

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Catawba Nuclear Station, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 1 1 3	PAGE (3) 1 OF 0 5
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TITLE (4)
One Train Of Control Room Area Ventilation System Inoperable Due To A 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)																												
01	25	88	88	008	000	02	24	88	Catawba, Unit 2		0 5 0 0 0 4 1 1 4																												
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">OPERATING MODE (9)</td> <td style="width:15%;">1</td> <td style="width:15%;">20.402(b)</td> <td style="width:15%;">20.406(e)</td> <td style="width:15%;">50.73(a)(2)(iv)</td> <td style="width:15%;">73.71(b)</td> </tr> <tr> <td rowspan="2">POWER LEVEL (10)</td> <td rowspan="2">1 0 0</td> <td>20.406(a)(1)(i)</td> <td>50.38(e)(1)</td> <td>50.73(a)(2)(v)</td> <td>73.71(e)</td> </tr> <tr> <td>20.406(a)(1)(ii)</td> <td>50.38(e)(2)</td> <td>50.73(a)(2)(vi)</td> <td rowspan="4">OTHER (Specify in Abstract below and in Text, NRC Form 308A)</td> </tr> <tr> <td>20.406(a)(1)(iii)</td> <td>X</td> <td>50.73(a)(2)(i)</td> <td>50.73(a)(2)(viii)(A)</td> </tr> <tr> <td>20.406(a)(1)(iv)</td> <td></td> <td>50.73(a)(2)(ii)</td> <td>50.73(a)(2)(vii)(B)</td> </tr> <tr> <td>20.406(a)(1)(v)</td> <td></td> <td>50.73(a)(2)(iii)</td> <td>50.73(a)(2)(x)</td> </tr> </table>												OPERATING MODE (9)	1	20.402(b)	20.406(e)	50.73(a)(2)(iv)	73.71(b)	POWER LEVEL (10)	1 0 0	20.406(a)(1)(i)	50.38(e)(1)	50.73(a)(2)(v)	73.71(e)	20.406(a)(1)(ii)	50.38(e)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 308A)	20.406(a)(1)(iii)	X	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	20.406(a)(1)(iv)		50.73(a)(2)(ii)	50.73(a)(2)(vii)(B)	20.406(a)(1)(v)		50.73(a)(2)(iii)	50.73(a)(2)(x)
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LICENSEE CONTACT FOR THIS LER (12)

NAME Julio G. Torre, Associate Engineer - Licensing	TELEPHONE NUMBER 710 4 317 13 1-18 1 0 1 2 1 9
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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

SUPPLEMENTAL REPORT EXPECTED (14)

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 January 25, 1988, at 0940 hours, while performing the Control Room Area Outside Air Pressure Filter Trains Performance Test, the responsible Performance Test Engineer discovered that two of the first stage High Efficiency Particulate Absolute (HEPA) filters were not properly seated. The affected train of the Control Room Area Ventilation (VC) System was declared inoperable, and the HEPA filters were properly positioned by Maintenance Technicians. The affected train of VC was satisfactorily retested and declared operable. A review of the maintenance history revealed only one occurrence of these HEPA filters being replaced, on January 3, 1987. No retest was performed as was required following this maintenance, and no procedure was used to install the filters. Unit 1 was in Mode 1, Power Operation, and Unit 2 was in No Mode, defueled, at the time of discovery. Both Units have been in all modes of operation with the filter train inoperable.

This incident has been attributed to a personnel error. The improper planning of the work request and failure to utilize a procedure led to the improper installation of the HEPA filters and the missed retest, which resulted in the filter train being unknowingly inoperable. Performance immediately notified the Shift Supervisor of the unacceptable test results, and the VC train was declared inoperable. Maintenance Technicians adjusted the HEPA filters to their proper position, and Performance retested the filter train with satisfactory results.

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

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Catawba Nuclear Station, Unit 1	0500041388	-	008	-	0002 OF 05

TEXT (if more space is required, use additional NRC Form 366A-1 (17))

BACKGROUND:

The Control Room Area Ventilation (VC) System operates in conjunction with the Chilled Water (EIIS:KM) (YC) System to maintain conditions in the Control Room Area that are suitable for personnel and equipment as well as provide pressurization to prevent any in-leakage from surrounding areas. The portion of the VC System serving the Cable (EIIS:CLB) Room, Battery (EIIS:BY) Room, Electrical Penetration (EIIS:PEN) Rooms, Motor Control Center (EIIS:MCC) (MCC) Room, Switchgear (EIIS:SWGR) Room, and Heating, Ventilating, and Air Conditioning (HVAC) Equipment Room consists of two 100% capacity air handling units, two 100% capacity exhaust fans (EIIS:FAN) for the Battery Room, associated ductwork, and duct heaters, and two 100% capacity outside air pressurizing filter (EIIS:FLT) trains which also serve the Control Room.

