

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: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001.

FACILITY NAME (1)

Browns Ferry Nuclear Plant (BFN) Unit 3

DOCKET NUMBER (2)

05000296

PAGE (3)

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TITLE (4)

When a valve was malfunctioning, an LCO was not entered. The root cause for this event was that Operations crew lacked a questioning attitude and mindset. This LCO oversight is prohibited by technical specifications.

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
8	24	97	97	005	00	10	03	97	N/A	
									FACILITY NAME	DOCKET
									N/A	

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
		20.2201(b)		20.2203(a)(2)(v)	X	50.73(a)(2)(i)(B)		50.73(a)	
		20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)	
POWER LEVEL (10)	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

James E. Wallace, Licensing Engineer

TELEPHONE NUMBER (Include Area Code)

(205) 729-7874

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
X	VA	FSV	A610	N						

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On August 24, 1997, at 1945 hours, Units 2 and 3 were approximately 100 and 96 percent power, respectively. Unit 1 was defueled. At that time, a primary containment isolation valve failed to close. Although a relay in its circuit was replaced five (5) days earlier, the replacement did not resolve the valve problem. Specifically, during the performance of a surveillance instruction (SI) for testing the containment atmosphere dilution system valve operability, the primary containment isolation flow control valve failed to close. However, the limiting condition for operation (LCO) was not entered as required by the plant's technical specifications (TS). On September 5, 1997, after a review of these events, it was determined that an LCO should have been entered. The root cause for not entering an LCO was that the Operations crew lacked a questioning attitude. Senior Reactor Operators developed a mindset regarding the failure mechanism and did not fully assess new information for the effect on technical specifications. The immediate corrective actions included replacement of the solenoid valve. Corrective actions to preclude recurrence include the counseling of the involved Senior Reactor Operators. This report is submitted in accordance with 10 CFR 50.73 (a)(2)(i)(B) as any operation or condition prohibited by the plant's technical specifications. No previous LERs were identified where BFN personnel failed to enter an LCO.

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I. PLANT CONDITIONS

At the time of the discovery of the condition, Unit 2 and Unit 3 were approximately 100 and 96 percent power, respectively. Unit 1 was shutdown and defueled.

