

## LICENSEE EVENT REPORT (LER)

(See reverse for required number of  
digits/characters for each block)

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently

FACILITY NAME (1)

Palo Verde Nuclear Generating Station Unit

1

DOCKET NUMBER (2)

05000528

PAGE (3)

1 OF 5

TITLE (4)

Required Surveillance Requirement Not Completed Due to Deficient Procedure

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 NAME	DOCKET NUMBER
03	17	1999	1999	- 003	00	04	14	1999	PVNGS Unit 2	05000529
									FACILITY NAME	DOCKET NUMBER
									PVNGS Unit 3	05000530
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
1		20.2201(b)			20.2203(a) (2) (v)			X	50.73(a) (2) (i)	50.73(a) (2) (viii)
POWER LEVEL (10)		20.2203(a) (1)			20.2203(a) (3) (i)				50.73(a) (2) (ii)	50.73(a) (2) (x)
100		20.2203(a) (2) (i)			20.2203(a) (3) (ii)				50.73(a) (2) (iii)	73.71
		20.2203(a) (2) (ii)			20.2203(a) (4)				50.73(a) (2) (iv)	OTHER
		20.2203(a) (2) (iii)			50.36(c) (1)				50.73(a) (2) (v)	Specify in Abstract below or in NRC Form 366A
		20.2203(a) (2) (iv)			50.36(c) (2)				50.73(a) (2) (vii)	

## LICENSEE CONTACT FOR THIS LER (12)

NAME

Daniel G. Marks, Section Leader, Nuclear  
Regulatory Affairs

TELEPHONE NUMBER (Include Area Code)

623-393-6492

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

## SUPPLEMENTAL REPORT EXPECTED (14)

YES  
(If yes, complete EXPECTED SUBMISSION DATE).

X

NO

EXPECTED  
SUBMISSION  
DATE (15)

MONTH

DAY

YEAR

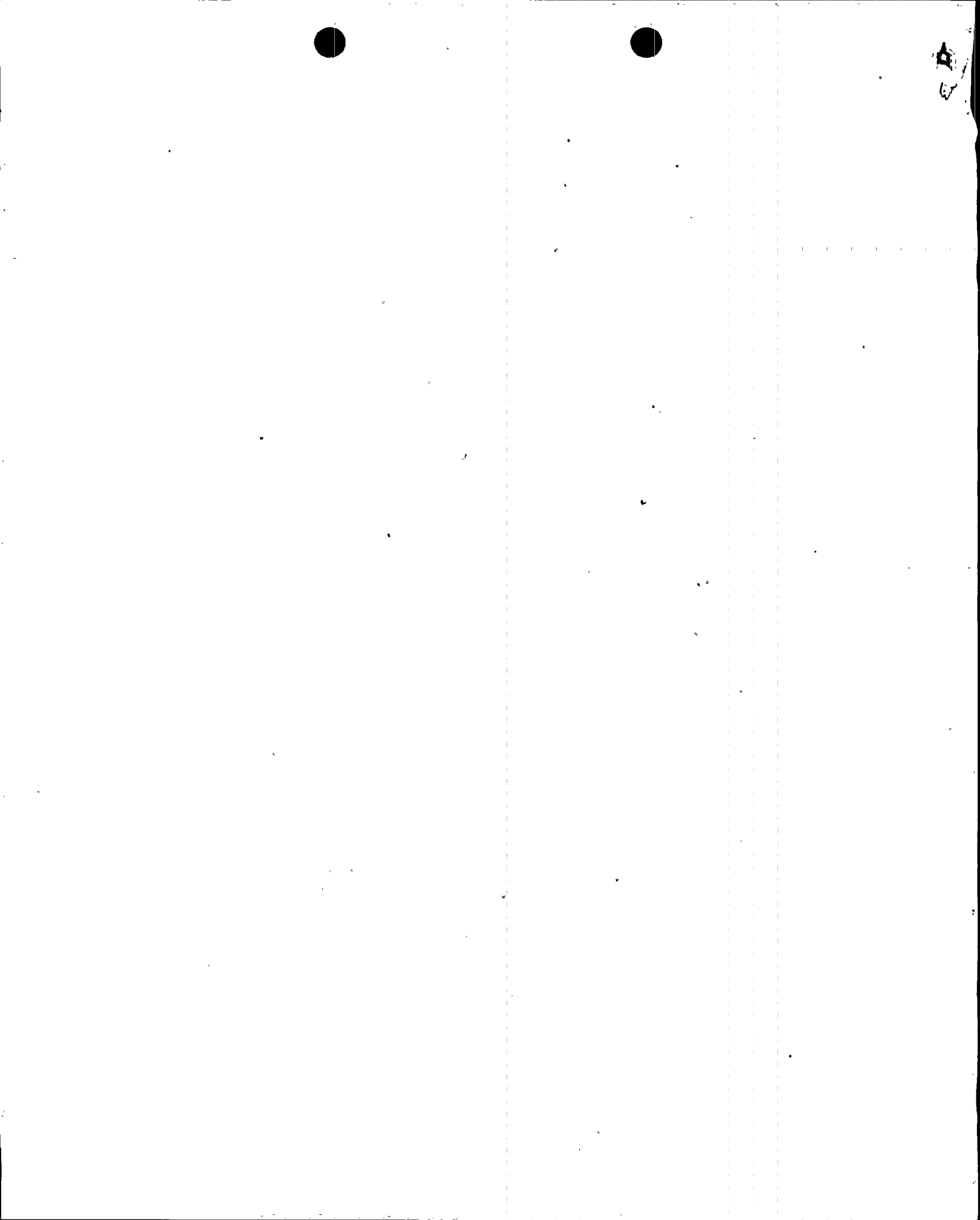
## ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On March 17, 1999, with Units 1, 2, and 3 operating in Mode 1 at approximately 100 percent power, Engineering personnel determined that the test procedures used to meet the essential chilled water system valve verification Technical Specification surveillance requirement were not adequate. The procedures did not properly verify that the oil cooler outlet valve for each chiller was in the correct throttled position to ensure the essential chillers would operate when called upon. The procedural deficiency had existed since the procedures were initially implemented. The Unit 3 oil cooler outlet valves were only affected by the procedure deficiency prior to January 1997. The Unit 3 valves were locked in January 1997 and were then not required to be verified.

