NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

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

TITLE (4)

Swap of Nuclear Service Water to Standby Pond Due to Personnel Error

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 5	1 2	8 5	8 5	— 0 3 2	— 0 0	0 6	1 2	8 5	Catawba, Unit 2	0 5 0 0 0 4 1 4
										0 5 0 0 0

OPERATING MODE (9)	5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0	20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	X OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		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)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Roger W. Ouellette, Assistant Engineer - Licensing	7 0 4 3 7 8 - 7 5 3 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)

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

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

On May 12, 1985, at 2035:42 hours, the Nuclear Service Water System (RN) automatically swapped to the Standby Nuclear Service Water Pond (SNSWP) and all idle RN pumps started due to a false low-low level signal in RN pumphouse Pit B. The false low-low level was caused by a loss of voltage on one of the RN swapover circuits. A Nuclear Equipment Operator (NEO) was returning motor control center 2MXM from its alternate power source to its normal power source, and used a dead bus transfer instead of the required hot bus transfer. Therefore, all loads fed by 2MXM were de-energized for a short time, including RN pit B swapover circuitry. At the time of the incident, Unit 1 was in Mode 5 (Cold Shutdown), and Unit 2 was in the construction phase. Because a procedure was not utilized when transferring 2MXM from its alternate to its normal power source, this incident has been classified as a Personnel Error.

Recovery from the incident began when the NEO returned normal power to 2MXM restoring power to RN pit B swapover circuitry. The RN pumps not needed to support plant operation were subsequently shutdown and the RN pump suction and discharge was realigned to Lake Wylie.

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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The Nuclear Service Water (RN) System 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, 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 Water (RL) System. In the 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 a low-low level signal is initiated in either pit A or B, the following functions will automatically occur:

1) All idle RN pumps start.
2) RN pump seal injection water crossover closes (to provide 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.

The Unit 1 and Unit 2 (1(2)) RN pit low-low level circuitry is fed from 120VAC Vital Instrument and Control Panelboards. These are 1(2)ERPA for RN pit A low-low level and 1(2)ERPD for RN pit B low-low level. The vital panelboards are normally supplied from their associated inverter. In the event there is a problem with an associated inverter, a panel board may be supplied 120VAC power from regulated distribution center 1(2)VRD. Load center 1(2)LXG supplies power to motor control center 1(2)MXM, which in turn supplies power to 1(2)VRD.

If there is a need to supply motor control centers fed from load center 1(2)LXG from another source, Procedure OP/1(2)/A/6350/05 (Alternate AC Power Sources) is utilized. In this procedure, instructions are given to swap motor control centers fed from Unit Load Centers such as 1(2)LXG to and from their alternate sources using a hot bus transfer,, i.e., the normal and alternate busses are momentarily paralleled. Also, in the procedure, the method to swap motor control centers fed from shared and blackout load centers is given. These are swapped to and from their alternate sources using a dead bus transfer, i.e., the motor control center is de-energized until another power source is connected.

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

On April 7, 1985, at 0600 hours, a Nuclear Equipment Operator (NEO) on rounds noticed that inverter 2EID's low output voltage light was actuated. After obtaining clearance from the Shift Supervisor, the NEO swapped panelboard 2ERPD to feed from regulated distribution center 2VRD.

Between 2130 hours on May 10, 1985, and 0030 hours on May 11, 1985, Unit 2 B Train electrical busses were being aligned to their alternate sources to allow various work activities to be performed. Included in this alignment was the swap of motor control center 2MXM to its alternate power source, 2LXB. This was done via a normal hot bus transfer.

Following completion of the work on the B Train electrical busses, all busses were to be aligned in order to be powered from their normal source. For example, motor control centers fed from load center 2BLXD were swapped to their normal source using a normal dead bus transfer. When a NEO began to align 2MXM back to its normal power source on May 12, 1985, at 2035:42 hours, a dead bus transfer was used, instead of a hot bus transfer as required by Procedure OP/2/A/6350/05. Therefore, 2MXM was de-energized from 2035:42 to 2037:27 hours; a total of one minute and forty three seconds. Because of this loss of voltage to 2MXM, 2VRD and 2ERPD sensed undervoltage (see Enclosure).

RN pit B low-low level circuitry, fed from 2ERPD, falsely sensed a low-low pit B level due to the undervoltage. This caused all the idle RN pumps to start (with the exception of RN pump 2B, as B train essential bus was de-energized), and the suction and discharge of the RN System to align to the SNSWP. All other valves affected by the swapover circuitry also realigned.

Recovery from the incident was begun at 2039:20 hours when RN Pumps 1B and 2A were shutdown. From 2039:43 to 2043:19 hours, the RN valves affected by the swapover were manually realigned to Lake Wylie.

To prevent the de-energization of panelboard 2ERPD from an unexpected loss of voltage on the normal power system, distribution center 2EDD was aligned to feed from the spare charger, 2ECS. At this time, the low output voltage light cleared on 2EID. Panelboard 2ERPD was subsequently swapped from 2VRD to feed from its normal source 2EID at 2254:16 hours.

This incident has been classified as a Personnel Error. The NEO who swapped 2MXM from its alternate power source to its normal power source failed to use a procedure to perform the task. The NEO had performed several dead bus transfers on a shared bus which led him to assume that the swapping of motor control centers to and from load center 2LXG was the same type of transfer. If the procedure for this job was used and followed as required, this incident would not have occurred.