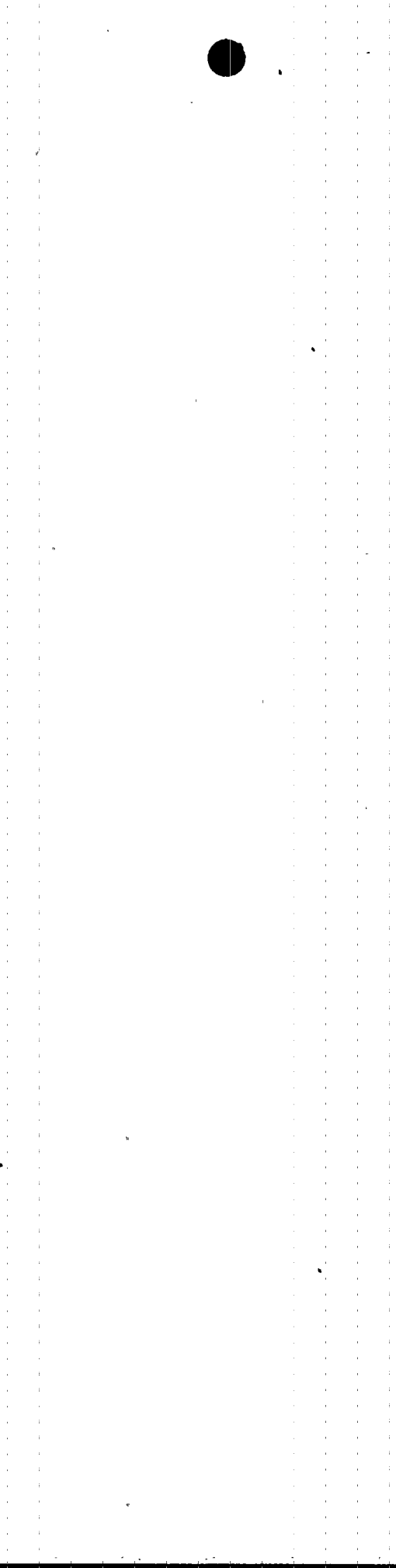
II. DESCRIPTION OF EVENT

A. Event

On August 24, 1997, at 1945 hours, Central Daylight Time, one of Unit 3 primary containment isolation flow control valve (PCIFCV) (3-FCV-64-34) [FCV] [VA] on the suppression pool ventilation line (See Figure 1) to the reactor building ventilation exhaust/standby gas treatment system failed to close even though a relay (3-86-64-34) in its circuit was replaced five (5) days earlier (See simplified control logic on Figure 2). The relay replacement did not resolve a problem with the malfunctioning PCIFCV. Consequently, during the performance of the surveillance instruction (SI) for testing the containment atmosphere dilution system valve operability, the PCIFCV failed to close within the time frame specified in the SI acceptance criteria. At that time, a Senior Reactor Operator (SRO) (Utility, licensed) made a cognitive error by failing to recognize the true nature of the event in that the plant did not enter a Limiting Condition for Operation (LCO) as required by the plant's technical specifications (TS)s.

BACKGROUND

On July 26, 1997 at 1000 hours, the PCIFCV failed to close on its first attempt. After troubleshooting, the handswitch was cycled several times, and the valve eventually closed. Based on field investigations, it was concluded that this failure did not affect the PCIS function of the PCIFCV. A Work request (WR 385493) was initiated to troubleshoot relay contacts which may not have opened as required. Operations decided that the PCIFCV was to be cycled every four hours until the WR was completed. On July 29, 1997, a Technical Operability Evaluation (TOE) was performed. The TOE documented that PCIFCV's PCIS function was not affected by a malfunction of the relay. The TOE recommended that the control relay [RLY] be replaced as soon as the schedule allowed (This WR could not be immediately implemented because a design change notice was required to replace the relay due to obsolete parts. Additionally, it was a high risk activity). In addition, the TOE recommended that the need to cycle of the valve every four (4) hours was no longer required. On August 14, 1997, at 2305 hours, the isolation PCIFCV failed to close when venting the drywell. After the handswitch was cycled several times, the valve closed. On six additional attempts, the valve closed within the SI time requirement. Based on the venting problem, a decision was made to



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resume cycling the valve every four hours. On August 15, 1997, at 0912 hours, the Shift Manager, a SRO, (Utility, Licensed) was informed to discontinue the cycling of the valve. On August 19, 1997, at 1119 hours, the work order to replace the relay was completed.

AUGUST 24, 1997

On August 24, 1997, at 1945 hours, TVA performed surveillance instruction SI-4.7.G.a-1 for testing the containment atmosphere dilution system valve operability. Again, the PCIFCV failed to close on the first attempt. The handswitch and valve was cycled two more times, and the PCIFCV closed each time. Four-hour cycling of the PCIFCV was resumed. In a telephone conversation, an Engineer representative (Utility, Non-licensed) reassured the Shift Manager that the TOE still applied (no PCIS operability concern). The SI was completed with a noted test discrepancy; namely, the PCIFCV did not close as required. On August 28, 1997, 1255 hours, the PCIFCV was cycled and declared inoperable due to a slow closure time. The solenoid valve was subsequently found sticking. A four-hour Limiting Condition for Operation (LCO) 3.7.D.2 was entered to repair or isolate the affected line using an operable upstream valve in the deactivated position. The PCIFCV solenoid valve [SOL] was deenergized. The solenoid valve was replaced, and the PCIFCV was satisfactorily tested. At 1515 hours, the PCIFCV was declared operable and the LCO was exited.

The failure to enter the LCO existed for 3 days, 19 hours, and 30 minutes, from August 24, 1997, at 1945 hours until August 28, 1997, at 1515 hours. At that time, further review of the series of PCIFCV failures in this event revealed a need to document a licensee reportable event determination (LRED) for failure to implement LCO actions required by Technical Specification 3.7.D.2 on August 24, 1997, at 1945 hours.

Therefore, this report is submitted in accordance with 10 CFR 50.73 (a) (2) (i) (B) as any operation or condition prohibited by the plant's technical specifications.

