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)
Catawba Nuclear Station, Unit 1	0 5 0 0 0 4 1 3	1 OF 0 4

TITLE (4)

Automatic Starting of Motor Driven Auxiliary Feedwater Pumps

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 1	2 4	8 4	8 4	— 0 2 4	— 0 0	1 2	2 1	8 4		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	3
POWER LEVEL (10)	0 1 0 0

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 Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		
	20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)		
	20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (AREA CODE)
Roger W. Ouellette, Assistant Engineer - Licensing	7 0 4 3 7 3 - 7 5 3 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

SUPPLEMENTAL 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 November 24, 1984, at 1339 hours, Auxiliary Feedwater (CA) Pumps 1A and 1B started due to a low-low level in Steam Generator (S/G) 1C.

Prior to pump start, CA piping had been aligned so that proper seating of the check valve which prevents backflow from S/G 1C to the CA common header, could be verified. To verify that no backleakage was occurring, several valves were required to be opened and piping surface temperatures were to be taken. Written instructions were not used for this checkout, and several deviations from the original plans occurred as as result.

This incident is classified as an Administrative/Procedural Deficiency. If proper written instructions concerning the checkout had been issued, the low-low S/G 1C level may have been avoided.

Unit 1 was in Mode 3 (Hot Standby) at the time of the incident and reactor coolant temperature was approximately 550°F.

This incident is reportable pursuant to 10 CFR 50.73 (a) (2) (iv).

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

Check valve 1CA-49 prevents backflow from Steam Generator (S/G) 1C auxiliary feedwater nozzle to the Auxiliary Feedwater (CA) System common header (supplied by CA Pump #1). When CA Pump #1 (Turbine-Driven Auxiliary Feedwater Pump) is operating, 1CA-49 will open and allow passage of flow which is determined by throttle valve 1CA-48, CA Pump #1 Flow to S/G 1C.

Check Valve 1CA-49 was the cause of the CA common header being overheated from backleakage from S/G 1C on November 21, 1984. At that time, Periodic Test PT/1/A/4250/06, (CA Pump Head and Valve Verification), and PT/1/A/4200/08C, (CA Check Valve Full Stroke Test), were nearing completion, and CA Pump #1 was shut down. 1CA-49 failed to seat properly, and backleakage overheated common header to the Upper Surge Tank (UST).

The backleakage did not reach the Turbine-Driven Auxiliary Feedwater Pump. The backleakage was isolated at the UST and the Auxiliary Feedwater Supply line to S/G 1C (Main Feedwater bypass flow was still available). The Auxiliary Feedwater supply line was opened and CA Pump #1 was started in order to cool the piping. After cooldown, evidence of backleakage was not observed in this arrangement and improper seating of check valve 1CA-49 could not be determined.

The Unit 1 Coordinator verbally instructed an Operation's Staff Engineer in coordinating a checkout of check valve 1CA-49. The Staff Engineer discussed plans for the checkout with the Shift Supervisor, Nuclear Control Operator, and the Shift Technical Advisor. The planned checkout was conducted on November 24, 1984. Operations Management Procedure 1-4, Use of Procedures did not clearly identify this checkout as a type of activity where written instruction were required.

The plan was intended to recreate the conditions of the backleakage of November 21. The Staff Engineer made two deviations from the Unit Coordinator's instructions:

1) Valve 1CA-151 (S/G Main Feed to Auxiliary Feed Nozzle Isolation) was to be closed to prevent mixing of feedwater with any backleakage (which would made backleakage more difficult to detect), and

2) The pipe surface temperature monitoring location was moved from the interior doghouse to the CA Pump Room (farther from the source of backleakage).

While closure of valve 1CA-151 would permit any hot backleakage to be detected quickly. it also isolated feedwater to S/G 1C. The Staff Engineer thought that the piping in question in the doghouse was insulated, so he moved the temperature monitoring location to the CA Pump Room. This increased the detection time for hot backleakage since it was farther downstream along the leakage flowpath.

