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REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8810170056 DOC. DATE: 88/10/07 NOTARIZED: NO DOCKET.#
 FACIL: 50-296 Browns Ferry Nuclear Power Station, Unit 3, Tennessee 05000296
 AUTH. NAME AUTHOR AFFILIATION
 BAKER, R.L. Tennessee Valley Authority
 CAMPBELL, G.G. Tennessee Valley Authority
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-004-00: on 880909, temp control valves installed incorrectly due to inadequate design control.

w/8 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: 1 Copy each to: S. Black, J.G. Partlow, S. Richardson 05000296
 B.D. Liaw, F. McCoy.

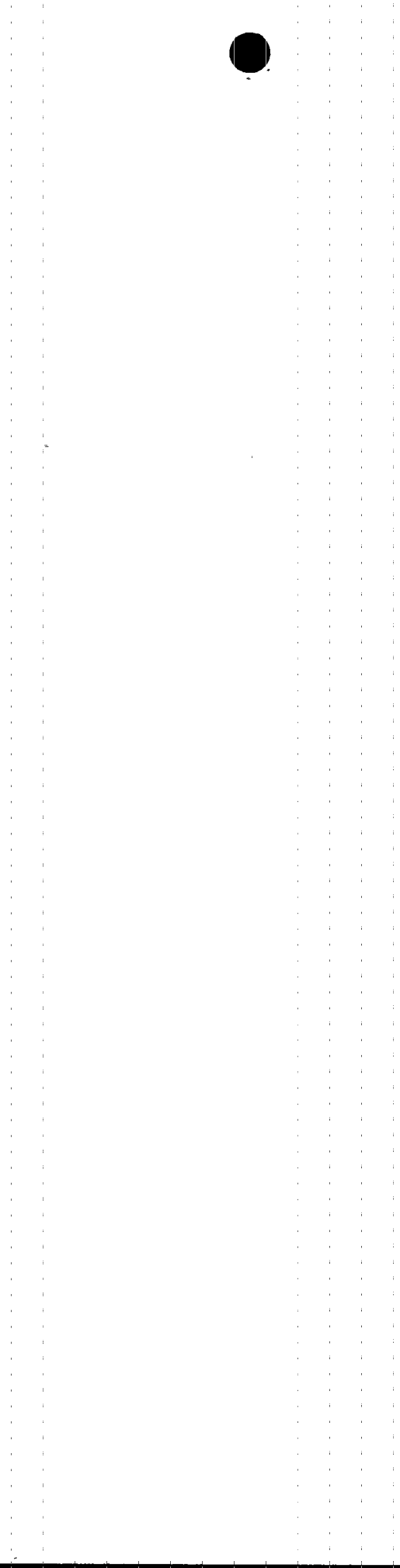
	RECIPIENT ID CODE/NAME	COPIES LTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTR ENCL	
	SIMMS, M	1 1	PD	1 1	
	GEARS, G	1 1			
INTERNAL:	ACRS MICHELSON	1 1	ACRS MOELLER	2 2	
	ACRS WYLIE	1 1	AEOD/DOA	1 1	
	AEOD/DSP/NAS	1 1	AEOD/DSP/ROAB	2 2	
	AEOD/DSP/TPAB	1 1	ARM/DCTS/DAB	1 1	
	DEDRO	1 1	NRR/DEST/ADS 7E	1 0	
	NRR/DEST/CEB 8H	1 1	NRR/DEST/ESB 8D	1 1	
	NRR/DEST/ICSB 7	1 1	NRR/DEST/MEB 9H	1 1	
	NRR/DEST/MTB 9H	1 1	NRR/DEST/PSB 8D	1 1	
	NRR/DEST/RSB 8E	1 1	NRR/DEST/SGB 8D	1 1	
	NRR/DLPQ/HFB 10	1 1	NRR/DLPQ/QAB 10	1 1	
	NRR/DOEA/EAB 11	1 1	NRR/DREP/RAB 10	1 1	
	NRR/DREP/RPB 10	2 2	NRR/DRIS/SIB 9A	1 1	
	NUDOCS-ABSTRACT	1 1	<u>REG FILE</u> 02	1 1	
	RES TELFORD, J	1 1	RES/DSIR DEPY	1 1	
	RES/DSIR/EIB	1 1	RGN2 FILE 01	1 1	
EXTERNAL:	EG&G WILLIAMS, S	4 4	FORD BLDG HOY, A	1 1	
	H ST LOBBY WARD	1 1	LPDR	1 1	
	NRC PDR	1 1	NSIC HARRIS, J	1 1	
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NOTES: 5 5

