

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)
Catawba Nuclear Station, Unit 1DOCKET NUMBER (2)
0 5 0 0 0 4 1 1 3 1 OF 0 5

TITLE (4)

Both Trains of Control Room Ventilation Simultaneously Inoperable

EVENT DATE (6)			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	4	1	2	8	5	8	5	0	2	4	0	5	0	0	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)	01918	20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)			
		20.405(a)(1)(i)		50.38(c)(1)		50.73(a)(2)(v)		73.71(c)			
		20.405(a)(1)(ii)		50.38(c)(2)		50.73(a)(2)(vii)		OTHER (Specify in Abstract below and in Text, NRC Form 366A)			
		20.405(a)(1)(iii)	X	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
Roger W. Ouellette, Assistant Engineer - Licensing	710 4 317 13 1-17 15 1310

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS
X	KLM	11XITX	191919	No					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	X				

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

On April 12, 1985, both Trains of Control Room Ventilation/Chilled Water System (VC/YC) were inoperable from 0140 hours to 0502 hours, and from 1235 hours to 1325 hours. At the time of the incidents, Unit 1 was in Mode 1 at 98% Reactor Power.

B Train VC/YC System had become inoperable on April 9, 1985, due to the filter unit preheater failure to energize. Both Trains of VC/YC Systems were simultaneously inoperable on two different occasions when A Train VC/YC tripped on low chilled water flow. With both trains inoperable, Technical Specification 3.0.3 was entered. To recover from the first incident, A Train of VC/YC was restarted after A Train YC was refilled and vented. To recover from the second incident, B Train VC/YC was started after installation of filter unit preheater fuses.

This incident has been classified as a Component Malfunction. The reference leg of the Demineralized Water Storage Tank (YMST) drained, which prevented the YMST makeup pumps from starting on low level. Since the YMST (makeup source to the YC System) had lost level and the capability to restore level, makeup to the YC System was lost, causing a low chilled water flow trip of the A Train YC Chiller.

This incident is reportable pursuant to 10 CFR 50.73, Section (a)(2)(i)(B). Since, the simultaneous inoperability of VC/YC Trains did not exceed one hour, the unit was not required to commence with a shutdown.

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APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

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TEXT (If more space is required, use additional NRC Form 365A's) (17)

The Control Area Ventilation System (VC) and the Chilled Water System (YC) combine to form one functional system (VC/YC) to provide normal and emergency air filtration and cooling requirements of the following plant areas: Control Room, Cable Room, Battery Room, Switchgear Rooms, Motor Control Center Rooms, and the Electrical Penetration Rooms at elevation 594'. These systems operate prior to, during, and after a LOCA, and are Nuclear Safety Related. Technical Specification 3.7.6 lists the Limiting Conditions for Operation of the VC/YC System. For example, the Action Statement of 3.7.6 states that one train of VC/YC can be inoperable for a period of up to seven days without commencing plant shutdown if in Modes 1, 2, 3, or 4. If this Limiting Condition for Operation cannot be met, as in the case with two trains of VC/YC inoperable simultaneously in Modes 1, 2, 3, or 4, the provisions of Technical Specification 3.0.3 apply. This Technical Specification states that action shall be initiated within one hour to place the Unit in a Mode in which the specification does not apply.

The YC and the YJ (Computer Room Chilled Water) Systems obtain makeup from the Demineralized Water (YM) System. A self-contained regulating valve opens to allow YM makeup water from the YM Storage Tank (YMST) to fill the YC Compression Tank. This compression tank, located on the suction side of the chilled water pumps, serves to maintain pressure, and to provide a means of accommodating volume fluctuation of the YC System. If level in the compression tank is lost, low chilled water flow in the system will result, causing a trip of the YC chillers.

