



DUKE POWER

September 18, 1995

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

Subject: Catawba Nuclear Station Unit 1 and 2
Docket No. 50-413
LER 413/95-004

Gentlemen:

Attached is Licensee Event Report 413/95-004 concerning TECHNICAL SPECIFICATION 3.0.3 ENTRY DUE TO ANNULUS VENTILATION SYSTEM INOPERABILITY.

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.

bsa

Attachment

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JE22

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503

LICENSEE EVENT REPORT (LER)

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TITLE (4)
Technical Specification 3.0.3 Entry Due To Annulus Ventilation System Inoperability

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 NAME	DOCKET NUMBER(S)
08	05	95	95	- 004	- 00	09	18	95	Unit 2	05000414
										05000

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) 100	<input type="checkbox"/>	20.402(b)	<input type="checkbox"/>	20.405(c)	<input type="checkbox"/>	50.73(a)(2)(iv)	<input type="checkbox"/>	73.71(b)		
	<input type="checkbox"/>	20.405(a)(1)(i)	<input type="checkbox"/>	50.36(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	<input type="checkbox"/>	73.71(c)		
	<input type="checkbox"/>	20.405(a)(1)(ii)	<input type="checkbox"/>	50.36(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vii)	<input type="checkbox"/>	OTHER (Specify in Abstract below and in Text, NRC Form 366A)		
	<input type="checkbox"/>	20.405(a)(1)(iii)	<input checked="" type="checkbox"/>	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(viii)(A)				
	<input type="checkbox"/>	20.405(a)(1)(iv)	<input type="checkbox"/>	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(viii)(B)				
<input type="checkbox"/>	20.405(a)(1)(v)	<input type="checkbox"/>	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(x)					

LICENSEE CONTACT FOR THIS LER (12)									
NAME D. P. Kimball, Safety Review Group Manager							TELEPHONE NUMBER		
							AREA CODE (803)		831-3743

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)											

ABSTRACT (Limit to 1400 spaces, i.e. approximately fifteen single-space typewritten lines) (16)
 On August 5, 1995, at 0325 hours, with Unit 2 in Mode 1, Power Operation, at 100% power, upper containment control access door (CAD) AX715A did not fully close following ingress due to a damaged key lock bolt (deadbolt). On August 10, 1995, at 0336 hours, with Unit 1 in Mode 1 at 100% power, a similar event occurred for upper containment CAD AX701. In both cases, the doors were repaired without initiating the required compensatory action to ensure Annulus Ventilation (VE) System operability. Engineering evaluation of these events determined that both trains of VE were inoperable for brief periods, placing the affected unit in Technical Specification 3.0.3. These events are attributed to inadequate Management Direction due to station personnel exhibiting insufficient awareness of the impact of the CADs on VE operability and the need to initiate the compensatory action prior to commencing repair activities. Corrective actions initiated include providing specific instructions to personnel prior to ingressing the Reactor Building via a CAD and instructions to Security Officers to initiate the VE System compensatory action prior to performing CAD repairs. Planned corrective actions are to perform a detailed analysis of the compensatory action program and revise necessary station documents.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

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BACKGROUND

Catawba Nuclear Station is a dual containment plant having a steel primary containment and a concrete secondary containment with an annular region (annulus) between the two containment structures. The secondary containment structure functions to collect and process radioactive material following a design basis accident (DBA).

The Annulus Ventilation [EIS:VD] (VE) System functions in conjunction with the secondary containment to minimize the release of radioactivity (specifically radioiodines) from the primary containment to the environment following a DBA. The annulus pressure boundary is an essential feature of the VE System.

A total of ten doors (five per Unit) are included as part of the annulus pressure boundary. Control access doors [EIS:DR] (CAD) AX701 and AX715A are upper airlock [EIS:AL] enclosure doors for Unit 1 and Unit 2, respectively, and are part of this boundary.

A compensatory action has been developed to ensure VE System operability during maintenance or modifications to the various doors which make up the annulus pressure boundary during Modes 1 through 4 (Mode 1 is Power Operation, Mode 2 is Startup, Mode 3 is Hot Standby, and Mode 4 is Hot Shutdown). Two of the key elements of this compensatory action are that the door not be opened greater than four inches during the maintenance activity and that the individual(s) performing the activity maintain communication with the Control Room and are knowledgeable to immediately close the door and suspend work until notified by the Operations Shift Manager (OSM), or designee, for any of the following conditions:

- notification by the OSM, or designee, to close the door,
- hearing a page announcement for safety injection/reactor trip on either Unit,
- hearing the site assembly alarm, or
- if the work crew leaves the area for any reason or is forced to evacuate the area for any reason.