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) BROWNS FERRY UNIT 3	DOCKET NUMBER (2) 0 5 0 0 0 2 9 6	PAGE (3) 1 OF 0 3
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TITLE (4)
TEMPERATURE CONTROL VALVES INSTALLED INCORRECTLY DUE TO INADEQUATE DESIGN CONTROL

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)
09	09	88	88	004	00	10	07	88			0 5 0 0 0 0
											0 5 0 0 0 0

OPERATING MODE (9) **N**

POWER LEVEL (10) **0100**

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.38(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.38(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 366A)
<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
<input type="checkbox"/> 20.405(a)(1)(iv)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Richard L. Baker, Engineer, Plant Operations Review Staff	TELEPHONE NUMBER 2 10 5 7 1 2 9 1 - 1 2 5 13 8
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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)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

Browns Ferry units 1, 2 and 3 were defueled when this condition was discovered. On June 24, 1988, at 1600 hours, during maintenance activities, maintenance engineers discovered that air operated temperature control valves for the unit 3 shutdown board room air handling units will fail, on loss of control air, in such a manner that the chilled water will bypass the air handling unit. On September 9, 1988, at 1530 hours it was determined that this condition would not satisfy the final safety analysis report and could place the shutdown board rooms in a high temperature environment which could have adverse effects on the function of electrical equipment and instrumentation in the rooms. The failure position of the temperature control valves was changed September 7, 1988 to ensure flow of chilled water through the air handling units. The cause of the event was inadequate design control in that there was an inadequate interface review between involved engineering disciplines. This resulted in design drawings which did not specify the failure mode of the temperature control valves on loss of control air. Procedures are now in place to ensure proper application of design input. The chilled water flow diagram will be revised to identify the failure mode of the TCVs. This event did not pose a nuclear safety concern and posed no threat to personnel or plant safety.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) BROWNS FERRY UNIT 3	DOCKET NUMBER (2) 0 5 0 0 0 2 9 6	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 8	- 0 0 4	- 0 0	0 2	OF	0 3

TEXT (If more space is required, use additional NRC Form 368A's) (17)

Description of Event

Browns Ferry units 1, 2 and 3 were defueled when this condition was discovered. Only unit 3 was affected by this event.

On June 24, 1988, at 1600 hours, during maintenance activities, maintenance engineers discovered that air operated temperature control valves (TCV) (EIIIS Identifier VI-TCV) for the unit 3 shutdown board room air handling units (AHU) (EIIIS Identifier VI-AHU) will fail, on loss of control air, in such a manner that the chilled water will bypass the AHUs. The TCVs are required to fail in such a way that the flow is directed through the AHUs and the bypass flow is closed off. A condition adverse to quality report (CAQR) was initiated on this condition on June 26, 1988. However, evaluation of the condition did not ascertain reportability until September 9, 1988.

