

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Catawba Nuclear Station, Unit 1	050004113	1 OF 4

TITLE (4)

Swapover of Nuclear Service Water to Assured Source Due to Defective Procedure

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)
06	19	86	86	033	00	07	18	86	Catawba, Unit 2		050004114
											050000

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
4		20.402(b)		20.405(e)		☒ 50.73(a)(2)(iv)		73.71(b)			
POWER LEVEL (10)		20.405(a)(1)(i)		50.36(e)(1)		☐ 50.73(a)(2)(v)		73.71(e)			
01010		20.405(a)(1)(ii)		50.36(e)(2)		☐ 50.73(a)(2)(vii)		☒ OTHER (Specify in Abstract below and in Text, NRC Form 365A)			
		20.405(a)(1)(iii)		50.73(a)(2)(i)		☐ 50.73(a)(2)(viii)(A)		50.72(b)(2)(ii)			
		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)(ix)					

LICENSEE CONTACT FOR THIS LER (12)								TELEPHONE NUMBER			
NAME								AREA CODE			
Roger W. Ouellette, Associate Engineer - Licensing								71014317131-17151310			

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)									
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS
X	BH	1 LTR	121910	YES					

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
☐ YES (If yes, complete EXPECTED SUBMISSION DATE)				☒ NO				

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

On June 19, 1986, at 2158 hours, the Nuclear Service Water (RN) System automatically aligned to the Standby Nuclear Service Water Pond (SNSWP). Personnel were replacing a defective level transmitter in RN Pump Pit A. When a jumper was removed from the transmitter's output relay, the system automatically aligned to the SNSWP and the two standby RN pumps started automatically. The pumps were secured and the test personnel were notified of the swapover. While investigating the cause of the automatic actuation, the two standby RN pumps automatically started again when the jumper was reinstalled on the transmitter's output relay. The unit was in Mode 4, Hot Shutdown, at the time of the incident.

This incident is assigned Cause Code D, Defective Procedure, because the procedure used to replace the RN Pump Pit A level transmitter did not give adequate instructions concerning the method of using jumpers on the transmitter's output relay.

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

FACILITY NAME (1) Catawba Nuclear Station, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 1 3 8 6	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 6	0 3 3	0 0	0 2	OF 0 4

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

BACKGROUND

The Nuclear Service Water (RN) System (EIIS:BI) is a raw water cooling system which serves as the ultimate heat sink for essential and non-essential primary loads, as assured source of suction for the Auxiliary Feedwater System (EIIS:BA), and as assured source of cooling for heat loads served by the Containment Chilled Water System. The RN Pumps normally take suction from Lake Wylie via the RN Pumphouse Pits and discharge back to the lake via the Low Pressure Service (RL) System (EIIS:KQ). In the RN Pumphouse, there are two separate suction pits from which the two independent and redundant trains of RN are supplied. Each Train includes two RN Pumps, with one pump being capable of supplying Unit 1 and Unit 2 with ample cooling during normal operation, and with one pump per unit required to supply ample cooling in emergency conditions.

When an emergency low level is initiated in either Pit A or B, the following functions will automatically occur:

- (1) All four RN Pumps start.
- (2) Closure of RN Pump seal injection water crossover valve (to provide supply channel isolation).
- (3) The RN Pumphouse Intake Pits are isolated from the lake and aligned to take suction from the Standby Nuclear Service Water Pond (SNSWP).
- (4) The normal RN discharge through the RL System is isolated and the RN System is aligned to discharge to the SNSWP.
- (5) RN supply headers A and B are isolated into two separate headers, and the RN non-essential supply header is isolated.
- (6) RN discharge headers A and B are isolated into two separate headers, and the RN non-essential discharge header is isolated.
- (7) The Diesel Generator cooling water returns to the lake are closed, and the returns to the SNSWP are opened.