The Compensatory Action Program is detailed in Section 6.5 of Catawba Site Directive 3.1.14, Operability Determination. Per Section 6.5.3(b), "the individual designated to perform the function has been trained/qualified. Extra effort should be taken to ensure that all individuals involved in the compensatory action process clearly understand the requirements as specified and that adequate processes are in place to allow the fulfillment of the actions."

The design basis function of the VE System is to:

- Produce and maintain a negative pressure of at least 0.5 inches water gauge throughout the annulus with respect to adjacent areas;
- Reduce the concentration of radioactivity in the air within, and discharged from the annulus through filtration and recirculation of annulus air; and
- Provide long term fission product removal capability within the annulus through holdup (i.e., decay) and filtration.

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During normal unit operation, the VE System is in a standby mode and does not perform any function. Per Technical Specification (T/S) 3.6.1.8, two independent VE Systems shall be operable in Modes 1 through 4. Surveillance Requirement 4.6.1.8(d)(4) states that at least once per eighteen months testing must be performed verifying that each system produces a negative pressure of greater than or equal to 0.5 inch water gauge in the annulus within one minute after a start signal.

T/S 3.0.3 is required to be entered when a Unit is operating in a condition prohibited by Technical Specifications. This condition exists when a Limiting Condition for Operation (LCO) is not met except as provided in the associated Action Requirements.

EVENT DESCRIPTION

August 5, 1995

- 0325 hours Operations (OPS) personnel open CAD AX715A to enter Unit 2 uppercontainment to perform routine surveillance activities. The key lock bolt (deadbolt) would not retract. OPS personnel immediately contact Security due to an expected door alarm [EIS:ALM]. During attempts to repair the key lock bolt the CAD was held in various positions, but never exceeding one half open.
- 0326 hours Security receives door alarm for AX715A.
- 0332 hours Security Officer arrives at CAD AX715A. The CAD is closed to the extent possible (i.e., door latch resting against the door jamb latch plate).
- 0352 hours OPS personnel exit from upper containment. Additional Security Officers arrive to repair the CAD. During repair activities the door was held at less than one half open.
- 0405 hours CAD AX715A is repaired and closed.
- 0410 hours The OSM was notified of the failure of CAD AX715A to fully close. The OSM was aware that this door had a compensatory action associated with the VE System. Problem Investigation Process (PIP) 2-C95-1168 was initiated for Engineering to evaluate the effect of CAD AX715A being opened for the specified duration without the compensatory action being issued. This PIP was screened as a More Significant Event which required a Past Operability evaluation be completed prior to August 21, 1995, per the requirements of Nuclear System Directive 203, Operability.

August 10, 1995

- 0336 hours Single Point of Contact (SPOC) personnel opened CAD AX701 to enter Unit 1 upper containment to investigate an equipment concern. The key lock bolt for CAD AX701 failed to retract, thus the door would not fully close. During repair attempts, the CAD is held approximately one half open.
- 0337 hours Security receives alarm on CAD AX701.
- 0338 hours Security Officer A posted by the CAD.

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Security Officer B arrives at the CAD and begins repair work. The CAD is held less than one fourth open during repairs.

0411 hours CAD AX701 repaired and closed.

~0500 hours Following review of PIP 2-C95-1168, the Work Control Center (WCC) Senior Reactor Operator (SRO) initiated PIP 1-C95-1200 for Engineering to evaluate the effect on VE System operability with CAD AX701 being open for the specified duration without the associated compensatory action being initiated.

CONCLUSION

The Engineering Past Operability evaluation of these events, completed on August 17, 1995, concluded that both trains of VE were inoperable during the periods in which the CADs were open, thus Technical Specification 3.0.3 had been entered. This is based on the fact that personnel at the CADs at the point of mechanical failure of the key lock bolt were not aware of the CAD impact on VE System operability or actions necessary to maintain VE System operable.

It is noted that the Security Officers who responded to the CAD alarm and to perform the door repairs were aware of the specific action to immediately close the CAD during the occurrence of an event as specified by the compensatory action. The Officers were not aware of the necessity to initiate the compensatory action prior to making repairs to the door(s).

