Duke Power Company
Catawba Nuclear Station
4800 Concord Rd
York, S.C. 29745

(803) 831-3009

DUKE POWER

February 13, 1992

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

Subject: Catawba Nuclear Station
Docket No. 50-413
LER 413/92-002

Gentlemen:

Attached is Licensee Event Report 413/92-002 concerning TECHNICAL SPECIFICATION 3.0.3 ENTRY DUE TO TWO INOPERABLE TRAINS OF THE CONTROL ROOM VENTILATION SYSTEM.

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
Station Manager

/lhe

Attachment

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

R. E. Martin
U. S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, D.C. 20555

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

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

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

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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-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): Catawba Nuclear Station, Unit 1

DOCKET NUMBER (2): 0 5 0 0 0 4 1 3

PAGE (3): 1 OF 0 8

TITLE (4): TECHNICAL SPECIFICATION 3.0.3 ENTRY DUE TO TWO INOPERABLE TRAINS OF THE CONTROL ROOM VENTILATION SYSTEM

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR
0 1	1 6	9 2	9 2	0 0 2	0 0	0 2	1 3	9 2

OTHER FACILITIES INVOLVED (8)

FACILITY NAME	DOCKET NUMBER(S)
CNS, 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
R. C. Futrell, Compliance Manager	8 0 3 8 3 1 - 3 6 6 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	

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 January 16, 1992, at 2000 hours, with Units 1 and 2 in Mode 1, Power Operation, Operations personnel were reviewing activities associated with startup of the Train B Control Room Area Ventilation and Chilled Water (VC/YC) System following maintenance. It was discovered that breaker 2EKPH #22, Train B VC/YC System Controls, had not been opened during preceding maintenance activities as required by Operations Technical Memorandums. VC/YC Train B had been inoperable on January 16 from 0353 to 1725 hours. During this time, the Train B Control Room Air Handling Unit was removed from service and associated access doors were opened to allow for equipment inspections. With these access panels open and 2EKPH #22 closed, VC/YC Train B dampers would have repositioned upon receipt of a safety signal, thus allowing air flow to escape through the openings in the system. VC/YC Train A, which was operable and in service, would not have been capable of adequately pressurizing the Control Room. Therefore, both VC/YC Trains were inoperable while the access panels were open and Technical Specification 3.0.3 was unknowingly entered. This incident is attributed to Inappropriate Actions, Control Room Operators did not recognize the need to open 2EKPH #22. Corrective actions include red tag computer program enhancements and a Technical Memorandum program review.

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 (C/R), Cable Room, Battery [EIIS:BTRY] Rooms, Switchgear Rooms, Motor [EIIS:MO] Control Center (MCC) Rooms, and the Electrical Penetration Rooms at elevation 594 + 0. The VC/YC System is shared between both Units and consists of two 100% redundant trains of 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.

The portion of the VC/YC System serving the C/R includes two 100% capacity air handling units (1CR-AHU-1 for Train A and 2CR-AHU-1 for Train B), two 100% capacity smoke purge fans [EIIS:BLO], and two 100% capacity outside air pressurizing filter [EIIS:FLT] trains (1CRA-PFT-1 for Train A and 2CRA-PFT-1 for Train B).

Breakers [EIIS:BRK] 1EKPG #22 (Train A) and 2EKPH #22 (Train B) provide control power for permissives to VC/YC System components including CR-AHUs, CRA-PFTs, and system dampers. With either of these breakers open, the respective train related components would be unable to start/align in response to a safety injection signal.

Operations Technical Memorandums (T/Ms) 11-05 (Unit 1) and 21-07 (Unit 2) states that in the event that a C/R AHU or Pressurizing Filter Train is taken out of service, the pressurization of the C/R may be degraded unless certain steps are taken. With no action taken, the dampers on the out of service train will align upon receipt of a safety injection signal but the associated fans will not start due to their being out of service. This results in the in service train recirculating air through the out of service train which may degrade the pressure in the C/R. In order to prevent this from happening, the out of service train dampers must remain in place to prevent the air from recirculating. This can be accomplished by removing the control power to the permissives for the dampers and fans on the out of service train. Therefore, the T/Ms require that breaker 1EKPG #22 be tagged opened when taking 1CR-AHU-1 or 1CRA-PFT-1 (Train A) out of service, and that 2EKPH #22 be tagged opened when taking 2CR-AHU-1 or 2CRA-PFT-1 (Train B) out of service. These actions would not allow the train related dampers to reposition upon receipt of a safety injection signal, thus maintaining opposite train C/R pressurization capability.

