

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 OF 0 4 PAGE (3)

TITLE (4) Auxiliary Feedwater Start On Loss Of Main Feedwater Pump Turbine Condenser Vacuum

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												
0	1	2	1	8	6	8	6	0	0	7	0	0	0	2	2	0	8	6	N/A		
									DOCKET NUMBER(S)												
									0 5 0 0 0 0												
									0 5 0 0 0 0												

OPERATING MODE (9) 2  
POWER LEVEL (10) 0.0

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

20.407(b)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	73.71(b)
20.408(a)(1)(i)	<input type="checkbox"/>	50.73(a)(2)(v)	73.71(c)
20.408(a)(1)(ii)	<input type="checkbox"/>	50.73(a)(2)(vi)	<input checked="" type="checkbox"/>
20.408(a)(1)(iii)	<input type="checkbox"/>	50.73(a)(2)(vii)	OTHER (Specify in Abstract Below and in Text, NRC Form 366A) 50.72(b)(2)(ii)
20.408(a)(1)(iv)	<input type="checkbox"/>	50.73(a)(2)(viii)(A)	
20.408(a)(1)(v)	<input type="checkbox"/>	50.73(a)(2)(viii)(B)	
20.408(a)(1)(vi)	<input type="checkbox"/>	50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Roger W. Ouellette, Associate Engineer - Licensing	710 14 317 13 1-17 15 13 10

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)  NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

On January 21, 1986, during unit startup, Main Feedwater Pump Turbine (CFPT) 1A tripped at 2226 hours and again at 2234 hours due to low vacuum in the CFPT 1A condenser. The CFPT trip resulted in an automatic start of Motor Driven Auxiliary Feedwater (CA) Pump 1B. Motor Driven CA Pump 1A was already in operation to support unit startup. The unit was in Mode 2, Unit Startup, at the time of this event.

This incident is assigned Cause Code X, Other, because the exact reason for low vacuum in the CFPT condenser has not been identified.

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

BACKGROUND

The Main Feedwater (CF) System (EIIS:SJ) supplies feedwater to the four steam generators at the temperature, pressure, and flow required to maintain proper steam generator water levels. Flow is provided to the steam generators by two 50% capacity, turbine driven feedwater pumps. Each CF Pump Turbine (CFPT) has an associated CFPT condenser which draws a vacuum on the pump turbine pulling the steam through the turbine. The condensate from the steam returns to the Main Condensate System (EIIS:SD). Cooling water for the CFPT condensers is supplied by the Condenser Circulating Water (RC) System (EIIS:SQ).

Motor Driven Auxiliary Feedwater (EIIS:BA) Pumps 1A and 1B are required to start automatically on loss of both CFPT's.

DESCRIPTION OF INCIDENT

At 2225 hours, on January 21, 1986, a low exhaust vacuum alarm was received in the Control Room for CFPT 1A, which had been started earlier in preparation for unit startup, following a unit trip on January 19, 1986 (see LER 413/86-06). Two more low vacuum alarms were received as vacuum decreased until the CFPT tripped at 2226 hours, initiating an auto start signal to the Motor Driven Auxiliary Feedwater (CA) Pumps. CA Pump 1B automatically started at this time. CA Pump 1A was already in operation per the unit startup procedure.

Personnel began to vent air from the condenser waterbox on CFPT 1A. At 2230 hours, vacuum had increased to 24.9 inches of mercury (in. Hg.), and at 2234 hours, CFPT 1A was restarted. Immediately, vacuum began decreasing and the CFPT tripped again. Personnel vented the condenser waterbox a second time and restarted CFPT 1A at 2235 hours.

CONCLUSION

This incident is assigned Cause Code X, Other, because the exact reason for loss of vacuum in the CFPT condenser has not been determined at this time.

The setpoint for a CFPT trip on low vacuum is at 17.5 in. Hg. decreasing. It has not been determined at this time what caused the low vacuum in the CFPT condenser. There have been problems in the past with the condenser waterboxes not being completely filled with cooling water. The main condensers are connected to the Vacuum Priming (ZP) System which uses vacuum pumps to remove air

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from the waterboxes. The CFPT condensers are not connected to the ZP System. In November 1984, a Nuclear Station Modification (NSM) was completed, installing automatic air release valves on the vents of the CFPT condenser water boxes. These valves, however do not always ensure a solid condition in the condenser. Other factors exist which may have contributed to the loss of vacuum in the CFPT condenser. The valve which regulates flow to this condenser does not modulate properly. A work request has been initiated to repair the controller, but the work cannot be done until the unit comes down for a refueling outage. Also, some drift eliminator material from the cooling towers in the RC System was found in the CFPT 1B condenser waterbox which would restrict flow through the condenser. CFPT 1A condenser will be checked during the next outage for the presence of drift eliminator material.

A turbine trip signal was also initiated by the loss of both CF Pumps, although the turbine was not in operation at this time.

The start of CA Pump 1B was not indicated on the Alarm Typer until 48 seconds after CFPT 1A tripped. The digital computer point for CA Pump 1B, D2466, has been giving erroneous time indications concerning CA Pump 1B starts and stops since June 1985. A Work Request was written on June 18, 1985, to investigate and repair this erroneous indication. This work request was completed on February 12, 1986, and should assure correct indications for CA Pump 1B.

No other incidents of this nature have been identified previously for Catawba Unit 1.

CORRECTIVE ACTION

- (1) Operations vented the CFPT 1A condenser waterbox and restored vacuum.
- (2) Operations restarted CFPT 1A.
- (3) Operations secured both Motor Driven CA Pumps.
- (4) An Inspection of the CFPT condensers will be performed at the next refueling outage for presence of debris on tubesheets.
- (5) The Work Request for the CFPT 1A condenser flow control valve is to be completed during the refueling outage.

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

SAFETY ANALYSIS

The loss of both Main Feedwater Pumps initiated an automatic start of the Motor Driven CA Pumps as designed. Steam generator levels were maintained throughout this event, and an adequate inventory of makeup was available to the CA pumps to maintain these levels. Adequate core heat removal capability was available at all times through the steam generators.

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

DUKE POWER COMPANY

P.O. BOX 33189

CHARLOTTE, N.C. 28242

HAL B. TUCKER  
VICE PRESIDENT  
NUCLEAR PRODUCTION

TELEPHONE  
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February 20, 1986

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 413/86-07 concerning an actuation of Auxiliary Feedwater due to the loss of the Main Feedwater Pump Turbine condenser vacuum. This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

*HB Tucker*

Hal B. Tucker

RWO:slb

Attachment

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Document Control Desk  
February 20, 1986  
Page Two

cc: Dr. J. Nelson Grace, Regional Administrator  
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