

James A. FitzPatrick
Nuclear Power Plant
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Michael J. Colomb
Plant Manager

December 2, 1996
JAFP-96-0479

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, D.C. 20555

Subject: Docket No. 50-333
LICENSEE EVENT REPORT: LER-96-011

Both Standby Liquid Control Subsystems Inoperable Due
to Inoperable Pump Discharge Pressure Relief Valves

Dear Sir:

This report is submitted in accordance with
10CFR50.73(a)(2)(i)(B).

There are two commitments contained in this report.

Questions concerning this report may be addressed to Mr. W. Verne
Childs at (315) 349-6071.

Very truly yours,

A handwritten signature in cursive script, appearing to read 'Michael J. Colomb'.

MICHAEL J. COLOMB

MJC:WVC:las
Enclosure

cc: USNRC, Region 1
USNRC Resident Inspector
INPO Records Center

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IE221,

EXPIRES 04/30/98

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: 60.0 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, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

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DOCKET NUMBER (2)

05000333

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TITLE (4)

Both Standby Liquid Control Subsystems Inoperable Due to Inoperable Pump Discharge Pressure Relief Valves

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
10	28	96	96	-- 011	-- 00	12	02	96	N/A	05000
									FACILITY NAME	DOCKET NUMBER
									N/A	05000
OPERATING MODE (9)		N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)		000	20.2201(b)		20.2203(a)(2)(v)		X		50.73(a)(2)(i)	50.73(a)(2)(viii)
			20.2203(a)(1)		20.2203(a)(3)(i)				50.73(a)(2)(ii)	50.73(a)(2)(x)
			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

Mr. W. Verne Childs, Senior Licensing Engineer

TELEPHONE NUMBER (Include Area Code)

(315) 349-6071

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
D	BR	RV	C710	Y					

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 October 29, 1996 while in the cold condition for refueling, both Standby Liquid Control (SLC) System pump discharge pressure relief valves were found with lift setpoints below the range of 1400 to 1490 psig required by Technical Specification 4.4.A.2. Valve 11SV-39A lifted at 1380 psig and 11SV-39B lifted at 1310 psig. Both valves had performed properly during monthly pump flow testing at equal to or greater than 1275 psig approximately one week earlier. One valve was replaced because it could not be adjusted to the proper lift setpoint and the other valve was adjusted and tested with satisfactory results. Both valves were installed and SLC systems A and B were restored to an operable status on 11/9/96 at 1400 hours.

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

EIIS Codes are in []

EVENT DESCRIPTION

On October 28, 1996 at 2154 hours while in the cold shutdown mode for refuel and maintenance, Standby Liquid Control system [BR] A and B were made inoperable to allow removal of the pump discharge pressure relief valves (11SV-39A and B) for testing as required by Surveillance Requirement (SR) 4.4.A.2. An orderly plant shutdown for refueling began on October 25, 1996 and reactor coolant temperature was reduced to less than 212°F at 2240 hours on October 26, 1996. At the time Standby Liquid Control system A and B were made inoperable reactor vessel disassembly was in progress and Standby Liquid Control was not required to be operable by Technical Specification 3.4.A because reactor coolant temperature was less than 212°F, all control rods were fully inserted, and the shutdown margin requirements of Technical Specification 3.3.A were met.

Pressure relief valve 11SV-39A was found to lift at 1380 psig on October 29, 1996 and valve 11SV-39B was found to lift at 1310 psig on October 30, 1996. SR 4.4.A.2 requires a pressure relief valve setting between 1400 and 1490 psig.

Pressure relief valve 11SV-39A could not be adjusted and was replaced with a spare valve having a lift setpoint between 1400 and 1490 psig. Pressure relief valve 11SV-39B was adjusted to have a lift setpoint between 1400 and 1490 psig and was successfully retested.

The valves were installed after testing and Standby Liquid Control system A and B were restored to an operable status on November 9, 1996 at 1440 hours.

EVENT CAUSE

The event was caused by drift of the lift setpoint of the pump discharge pressure relief valves (11SV-39A and 39B).

Prior to 1995, pump discharge pressure relief valves 11SV-39A and 39B were tested "in-place" by throttling the pump discharge flow path until the pump discharge pressure increase resulted in relief valve operation. No relief valve failures were recorded using this test method in 1990, 1992, and 1994.

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Starting in 1995, procedures were revised and the relief valves have been physically removed from the system and subjected to lift setpoint testing using a bench test rig. Bench testing eliminated the difficulty in determining the actual lift setpoint that was inherent with in-place testing in a system that uses reciprocating positive displacement pumps.