The T/M program, as specified in Operations Management Procedure (OMP) 2-5, is used by Operations (OPS) to provide enhancements to an existing procedure or provide temporary instructions in the absence of a procedure; however, they

shall not conflict with or be used as a permanent replacement for operating procedures. A T/M must not prevent an existing procedure from being followed, and when being used as a supplement to a procedure, it must not be in the non-conservative direction. T/Ms are temporary in nature and shall have an expiration date assigned. The Operations Unit Manager is normally responsible for writing and issuing T/Ms, and reviewing them to ensure they are deleted or reissued prior to the expiration date.

OMP 2-22, Shift Turnover, requires Shift Supervisors, Control Room Senior Reactor Operators (C/R SRO), Assistant Shift Supervisors, Operator at the Controls (OATC), Balance of Plant (BOP) Operators, and Non-Licensed Operators (NLO) to review the T/M Logbook during each shift change.

OP/0/A/6450/11, Control Room Area Ventilation/Chilled Water System, Enclosure 4.7, Shifting the Operating VC/YC Train, is used when switching from one VC/YC Train to the other. Procedure steps 2.1.17/2.2.17 require 1EKPG #22/2EKPH #22 to be tagged OFF when tagging out 1(2)CR-AHU-1 and/or 1(2)CRA-PFT-1.

Technical Specification (T/S) 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 be in at least Mode 3, Hot Standby, within the next six hours and in Mode 5, Cold Shutdown, within the following 30 hours. Surveillance 4.7.6.e.3 requires that at least once per 18 months the system demonstrates the ability to maintain the C/R at a positive pressure of greater than or equal to 1/8 in wc relative to adjacent areas.

T/S 3.0.3 is required to be entered when the Unit is operating in a condition prohibited by T/Ss. This condition exists when a Limiting Condition for Operation (LCO) 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.

EVENT DESCRIPTION

On January 3, 1992, at 0239 hours, VC/YC Train A was placed in service per OP/0/A/6450/11.

On January 15, 1992, the Operations Unit Manager group generated a worklist item for night shift to make and hang tags for seven Work Orders (W/Os) on VC/YC Train B. Included in these W/Os were 92001717-01, Preventive

Maintenance (PM) on 2CR-AHU-1, and 92001733-01, inspection of 2CR-D-4 (2CR-AHU-1 discharge damper). Both of these W/Os required 2EMXH-F07B, 2CR-AHU-1 power supply, to be tagged open during each respective work activity.

On January 15, 1992 during night shift, the Work Control Center (WCC) Senior Reactor Operator (SRO) reviewed the VC/YC Train B worklist item and all associated W/Os. He then gave them to Nuclear Operation Specialist (NOS) A to prepare the required tagouts. From approximately 2200 to 2230 hours, NOS A prepared the tagouts using the correct preplanned tagouts in place on the Operations red tag computer program. Tagouts 02-115 and 22-61 were prepared for W/Os 92001717-01 and 92001734-01, respectively. Each tagout required only 2EMXH-F07B to be tagged open; therefore, no tags were issued for 2EKPH #22. The work package was then forwarded to Assistant Shift Supervisor A for review. After his review, he signed the "tagout ordered by" section of the tagout sheet.

On January 16, at 0353 hours, with Units 1 and 2 in Mode 1, Power Operation, the C/R SRO reviewed the work package and VC/YC Train B was declared inoperable. Since VC/YC Train A was operable and already in service, VC/YC Trains did not have to be swapped per OP/0/A/6450/11, Enclosure 4.7. This enclosure contains guidance on opening breaker 2EKPH #22 (1EKPG #22) to ensure opposite train operability is maintained. The work package was subsequently taken to the "horseshoe" area of the C/R. Unit 1 and 2 Nuclear Control Operators (NCOs) A and B reviewed and initialed the "Control Room Acknowledge" section of tagouts 02-115 and 22-61. At 0425 hours, NCO C opened 2EMXH-F07B and placed both red tags on the breaker. NOS B performed Independent Verification of this action.

On January 16, at 0800 hours, the Correct Component Verification was performed on 2CR-AHU-1 per W/O 92001717-01. The AHU access panels were then removed to inspect the condition of the unit's filters and belts and other PM requirements. The results of the inspection indicated all items were satisfactory, therefore, no replacements were necessary and no work was performed. Maintenance personnel involved indicated that the total time the access panels were removed was less than five minutes. At 0845 hours, the "Task Completion Comments" section of the W/O was completed indicating all inspections were satisfactory.