The level in the YMST is controlled by a transmitter, OYMLT5620, which is a Barton Model 273A Differential Pressure (DP) Transmitter. The high pressure head of the transmitter connected to the tank is responsive to a pressure equivalent to the head of liquid. The low pressure head is responsive to a pressure equivalent to that which is above the tank level. The DP is produced by the head of the water, and is directly proportional to the tank level.

A reservoir is mounted at the elevation of the top of the tank and connected to the high pressure connection of the transmitter. This pipe fills with water to the top of the level in the reservoir to establish a fixed (reference) pressure. The low pressure connection of the transmitter is connected to the lower connection of the tank. When the tank is empty, DP is maximum and electrical output is minimum. As level increases, DP across the transmitter decreases, therefore increasing electrical output. Therefore, as tank level decreases to the low level setpoint of OYMLT5620, an electrical signal is sent by the transmitter to start the YM makeup pumps and close valve 1YM230 (YMST Nitrogen Supply Valve). As tank level increases to the normal level setpoint of OYMLT5620, an electrical signal is sent by the transmitter to stop the YM makeup pumps and open valve 1YM230.

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

On April 9, 1985, at 1158 hours, B Train VC/YC was declared inoperable due to the failure of the filter unit preheater to energize during performance of Periodic Test PT/0/A/4450/08. At this time, Work Request 3268PRF was initiated to investigate and repair the problem. Also, the Action Statement of Technical Specification 3.7.6 was entered because of the inoperability of one Train of VC/YC in Mode 1.

At 0351 hours on April 12, 1985, the Control Room received a YC Chiller A trip alarm. A Nuclear Equipment Operator (NEO) was dispatched to the chiller to determine the cause of the trip. From the local alarm panel, the NEO determined that YC Chiller A had tripped on low chilled water flow. Upon a check of the YC Compression Tank, he found that the tank was almost empty, thus causing the low suction head to the YC Chiller Pump A. The Shift Supervisor was then informed as to the inoperability of A Train VC/YC System. At 0410 hours, Technical Specification 3.0.3 was entered due to the simultaneous inoperability of both trains of VC/YC.

Since YC Compression Tank A had lost level, the Shift Supervisor believed that valve 1YC72 (YN to YC Compression Tank A regulating valve) was not functioning properly. Therefore, YC Compression Tank A was filled through valve 1YC74 (YM to YC Compression Tank A regulating valve bypass), and the system was vented. At 0502 hours, A Train VC/YC was restarted and declared operable. Plant shutdown did not commence, however, since the simultaneous inoperability of VC/YC Trains was less than an hour in duration.

At 1210 hours on April 12, 1985, the Control Room received a YC Chiller A trip alarm. A NEO was dispatched to the chiller to determine the cause of the trip. The NEO determined that YC Chiller A had tripped on low chilled water flow, as YC Compression Tank A had lost level. After the Shift Supervisor and Unit Coordinator were informed of the problem, Technical Specification 3.0.3 was entered at 1235 hours due to simultaneous inoperability of VC/YC Trains. The Unit Coordinator decided to attempt to restore B Train VC/YC to operability. This was decided because the cause of the B Train filter unit preheater failure to energize was due to two blown fuses which provide primary power to the preheater control transformer. To expedite the replacement of the fuses, Work Request 3268PRF was upgraded to Priority 1.

At 1245 hours on April 12, 1985, a Computer Room high temperature alarm was received. Upon a subsequent investigation by a NEO, it was found that YJ Chiller A had tripped on low chilled water flow, as YJ Compression Tank A had lost level. Because the same set of circumstances existed for both VC/YC and VJ/YJ Systems, it was apparent that the YMST was not providing proper makeup to the YC and YJ Compression Tanks. When the Unit Coordinator arrived at the YMST at 1308 hours, he found that the reference leg of level transmitter OYMLT 5260 was drained. The drained reference leg gave the false indication that the YMST tank was full when it was actually empty. Therefore, the YMST makeup pumps did not start as required to fill the tank. The Unit Coordinator

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TEXT (If more space is required, use additional NRC Form 365A's) (17)

then failed the level transmitter low by disconnecting the transmitter low pressure tubing since manual control would not start the YMST makeup pumps as the pumps were sensing normal level. The YMST makeup pumps then started to fill the YMST.

