



DUKE POWER

October 11, 1989

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

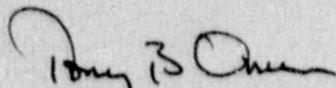
Subject: Catawba Nuclear Station
Docket No. 50-413
LER 413/89-23

Gentlemen:

Attached is Licensee Event Report 413/89-23, concerning Technical Specification 3.0.3 being entered as a result of both trains of control room area ventilation being inoperable due to an incomplete testing procedure.

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

Very truly yours,


Tony B. Owen
Station Manager

KEB\LER-NRC.TBO

xc: Mr. S. D. Ebnetter
Regional Administrator, Region II
U. S. Nuclear Regulator Commission
101 Marietta Street, NW, Suite 2900
Atlanta, GA 30323

M & M Nuclear Consultants
1221 Avenues of the Americas
New York, NY 10020

INPO Records Center
Suite 1500
1100 Circle 75 Parkway
Atlanta, GA 30339

American Nuclear Insurers
c/o Dottie Sherman, ANI Library
The Exchange, Suite 245
270 Farmington Avenue
Farmington, CT 06032

Mr. K. Jabbour
U. S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, D. C. 20555

Mr. W. T. Orders
NRC Resident Inspector
Catawba Nuclear Station

JEZ
11

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 5
--	--------------------------------------	----------------------

TITLE (4) Technical Specification 3.0.3 Entered as a Result of Both Trains of Control Room Area Ventilation Being Inoperable Due to an Incomplete Testing 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)
0	9	15	8	9	023	0	1	18	Catawba Unit 2			0 5 0 0 0 4 1 4
0	9	15	8	9	023	0	1	18				0 5 0 0 0 4 1 4

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §. (Check one or more of the following) (11)									
POWER LEVEL (10) 1,000	20.402(b)	20.406(c)	90.73(a)(2)(iv)	73.71(b)						
	20.406(a)(1)(i)	90.38(e)(1)	90.73(a)(2)(v)	73.71(c)						
	20.406(a)(1)(ii)	90.38(e)(2)	90.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
	20.406(a)(1)(iii)	X 90.73(a)(2)(i)	90.73(a)(2)(viii)(A)							
	20.406(a)(1)(iv)	90.73(a)(2)(ii)	90.73(a)(2)(viii)(B)							
20.406(a)(1)(v)	90.73(a)(2)(iii)	90.73(a)(2)(ix)								

LICENSEE CONTACT FOR THIS LER (12)

NAME R.M. Glover, Compliance Manager	TELEPHONE NUMBER 8 1 0 3 8 3 1 1 - 1 3 2 3 1 6
---	---

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)

On September 15, 1989, at 1315 hours, with Units 1 and 2 in Mode 1, Power Operation, Technical Specification 3.0.3 was entered due to both trains of the Control Room Area Ventilation (VC) System being inoperable. Train B of the VC System was already inoperable for maintenance. Train A of VC was declared inoperable following the unsatisfactory performance of a Control Room positive pressure test with only one of the two outside air intakes open. The Control Room return air damper was adjusted on Train A and the Control Room positive pressure test was performed with acceptable results in all alignments. Both trains were returned to operability on September 16, following successful testing. This incident is attributed to incomplete testing during pre-operational testing of the VC System. All other appropriate ventilation systems' pre-operational tests are being reviewed to assure complete testing was performed.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Catawba Nuclear Station, Unit 1	DOCKET NUMBER (2) 0 6 0 0 0 4 1 3	LER NUMBER (8)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 9	- 0 2 3	- 0 0	0 2	OF 0 5

TEXT (If more space is required, use additional NRC Form 388A's) (17)

BACKGROUND

The Control Room Area Ventilation [EIIS:UC] (VC) and Chilled Water [EIIS:UE] (YC) Systems combine to form one system which is designed to maintain a suitable environment in the following plant areas at all times: Control Room, Cable Room, Battery Rooms, Switchgear Rooms, Motor Control Center (MCC) Rooms, and the Electrical Penetration [EIIS:PEN] Rooms at elevation 594+0. The VC/YC System is shared between both Units. There are two 100% redundant trains of VC/YC equipment. Each is capable of being powered by Unit 1 or Unit 2 Essential Auxiliary Power, but under normal conditions both trains are aligned to Unit 1. Two Diesel Generators [EIIS:GEN] (D/Gs) are provided per Unit to energize the Essential Auxiliary Power buses during emergency conditions.