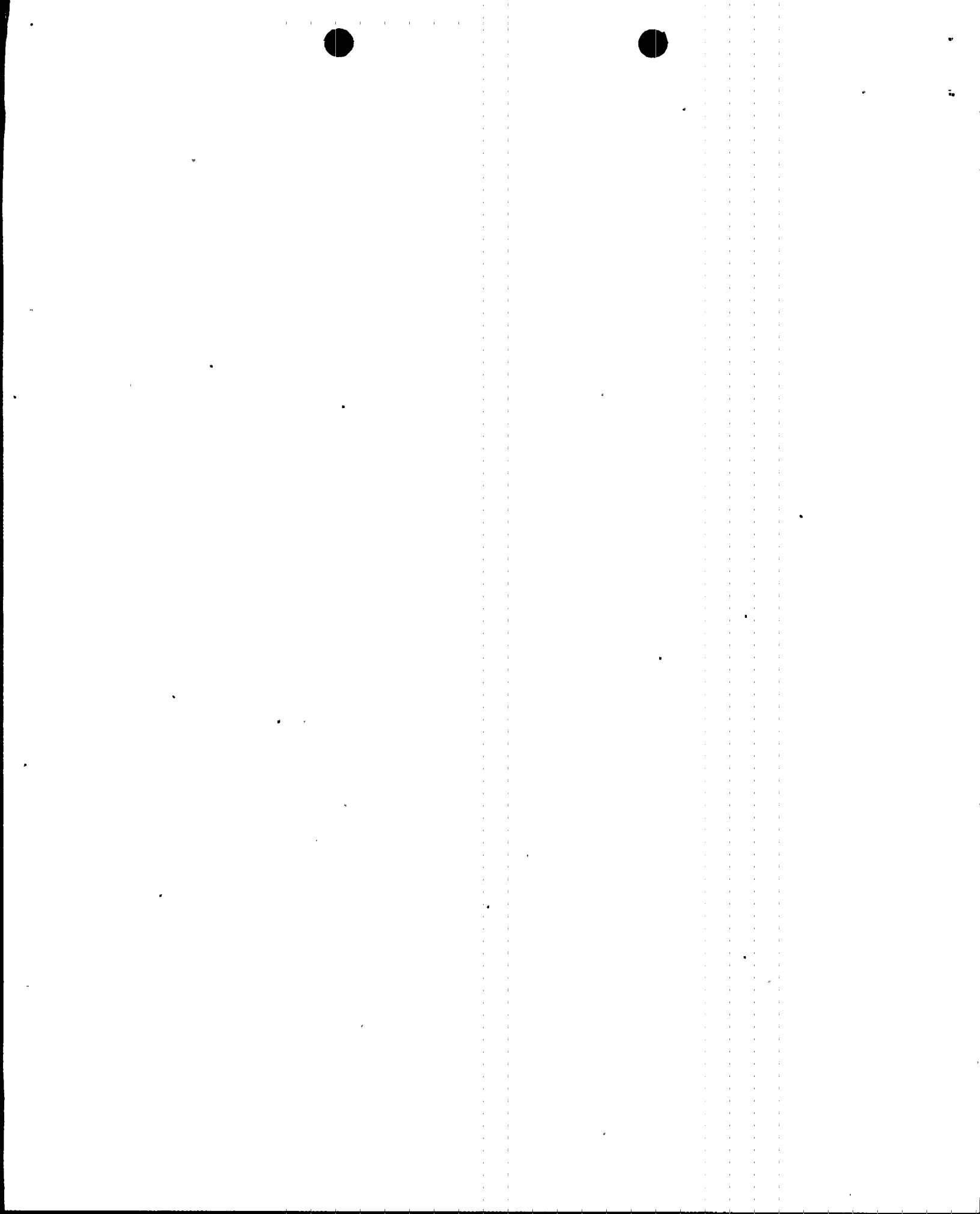
B. Inoperable Structures, Components, or Systems that Contributed to the Event:

American Switch Company (ASCO) is the manufacturer of the solenoid valve. This valve was model number 206380-7F.