Pressurization of the Control Room and Control Room Area is effected by the induction of outside air into the air handling systems serving these areas by way of filter trains and associated fans. The two outside air intakes are at two separate locations and consist of isolation valves (EIIS:V), a tornado damper (EIIS:DMP), a radiation monitor (EIIS:MON), two chlorine detectors (EIIS:DET), and a smoke detector. The radiation monitors, chlorine detectors, and smoke detectors are arranged so as to close their respective shut-off valves upon detection of radioactivity, chlorine, or smoke. The filtration system is 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.

Each filter train consists of a set of pre-filters, first stage High Efficiency Particulate Absolute (HEPA), carbon adsorber bed, and second stage HEPA filters. Each filter train is provided with a Hi Differential Pressure alarm. HEPA filters should be replaced when the differential pressure across the filter reaches 4.0 inches of water. HEPA filters produce a particle removal efficiency of 99.97% for 0.3 micron particles. The upstream HEPA is the critical filter for particulate loading in the filter train. The downstream HEPA filter pressure drop should also remain constant.

Technical Specification surveillance requirement 4.7.6.c.1 states: Each Control Room Area Ventilation System shall be demonstrated OPERABLE at least once per 18 months or after any structural maintenance of the HEPA filter or carbon adsorber housings, or following painting, fire, or chemical release in any ventilation zone communicating with the system by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 1% (Unit 1), 0.5% (Unit 2) and uses the test procedure guidance in Regulatory Position C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revisions 2, March 1978, and the system flow rate is 6000 cfm \pm 10%.

PT/O/A/4450/01B, Control Room Area Outside Air Pressure Filter Trains Performance Test, is performed to satisfy the requirements of Technical Specification 4.7.6.c.1. After any structural maintenance on the HEPA filter or carbon adsorber housings, or after a complete or partial replacement of a HEPA filter bank or a carbon adsorber bank, that part of the system shall be retested to reverify operability as necessary.

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

Station Directive 3.2.2, Development and Conduct of the Periodic Testing Program, states: when work or maintenance is to be performed, the Planner is responsible for the determination of retest or Functional Verification requirements for the structure, system, or component affected. This determination is documented in Section II of the applicable work request.

Station Directive 4.2.1, Development, Approval, and Use of Station Procedures, specifies that a working copy of a procedure shall be used in the performance of testing, maintenance, modification, and operation of systems and components which are safety-related or which may affect the operation of safety-related systems.

DESCRIPTION OF INCIDENT:

On March 3, 1986, PT/O/A/4450/01B was completed for VC Train A satisfying the Technical Specification surveillance requirements. The test results were acceptable.

On January 3, 1987, at 1945 hours, Standing Work Request (SWR) 3160 SWR was issued because the first stage HEPA filters for VC Train A Pressurized Filter Train had a differential pressure of 4.3 inches of water. The duty Mechanical Maintenance (MNT) Supervisor telephoned the duty Planner at home. Apparently, the Planner and the MNT Supervisor verbally planned the SWR by referring to a previously completed copy of the SWR. A functional verification was marked as being required; however, a retest was not marked as being required, and the group responsible for retest was not listed. The proper corrective maintenance procedure was listed on the SWR but was noted as being required for 'charcoal only'. Therefore, the MNT Technicians performing the work did not use the procedure when changing the HEPA filters.

Two MNT Technicians replaced all four of the first stage HEPA filters. On January 4, 1987, Operations performed the functional verification by placing the filter train in service and verifying acceptable differential pressure existed. At 1300 hours, 3160 SWR was completed.

On January 25, 1988, at 0940 hours, a Performance Test Coordinator began PT/O/A/4450/01B for VC Train A per Technical Specification surveillance requirements. At 1315 hours, the first stage HEPA filters' test results were found to be unacceptable, and VC Train A was declared inoperable. At 1330 hours, the Performance Test Coordinator put the test on hold and requested Planning to issue 3160 SWR to perform a filter inspection. MNT Technicians discovered the HEPA filters were not properly seated.