Pressurization of the Control Room and Control Room Area is affected by the induction of outside air into the air handling systems serving these areas by way of filter [EIIS:FLT] trains and associated fans [EIIS:BLO]. The two outside air intakes are at two separate locations and consist of isolation valves [EIIS:V], a tornado damper, a radiation monitor, two chlorine detectors [EIIS:XT] and a smoke detector in each intake. The radiation monitors and the chlorine and smoke detectors are arranged so as to close their respective air intake valves upon detection of radiation, chlorine or smoke. Train separation provides for one shut-off valve in each intake to be Train A and the other to be Train B. The duct for the outside air intakes is arranged so that the Train A and Train B filter trains can take air from either intake location. This allows the Operator to switch to the alternate intake if one should become contaminated. The filtration system is also arranged so that a percentage of the return air from the Control Room and Control Room Area is routed through the filter train for clean-up purposes.

Technical Specification 3.7.6 specifies that two independent trains of VC/YC shall be operable during all operational modes. If one train becomes inoperable while either Unit is in Mode 4, Hot Shutdown, or above, the inoperable train must be restored to operability within seven days, or the operating Units must be shutdown. If both Units are below Mode 4 and one train is inoperable, the train must be restored to operability within seven days or the operable train must be operated in the FILTER mode. If both trains are inoperable, or with the operable train not capable of being powered by an operable emergency power source, all core alterations and positive reactivity changes must be suspended on both Units. The requirement for an operable emergency power source is only specifically stated for Units operating below Mode 4. However, the bases for Technical Specification 3.7.6 states that the operability of VC/YC ensures that ambient air temperature does not exceed allowable limits for equipment and instrumentation, and the Control Room will remain habitable, during and following all credible accident conditions. This implies that an operable emergency power supply should be a prerequisite to VC/YC operability in all modes.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Catawba Nuclear Station, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 1 3 8 9	LER NUMBER (8)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
			— 0 2 3	— 0 0	0 3	OF 0 5

TEXT (If more space is required, use additional NRC Form 368A's) (17)

The acceptance criteria for VC is as follows; each VC train must be capable of maintaining the Control Room at a positive pressure of greater than or equal to 0.125 inch water gauge (in.wg) relative to adjacent areas with pressurization air flow to the Control Room of less than or equal to 4000 cubic feet per minute (cfm).

EVENT DESCRIPTION

On August 23, 1989, during performance of Work Request 1512 MES, the Control Room (CR) pressure increased to a higher than normal level when an access door on 2CR-AHU-1 was opened (see PIR 0-C89-0277). Design Engineering requested that Performance conduct PT/0/A/4450/08, Control Room Positive Pressure Test, to ensure that no CR penetrations were degraded, by the higher pressure experienced on August 23, and that VC could establish the required positive pressure.

On September 15, 1989, with Units 1 and 2 in Mode 1, Power Operation, plans had been made to conduct the Control Room positive pressure test. At the time of the test, Train B of VC/YC was inoperable due to work on the Train B chiller and the Unit 2 VC inlet line (Train B) was isolated due to an inoperable EMF on that duct work.

With Train B of VC inoperable due to chiller work being performed, the CR positive pressure test was performed, at 0900 hours, with Train A of VC in service and the Train B outside air intake isolated due to EMF-43B being inoperable. The test failed with a CR pressure of 0.05 in.wg and 2396 cfm of outside air for pressurization. Train B had been declared inoperable on September 14, 1989, at 0625 hours.

