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DUKE POWER

April 15, 1992

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

Subject: Catawba Nuclear Station
Docket No. 50-413
LER 413/92-003

Gentlemen:

Attached is Licensee Event Report 413/92-003 concerning TECHNICAL SPECIFICATION 3.0.3 ENTERED FOR BOTH UNITS DUE TO THREE RN PUMPS BEING INOPERABLE.

This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

W. R. McCollum, Jr.
Station Manager

/djp

Attachment

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NRC FORM 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-630), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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

TITLE (4)
TECHNICAL SPECIFICATION 3.0.3 ENTERED FOR BOTH UNITS DUE TO THREE RN PUMPS BEING INOPERABLE

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 3	1 6	9 2	9 2	— 0 0 3	— 0 0	0 4	1 5	9 2	CATAWBA, UNIT 2	0 5 0 0 0 4 1 4
										0 5 0 0 0

OPERATING MODE (9): 1
POWER LEVEL (10): 1 0 0

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

20.402(b)	20.405(c)	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)	X 50.73(a)(2)(vii)	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)	
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	TELEPHONE NUMBER
Robert Futrell, Compliance Manager	8 0 3	8 3 1 1 - 1 3 6 1 5

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	
				N							

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 March 16, 1992, at approximately 2230 hours, with Units 1 and 2 at 100% power in Mode 1, Power Operation, Operations personnel began tagging Nuclear Service Water (RN) System, B Train, in preparation for various work activities. During the isolation, valves 1 and 2RN-47A, RN crossover isolation valves, were closed as intended, but no minimum flow path was established for the operating 2A RN pump. The pump ran for approximately 40 minutes in this low flow condition. Upon discovery of this alignment, the Unit 2 Operator at the Controls (OATC) immediately opened NS HX 2A inlet and outlet isolation valves, and instructed the Unit 1 OATC to open NS HX 1A inlet and outlet isolation valves. Flow increased to approximately 10,000 GPM. RN pump 2A was conservatively declared inoperable pending testing to confirm that no damage had occurred. With three RN pumps inoperable both units entered Technical Specification 3.0.3 at 0345 hours. RN Train B was returned to service per procedure OP/0/A/6400/06C, Nuclear Service Water, enclosure 4.15. Both units exited 3.0.3 at 0855 hours on March 17, 1992. Corrective actions include evaluation of the need for procedure changes and shift briefings that include all shift personnel on both units. This incident is attributed to management deficiencies due to less than adequate written and verbal guidance.

APPROVED OMB NO. 3150-0104
EXPIRES 4/30/92
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Catawba Nuclear Station, Unit 1	0 5 0 0 0 4 1 3	9 2	— 0 0 3	— 0 0	0 2 OF 0 6

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

BACKGROUND

The Nuclear Service Water [EIIS:BI] (RN) System serves as the ultimate heat sink in providing the station with a nuclear safety related cooling system. Most of the heat loads are cooled directly by heat transfer to the once-through river water. Those heat exchangers [EIIS:HX] in which a tube leak could allow radioactive fluid to enter the cooling water are cooled through the closed loop Component Cooling [EIIS:CC] (KC) System. Heat is then transferred to RN via the KC heat exchangers. The one exception is the Containment Spray [EIIS:BE] (NS) System Heat Exchangers, which returns are monitored for radioactivity before returning to the RN discharge line.

The RN system is shared between the two units and consists of fully redundant A and B trains. Each train includes a Unit 1 and a Unit 2 pump, 4 pumps in total.

Technical Specification (T/S) 3.7.4 requires that at least two independent RN loops shall be operable.

a) With both Units in Mode 1, Power Operation, Mode 2, Startup, Mode 3, Hot Standby, or Mode 4, Hot Shutdown, each loop shall contain two operable RN pumps and associated emergency diesel generators, two essential equipment supply and return headers, and a supply and discharge flow path capable of being aligned to the Standby Nuclear Service Water Pond (SNSWP).

