

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Catawba Nuclear Station, Units 1 and 2 DOCKET NUMBER (2) 050004113 PAGE (3) 1 OF 5

TITLE (4) Technical Specification Required Unit Shutdown Due to Control Room Area Air Handling Unit Motor Malfunction

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)
03	31	1989	89	010	000	04	28	88	None		050000
03	31	1989	89	010	000	04	28	88			050000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)

OPERATING MODE (9)	20.402(b)	20.406(a)	80.73(a)(2)(iv)	73.71(b)
1				
POWER LEVEL (10)	20.406(a)(1)(i)	80.36(a)(1)	80.73(a)(2)(v)	73.71(e)
100	20.406(a)(1)(ii)	80.38(a)(2)	80.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)
	20.406(a)(1)(iii)	X 80.73(a)(2)(i)	80.73(a)(2)(vii)(A)	
	20.406(a)(1)(iv)	80.73(a)(2)(ii)	80.73(a)(2)(vii)(B)	
	20.406(a)(1)(v)	80.73(a)(2)(iii)	80.73(a)(2)(viii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
R.M. Glover, Compliance Engineer	81038311-132136

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
F	VIM	O	R165	N					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	NO	EXPECTED SUBMISSION DATE (15)
X		1110189

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

On March 31, 1989, at 1225 hours, Unit 1 entered Technical Specification 3.0.3 and an Unusual Event was declared due to both trains of the Control Room Area Ventilation (VC) System being inoperable. Unit 1 was in Mode 1, Power Operation, at 100% power and Unit 2 was in Mode 6, Refueling, at the time of the incident. On March 30, 1989, Train B of the VC System was declared inoperable for work on various VC and Nuclear Service Water (RN) System components. On March 31, 1989, at approximately 1225 hours, Control Room Operators heard unusual noises from the VC equipment area of the Auxiliary Building, which is adjacent to the Control Room. Operations subsequently secured the Train A Control Room Area Air Handling Unit 1 (1CRA-AHU-1). An Unusual Event was declared, and Unit 1 commenced shutdown toward Mode 3, Hot Standby. Unit 2 suspended core alterations, as required by Technical Specification 3.7.6. The 1CRA-AHU-1 inboard motor bearing was found to have failed. The motor was replaced, functionally verified, and returned to service. Train A of the VC System was declared operable, Unit 1 exited Technical Specification 3.0.3, the Unusual Event was terminated, and Unit 2 resumed core alterations.

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EX (If more space is required, use additional NRC Form 288A's) (17)

BACKGROUND

The Control Room Area Ventilation [EIIS:VI] (VC) System consists of two, 100% redundant trains designed to maintain an acceptable environment in the Control Room, Cable Rooms, Battery Rooms, Electrical Penetration Rooms and Switchgear Rooms. Cooling water is provided by the Chilled Water [EIIS:KM] (YC) System, which also consists of two, 100% redundant trains. Condenser cooling water is provided by the Nuclear Service Water [EIIS:BI] (RN) System, therefore RN inoperability renders the same train of VC/YC inoperable.

Technical Specification 3.7.6 requires that two trains of the VC System be operable in Modes 1, Power Operation, through 6, Refueling. With one train inoperable in Modes 1 through 4, Hot Shutdown, a seven day action statement starts during which the inoperable train must be restored or both Units must be in at least Mode 3, Hot Standby, within the next 6 hours and in Mode 5, Cold Shutdown, within the following 30 hours. If either Unit is in Mode 5 or 6, a seven day action statement starts during which the inoperable train must be restored or the operable VC train must be operated with flow through the high efficiency filters [EIIS:FLT]. With two trains of the VC System inoperable in Modes 5 or 6, Technical Specification 3.7.6 requires that all operations involving core alterations be suspended. With two trains of the VC System inoperable in Modes 1 through 4, Technical Specification 3.0.3 is entered. Technical Specification 3.0.3 requires that if a Limiting Condition for Operation cannot be met except as stated in action requirements, then action must be taken within one hour to place the Unit in a Mode in which the specification does not apply. The Unit must be in at least Mode 3, Hot Standby, within the next 6 hours, Mode 4, Hot Shutdown, within the following 6 hours, and Mode 5, Cold Shutdown, within the subsequent 24 hours.

The Train A Control Room Area Air Handling Unit 1 (1CRA-AHU-1) supplies air to Electrical Penetration and Cable Rooms. It starts and stops whenever Train A VC is started or stopped, and automatically starts upon both Blackout and LOCA signals. Two Standing Work Requests (SWRs) are periodically performed on 1CRA-AHU-1. A monthly inspection and air handling unit filter change is performed under 2990 SWR, using PM/IG-115, Plant Ventilation Equipment Inspection and Servicing, Section 6.1. A semi-annual inspection and lubrication is performed under 6895 SWR using PM/IG-114, Ventilation Equipment Bearing Inspection and Lubrication, and PM/IG-115, Section 6.2. Both fan and motor [EIIS:MO] bearings are greased semi-annually under 6895 SWR.

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

EVENT DESCRIPTION

On March 30, 1989, Unit 1 was operating in Mode 1, Power Operation, at 100% power and Unit 2 was in Mode 6, Refueling. At 0400 hours, Train B of the VC System was declared inoperable for maintenance work on various VC components. The Technical Specification 3.7.6 seven day action statement for one train of VC being inoperable was entered at this time. At approximately 0500 hours, Train B of the RN System was declared inoperable for work on various RN components, which also rendered Train B of the VC System inoperable. Train B of RN was isolated and drained under a block tagout.