They then adjusted the filters to their proper position. At 1720 hours, Performance resumed testing. At 1830 hours, Performance obtained satisfactory test results for the first stage HEPA filters, and the SWR was completed. VC Train A was declared operable.

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TEXT (If more space is required, use additional NRC Form 365A's) (17)

CONCLUSION:

This incident has been attributed to a personnel error. The improper planning of the SWR and failure to utilize a corrective maintenance procedure led to the improper installation of the HEPA filters and the missed retest, which resulted in the filter train being unknowingly inoperable.

The SWR was issued on a Saturday evening when the regular HVAC crew was scheduled off and when a planner was not scheduled to be on site. Although neither the MNT Supervisor nor the Planner could recall the exact circumstances of the event, the MNT Supervisor stated that he had probably called the Planner on the telephone and that the planning determinations were apparently copied from a previously worked copy of the SWR. The previously worked SWR was for pre-filter change and routine preventive maintenance inspection only, which did not require a retest.

The SWR incorrectly identified the corrective maintenance procedure as not being required for HEPA filter maintenance. Therefore, no procedure was used by the MNT Technicians, which led to the improper installation of the HEPA filters. According to Station Directive 4.2.1, the appropriate corrective maintenance procedure should have been used to perform this filter change. Since the time of this incident, 3160 SWR has been revised to identify the correct procedure for all maintenance.

The Retest or Functional Verification block on the work request form was marked 'yes' which the Technicians believed to mean that only functional verification was required, because the responsible group was not listed. According to Station Directive 3.3.2 and Maintenance Management Procedure 1.0, Work Request Preparation, the responsible Planner shall make the retest determination and indicate the responsible group. At the time this incident occurred, retest and functional verification requirements shared the same block on the work request form. Since that time, the work request form has been revised to include separate lines for retest determinations and functional verification determinations.

There have been five previous incidents involving missed retests due to personnel errors (see LER 413/85-38, LER 414/86-86-05, LER 413/86-32, LER 413/87-19, and LER 414/87-31). The corrective actions prior to the most recent incident involved reemphasizing the importance of using available documentation in making retest determinations with the involved personnel. One of the individuals involved in this incident was involved in one of the previous incidents, although this incident actually occurred prior to the previous report. As a result of LER 414/87-31 and due to the high frequency of this type of incident, all Planners have been reminded of the importance of making proper retest determinations and the proper manner in which retest determinations are to be made. This is considered to be a recurring event.

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

CORRECTIVE ACTION:

IMMEDIATE

Performance notified the Shift Supervisor of the unacceptable test results, and the Shift Supervisor declared VC Train A inoperable.

SUBSEQUENT

- (1) 3160 SWR was issued, and the HEPA filters were adjusted to their proper position.
- (2) Retest satisfactorily completed.

SAFETY ANALYSIS:

Each pressurized filter train contains two stages of HEPA filters which are certified by the manufacturer to be 99.97% efficient. Throughout this incident, the second stage of HEPA filters remained intact and show no record of having been replaced or altered by maintenance and testing activities.

The second stage of HEPA filters are not periodically tested, however, they would likely have removed a significant amount of particulate radioactivity which if present would have bypassed the first stage HEPA filters. Additionally, the carbon adsorber banks and pre-filters perform some filtration of particulates.

Each of the two outside air intakes contains a radiation monitor, two chlorine detectors, and a smoke detector which would isolate their respective intake upon detection. During the period in which the HEPA filters were improperly installed, there have been no significant amount of these substances detected which would necessitate the filtering.

This incident is reportable pursuant to 10 CFR 50.73, Section (a)(2)(i)(B).

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

DUKE POWER COMPANY

P.O. BOX 33189

CHARLOTTE, N.C. 28242

HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

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February 24, 1988

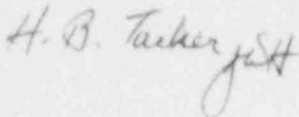
Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Subject: Catawba Nuclear Station, Units 1 and 2
Docket Nos. 50-413 and 50-414
LER 413/88-08

Gentlemen:

Pursuant to 10 CFR 50.73 Section (a) (1) and (d), attached is Licensee Event Report 413/88-08 concerning the inoperability of one train of the control room area ventilation system due to a personnel error. 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/1462/sbn

Attachment

xc: Dr. J. Nelson Grace
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Mr. P. K. Van Doorn
NRC Resident Inspector
Catawba Nuclear Station

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