ARKANSAS POWER & LIGHT COMPANY
POST OFFICE BOX 551 LITTLE ROCK, ARKANSAS 72203 (501) 371-4000

December 12, 1985

2CAN128505

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

Subject: Arkansas Nuclear One - Unit 2
Docket No. 50-368
License No. NPF-6
Licensee Event Report
No. 85-022-00

Gentlemen:

In accordance with 10CFR50.73(a)(2)(iv), attached is the subject report concerning a reactor trip on high steam generator level due to closure of the 'B' main feedwater regulating valve.

This letter corrects a typographic error in the letter 2CAN118503 dated November 6, 1985. The unit, docket and license numbers were incorrectly listed on the cover letter. A copy of the original letter and licensee event report are attached.

Very truly yours,

J. Ted Enos
Manager, Licensing

JTE:RJS:lw

Attachment

cc: Mr. James M. Taylor
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, DC 20555

IE22
1/1

NRC Form 366
(9-83)

U.S. Nuclear Regulatory Commission
Approved OMB No. 3150-0104
Expires: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Arkansas Nuclear One, Unit Two	0 5 0 0 0 3 6 8	1 OF 0 2

TITLE (4) Reactor Trip on High Steam Generator Level Due to Closure of Main Feedwater Regulating Valve

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)
1 0	0 8	8 5	8 5	-- 0 2	-- 0 0	1 1	0 6	8 5		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10) 0 9 8	20.402(b)	20.405(c)	X 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)	Other (Specify in
	20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	Abstract below and
	20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	in Text, NRC Form
	20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	366A)

LICENSEE CONTACT FOR THIS LER (12)

Name	Telephone Number
Dwight J. Johnson, Plant Licensing Engineer	Area Code 5 0 1 9 6 4 - 3 1 1 0

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	S J	F C V	F 1 3 0	Y					

SUPPLEMENT 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 10/8/85 at 1051 hours with the unit operating at 98% power the reactor was automatically tripped on high steam generator level based on 'B' and 'D' channels of the Reactor Protective System (RPS) receiving an indicated 'A' steam generator level ≥93.4% (trip setpoint). The RPS actuated on the 2 out of 4 channel trip logic to trip the reactor. Post trip pressures and temperatures responded as expected, the high steam generator level cleared when the reactor was shut down, and emergency feedwater actuated as anticipated to restore normal steam generator levels. The plant was stabilized in hot standby (Mode 3) conditions. The cause of the high level in the 'A' steam generator was the closure of the 'B' Main Feedwater Regulating Valve (MFRV) which caused an increase in main feedwater pump speed demand on both main feedwater pumps. This increase in pump speed caused a large feed flow/steam flow mismatch in the 'A' steam generator which was not adequately offset by closure of the 'A' MFRV in time to prevent reaching the high level trip setpoint in the 'A' steam generator. The closure of the 'B' MFRV was due to desiccant carryover from the instrument air dryers fouling the pneumatic relays in the 'B' MFRV electro-pneumatic valve positioner. Corrective actions to prevent recurrence have included installation of a 1 micron duplex filter in the instrument air supply to the MFRVs, increased preventive maintenance in this area, and inspection of the instrument air drying towers retention elements. A similar event was described in LER 50-368/84-014.

NRC Form 366A
(9-83)

Form 1062.018
U.S. Nuclear Regulatory Commission
Approved OMB No. 3150-0104
Expires: 8/31/85

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		Year	Sequential Number	Revision Number	
Arkansas Nuclear One, Unit Two	0 5 0 0 0 3 6 8	8 5 --	0 2 2 --	0 0	0 2 OF 0 2

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

On 10/8/85 at 1051 hours with the unit operating at 98% power the reactor was automatically tripped on high steam generator level in the 'A' steam generator. The trip was initiated by the receipt in the 'B' and 'D' channels of the Reactor Protective System (RPS) of 'A' steam generator level greater then 93.4%. This condition resulted in the necessary 2 out of 4 channel trip configuration required for RPS actuation (a reactor trip). Post trip response was normal and the high level condition was mitigated by steam generator and main feedwater control system reaction to the unit trip. No abnormal conditions were noted during the post trip period and the unit was stabilized in Mode 3 conditions with the reactor coolant system at 2250 psia and 545°F.