C. Dates and Approximate Times of Major Occurrences:

July 26, 1997
at 1000 Hours CDT

During an SI, the PCIFCV failed to close on its first attempt. Four-



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<p>July 29, 1997 at 0859 Hours CDT</p> <p>August 14, 1997 at 2305 Hours CDT</p> <p>August 19, 1997 at 1119 Hours CDT</p> <p>August 24, 1997 at 1945 hours CDT</p> <p>August 28, 1997 at 1225 Hours CDT</p> <p>September 5, 1997 at 1223 Hours CDT</p>	<p>hour cycling of the valve began.</p> <p>TOE was subsequently prepared, and concluded that PCIFCV's PCIS function not affected.</p> <p>The PCIFCV failed again to close when venting drywell. WR to replace the control relay was written. WR was delayed. This was a high risk activity.</p> <p>Control relay was replaced, and PCIFCV was successfully tested.</p> <p>The PCIFCV failed to close again on its first attempt.</p> <p>Operations cycled the PCIFCV. Closure time was greater than allowed. Valve declared inoperable and LCO entered. Solenoid valve was identified as sticking. Solenoid valve was replaced, tested and declared operable.</p> <p>After a review of the PCIFCV failures in this event, an LRED was written for failure to implement the LCO remedial actions.</p>
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D. Other Systems or Secondary Functions Affected:

None.

E. Method of Discovery:

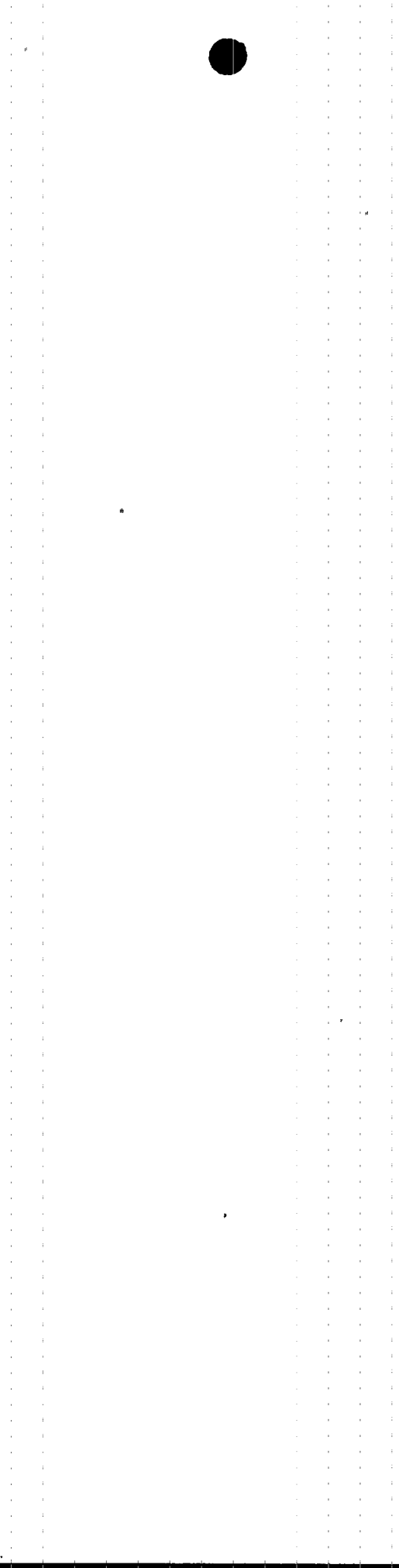
BFN management reviewed the circumstances of the PCIFCV failures and concluded that the SROs should have entered an LCO.

F. Operator Actions:

Operator actions are described in Section II.A, above.

G. Safety System Responses:

None.



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III. CAUSE OF THE EVENT

A. Immediate Cause:

The immediate cause of the condition was that the SROs did not correctly determine that an LCO should be entered when the PCIFCV failed on its first attempt on August 24, 1997 at 1945 hours.

B. Root Cause:

The root cause of this event was that the Operations crew lacked a questioning attitude. SROs developed a mindset regarding the failure mechanism and did not fully assess new information for the effect on technical specifications.

