

LICENSEE EVENT REPORT (LER)

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

TITLE (4) **Boric Acid transfer pump failures due to improper valve lineup**

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	7	21	8	4	0	0	8	2	2	8	4	0 5 0 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 8: (Check one or more of the following) (11)

OPERATING MODE (9) 6	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.406(e)	<input type="checkbox"/> 80.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
POWER LEVEL (10) 0 0 0	<input type="checkbox"/> 20.406(a)(1)(i)	<input type="checkbox"/> 80.36(e)(1)	<input type="checkbox"/> 80.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
	<input type="checkbox"/> 20.406(a)(1)(ii)	<input type="checkbox"/> 80.36(c)(2)	<input checked="" type="checkbox"/> 80.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)
	<input type="checkbox"/> 20.406(a)(1)(iii)	<input type="checkbox"/> 80.73(a)(2)(i)	<input type="checkbox"/> 80.73(a)(2)(viii)(A)	
	<input type="checkbox"/> 20.406(a)(1)(iv)	<input type="checkbox"/> 80.73(a)(2)(ii)	<input type="checkbox"/> 80.73(a)(2)(viii)(B)	
	<input type="checkbox"/> 20.406(a)(1)(v)	<input type="checkbox"/> 80.73(a)(2)(iii)	<input type="checkbox"/> 80.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Roger W. Ouellette Assistant Engineer - Licensing	7 0 4 3 7 3 1 7 5 3 0
AREA CODE	

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
A	C	B	P	C 6 6 15	N				

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)

ABSTRACT: On July 22, 1984, at 2345 hours, it was discovered that Boric Acid Transfer Pumps 1A and 1B were damaged and inoperable due to extended operation without a suction or discharge flow path. The lack of process flow eliminated the pump's ability for self-cooling. Boric Acid Transfer (B/A XFER) Pumps 1A and 1B were operated separately for approximately six hours and two and one-half hours, respectively, with the suction and discharge valves closed. Upon discovery of the overheating of B/A XFER Pump 1B (by scent of burning insulation), the pump was secured, the valve alignment for recirculation of the Boric Acid Tank (BAT) was re-verified, and unsuccessful attempts were made to restart the pumps. (Pump 1A had already run and was secured manually without knowledge of the damage).

Catawba Unit 1 was in Mode 6 - Initial Fueling - at the time of this incident. The first fuel assembly was lowered into the reactor vessel on July 19, 1984.

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TEXT (If more space is required, use additional NRC Form 368A's) (17)

TEXT: The Boric Acid Transfer (B/A XFER) Pumps are used in the automatic mode for Reactor Coolant System Makeup, Boration, and Makeup to the Volume Control Tank. Manually the pumps are used for boric acid transfer from the Boric Acid Batching Tank (BABT) to the Boric Acid Tank (BAT), and recirculation of the BAT. Concerning this incident, plant personnel had requested a 12-hour recirculation of the BAT in preparation for a chemistry sample to be taken. Steps for BAT recirculation requires verification of the associated valve checklist (by sign-off's and applicable Removal and Restoration Records R&R's) and the manual starting of a B/A XFER Pump (1A and 1B). When Pump 1A was started on 7-22-84, there were no existing R&R's on the Boric Acid Sub-system of the Chemical and Volume Control (NV) System.

Five days prior to recirculating the BAT, on 7-17-84, (prior to fuel loading), construction personnel were granted approval to begin work on several Shutdown Requests to implement a work request. The work involved the replacement of 4-way pneumatic solenoid valves with 4-way manual valves for several NV System control valves.

Construction personnel were instructed to leave the valves in the "as-found" position. They were to report their progress at the end of each working day until the work was complete. The work on these particular valves was not reported as being complete anytime before the pumps were run on 7-22-84. It is not known how the above valves became closed.

B/A XFER Pump 1A was started in order to recirculate the BAT. The control switches for the pumps are located in the Control Room. The only other indication in the Control Room associated with these pumps are digital computer points. Locally, outside the B/A XFER Pump room, are suction and discharge pressure gauges and a recirculation flow gauge. These gauges were not observed during the 6-hour run of Pump 1A. The pump was secured without knowledge of the closed suction and discharge valves.

A restart attempt was made approximately 10½ hours later. The pump ran for 48 seconds and tripped on thermal overload. An immediate investigation was focussed on possible problems with the breaker. Since there was no R&R for the previously described valve work, the possibility of a valve misalignment was not considered. B/A XFER Pump 1B was started to continue the 12-hour recirculation of the BAT. It ran for approximately 2¼ hours, at which time the overheating of the pump was detected. The pump was immediately secured. It was discovered that the suction and discharge valves were closed. It was then realized that the closed valves had been worked on five days earlier. Several unsuccessful attempts to start both pumps were made, all resulting in trip due to thermal overload.

The B/A XFER Pumps used at Catawba are manufactured by the Crane Company, Chempump Division, Series G, Model GVH-10K. Crane Chempumps are of the "canned rotor" type. A small portion of the pumped fluid is allowed to recirculate through the rotor cavity to cool the motor and lubricate the bearings. Since a certain amount of water was contained between the suction and discharge valves, the ceramic-type bearings received their lubrication. However, the excessive temperature generated in the trapped water prevented the sealed rotor windings from receiving adequate cooling.

For the remainder of the valves to have solenoid valves replaced with manual valves an R&R will be issued to cover each valve being worked and any component which relies on these valves for proper operation. A procedure change will be made to locally verify proper pressures and flow for B/A XFER Pump starts. A summary of this incident will be reviewed with all Operations Shift personnel. This incident was not of safety

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

significance in that the Refueling Water Storage Tank remained available as a source of borated water.

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

DUKE POWER COMPANY

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VICE PRESIDENT
NUCLEAR PRODUCTION

TELEPHONE
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August 22, 1984

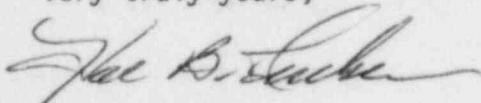
Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Subject: Catawba Nuclear Station, Unit 1
Docket Nos. 50-413

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a) (1) and (d), attached is Licensee Event Report 413/84-01 concerning Boric Acid Transfer Pump failures due to improper valve lineups. 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:mjf

Attachment

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