The cause of the deficient procedure was determined to be cognitive personnel error. The Unit 1 and 2 test procedures have been revised to require the chillers to be started and oil temperature checked to verify the oil cooler outlet valves are in the required throttled position.

Previous events reported in the last three years related to missed surveillance requirements did not have similar causes to this event.

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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

## 1. Reporting requirement(s):

This LER is submitted to report an event that resulted in an operation or condition prohibited by the plant's Technical Specifications (TS) as specified in 10CFR50.73(a)(2)(i)(B).

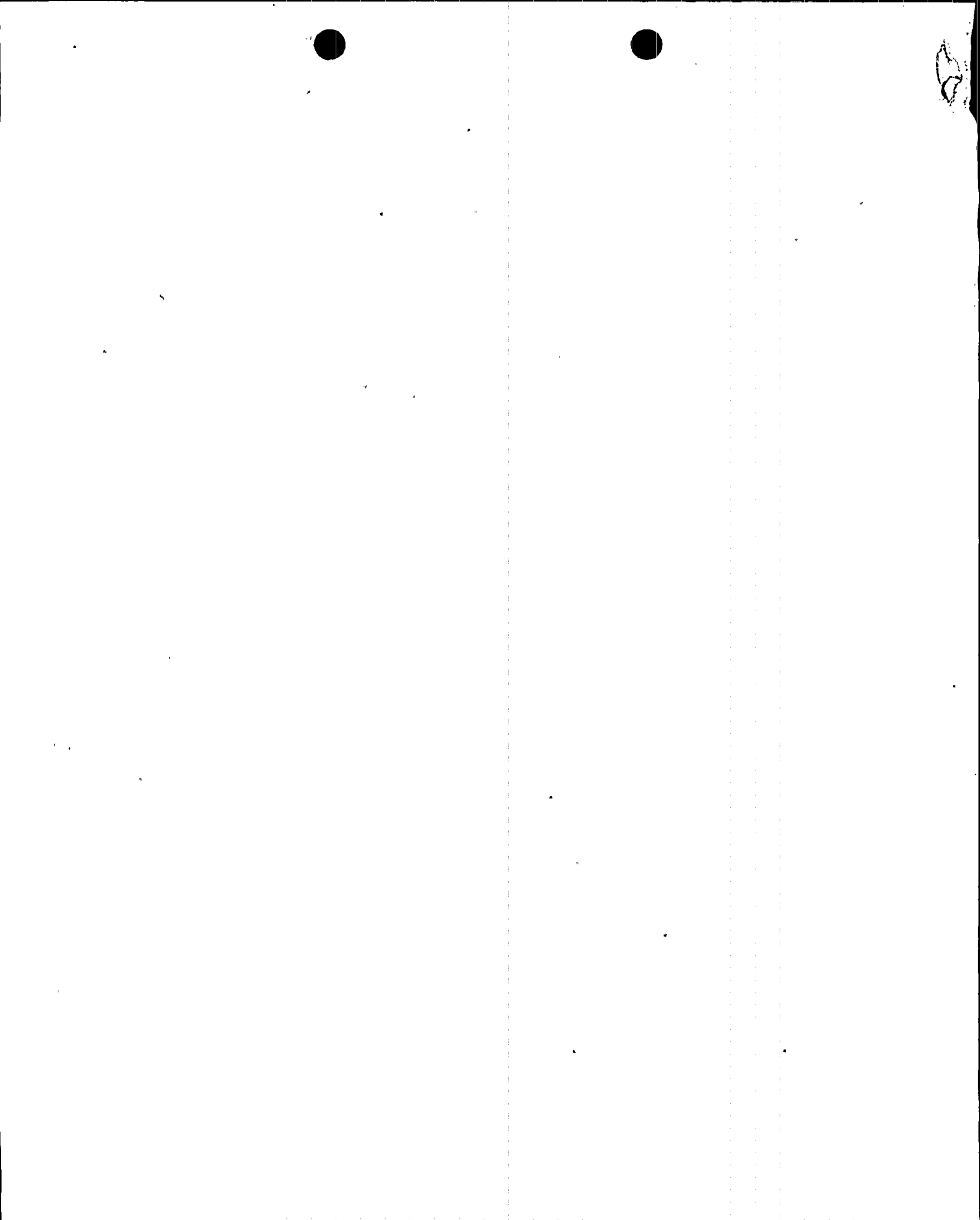
Specifically, Technical Specification surveillance requirement (TS SR) 3.7.10.1 for the essential chilled water system (EC) (EIIS: KM) was not completed within the required frequency for Units 1, 2, and 3. The TS SR requires a verification that each EC System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position. However, the surveillance test (ST) procedures did not adequately verify the oil cooler outlet valves in Units 1, 2, and 3 for periods when the essential chillers (IEEE: CHU) were in standby. A review of operating information for the Unit 1 and 2 chillers identified several time intervals, since January 1997, that the 31 day frequency of the TS SR was exceeded by more than the allowed 25 percent.

The Unit 3 oil cooler outlet valves were only affected by the deficient ST procedures prior to January 1997. The Unit 3 valves were locked in January 1997 and were then not required to be verified.