Valve 15SV-39A was found with a lift setpoint of 1380 psig on October 29, 1996. Attempts to adjust the valve resulted in lifts at 1360, 1390, 1320, and 1340 psig. The valve was replaced with a spare, which was bench test lifted with a setpoint of 1450 psig prior to installation.

Valve 11SV-39B was found with a lift setpoint of 1380 psig during bench testing in January 1995. The valve was adjusted, retested (at 1420 psig) and installed in the system. This same valve was found with a lift setpoint of 1310 psig on October 30, 1996. The valve was adjusted and bench test lifted with a setpoint of 1450 psig prior to reinstallation.

The most likely cause of the setpoint drift was system pressure spikes and vibration. The reciprocating positive displacement pumps cause pressure pulsations that could result in multiple valve lift and seat cycles within a short time period during test (Cause Code D). As discussed above, procedures have been changed to require bench testing of the valves. In addition, valve 11SV-39B will be evaluated during the repair and rebuild process in an effort to positively determine the cause of the lift setpoint drift.

Since valve 11SV-39B exhibited lift setpoint drift outside of the Technical Specification limit of 1400 to 1490 psig for two consecutive test intervals, the valve will be evaluated for continued service with a surveillance interval of 24 months. The surveillance interval will be reduced or the valve replaced, if necessary, to provide assurance that the lift setpoint remains within the Technical Specification limits of 1400 to 1490 psig.

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

EVENT ANALYSIS

The Standby Liquid Control (SLC) System provides a redundant, independent, and diverse method from the use of control rods to bring the reactor to subcriticality and to maintain subcriticality as the reactor cools. The system makes possible an orderly and safe shutdown in the event that not enough control rods can be inserted into the reactor core to accomplish shutdown in the normal manner. The system is sized to counteract the positive reactivity effect from rated power to a cold shutdown condition by the injection of borated water into the reactor vessel.

Technical Specification 3.4.A allows SLC to be inoperable provided the reactor is in the cold condition, all control rods are fully inserted, and shutdown margin requirements are met. These conditions were met at the time SLC pump discharge pressure relief valves 11SV-39A and 39B were found to be inoperable on October 29 and 30, 1996.

While the SLC pump discharge pressure relief valves were found with lift setpoints less than the minimum allowed by Technical Specification 4.4.A.2 both valves had performed properly during monthly SLC pump flow testing conducted on October 21, 1996 (subsystem A) and on October 22, 1996 (subsystem B). During the monthly SLC pump flow testing at equal to or greater than 1275 psig, no indication of pressure relief valve lifting was evident. Since no pressure relief valve lifting or significant valve leakage existed during the monthly flow rate testing conducted approximately one week prior to the discovery of the pressure relief valve lift setpoint drift, the SLC system was capable of performing the intended safety function. The event was not safety significant.

The event requires a report under 10CFR50.73(a)(2)(i)(B) due to operation of the plant with SLC systems A and B inoperable due to pressure relief valve 11SV-39A and 39B lift setpoint drift.

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

CORRECTIVE ACTION

1. SLC system pump discharge pressure relief valve 11SV-39A was replaced; valve 11SV-39B was adjusted, tested and reinstalled (**completed**).
2. Pressure relief valve 11SV-39B will be subjected to an Equipment Failure Evaluation (EFE) during the repair/rebuild process to confirm the cause of the lift setpoint drift (**planned completion date, June 30, 1997**).
3. Pressure relief valves 11SV-39A and 39B will be evaluated for continued service with a 24-month surveillance interval. If necessary, the valves will be tested at more frequent intervals or replaced to ensure a lift setpoint within the Technical Specification limit of 1400 to 1450 psig (**planned completion date, June 30, 1997**).

ADDITIONAL INFORMATION

Previous Similar Events:	No previous LERs involving pump discharge pressure relief valve lift setpoint drift have been submitted.
Failed Component Identification:	Standby Liquid Control Pump Discharge Pressure Relief Valve
Manufacturer:	Crosby Valve and Gage Co.
NPRDS Code:	C710
Valve Model:	JMWK Special

ATTACHMENT 1

LER-96-011

NUMBER	COMMITMENT	DUE DATE
JAFP-96-0479-01, 12/2/96	Perform Equipment Failure Evaluation on failed valve 11SV-39B to determine/confirm cause of lift setpoint drift.	June 30, 1997
JAFP-96-0479-02, 12/2/96	Pressure relief valves 11SV-39A and 39B will be evaluated for continued service with a 24-month surveillance interval. If necessary, the valves will be tested at more frequent intervals or replaced to ensure a lift setpoint within the Technical Specification limit of 1400 to 1490 psig.	June 30, 1997