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

The checkout activities began at 1246 hours on November 24, when valve 1CA-151 was closed, isolating feedwater to the Auxiliary Feedwater Nozzle of S/G 1C. While a pyrometer was in place to measure pipe temperature, a throttle valve was partially opened to admit leakage flow into the Upper Surge Tank. After approximately five minutes, piping temperature rose in seconds from 90°F to 340°F, before the throttle valve could be closed.

In the meantime, S/G 1C level was decreasing because valve 1CA-151 had been closed. With level approaching 20%, control room operators attempted to open valve 1CA-151 to feed the steam generator before a low-low level signal caused automatic start of the motor-driven CA Pumps (setpoint: 17%). However, before the valve was opened, the feedwater pumps started while control board meters indicated approximately 20% steam generator level. The low-low level alarm cleared in two minutes and the CA pumps were secured while main feedwater was re-established. As a result of auxiliary feedwater supplying the steam generators, pressurizer level decreased (reactor coolant inventory being cooled). Pressurizer low level (17%) occurred, and letdown was isolated. Letdown was re-established within approxiately 20 minutes.

Repair work was begun on 1CA-49 on November 28, 1984. The valve was not seating properly as well as leaking from the bonnet. The valve seat was lapped, the bonnet leak repaired, and repair work was completed on December 4, 1984.

The piping affected by this backleakage was reviewed and determined that the integrity of the piping was unaffected. Five weld joints were inspected following the backleakage. Outside diameter and wall thickness data was taken. This data has been approved.

Work Request 131230PS was originated to investigate and repair the S/G 1C level instrumentation problem.

CONCLUSION

If proper written instruction concerning the checkout activities of 1CA-49 had been issued, the low-low S/G 1C level condition may have been avoided. Closure of valve 1CA-151 during the checkout deviated from the original instructions and isolated feedwater flow. Movement of the temperature monitoring location also deviated from the original instructions and allowed the comon header to be overheated before being detected. Therefore, this incident is classified as an Administrative/Procedural Deficiency.

Operations Management Procedure 1-4, Use of Procedures, as written does not provide sufficient guidance to determine that written instructions or procedures should have been issued for this checkout. Subsequent corrective action has included re-emphasizing the need for written instructions per Operations Management Procedure 1-4 to the appropriate Operations personnel. Operations will review OMP 1-4 and add the guidance necessary to better determine where written instructions are needed.

CORRECTIVE ACTION

The immediate corrective action was to restore S/G 1C level by the CA motor driven pumps, and the S/G 1C low-low level alarm cleared.

Subsequent corrective actions entail:

1) 1CA-151 was opened to restore main feedwater to S/G 1C.
2) CA motor driven pumps were stopped.
3) Inspected pipe hangers on the affected line.
4) Reviewed the piping and weld joints affected by the backleakage.
5) The need for written instructions per OMP 1-4 was re-emphasized to the appropriate Operations Personnel.
6) Work Request 131230PS was originated to investigate and repair S/G 1C level indication on the main control board.
7) OMP 1-4 will be reviewed/revised to provide guidance for determining when written instruction is required.

SAFETY ANALYSIS

Unit 1 was in Mode 3 (Hot Standby) prior to this incident. Initial criticality had not been achieved, so no residual heat was present or being removed by the S/G's.

The Auxiliary Feedwater System responded as designed to the low-low S/G 1C level alarm. That alarm cleared in 2 minutes after auxiliary feedwater was initiated.

The health and safety of the public was unaffected by this incident.

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VICE PRESIDENT
NUCLEAR PRODUCTION

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January 3, 1985

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

Subject: Catawba Nuclear Station, Unit 1
Docket No. 50-413

Gentlemen:

Pursuant to 10 CFR 50.73 Section (a) (1) and (d), attached is Licensee Event Report 413/84-24 concerning the automatic starting of the motor driven auxiliary feedwater pumps. This report is late due to modifications made to the text. This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

H. B. Tucker / RWO

Hal B. Tucker

RWO:slb

Attachment

cc: Mr. James P. O'Reilly, Regional Administrator
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