Technical Specification 3.0.3 is required to be entered when the Unit is operating in a condition not permitted by Technical Specifications. This condition exists when a Limiting Condition for Operation is not met except as provided in the associated Action Requirements. It requires that within one hour action shall be initiated to place the Unit in a Mode in which the specification does not apply by placing it, as applicable, in:

a) At least Hot Standby in the next 6 hours,

b) At least Hot Shutdown within the following 6 hours, and

c) At least Cold Shutdown within the subsequent 24 hours.

The Catawba Nuclear Station T/S 3.0.3 interpretation states that the purpose of the one hour is to allow for preparation of an orderly shutdown before initiating a change in plant operation. It further states that if the equipment problem can be resolved within three hours, no load reduction is necessary. The remaining four hours leaves sufficient time to shutdown in a controlled and orderly manner, and well within the specified maximum cooldown rate and within the cooldown capabilities of the facility assuming only the minimum required equipment is operable. The Compliance Duty Engineer (or

alternate) is to be notified about the situation such that he will understand why T/S 3.0.3 was entered and power was not reduced, so the NRC Resident Inspectors can be informed of the situation. This discussion with the Compliance Duty Engineer is in addition to the normal discussions with the Station Manager/Duty Station Manager.

EVENT DESCRIPTION

On March 12, 1992, Operations personnel began the process of planning the block tagout and draining of the RN B Train supply to the 1B KC heat exchanger. Block tagout 02-556 was reviewed by the Senior Reactor Operator (SRO) for the shift that was to perform the tagout. This particular evolution has rarely been performed with both units at power. Three different work documents were utilized to perform this evolution: Worklists, RN block tagout, and a Tailgate Briefing package.

On March 16, 1992 Unit 1 and 2 work lists were issued for the RN tagout and drain evolution. These work lists provided direction for the RN tagout/drain process. The Unit 1 work list also contained a caution statement emphasizing the need to align the A Train NS Heat Exchanger to provide minimum flow protection for the A Train RN pumps. However, the Unit 2 work list did not contain this caution.

After the work lists were issued, the Unit 1 SRO briefed the Unit 1 Operator At The Controls (OATC) on the tagout/drain evolution. A tailgate meeting was then held involving only the Shift Supervisor, Control Room SRO, Unit 1 SRO and an extra RO. The majority of personnel to be involved in the evolution were not in attendance.

On March 16 at 2230 hours, the RN tagout/drain evolution was initiated. The Shift Supervisor and Control Room SRO began the complex task of processing paperwork and making Technical Specification Action Item Logbook (TSAIL) entries for inoperable RN B Train and associated equipment. Control Room and plant tagout teams began the process of isolating and draining RN B Train.

Operations Management Procedure (OMP) 1-8 specifies that the primary duty of the Control Room SRO is to provide guidance to the Control Room operators during this evolution. However, the Control Room SRO was not involved with the Control Room Tagout/drain process due to the large amount of TSAIL entries.

On March 17 at 0050 hours, the extra RO closed the RN train A crossover valves [EIIS:V] (1RN-47A and 2RN-47A) in sequence per the specified tagout. At 0053 hours the Pump 2A Hi RN Discharge Pressure computer alarm was received. The RN Train B Low Pressure and Train A Low Flow annunciators also came into

alarm. The Train B Low Pressure alarm was expected and the Train A Low Flow had been alarming spuriously.

The Control Room RO's did not respond to the RN computer/annunciator alarms due to their expectation of nuisance alarms normally received during similar evolutions.

At 0135 hours, the Unit 2 OATC noticed 2A flow indicating zero GPM flow and immediately aligned it for minimum flow through the NS Heat Exchanger 2A. He then informed the Unit 1 operator to align the flow path through NS Heat Exchanger A. This alignment was then performed. The 2A RN pump was run for approximately 40 minutes with minimum flow below specified values.

Control Room Operators then advised Shift Supervision of the RN situation.

RN Pump 2A was conservatively declared inoperable pending successful completion of testing to confirm that no damage had occurred. Train B RN had been rendered inoperable by the drain. Although technically inoperable, RN Pump 2A continued to run with adequate minimum flow; hence, RN flow was never actually lost. Having three RN pumps inoperable placed both units outside the Technical Specification action statement requirements.