On March 31, 1989, at approximately 1225 hours, Control Room Operators heard unusual noises from the VC System equipment area of the Auxiliary Building [EIIS:NF], which is located adjacent to the Control Room. Operations personnel investigated and found the noises to be coming from the 1CRA-AHU-1 motor. Maintenance Craft and Maintenance Engineering Services (MES) evaluated the motor. During vibration readings, louder noises were heard, after which Operations secured 1CRA-AHU-1. Unit 1 entered Technical Specification 3.0.3 for both trains of VC being inoperable, and Unit 2 halted core alterations, as required by Technical Specification 3.7.6. An Unusual Event was declared, and Unit 1 commenced shutdown toward Mode 3. At approximately 1300 hours, Operations initiated Work Request 50291 OPS to investigate/repair 1CRA-AHU-1 (supplementals 50291 OPS-1 and 2 were also initiated). The motor was found to be locked up, and the inboard motor bearing was found to be destroyed. Unit 1 continued to decrease power as the motor was replaced and at 1855 hours, Mode 2, Startup, was entered. Maintenance, and Instrument And Electrical (IAE) personnel completed the replacement and functional verification of the motor, and 1CRA-AHU-1 was returned to service. At 1858 hours, Train A of the VC System was returned to operability. Unit 1 exited Technical Specification 3.0.3, and the Unusual Event was terminated.

On April 1, 1989, Unit 1 entered Mode 3. By 1845 hours, Operations had filled RN Header 1B, making Diesel Generator [EIIS:GEN] 1B and RN Pump [EIIS:P] 1B available for service. By 2045 hours, work was completed on Train B VC System components, and the seven day action statement for one train of VC being inoperable was exited. On April 2, 1989, Unit 1 entered Mode 1 and on April 3, 1989, Unit 1 returned to 100% power.

CONCLUSION

This incident is classified as an Equipment Malfunction. The 1CRA-AHU-1 motor lock-up was due to the failure of its inboard bearing. This is a roller bearing requiring lubrication at least once per year, according to the motor manufacturer's specifications, in this application. The Catawba program of

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Catawba Nuclear Station, Units 1 & 2	0500041389	89	010	00	04	OF 015

TEXT (If more space is required, use additional NRC Form 266A's (17))

greasing 1CRA-AHU-1 motor bearings semi-annually with Unirex N2 grease was verified to be acceptable with Design Engineering. This was last performed under 6895 SWR on October 20, 1988.

Corrective actions following the incident were to secure 1CRA-AHU-1 and replace its motor. The 1CRA-AHU-1 motor was manufactured by Reliance Electric Company, Model No. 12EC 447TY. It will be sent back to Reliance for rewinding and failure analysis. MES will provide the results of the failure analysis and this report will be revised as required.

Another Technical Specification required Unit shutdown has occurred during the previous twelve months resulting from an equipment malfunction (see LER 414/88-26). This incident occurred on July 13, 1988, and involved the failure of Centrifugal Charging Pump 2A. Another Technical Specification 3.0.3 entry due to both trains of VC being inoperable occurred within the past twelve months (see LER 413/88-23). This incident occurred on October 25, 1988, and involved the deficient design of a cooling water flow control valve [EIIS:V]. Since neither of these previous events involved both the same cause and equipment, this is not considered to be a recurring event.

A review of incidents during the past three years did not indicate any cases in which Technical Specifications were violated as a result of a malfunctioning ventilation fan motor. This is therefore not considered to be a recurring problem.

A review of the Industry Operating Experience Program did not provide any information which aided in the resolution of this LER.

CORRECTIVE ACTION

SUBSEQUENT

- 1) Operations secured 1CRA-AHU-1.
- 2) Maintenance and IAE replaced the 1CRA-AHU-1 motor under Work Request 50291 OPS.

PLANNED

- 1) The results of the failure analysis to be conducted by the motor manufacturer will be provided.
- 2) This report will be revised as required based upon the failure analysis.

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TEXT (If more space is required, use additional NRC Form 385A's) (17)

SAFETY ANALYSIS

The VC/YC System is designed to maintain an acceptable temperature in the rooms supplied under normal and post-accident conditions. No adverse effects due to increasing temperature were noted during this incident. The VC/YC System is also designed to maintain Control Room pressurization under normal and post-accident conditions. Control Room habitability was maintained throughout this incident. Unit 1 was shutdown to Mode 3 and core alterations were suspended for Unit 2, as required by Technical Specifications, minimizing the chances of an FSAR described accident in which post-LOCA VC/YC operation would be required. The health and safety of the public were unaffected by this incident.

DUKE POWER COMPANY

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April 28, 1989

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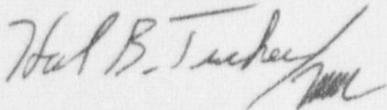
Subject: Catawba Nuclear Station, Unit 1
Docket No. 50-413
LER 413/89-10

Gentlemen:

Pursuant to 10 CFR 50.73 Section (a) (1) and (d), attached is Licensee Event Report 413/89-10 concerning a Technical Specification required unit shutdown due to a control room air handling unit motor malfunction.

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

JGT/03/U189-10

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