EMF-43B was repaired and declared operable on September 15 at 0845 hours, and Train B outside air intake was opened. The CR positive pressure test was performed again and the results were acceptable with 0.15 in.wg and 3786 cfm of outside air for pressurization.

Work Request 7230 PRF was written to investigate the cause of inadequate CR pressurization with only one outside air intake open. Bahnson walked down the ducts and found no obstructions. In addition, Work Request 44238 OPS was written to inspect all CR penetrations for leaks.

The CR positive pressure test was performed again, with Train A in service, and all of the CR doors were taped per Work Request 44239 OPS. The test failed with each outside air intake individually isolated and CR pressurization increased only after both intakes were opened.

At 1315 hours, Technical Specification 3.0.3 was entered due to both trains of the VC System being inoperable. The NRC was notified and, based on the extensive compensatory measures established, granted an extension to 1200 hours on September 16, 1989, to return one train to service. These measures included

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Catawba Nuclear Station, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 1 3 8 9	LER NUMBER (8)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
			0 2 3	0 0	0 4	OF 0 5

TEXT (if more space is required, use additional NRC Form 388A's) (17)

limitations on burning in the areas of the intakes, establishment of a fire watch in the intake areas, restriction of movement of chlorine cylinders in the plant, and instructions of the Operators on actions to take if one or both intakes became isolated.

The VC System was then aligned to Train B and the CR positive pressure test was performed. The results were acceptable in all alignments. After adjusting the CR return air damper on Train A, the CR positive pressure test was performed with acceptable results in all alignments.

Performance tested Train B with acceptable results in all alignments and it was declared operable at 0909 hours on September 16, 1989. Train A was balanced and tested with acceptable results in all alignments and declared operable on September 16 at 1751 hours.

CONCLUSION

This incident has been attributed to a defective pre-operational testing procedure. The test procedure did not test the system in all possible Modes of operation. The ability of each train of VC was not verified to be capable of meeting the acceptance criteria with only one outside air intake open. All other appropriate ventilation pre-operational tests are being investigated to ensure they were performed to demonstrate adequate performance during multiple intake alignments.

There have been three Technical Specification violations due to a defective procedure/incomplete information, during the past twelve months. Since none of these involved pre-operational testing, this is not considered to be a recurring event.

CORRECTIVE ACTION

SUBSEQUENT

- 1) Train A's CR return air damper was adjusted under Work Request 7230 PRF.
- 2) All CR penetrations were inspected for leaks under Work Request 44238 OPS.
- 3) CR positive pressure tests were satisfactorily performed on both trains of VC, in all intake alignments.
- 4) From September 15 to September 16, 1989, compensatory measures were taken to limit burning in the area of the intakes, to establish a fire watch in the intake areas, to restrict movement of chlorine cylinders in the plant, and to instruct the Operators on actions to take if one or both intakes became isolated.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Catawba Nuclear Station, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 1 3 8 9	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
			0 2 3	0 0	0 5	OF

TEXT (If more space is required, use additional NRC Form 388A's) (17)

PLANNED

- 1) All appropriate ventilation pre-operational tests are being reviewed to assure adequate testing of multiple intake alignments.

SAFETY ANALYSIS

Technical Specification 3.7.6 allows one train of the VC System to be inoperable providing appropriate actions are taken.

It was determined by testing the VC System that no problem had existed with Train B operability. Technical Specification and FSAR requirements were met for flow, pressurization and filtration with Train B.

The Train A operability Technical Specification and FSAR requirements could have been met with both outside air intakes open. However, the Technical Specification and FSAR requirements could not be met with only one outside air intake open with only Train A in operation. In this case, VC was still able to provide 0.05 in.wg of pressurization in the CR. This is adequate to prevent migration of radioactivity into the CR until such time as the other train or outside air intake could be placed in service. The health and safety of the public were unaffected by this incident.