DESCRIPTION OF INCIDENT

On June 19, 1986, at 0740 hours, the Unit 1 level transmitter, 1RNLT7400, for RN Pump Pit A, was declared inoperable. The Control Room indication for 1RNLT7400 was indicating abnormally high. A work request was issued to investigate and repair the cause of 1RNLT7400 indicating high. At approximately 1330 hours, personnel began investigating the high level indication. The level transmitter was discovered to be defective, and was replaced. While removing a blocking jumper from the output relay, which sends a signal to transfer suction and discharge from Lake Wylie to the SNSWP, a transfer immediately occurred. The two dormant RN pumps, 1B and 2A, also started. The test personnel were informed that an automatic transfer had occurred, and they began investigating the cause of the transfer. At 2300 hours, RN pumps 1B and 2A were secured, but RN was still aligned to the SNSWP until the investigation of the level transmitter was to be completed. It was discovered that the cable that connects the level transmitter with the probe in RN Pit A had failed, and this was the reason that the transfer had occurred when the output blocking jumper was removed.

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Catawba Nuclear Station, Unit 1	0500041386	-	033	-	00	03 OF 04

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

In preparation to replace the probe cable, the output blocking jumper was placed on the output relay again. When the second alligator clip was attached to the terminal, contact was made and broken while the clip was being secured. The relay immediately initiated a signal for the RN transfer, and RN pumps 1B and 2A started automatically. The test personnel were informed that the RN pumps had started, and work on the RN level controls was suspended. At 0304 hours, on June 20, 1986, RN pumps 1B and 2A were secured. At 0435 hours, RN suction and discharge was transferred from the SNSWP to the lake. At 0700 hours, the probe cable was started to be replaced. When the cable was replaced, the output indication from the transmitter was checked before removing the output blocking jumper. The output indicated lower than expected. It was then determined that the new level transmitter was also defective. Another new transmitter was installed, and the output indicated as expected. The Work Request was completed, and 1RNLT7400 was declared operable at 1345 hours, on June 20, 1986.

CONCLUSION

This incident is assigned Cause Code D, Defective Procedure. After the incident, staff personnel reviewed the procedure to troubleshoot and repair the RN Pit Level instrumentation, IP/0/A/3112/01, and added a note in the calibration checklist to verify Control Room indication within acceptable range before removing the blocking jumper from the output relay to the automatic transfer controls. In this incident, the indication was not verified before removing the output blocking jumper. Therefore when the jumper was removed, the relay saw a current less than the low level setpoint current of 6.59 ma, because of the defective cable and level transmitter. IP/0/A/3112/01 also failed to inform personnel performing repairs on the RN level transmitters that if the transmitter was failed low, placing a jumper across the output relay could cause a SNSWP transfer. If the jumper connection is not made on the initial try, the output relay will see an open contact, and initiate an automatic RN transfer to the SNSWP.

The RN transfer occurs on a one out of four signal from any of the pit level transmitters. A design change will be requested in order to make the system less susceptible to spurious transfers while pit level instrumentation is being repaired.

The failed level transmitter was manufactured by Robertshaw Controls, Model number 158-B2-B1. There have been 5 reported failures of this model transmitter reported to NPRDS. This failure is also reportable to NPRDS.

There has been one previous incident where an RN transfer occurred due to the use of jumpers (see LER 413/86-24).

CORRECTIVE ACTION

- (1) A note was added to procedure IP/0/A/3112/01, Nuclear Service Water Pit Level Transmitters, informing test personnel to verify output indication before removing output blocking jumpers.

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

DUKE POWER COMPANY

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HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

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July 18, 1986

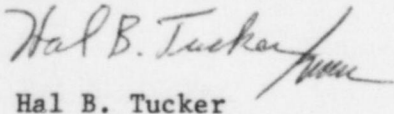
Document Control Desk
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Washington, D. C. 20555

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 413/86-33 concerning an automatic alignment of the Nuclear Service Water System to the Standby Nuclear Service Water Pond due to a defective procedure. 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/05/slb

Attachment

xc: Dr. J. Nelson Grace, Regional Administrator
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NRC Resident Inspector
Catawba Nuclear Station

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