CORRECTIVE ACTION

1. Motor control center 2MXM was swapped to its normal power source to restore power to the RN pit B low-low level circuitry.

2. RN pumps not needed to support plant operation were shutdown.

3. All valves affected by the swapover from the lake to the SNSWP were realigned.

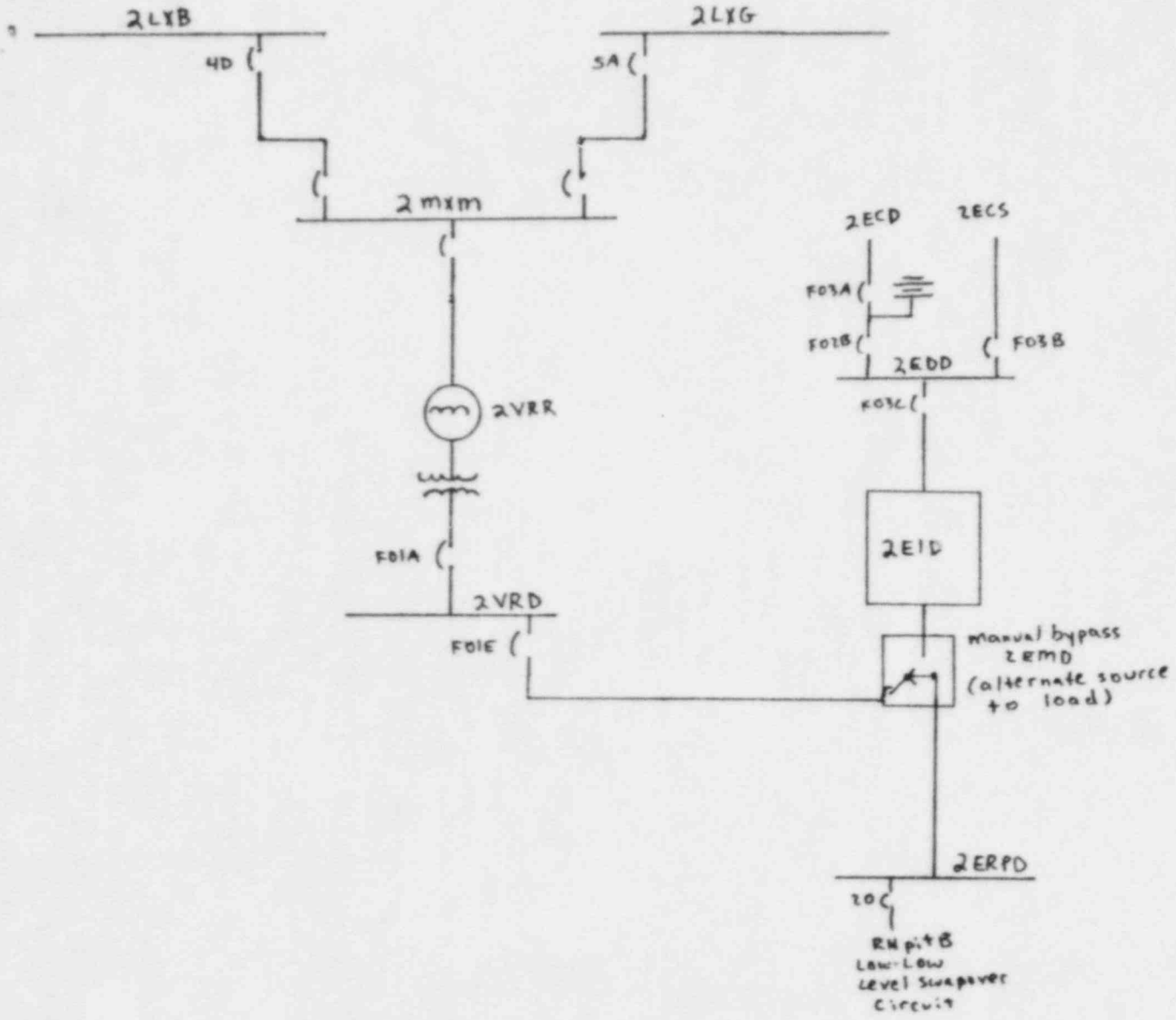
4. 2ERPD panelboard was swapped from 2VRD to feed from its normal source, inverter 2EID.

5. This incident will be discussed with the personnel involved.

SAFETY ANALYSIS

Upon receipt of the RN pit B low-low level signal, all idle RN pumps started (with the exception of RN pump 2B as B train essential bus was de-energized), and automatic repositioning of valves occurred which allowed the RN pumps to take suction from and discharge to its assured source. The system functioned as designed in this capacity. However, since the low-low pit level signal was spurious, there was never an actual need for the extra cooling capacity supplied by the RN pumps that automatically started, or the swap of the pumps' suction to the SNSWP.

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


2LXB
2LXG
4D
5A
2mxm
2ECD
2ECS
F03A
F02B
F03B
2EDD
F03C
2VRR
2EID
F01A
2VRD
F01E
manual bypass
2EMD
(alternate source
to load)
2ERPD
20
RM pit B
Low-Low
Level swapover
Circuit

ENCLOSURE

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June 12, 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 413/85-32 concerning a swapover of Nuclear Service Water from the Lake to the Standby Pond due to personnel error. This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

H.B. Tucker /BH

Hal B. Tucker

RWO:slb

Attachment

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