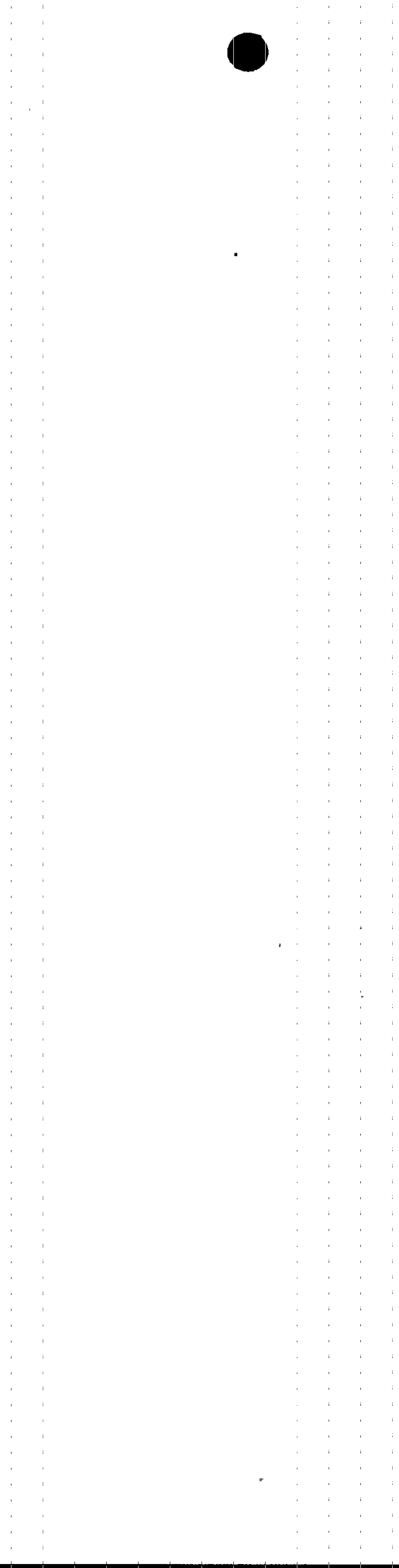
September 9, 1988, at 1530 hours it was determined by the shift technical advisor that the conditions described in the CAQR would not satisfy the final safety analysis report (FSAR). Per FSAR sections 10.12.3 and 10.12.6, the control bay ventilation and air conditioning system (EIIIS Identifier VI) must maintain the temperature of the electrical board rooms within acceptable limits for operation of instruments and for uninterrupted safe occupancy under all plant conditions. This condition has existed since construction and is reportable in accordance with 10 CFR 50.73(a)(2)(ii).

Cause of Event

The cause of the event was inadequate design control. Procedures were inadequate to ensure proper interface between involved engineering disciplines. This resulted in a less than adequate design. The valve operator (EIIIS Identifier VI-FCO) for the TCVs can be connected to fail open or closed on a loss of control air. The control air supply to the TCVs will be lost on a loss of offsite power. Therefore, the TCVs are required to fail open to ensure the flow of chilled water is through the AHUs. The required failure mode of the TCVs was not identified on the design drawings. This resulted in improper air line connection to the valve operator ports during installation causing the TCV to fail closed on a loss of control air supply, bypassing the chilled water from the AHUs. This condition has existed since the system was installed during plant construction approximately 1970.

Analysis of Event

FSAR sections 10.12.3 and 10.12.6 requires that the control bay ventilation and air conditioning system must maintain the temperature of the electrical board rooms within acceptable limits for operation of instruments and for uninterrupted safe occupancy under all plant conditions.



LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) BROWNS FERRY UNIT 3	DOCKET NUMBER (2) 0 5 0 0 0 2 9 6 8 8	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		- 0 0 4	- 0 0	0 3	OF	0 3	

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

Analysis of Event (continued)

