

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 1 3
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TITLE (4)
Failure to Monitor Boron Concentration

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 8	2 7	8 4	8 4	0 1 0 9	0 1 0	0 9	2 6	8 4			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)									
5		20.402(b)	20.406(a)(1)(i)		20.406(c)	50.36(e)(1)		50.73(a)(2)(iv)		73.71(b)	
POWER LEVEL (10)		20.406(a)(1)(ii)	20.406(a)(1)(iii)		50.36(e)(2)	50.73(a)(2)(i)		50.73(a)(2)(v)		73.71(c)	
0 0 0		20.406(a)(1)(iv)	20.406(a)(1)(v)		50.73(a)(2)(ii)	50.73(a)(2)(ii)		50.73(a)(2)(vii)		<input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 366A)	
		20.406(a)(1)(v)			50.73(a)(2)(iii)	50.73(a)(2)(iii)		50.73(a)(2)(viii)(A)			
					50.73(a)(2)(iii)	50.73(a)(2)(iii)		50.73(a)(2)(viii)(B)			

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Roger W. Quellette, Assistant Engineer - Licensing	7 1 0 1 4 3 1 7 1 3 1 - 1 7 1 5 1 3 1 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)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

To satisfy condition eleven specified in the Catawba Facility Operating License NPF-24, Boron Concentration of the Reactor Coolant must be monitored hourly while in Modes 3, 4 and 5. Prior to the incident of this investigation, the Residual Heat Removal (ND) System Train A was in service, and the Primary Sampling (NM) system was being used to obtain samples from the ND System.

When Chemistry attempted to obtain a sample at 2330 hours (8-27-84) from the ND System, sample flow was not obtained. Chemistry was instructed to obtain samples from the Reactor Coolant (NC) System Loop C. Two hourly samples were missed before sampling began on Loop C. After five (5) hourly samples were obtained from Loop C, it was discovered that these samples were being obtained from a non-circulating leg of the NC System piping and were therefore not representative of the reactor coolant.

Catawba Unit 1 was in Mode 5 (Cold Shutdown) at the time of the incident.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR 8 4	SEQUENTIAL NUMBER - 0 0 9	REVISION NUMBER - 0 0 0			

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

In Facility Operating License NPF-24, License Condition 11 requires that Boron Concentration of the Reactor Coolant be monitored hourly and maintained at a level such that criticality may not be achieved even with all control rods fully withdrawn. The purpose of this is to prevent an inadvertent boron dilution accident.

Operations procedure PT/1/A/4150/25, Boron Concentration Verification, states that boron concentration will be sampled and recorded hourly. The concentration is normally monitored from the Control Room by computer, chart recorder, or digital readout on the Boronmeter, which provides input for all of these monitoring devices. Calibration of the Boronmeter had not been verified at the time of this incident and therefore was not operable for the hourly samples. Because of this, samples were required to be manually obtained.

The Residual Heat Removal (ND) System Train A was in operation to recirculate the Reactor Coolant Loops. The Chemical and Volume Control (NV) System was not operating so no charging or letdown was taking place. A Nuclear Sampling System (NM) sample line off the discharge of the ND Heat Exchanger was being used to sample Boron Concentration on the night of 8-27-84. Reactor Coolant Samples were successfully obtained and analyzed up until 2330 hours. At this time no flow was obtained from the NM Sample line from the ND System. The cause of no sample flow was possible failure of valve 1NM39. A work request was written to investigate and repair this valve.

It was determined that NC System Loop C would be a suitable sampling location. The Nuclear Control Operator (NCO) did not realize at the time, that with ND discharging into Loops C and D cold legs, and the NM sample line coming from the hot leg, the samples drawn from this location would not be representative of reactor coolant but would be from a non-circulation leg of the Reactor Coolant System (NC). The NCO instructed Chemistry to obtain samples at Loop C. Chemistry started a sample line purge at this location, and then turned over to the next shift. Because of the Chemistry shift turnover, establishing communications with Operations and time required for sample line purge, it was 0100 hours before the first Loop C sample was obtained. Therefore the 2300 hours and 0000 hours samples had been missed.

Reactor coolant samples were obtained hourly at Loop C from 0100 hours until 0500 hours. Various system evolutions were taking place during this time period. The NV System was isolated from the NC System. Centrifugal Charging Pump 1A was operating to circulate the contents of the Volume Control Tank (VCT), and boric acid had been added to the VCT to raise boron concentration to above that of the NC System. At 0337 hours Operations established charging and letdown flow to maintain seal flow to the NC Pumps. At 0545 hours, the Shift Supervisor recognized that the hot leg sample from Loop C was not a representative sample, and requested that sampling be changed to the Volume Control Tank (VCT). Samples were therefore obtained at the VCT from 0600 hours until 1100 hours, and NV letdown from 1100 hours until 1500 hours. At 1500 hours NM valves associated with the loss of flow were re-cycled, lines flushed and flow obtained at the sample sink. Sampling was then returned to this location.

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

CORRECTIVE ACTION

The sampling location was changed to the Volume Control Tank as soon as it was realized that the NC sampling was not representative.

A work request was written to investigate and repair valve 1NM39.

The Primary Sampling Procedure OP/O/A/6200/11 will be revised to allow and instruct personnel to sample at a drain or vent should normal sample flow be lost.

This incident will be reviewed with shift personnel. It will be emphasized that hourly sampling is a condition of the Operating License and that when sampling problems arise they should thoroughly investigate and give guidance to obtain representative samples.

SAFETY ANALYSIS

No danger existed for a boron dilution incident during the time when no representative sample was taken. Boron concentration did not go below 2000 PPM either before or after the incident.

The health and safety of the public was not affected throughout this incident.

DUKE POWER COMPANY

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VICE PRESIDENT
NUCLEAR PRODUCTION

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September 26, 1984

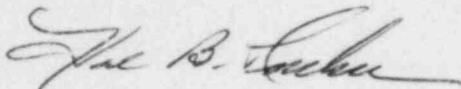
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U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

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

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a) (1) and (d), attached is Licensee Event Report 413/84-09 concerning failure to monitor boron concentration. 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: Mr. James P. O'Reilly, Regional Administrator
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NRC Resident Inspector
Catawba Nuclear Station

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September 26, 1984
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