## 2. EVENT DESCRIPTION:

On March 17, 1999 Units 1, 2, and 3 were operating in Mode 1 (POWER OPERATION) at approximately 100 percent power. An investigation team was evaluating a previous event that had occurred on February 9, 1999 in Unit 1 in which the Train A and B essential chillers experienced a high oil temperature condition. During the investigation, the team was trying to determine why the Unit 1 and 2 surveillance test (ST) procedures required the essential chiller oil cooler outlet valves (ECA-V321 and ECB-V421) to be 10 to 94 percent open. The valve for each chiller in Units 1 and 2 is a manual ball valve with a lever handle and is throttled to maintain the chiller oil sump temperature in the range of 140 to 150 degrees F. The ST procedure stated in a note that the valve was adjusted when the chiller was running so the effect of the adjustment on the oil temperature could be observed.

The investigation team learned that a corrective action document had been initiated in October 1996, by Unit 1 operations personnel, which identified that the ST procedures acceptance criteria were not adequate to verify the oil cooler outlet valve position when the chillers were not



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running. When a chiller is in standby no cooling flow would be supplied to the oil sump and temperature is controlled by a heater cycling on and off to maintain oil temperature. The ST procedure only required the oil cooler outlet valve to be in a throttled position. The only additional guidance provided in the procedure was that the oil cooler outlet valve should be adjusted only when the chiller was in operation.