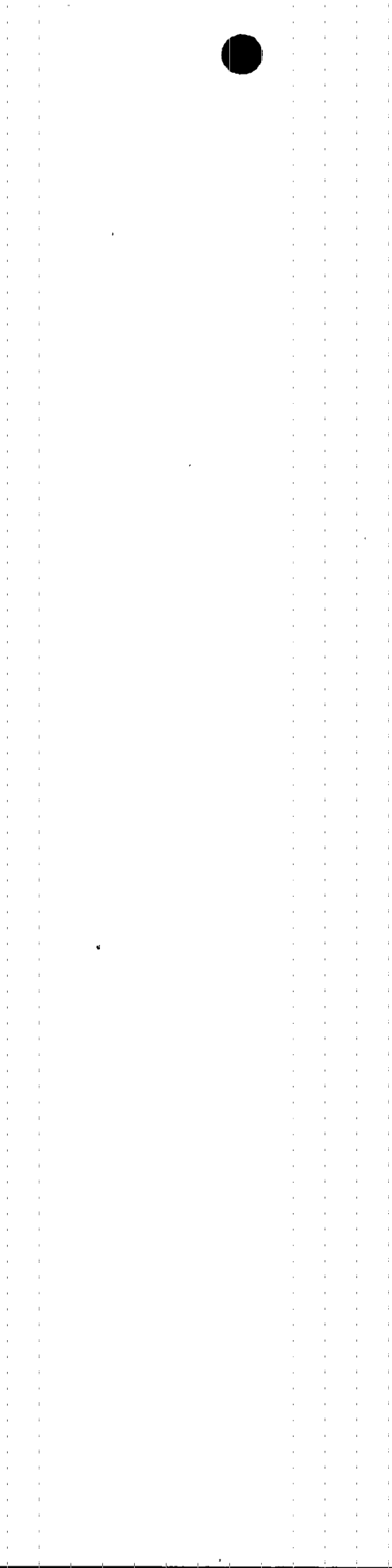
In the as-found condition, the unit 3 shutdown board rooms AHUs would not satisfy section 10.12.3 of the FSAR. On a loss of offsite power, the plant control air compressors would be tripped. As the control air system pressure decayed an automatic reactor scram would occur. The TCVs would eventually close and the flow of chilled water to the unit 3 shutdown board room AHUs would be stopped. This situation could place the shutdown board room in a high temperature environment which could have an adverse affect on the function of electrical equipment and instrumentation in this room. Fresh, filtered outside air is normally circulated through the shutdown board rooms via supply and exhaust fans. The AHUs are intended for emergency use. This condition alone does not pose a significant nuclear safety concern because of system redundancy. Technical specifications require plant shutdown within 24 hours on loss of offsite power and inoperability of shutdown boards. Therefore, this condition did not pose a significant nuclear safety concern and posed no threat to personnel or plant safety.

Corrective Action

The failure position of the unit 3 TCVs was changed September 7, 1988, to ensure flow through the AHUs on a loss of control air. A system walkdown has been performed to verify correct failure mode for the control bay AHUs in units 1 and 2. The failure position of the unit 1 and 2 AHUs was found to be correct. A design change notice has been issued to revise the chilled water flow diagram to identify failure mode of the TCVs. Nuclear Engineering Procedures 3.3, "Internal Interface Control," and 5.2, "Review," are now in place to ensure proper application of design input.

Previous Similar Events - BFRO-50-259/87026 BFRO-50-259/85026
 BFRO-50-259/86024 BFRO-50-259/85012
 BFRO-50-259/86010 BFRO-50-260/87007
 BFRO-50-259/85027 BFRO-50-259/88023

Commitments - None



TENNESSEE VALLEY AUTHORITY

Browns Ferry Nuclear Plant
Post Office Box 2000
Decatur, Alabama 35602

OCT 11 1988

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

Dear Sir:

TENNESSEE VALLEY AUTHORITY - BROWNS FERRY NUCLEAR PLANT UNIT 3 - DOCKET
NO. 50-296 - FACILITY OPERATING LICENSE DPR-68 - REPORTABLE OCCURRENCE REPORT
BFRO-50-296/88004

The enclosed report provides details concerning the temperature control valves installed incorrectly due to inadequate design control. This report is submitted in accordance with 10 CFR 50.73 (a)(2)(ii).

Very truly yours,

TENNESSEE VALLEY AUTHORITY



Guy G. Campbell
Plant Manager
Browns Ferry Nuclear Plant

Enclosures

cc (Enclosures):

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U.S. Nuclear Regulatory Commission
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Atlanta, Georgia 30303

INPO Records Center
Suite 1500
1100 Circle 75 Parkway
Atlanta, Georgia 30339

NRC Resident Inspector, Browns Ferry Nuclear Plant

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