C. CONTRIBUTING FACTOR

There were four contributing factors to this event:

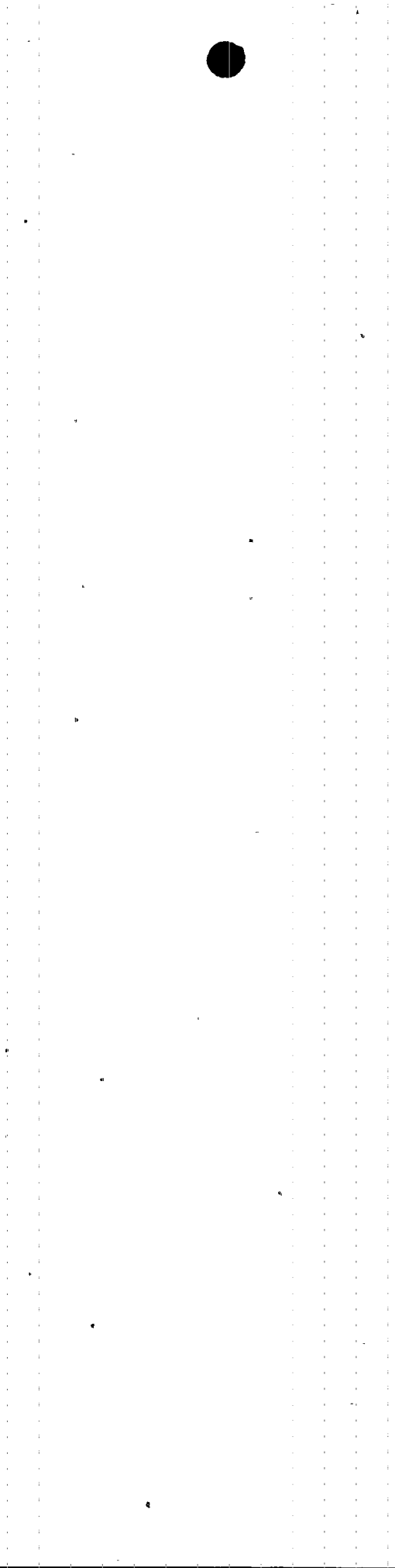
- (1) A mind set was established that the valve's PCIS function was not affected based on an evaluation and consultation with System Engineering.
- (2) Inadequate troubleshooting and diagnosis of problem which provided an incorrect assumption on which the evaluation was based.
- (3) A presumption that successful four-hour cycling of the valve ensured operability.
- (4) Management did not adequately monitor, assess, and intervene in a timely manner.

IV. ANALYSIS OF THE EVENT

The inboard and outboard isolation valves are redundant for primary containment purposes. For the events described in this LER, the outboard isolation valve was operable and would have mitigated the radiological impact of a design basis accident, if required.

Although the SROs did not enter the LCO condition at the proper time, no plant conditions were identified that would have resulted in the release of radioactive material, nor would any release of radioactive material release have happened had a design basis accident occurred.

Therefore, this event did not adversely affect plant personnel, or the public.



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V. CORRECTIVE ACTIONS

A. Immediate Corrective Actions:

None.

B. Corrective Actions to Prevent Recurrence:

The involved SROs were counseled. This action was completed on September 15, 1997.

The details of the problem evaluation report (PER) associated with this LER will be discussed during Operator requalification training.¹

System Engineers will be briefed on the details of the associated PER.¹

Training will be conducted to sensitize Operations SROs on LCO entries and methodology during troubleshooting activities for TS or other safety-related equipment.¹

A management review of this PER, its ramifications and how meticulous management oversight could have prevented this event will be discussed at the Management Review Committee.¹

VI. ADDITIONAL INFORMATION

A. Failed Components:

American Switch Company (ASCO) is the manufacturer of the solenoid valve. This valve was model number 206380-7F.