At 0900 hours, the "Placement Verified By" section was signed on the red tag for tagout 22-61 prior to inspection of damper 2CR-D-4 per W/O 92001733-01. Bahnson personnel then entered the duct to perform the inspection. The results of the inspection were satisfactory, and the personnel then exited the ductwork. Bahnson personnel indicated that the total time the access door was open was less than three minutes. At 0915 hours, the red tag stub was signed indicating work was complete.

On January 16, at 1640 hours, red tags for tagouts 02-115 and 22-61 were removed from 2EMXH-F07B and the breaker was closed. VC/YC was subsequently swapped from Train A to Train B per OP/0/A/6450/11, Enclosure 4.7. At 1725 hours, VC/YC Train B was declared operable. At 2000 hours, while reviewing activities associated with startup of VC/YC Train B, Assistant Shift Supervisor A discovered that breaker 2EKPH #22 was not tagged open as required while 2CR-AHU-1 was tagged out.

CONCLUSION

This incident is attributed to Inappropriate Actions, CROs did not recognize the need to open breaker 2EKPH #22 per T/Ms 11-05 and 21-07 when 2CR-AHU-1 was removed from service. During preparations to tag out 2CR-AHU-1 (breaker 2EMXH-F07B), Assistant Shift Supervisor A, the C/R SRO, and NCOs A and B reviewed tagouts 02-115 and 22-61 but did not identify the need to open 2EKPH #22. Each operator had reviewed the T/M logbook during shift turnover, and during subsequent interviews each operator indicated that he was aware of the requirements of the T/Ms. This incident was discussed with all Operations personnel involved, and was discussed during the next Shift Supervisor's meeting. In addition, this incident will be discussed with all shift personnel during upcoming shift meetings.

The 600V power supply breakers for 1(2)CR-AHU-1 and 1(2)CRA-PFT-1 have had white Removal and Restoration (R&R) tags placed with the breakers ON. Before these breakers can be opened, the white R&R tags must be cleared which requires SRO approval. This will provide the SRO with another opportunity to ensure 1EKPG #22 (2EKPH #22) is opened when required. This action was taken so that a physical barrier would be in place prior to opening the 600V breaker.

The OPS red tag computer program is used by operators to initiate and print tagout sheets and red/white tags. An enhancement has been made to the program so that when the 600V breakers for 1(2)CR-AHU-1 or 1(2)CRA-PFT-1 are tagged out, a prompt automatically appears to allow the operator to also print a red tag for 1EKPG #22 (2EKPH #22). In addition, a note has been added to the "Special Instructions" section identifying the need to open 1EKPG #22 (2EKPH #22) when removing 1(2)CR-AHU-1 or 1(2)CRA-PFT-1 from service. This note will automatically print out on the tagout sheet at the line item for each required 600V breaker. A further enhancement will be made in the program with respect to Special Instructions. During interviews, operators expressed concerns that Special Instructions do no always appear on the computer screen level from which tagout sheets are printed. Therefore, the operator preparing the tagout may not see the Special Instructions on the screen. To provide another level of defense to prevent further incidents from occurring, the red tag computer program will be enhanced so that Special Instructions appear at the screen level from which tagouts are printed. In addition, a change has been made to the Technical Specification Action Item Logbook (TSAIL) computer program so

that when either VC/YC train is declared inoperable, a special note is automatically placed in 13AIL referencing 1EKPG #22 (2EKPH #22) and this Problem Investigation Report (PIR).

Preplanned W/Os for 1(2)CR-AHU-1 and 1(2)CRA-PFT-1 have had notes added in the Special Instructions section identifying the need to open 1EKPG #22 (2EKPH #22) when working on these components. This action was taken on January 14, 1992 in response to LER 413/91-020, Technical Specification 3.0.3 Entry Due To Two Inoperable Trains of the Control Room Ventilation System. However, the W/Os used on January 16 were printed before this date and did not contain the Special Instructions. Future W/Os for these components will have the notes automatically printed on them, providing another means to alert operators of the need to open 1EKPG #22 (2EKPH #22).

Incidents involving missed T/M requirements are recurring at Catawba. LER 413/91-020 involved a T/S 3.0.3 entry because 1EKPG #22 was not properly tagged out during Train A VC/YC work. Corrective action was taken after this incident to clarify in OP/0/A/6450/11, Enclosure 4.7 when 1EKPG #22 (2EKPH #22) is required to be open. The corrective action did not address situations in which the procedure was not needed. LER 413/92-001 involved a T/S violation due to an improperly performed T/S surveillance because an action was not taken per a T/M. OPS management will review OMP 2-5 and make revisions to strengthen the management controls over the process of using T/Ms. Proposed changes include plans to reduce the overall number of T/Ms, strict requirements for setting expiration dates, and higher levels of management approval for extension of expiration dates. This planned corrective action is also documented in LER 413/92-001.