While the problem with A Train VC/YC was investigated, the two blown fuses which provide primary power to the control transformer of the B Train filter unit preheater were replaced. The operability of the fuses was then verified per Section 12.2 of PT/O/A/4450/08. The fuses were blown following placement of a jumper which allowed the filter unit preheater to be continuously energized without the filter unit fan being in operation. An unsuccessful attempt was made to determine why this jumper had been installed. At 1325 hours, B Train VC/YC was restarted and declared operable. Plant shutdown did not commence, however, since simultaneous inoperability of both VC/YC trains was less than an hour in duration. As level was returned to the YMST, YJ Compression Tank A was filled and vented. The VJ/YJ System was subsequently restarted.

Work Request 156000PS was generated at 1330 hours to investigate and repair OYMLT 5260. By 1630 hours, technicians had refilled the reference leg of the level transmitter. YC Compression Tank A was filled and vented that afternoon, also. However, A Train VC/YC was not restarted and declared operable until April 13, 1985, at 0717 hours because PT/O/A/4450/08 was not completed on B Train VC/YC until that time.

This incident is classified as a Component Malfunction. The draining of the reference leg of OYMLT 5260 prevented makeup to the YMST. Therefore, with no water in the YMST, there was no makeup water available for the YC or YJ Systems. From the Work Request history for OYMLT 5260, it was found that the reference leg had drained twelve times previously. However, actual cause of the draining of the reference leg has not been determined.

When the first incident occurred, only YC Chiller A tripped. YJ Chiller A did not trip at that time because it apparently did not demand makeup water. When YC Chiller A was to be placed into service, at the end of the first incident, makeup water was available from the YMST, whereas, during the second incident, no makeup water was available. It is believed that during the first incident nitrogen entered the YC Compression Tank and eventually caused low YC chilled water flow. There was likely a low water level in the YMST, but enough to allow subsequent manual makeup to the YC Compression Tank, with a vent of the YC System prior to restart. Therefore, the Shift Supervisor was not aware of a problem in the YMST during the first incident.

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TEXT (If more space is required, use additional NRC Form 365A's) (17)

CORRECTIVE ACTION

1) 1ST INCIDENT AND 2ND INCIDENT

An investigation was conducted to determine the cause of YC Chiller A trip.

2) 1ST INCIDENT

- A. Manually made up to YC Compression Tank A.
- B. Vented A Train YC.
- C. A Train VC/YC started and declared operable.

3) 2ND INCIDENT

- A. Blown fuses for B Train filter unit preheater replaced and tested.
- B. B Train VC/YC started and declared operable.

4) A Station Problem Report will be initiated that will replace OYMLT 5260 with a float-type device (reference leg will not be utilized). Also, the option allowing complete manual control of the YMST makeup pumps will be installed.

SAFETY ANALYSIS

During the two incidents, simultaneous inoperability of VC/YC Trains were less than one hour. Because of prompt action, initiation of a plant shutdown was not required. If the one hour time limit had been exceeded, the unit would have been placed in a mode in which the applicable Technical Specification did not apply.

The health and safety of the public were not affected by this incident.

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VICE PRESIDENT
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May 10, 1985

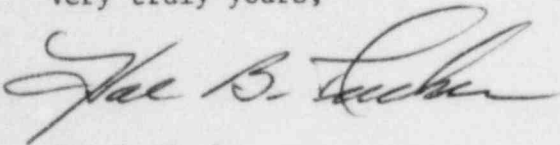
Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

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 413/85-24 concerning both trains of Control Room Ventilation being simultaneously inoperable. This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,



Hal B. Tucker

RWO:slb

Attachment

cc: Dr. J. Nelson Grace, Regional Administrator
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