

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Catawba Nuclear Station, Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 4 1 1 3 1				PAGE (3) 1 OF 0 4		
TITLE (4) Reactor Trip Due to Steam Generator Low-Low Level																
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)			
0 1	2 3	8 5	8 5	0 0 3	0 0 0	2 2	2 8	5					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)														
1		20.402(b)				20.405(c)				X		50.73(a)(2)(iv)		73.71(b)		
POWER LEVEL (10)		0 1 2 0				20.405(a)(1)(i)						50.73(a)(2)(v)		73.71(c)		
		20.405(a)(1)(ii)				50.38(c)(1)						50.73(a)(2)(vii)		X OTHER (Specify in Abstract below and in Text, NRC Form 366A)		
		20.405(a)(1)(iii)				50.38(c)(2)						50.73(a)(2)(viii)(A)				
		20.405(a)(1)(iv)				50.73(a)(2)(i)						50.73(a)(2)(viii)(B)		50.72(b)(2)(ii)		
		20.405(a)(1)(v)				50.73(a)(2)(ii)						50.73(a)(2)(ix)				
LICENSEE CONTACT FOR THIS LER (12)																
NAME Roger W. Ouellette, Assistant Engineer - Licensing										TELEPHONE NUMBER 7 1 0 4 3 7 1 3 1 - 1 7 1 5 1 3 0						
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC						
B	SIA	XIT	0 1 2 4 3	No												
SUPPLEMENTAL REPORT EXPECTED (14)																
YES (If yes, complete EXPECTED SUBMISSION DATE)										X NO		EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR

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

On January 23, 1985, at approximately 1448 hours, the Unit 1 Reactor automatically tripped due to a Steam Generator D Low-Low Level. Auxiliary Steam (AS) flow to Main Feedwater (CF) Pump 1A was decreased due to the malfunction to Pressure Transmitter OASPT5030. This decreased CF flow which resulted in a Steam Generator Low-Low Level. Therefore, this incident is classified as a Component Malfunction.

Unit 1 was in Mode 1 (Power Operation) at 20% full power at the time of this incident. This incident is reportable pursuant to 10 CFR 50.73, Section (a)(2)(iv) and 10 CFR 50.72, Section (b)(2)(ii).

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

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Catawba Nuclear Station, Unit 1	0 5 0 0 0 4 1 3 8 5 -	0	0	8	-	0	0

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

The Auxiliary Steam (AS) System provides a normal and auxiliary source of steam to various plant equipment. The AS System consists of steam headers which are equipped with control valves to deliver steam at the proper operating pressure of the applicable equipment.

The Turbine Building AS header consists of two automatic pressure control valves, 1AS36 and 1AS40, which maintain the Auxiliary Building portion of the AS System at 65 PSIA. Valves 1AS36 and 1AS40 are controlled by Pressure Transmitter OASPT5030 which monitors Turbine Building Header Pressure. OASPT5030 provides input to controller OASPRO360 which opens and closes the control valves as required. At Low Header Pressures, the Control Valves open to allow more steam flow into the header. As pressure approaches 65 PSIA, the valves close. The header is also equipped with a Pressure Relief Valve, 1AS43, which opens when Header Pressure exceeds 65 PSIG.

The Turbine Building AS Header takes steam flow from a 12" carbon steel AS line which also supplies steam to the Main Feedwater (CF) Pump Turbines. AS is normally used as an Auxiliary source of steam for the CF Pump Turbines. Main Steam (SM) is the primary source.

Pressure Transmitter OASPT5030 is an Ashcroft Pneumatic Transmitter, Type 4480A, manufactured by Dresser Industrial Valve and Instrument Division. There are thirty-six Pressure Transmitters of this type used at Catawba. A review of the Nuclear Plant Reliability Data System revealed several instances of equipment malfunction associated with this type of Pressure Transmitter.

On January 23, 1985, at 1440 hours, plant conditions were as follows:

- Unit 1 was in Mode 1, Power Operation, at 20% full power.
- Turbine was at 1800 RPM, 0% Generator Load.
- All four Reactor Coolant (NC) Pumps operating.
- Main Feedwater (CF) to Steam Generators (S/G) being supplied by CF Pump 1A.
- AS was supplying CF Pump 1A.
- Main Steam (SM) to CF Pump 1A was isolated to support main Turbine roll.
- S/G A Level 38% Narrow Range.
- S/G B Level 38% Narrow Range.
- S/G C Level 38% Narrow Range.
- S/G D Level 46% Narrow Range.
- Pressurizer Level 28%.

