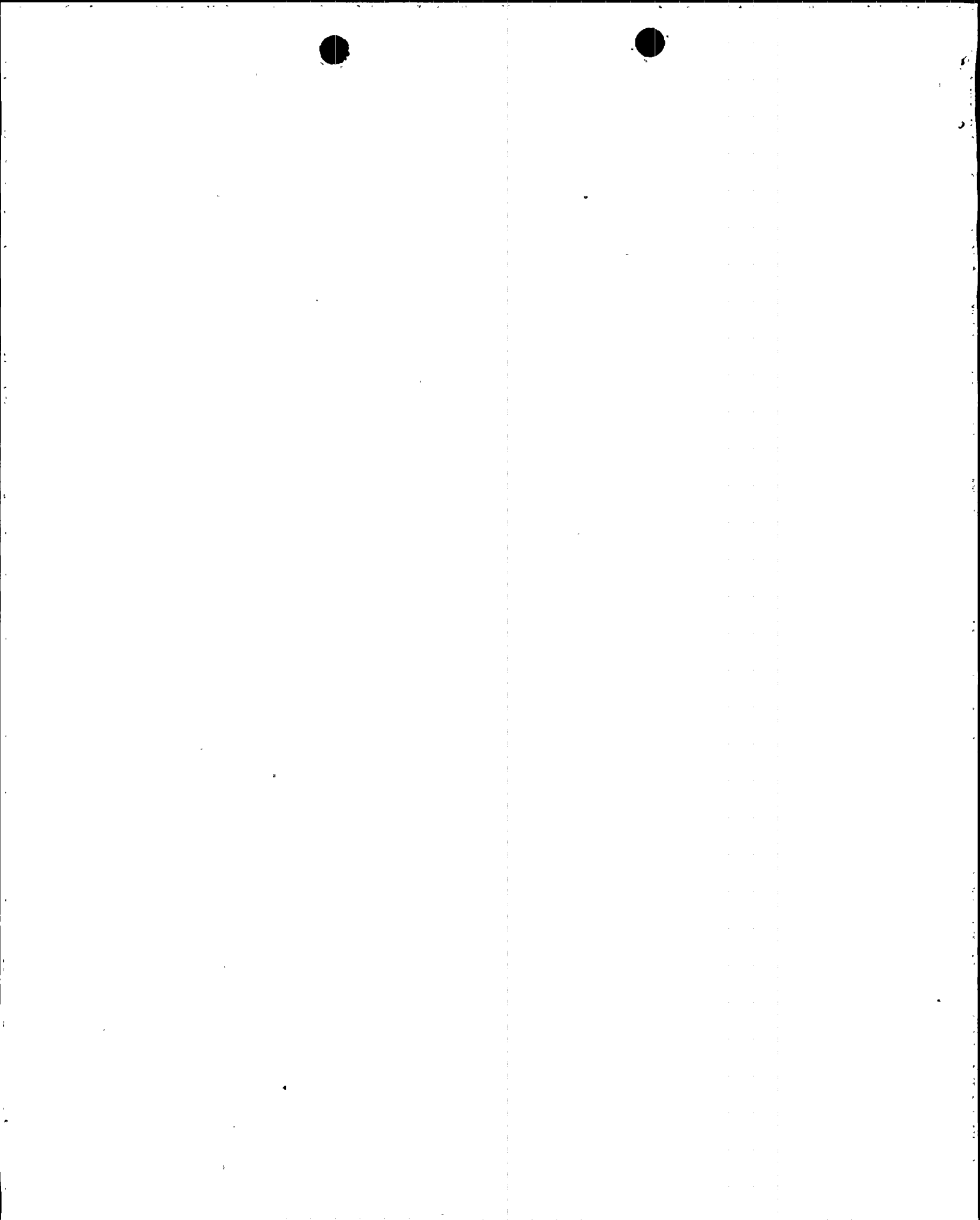
Not applicable - there were no safety system responses and none were necessary.

- K. Failed Component Information:

Not applicable - no component failures were involved.

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

A review of previous surveillance test data indicates that the charging pumps met the flow requirements specified in TS 4.1.2.2. A review of the test data taken during the testing performed on May 20, 1993, which is described in Section I.B, indicates that the Unit 1 and Unit 3 charging pumps have been and continue to be capable of performing their intended safety function. Unit 2 testing will be performed during the current refueling outage. The event did not result



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TEXT

in any challenges to the fission product barriers or result in any releases of radioactive materials. There were no adverse safety consequences or implications as a result of this event. This event did not adversely affect the safe operation of the plant or the health and safety of the public.

III. CORRECTIVE ACTION:

A. Immediate:

Testing was performed in accordance with the method described in Section I.B and it was determined that the pumps were operating in accordance with the ASME Section XI Code requirements.

B. Action to Prevent Recurrence:

An investigation of this event is being conducted in accordance with the PVNGS Incident Investigation Program. APS Engineering personnel are performing a review of the instrumentation used to perform the ASME Section XI testing to verify the instrumentation used is within the specified ASME Section XI requirements. In the event other instances are identified where the testing is not in compliance with the ASME Section XI Code requirements, APS will submit a supplement to this LER.

Actions to prevent recurrence will be developed based upon the results of the investigation. As an interim corrective action, the surveillance testing procedures will be revised so that testing is performed as described in Section II. Resolution of the final corrective action will be tracked to completion under the PVNGS Commitment Action Tracking System.

IV. PREVIOUS SIMILAR EVENTS:

There have been no previous similar events reported pursuant to 10CFR50.73.