The cause of the high 'A' steam generator level was an over feeding condition that resulted from the closure of the 'B' Main Feedwater Regulating Valve (MFRV), 2CV-0740 (IEES Identifier = 02SJ-FCV-0740) for the 'B' steam generator. When the 'B' MFRV closed the B main feedwater control system sensed the decrease in feedwater flow to the 'B' steam generator and increased the 'B' main feedwater pump speed to compensate. This increase in pump speed demand on the 'B' main feedwater pump was transmitted to the 'A' main feedwater control system which, through a high select circuit, resulted in the equivalent speed demand being placed on the 'A' main feedwater pump. This resulted in a large steam flow/feed flow mismatch on the 'A' steam generator and the high level trip setpoint was reached before the 'A' MFRV could respond to mitigate the high flow condition. The high level in the 'A' steam generator was terminated when the reactor tripped due to normal steam generator level response (shrink effect) and the designed response of the main feedwater control system.

The shrink effect in steam generator level induced by the reactor trip initiated emergency feedwater actuation based on low steam generator level in the 'B' steam generator. Both emergency feedwater pumps and valve trains responded as required to the transient. At 1109, 10/8/85, the steam driven emergency feedwater pump (2P-7A) was secured per Emergency Operating Procedure recovery actions. Normal steam generator levels were subsequently restored and maintained.

The cause of the 'B' MFRV closure has been identified as an accumulation of desiccant in the valve actuator assembly from the instrument air system dryers. This accumulation of desiccant restricted operation of pneumatic relays which allowed the valve to close. Both MFRVs are electro-pneumatically positioned valves with pneumatic operators which are supplied with air from the plant instrument air system. The plant instrument air system supplies dry, oil free pressurized air to a variety of plant systems. The compressed air is maintained dry by the use of drying towers which contain a desiccant. Over the operating life of this system the desiccant has broken down somewhat and ultra-fine particles have apparently contaminated portions of the system, despite the presence of 40 micron primary filtering units in this system. No safety related components that utilize instrument air have been affected by desiccant contamination.

Corrective actions were initiated 10/8/85 at 1400 hours to replace the pneumatic relays and readjust the valve positioner on the 'B' MFRV. The 'A' MFRV was stroke tested satisfactorily for response performance. This work was completed 10/8/85 at 1615 hours. The plant was subsequently returned to power operations. Additional corrective actions include the installation of 1 micron duplex filters in the instrument air supply line to the MFRV's and an increase in preventive maintenance associated with this portion of the main feedwater control system. Also, work was completed on inspection and repair of the instrument air drying tower retention elements. A study of potential long term solutions has been initiated by the maintenance, engineering, and operation groups to identify feasible future courses of action if any are necessary. A similar event was described in LER-50-368/84-014.

ARKANSAS POWER & LIGHT COMPANY
POST OFFICE BOX 551 LITTLE ROCK, ARKANSAS 72203 (501) 371-4000

November 6, 1985

2CAN118503

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

Subject: Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51
Licensee Event Report
No. 85-022-00

Gentlemen:

In accordance with 10CFR50.73(a)(2)(iv), attached is the subject report concerning a reactor trip on high steam generator level due to closure of the 'B' main feedwater regulating valve.

Very truly yours,

J. Ted Enos
Manager, Licensing

JTE:RJS:lw

Attachment

cc: Mr. James M. Taylor
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, DC 20555

NRC Form 366
(9-83)

U.S. Nuclear Regulatory Commission
Approved OMB No. 3150-0104
Expires: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Arkansas Nuclear One, Unit Two

DOCKET NUMBER (2) 0 5 0 0 0 3 6 8 | PAGE (3) 1 OF 0 2

TITLE (4) Reactor Trip on High Steam Generator Level Due to Closure of Main Feedwater Regulating Valve

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)
1 0	0 8	8 5	8 5	0 2 2	0	1 0	0 6	8 5		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9): 1 | POWER LEVEL (10): 0 9 8

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

__ 20.402(b)	__ 20.405(c)	X 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)	__ Other (Specify in
__ 20.405(a)(1)(iii)	__ 50.73(a)(2)(i)	__ 50.73(a)(2)(viii)(A)	Abstract below and
__ 20.405(a)(1)(iv)	__ 50.73(a)(2)(ii)	__ 50.73(a)(2)(viii)(B)	in Text, NRC Form
__ 20.405(a)(1)(v)	__ 50.73(a)(2)(iii)	__ 50.73(a)(2)(x)	366A)

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X	S J	F C V	F 1 3 0	Y					

SUPPLEMENT REPORT EXPECTED (14)

__ Yes (If yes, complete Expected Submission Date) X No

EXPECTED SUBMISSION DATE (15): Month | Day | Year

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NRC Form 366A
(9-83)

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		Year	Sequential Number	Revision Number	
Arkansas Nuclear One, Unit Two	0 5 0 0 0 3 6 8	8 5	0 2 2	0	0 0 2 OF 0 1 2

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