The corrective action document evaluation concluded that no adverse condition existed and that the ST procedure satisfied the TS SR. The evaluation also concluded that an enhancement could be made to the ST procedures to provide a throttle position for the oil cooler outlet valve when the chiller was not running.

The ST procedures for Units 1 and 2 were revised in January 1997 to incorporate the 10 to 94 percent open criteria. Since no position indication is available on the valve, the revised procedure contained drawings illustrating the 10 and 94 percent open positions. No basis for the 10 to 94 percent open criteria has been found.

The chillers are frequently started to support operating activities and during these periods an auxiliary operator (AO) periodically monitors the oil temperature. This did meet the TS SR to verify the position of the oil cooler outlet valve.

The Unit 3 ST procedures were only affected prior to January 1997. The Unit 3 oil cooler outlet valves on both chillers are manual globe valves with a handwheel. These valves were locked in position in January 1997, and were then not required to be verified every 31 days.

Although safety system actuations have occurred in the past, the essential chillers never failed to operate as a result of an oil cooler outlet valve being mispositioned.

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

The EC System provides a heat transfer system to the ultimate heat sink for the removal of process and operating heat from selected safety related air handling systems during a Design Basis Accident (DBA) or transient. The EC System is a closed loop system consisting of two independent trains. The EC System is actuated on receipt of an ESFAS signal and supplies chilled water to the Heating, Ventilation, and Air Conditioning (HVAC) units in Engineered Safety Feature (ESF) equipment.

The 31 day frequency of the TS SR is based on engineering judgment, is consistent with the procedural controls governing valve operation, and

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ensures correct valve positions. The chillers are frequently started to support various plant operating activities. During these periods auxiliary operators (AO) routinely monitor the chillers, including the oil temperature. If the sump oil temperature is outside the range of 140-150 degrees F the operating procedure directs the AO to have the oil cooler outlet valve adjusted.

In the event the oil temperature for the compressor bearing exceeds the high temperature trip setpoint, the chiller will trip and an alarm annunciates in the control room. It is reasonable to assume that an AO would be dispatched to the chiller to determine the cause of the trip and the AO would open the oil cooler outlet valve allowing the chiller to be restarted. The oil temperature would then be observed and the oil cooler outlet valve adjusted to maintain the correct oil temperature range.

It is expected that no damage to the chiller would have occurred in this scenario since the chiller oil is capable of high temperature operation for a brief period of time.

The event did not result in any challenges to the fission product barriers or result in any release of radioactive materials. Therefore, 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 health and safety of the public.

## 4. CAUSE OF THE EVENT:

An independent investigation of this event is being conducted in accordance with the PVNGS corrective action program. A preliminary evaluation of the event has determined that the cause of the event was cognitive personnel error by individuals (other utility personnel) responsible for preparing and technical review of the ST procedures. The responsible personnel did not recognize that the chiller must be running to verify the oil cooler outlet valve position.

If the final evaluation results differ from this determination or if information is developed which would significantly change the readers' understanding or perception of event, a supplement to this report will be submitted.

No unusual characteristics of the work location (e.g., noise, heat, poor lighting) directly contributed to this event.





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## 5. CORRECTIVE ACTIONS TO PREVENT RECURRENCE:

At the time of recognition, by the investigation team, that the ST procedures were not adequate to satisfy the TS SR, the Unit 1 and 2 chillers were verified to have been operated within the previous 31 day period. This demonstrated that the oil cooler outlet valves had been verified to be in the correct position within the TS SR frequency.

The ST procedures for Units 1 and 2 have been revised to require the chiller to be operating and the oil temperature checked to satisfy the TS SR for the oil cooler outlet valve.

Cognitive personnel errors that are the result of mental lapses are not normally correctable with revised procedures or additional training. Therefore, no further actions were determined to be necessary.

## 6. STRUCTURES, SYSTEMS, OR COMPONENTS INFORMATION:

There are no indications that any structures, systems, or components were inoperable at the start of the event that contributed to this event. No component or system failures were involved.

## 7. PREVIOUS SIMILAR EVENTS:

Although previous events have been reported pursuant to 10 CFR 50.73 in the past three years for missing TS surveillance requirements due to deficient procedures, the causes discussed in the previous events have not been similar to this event. Therefore, the corrective actions of the previous events would not have prevented this event.

## 8. ADDITIONAL INFORMATION:

NONE