Technical Specification 3.0.3 was entered into TSAIL at 0345 hours for both units by the Control Room SRO.

Operations entered OP/0/A/6400/06C, Nuclear Service Water, enclosure 4.15 for guidance in restoring RN 'B Train' to service. RN pump 2A was subsequently shut down to allow for testing.

Both units exited T/S 3.0.3 at 0855 hours, March 17, 1992.

On March 17, 1992, at approximately 2300, RN Pump 2A was successfully tested with no damage evident.

CONCLUSION

This incident is attributable to three causal factors. A Management Deficiency existed due to the lack of a task specific procedure. During draining of RN B Train the RN A Train crossover isolation valves 1,2RN-47A were closed as required. With these valves closed minimum flow protection was lost for the operating A Train pump. Procedure OP/0/A/6400/06C did not include adequate guidance to ensure the mini flow protection for the operating A Train pump. In the absence of a task specific procedure, three different work documents were used to perform this evolution. The Unit 1 worklist contained a caution statement, the Unit 2 worklist did not. The Operations

procedure group is evaluating the need to develop a procedure to perform this evolution.

This incident is assigned two contributing causes of Management Deficiency, less than adequate verbal instructions and insufficient supervision. The Shift Supervisor did not communicate the complete work package with all shift personnel, thus the information available to shift was in several fragments. Shift briefings for major work activities will now include all shift personnel. In addition, less than adequate supervision existed in the control room due to the Shift Supervisor and Control Room SRO being occupied with a large number of TSAIL entries required for this evolution. A communication package was issued to emphasize the requirement for the CRSRO to be more active in the control room during their normal shift.

As a result of a RN Train A low flow nuisance alarm the operators did not respond properly to a valid Pump 2A Hi RN discharge pressure alarm when the crossover isolation valves were closed. If the operator would have evaluated the alarm and obtained supporting information that the low flow condition did or did not exist, the time of the event would have been minimal. Operations will issue a communication to shift instructing them to follow the directions included in OMP1-8.

A review of the Operating Experience Program database for the previous 24 months revealed 4 incidents involving T/S violations due to Management Deficiency as a result of an inadequate policy, directive or procedure. The previous incidents were documented in LERs 413/91-016, 414/90-006, 413/90-029 and 414/91-009. Therefore, this is considered a recurring problem per Safety Assurance guidelines. None of the previous events involved RN operation procedures; therefore, no previous corrective actions would have prevented the occurrence of this incident.

CORRECTIVE ACTION

IMMEDIATE

1) Unit 1 & 2 OATCs opened NSHX 1A & 2A inlet and outlet isolation valves, establishing mini flow protection.

SUBSEQUENT

1) With three RN pumps inoperable, Operations entered OP/O/A/6400/06C, Enclosure 4.15 to return RN B Train to service. Both units exited T/S 3.0.3 at 0855 hours on March 17, 1992.

2) RN pump 2A was tested by performance and determined to be operable.

3) Operations Shift Manager issued a communication directing shift management to include all shift personnel during pre-shift briefing.

4) Operations Shift Management issued a communication package reinforcing the required actions in OMP 1-8, Revision 18, regarding operator response to alarms and CRSRO duties and responsibilities. In addition, when calling out the annunciator, the operator will state the reason for the annunciator.

PLANNED

1) OPS will evaluate the need for a procedure to perform this type of RN evolution.

SAFETY ANALYSIS

Throughout the event the A Train RN pumps remained functionally operable. The unusual alignment of the RN system would not have impacted the Engineered Safety Features response of RN Train A components. Supply header crossover valves 1 and 2 RN-47A close on a SP signal. Flow paths through KC HXs and KD HXs fail open. This flow path, combined with pumphouse, VC/YC and non-essential demands would have provided adequate minimum flow protection for RN pumps 1A and 2A.

The health and safety of the public were unaffected by this incident.