At approximately 1448 hours, the Unit 1 Reactor automatically tripped due to a S/G D Low-Low Level. (At 20% power, a Low-Low S/G Level Reactor Trip occurs at 17% Narrow Range.) This resulted in a Turbine Trip and CF Isolation. The Low-Low S/G

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

Level initiated an auto-start of both Motor Driven Auxiliary Feedwater (CA) Pumps. However, before S/G Levels could be restored by the CA System, S/G A, B, and C Low-Low Level Reactor Trips occurred. This resulted in a start of the Turbine Driven CA Pump. The Control Room initiated Procedure EP/1/A/5000/01, Reactor Trip or Safety Injection, which verifies the proper response of the Automatic Protection Systems following a Reactor Trip or Safety Injection Actuation, determines the cause of the actuation, and identifies the appropriate procedure to be used in recovering from the actuation.

Unexpected NC System cooling by the CA System caused a substantial amount of shrink in the NC System. This caused Pressurizer Level to decrease. When Pressurizer Level reached 17%, normal letdown was automatically isolated and the Pressurizer Heaters de-energized. Pressurizer Level continued to decrease to an eventual minimum of 10% and had to be re-established by aligning the Centrifugal Charging Pump to the Refueling Water Storage Tank (FWST). Normal Pressurizer Level was re-established in approximately 10 minutes.

At 1630 hours, the Control Room performed Procedure RP/O/B/5000/13, NRC Notification Requirements, which required Notification of the NRC Operations Center of a Significant Event.

Investigations by Control Room personnel immediately following the Reactor Trip revealed that the S/G Low-Low Level was attributed to low CF Flow to the S/G's. The low CF Flow was caused by low steam flow to CF Pump 1A.

The low steam flow was attributed to the inability of Pressure Control Valves 1AS36 and 1AS40 to maintain Turbine Building steam header pressure below 65 PSIG. This caused Pressure Relief Valve 1AS43 to open. The substantial loss of steam through the header and relief valve resulted in a loss of steam flow to CF Pump 1A. Normally, the loss of pressure at the CF Pump Turbine Low Pressure Stop Valves will cause the CF Pump Turbine High Pressure Control Valves to open and begin supplying SM to the CF Pump Turbine. However, since SM was isolated from the CF Pump Turbine, this swapover could not occur and a low steam flow resulted.

Work Request 14064 OPS and 14065 OPS were issued to investigate and repair the malfunction associated with Pressure Control Valves 1AS36 and 1AS40. It was discovered that the signal output tubing of Transmitter OASPT5030 was blocked by debris which prevented a pressure signal from being sent from the Transmitter to Controller OASPRO360. This caused valves 1AS36 and 1AS40 to remain open, thus not maintaining Header Pressure below 65 PSIG. Therefore, this incident is classified as a

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

FACILITY NAME (1) Catawba Nuclear Station, Unit 1	DOCKET NUMBER (2) 0500041385	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		85	008	00	04	OF 04

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

Component Malfunction. The output tubing of OASPT5030 was cleared of debris on January 26, 1985, and returned to service. There have been several instances of equipment malfunction at Catawba associated with this type of Pressure Transmitter. For all cases, the output tubing was blocked by debris.

CORRECTIVE ACTION

1. Control Room Personnel investigated Low Steam Flow to CF Pump 1A.
2. Work Request 14064 OPS and 14065 OPS were issued to investigate and repair the malfunction associated with Pressure Control valves 1AS36 and 1AS40.
3. Transmitter OASPT5030 was repaired and returned to service.
4. Transmitter Output Tubing Blockage will be investigated and corrective action determined. All Transmitters of this type used at Catawba will be evaluated.

SAFETY ANALYSIS

Following the Reactor Trip, NC System Pressure remained above the setpoint for Automatic Safety Injection Actuation and remained below the setpoint for opening the Pressurizer Code Safety Relief Valves. NC System temperature cool down rates were within the Technical Specification limits of 100°F/Hr. S/G levels were re-established to 35% Narrow Range within approximately 30 minutes. CA was isolated and CF was restored after S/G levels were re-established. The Reactor tripped with no anomalies. The health and safety of the public were not affected by this incident.

Transient Monitor Plots were not available for this Reactor Trip.

DUKE POWER COMPANY

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HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

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February 22, 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 413/85-08 concerning a Reactor trip due to Steam Generator low-low level. 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 / slb

Hal B. Tucker

RWO:slb

Attachment

cc: Dr. J. Nelson Grace, Regional Administrator
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