These events are attributed to inadequate Management Directions due to station personnel exhibiting insufficient awareness of the impact of the CAD doors on VE System operability. An effective means of identifying the impact of these doors on VE operability was not sufficiently in place to ensure all station personnel ingressing/egressing these doors were knowledgeable of the actions necessary to maintain VE System operability and the need to initiate the compensatory action prior to performing repair activities.

Subsequent to these events, the following corrective action was initiated to ensure that Station personnel are knowledgeable of the impact of opening an annulus pressure boundary CAD upon VE System operability and actions to take to ensure VE operability is maintained.

- Each person accessing the annulus or containment is advised of the effects of opening the CAD on VE System operability and that the CAD is not to be opened for any reason other than normal personnel transit without the compensatory action in place.
- Each person accessing the annulus or containment is instructed to close the CAD to the extent possible and contact Operations and Security if mechanical difficulties with the CAD are encountered.
- Each person accessing the annulus or containment is provided with the preferred sequence of opening the CAD to minimize the duration of the door being open and to prevent CAD key lock bolt damage.

This information is provided to personnel prior to receiving permission from the Operations Shift Manager and the door key to enter containment or the annulus. Positive control of containment/annulus entry is maintained through Catawba Site Directive 3.1.2, Containment Access.

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In addition, Security Officers have been instructed to initiate the necessary documentation prior to performing any repairs on CADs with compensatory action requirements. Security Officers are the first responders to CAD alarms and perform maintenance/testing of doors.

Planned Corrective Action is to perform a detailed analysis of the compensatory action program which will include an evaluation of other compensatory actions to determine if similar concerns exist, a revision to Catawba Site Directive 3.1.2 to include notifying personnel of the compensatory action requirements prior to entry into containment or the annulus, and a revision to the Security Training and Qualification guide to ensure that Security Officers receive continuing training of the requirements of the compensatory action.

A review of the PIP database for the two years prior to this event identified two other events which were attributed to inadequate Management Direction.

- PIP 1-C93-1124 was a Special Report submitted at the Nuclear Regulatory Commission's request to provide technical data and management's involvement and decision making process surrounding vibration in 1A Residual Heat Removal [EIS:BP] (ND) Pump [EIS:P].
- LER 414/94-007 involved a Unit 2 Reactor trip during performance of tv independent tests on components of the Reactor Trip System [EIS:JC].

The two previous events were not similar to the current events, nor would the corrective actions of the previous events have prevented the current events. Additionally, no reportable events were identified which involved compensatory actions. Per the guidance provided in Safety Review Group procedure 3.2, Licensee Event Reports, this event is not recurring.

CORRECTIVE ACTIONS

SUBSEQUENT

- 1) A program is in place to ensure station personnel are knowledgeable of the impact of opening an annulus pressure boundary CAD on VE System operability and the actions necessary to ensure VE operability is maintained.
- 2) Security Officers have been instructed of the compensatory action and the requirement to initiate the necessary documentation prior to performing CAD repairs.

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PLANNED

- 1) A detailed analysis of the compensatory action program will be performed. This review will include an assessment to determine if similar concerns as noted in this LER exist.
- 2) Catawba Site Directive 3.1.2 will be revised to incorporate Subsequent Corrective Action Number 1 and provide means to document that station personnel have been informed of actions necessary to maintain VE System operability prior to granting access into containment or the annulus.
- 3) Security Training and Qualification guides will be revised to ensure that Security Officers receive continuing training on the VE System compensatory action.

SAFETY ANALYSIS

These events involve brief periods of time in which the upper containment CADs were not in the fully closed position. Since repair efforts were expeditious in nature, source term (radioactive materials in liquid and gaseous effluents) availability from an accident would not have occurred during the time in which the doors were open.

Additionally, analysis by Duke Power Company indicates the following:

- If the CADs were closed, but not completely secured (i.e., door latch against the door jamb strike plate), the two trains of VE would have been capable of attaining design basis negative pressure, and
- Even with one of the CADs completely open (which was not the case in either of the events described in this LER), the annulus would have been at a slight negative pressure and air flow would have been directed into the annulus rather than out of the annulus. Source term from a postulated accident would have been filtered prior to release.

Since source term would have been filtered prior to release, no new source term release pathway was created. Even in the event of source term migration into the Auxiliary Building [EIS:Nf], holdup, plateout, and filtration of the source term would have occurred prior to release.

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