B. Previous LERs on Similar Events:

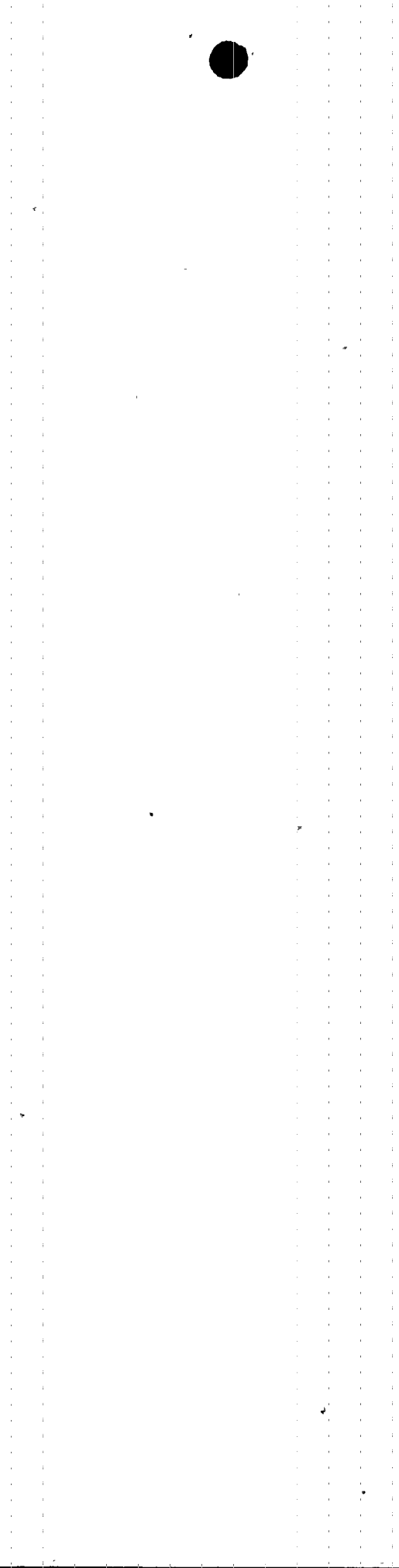
No previous LER were written for a failure to enter an LCO.

VII. COMMITMENTS

None.

Energy Industry Identification System (EIIS) system and component codes are identified in the text with brackets (e.g., [XX]).

1. These actions are being tracked by TVA's corrective action program and are not considered regulatory commitments.

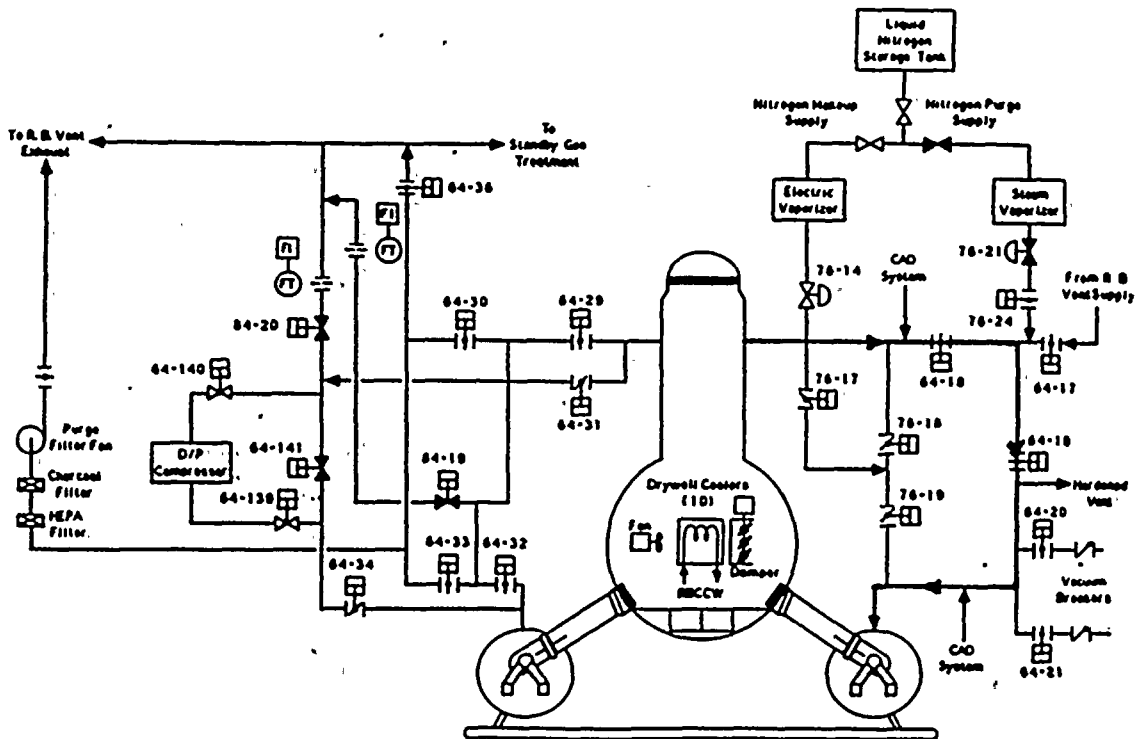


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FIGURE 1





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FIGURE 2

3-FCV-64-34 Simplified Control Logic