CORRECTIVE ACTION

SUBSEQUENT

1) The 600V power supply breakers for 1(2)CR-AHU-1 and 1(2)CRA-PFT-1 have been white tagged "ON".

2) Enhancements have been made to the OPS red tag computer program so that when a tagout is made for the 600V breakers for 1(2)CR-AHU-1 and 1(2)CRA-PFT-1, a prompt appears allowing the operator to also print a red tag for 1EKPG #22 (2EKPH #22).

3) A note was added to the "Special Instructions" section of the OPS red tag computer program identifying the need to open 1EKPG #22 (2EKPH #22) when tagging out the 600V breakers for 1(2)CR-AHU-1 and 1(2)CRA-PFT-1.

4) This incident has been discussed with all operators associated with this event.

5) A change has been made to the TSAIL computer program so that when either VC/YC train is declared inoperable, a special note is automatically placed in TSAIL referencing 1EKPG #22 (2EKPH #22) and this PIR.

PLANNED

1) This incident will be discussed with OPS shift personnel.

2) An enhancement will be made to the OPS red tag computer program so that Special Instructions will appear on the screen level from which tagouts are printed.

3) OPS management will review OMP 2-5 and make revisions to strengthen the management controls over the process of using T/Ms.

SAFETY ANALYSIS

VC/YC Train B was inoperable on January 16 from 0353 to 1725 hours. During this time period, 2CRA-PFT-1 was not removed from service. However, 2CR-AHU-1 was removed from service and air flow escape paths were present when its associated access panels were removed. During PM activities per W/O 92001717-01, the Correct Component Verification was performed at 0800 hours prior to beginning work. The W/O "Task Completion Comments" were recorded at 0845 hours. The PM results were documented as satisfactory, and no filters or belts were changed out. Maintenance personnel involved estimated the total time the access panels were removed was less than five minutes. During the 2CR-D-4 damper inspection per W/O 92001733-01, the "Placement Verified By" section of the red tag was signed at 0900 hours prior to beginning work. Bahnson personnel indicated that, in order to perform the inspection, the duct access door is opened, a person enters the ductwork, the access door is closed, the inspection is performed, then the access door is opened to allow the person to exit the ductwork. Involved personnel estimated the total time the access door was opened to be less than three minutes. At 0915 hours, the red tag stubs were signed indicating work was complete.

During the time periods that the Train B access panels were open, it is unlikely the C/R would be pressurized to greater than 1/8 in wc by VC/YC Train A even with the Pressurizing Filter Train able to run due to the amount of flow escaping the system through access doors. With 2EKPH #22 closed, dampers associated with Train B would have repositioned in response to a safety signal. Therefore, VC/YC was unknowingly in T/S 3.0.3 during two short time intervals due to two inoperable trains (unable to pressurize the C/R).

However, the time period for this T/S 3.0.3 is less than the amount allowed in the ACTION for T/S 3.0.3 which allows for one hour to fix the problem then six to shutdown. Per Operations Technical Memorandum, VC/YC Train B would be reset within one hour.

Due to the construction of the Control Room at Catawba it is not likely that being pressurized to less than 1/8 in wc would significantly affect Operator Dose. The 1/8 in wc is required to compensate for wind and thermal effects along the Control Room pressure boundary which could locally affect inleakage. At Catawba only a small section of the Control Room west wall is exposed to the wind and this is solid concrete with no penetrations. Therefore, wind is an insignificant contributor to Control Room inleakage. Furthermore, of the areas adjacent to the Control Room all the areas receive some sort of HVAC and therefore are not thermally stratified to any significant degree because of the mixing action of the HVAC systems. Additionally, because of the relatively small height of the Control Room, thermal column effects will be minimal.

An analysis of Control Room pressures during a postulated accident shows that a positive pressure of approximately 0.015 in wc will exist with respect to all adjacent areas except those across the Auxiliary Building "AA" wall (OAC Room, Service Building and outside). The Control Room will be very slightly negative (approximately .007 in wc) with respect to these areas. This wall and the two doors in it by nature of their construction are very low leakage. Due to the low differential pressure across this wall it appears that the upper limit of 10 cfm unfiltered inleakage into the Control Room would still be satisfied and Control Room Operator doses would not exceed those stated in the FSAR Dose Analysis. Per Operations Technical Memorandum, VC/YC Train B would be reset within one hour, thus restoring Control Room pressurization capability and eliminating the minor leakage across the "AA" wall.

It has been concluded that, although the T/S required 1/8 in wc pressurization requirement may not have been achieved under all conditions, the consequences to C/R habitability and Operator Dose would not be significant.

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