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November 27, 1996

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

Subject: Catawba Nuclear Station
Docket No. 50-414
LER 414/96-005

Gentlemen:

Attached is Licensee Event Report 414/96-005, concerning **Unit 2 Standby Shutdown Syster.ı potentially outside design basis.**

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

Cordially,

W. R. McCollum, Jr.

Attachment

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

Mr. P. S. Tam
U.S. Nuclear Regulatory Commission
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Washington, D.C. 20555

Mr. R. J. Freudenberger
NRC Resident Inspector
Catawba Nuclear Station

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NRC FORM 366 (4-95) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMD NO. 3150-0104
EXPIRES: 04/30/98
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)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Catawba Nuclear Station	05000414	1 of 6

TITLE (4)
Unit 2 Standby Shutdown System potentially outside design basis

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)
										N/A	05000
10	28	96	96	-	005	- 00	11	27	96		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		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)		50.73(a)(2)(vii)		OTHER (Specify in
			20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		Abstract below and
			20.405(a)(1)(iv)	X	50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)		in Text, NRC Form
			20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)		366A)

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER	
	AREA CODE	
D. P. Kimball, Safety Review Group Manager	(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	
E4	KE	VTV	N/A	NO							

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)

Event Description: On October 28, 1996, with Unit 2 in Mode 1, Power Operation, at 100% power, the site determined that unit 2 may have operated for brief periods in the past with its Standby Shutdown System (SSS) potentially outside its design basis. During security events the Condenser Circulating Water (RC) System supplies the Auxiliary Feedwater (CA) System with inventory to maintain steam generator (SG) levels during Hot Standby operation from the SSS. A self-contained automatic, float type vent valve, installed to ensure that the RC to CA piping is kept full, was found to be stuck in the closed position by impacted mud and corrosion, internal to the valve. This could have caused the RC to CA piping not to be completely full during brief periods in the past.

Event Cause: The root cause of this event is attributed to the omission of pertinent information during the development of documents which describe system design bases, which lead to the exclusion of these vent valves from the preventative maintenance program.

Corrective Actions: Subsequent corrective actions include placing the vent valves for both unit 1 and 2 in the list of equipment/components required for SSS OPERABILITY and placing both the unit 1 and 2 vent valves in a planned preventative maintenance schedule.

BACKGROUND

The Standby Shutdown System (SSS)provides an alternate and independent means for achieving and maintaining a Hot Standby condition for one or both units, when certain events preclude operation from the Control Room [EIIS:NA], or either of the two Auxiliary Shutdown Panels.

These three events are: 1) Station Blackout (Loss of All AC Power), 2) a fire, or 3) a security event. For the fire or security event, it is assumed that the preferred (Control Room and Auxiliary Shutdown Panels) controls, necessary to maintain Hot Standby, have been rendered unresponsive or inaccessible. During each of these events, the Turbine [EIIS:TRB] Driven Auxiliary Feedwater [EIIS:BA](CA) Pump [EIIS:P](TDCAP) will start automatically and supply CA to the B and C steam generators[EIIS:SG](SG).

There are several sources of water available to the TDCAP. The preferred sources are the normally aligned nonsafety grade, condensate [EIIS:KA](CM)quality sources, located in the Turbine [EIIS:NM] and Service Buildings [EIIS:MF]. These condensate sources supply the auxiliary feedwater requirements during all normal system operating modes; but, since they are nonsafety grade, their availability is not assured. The assured source is safety grade, noncondensate quality water provided by the Nuclear Service Water System [EIIS:BI](RN). An additional source of nonsafety grade, noncondensate quality water, which is adequately protected from damage during fire and security events, is available from the embedded piping of the Condenser Circulating Water System [EIIS:KE](RC).

The CA system is connected to the RC system about 1 foot from the top of a 5 foot vertical manway used to access the main RC piping leaving the main condenser [EIIS:COND] during drained maintenance. To ensure that the RC to CA piping is filled during RC system gravity fill from a drained condition, an automatic vent valve [EIIS:VTV]is provided at a high point above the CA system connection to the RC system. The connection of the CA system to the RC system is in an enclosed, secured, "vital area" in the lowest elevation of the unit's Turbine Building. The automatic venting design of the vent valve precludes the necessity for having to enter the sealed "vital area" for system venting. (See ATTACHMENT 1, GENERAL ARRANGEMENT)

EVENT DESCRIPTION

On July 10, 1996, Site Engineering discovered that 2RC-116, the self-contained, mechanical, float type, vent valve in the RC system, was stuck in the closed position by impacted mud and corrosion, internal to the valve. This prevented the float from operating freely. Since it could not be repaired, 2RC-116 was replaced with a new valve on the day of discovery. 1RC-116, the corresponding unit 1 valve, was examined and found to be functioning properly.

On October 28, 1996, the site determined that prior to July 10, 1996, unit 2 may have operated for brief periods in the past with its SSS potentially outside its design basis.

CONCLUSION

Because of the vent valve failure, air was trapped at the high point of the manway where the vent valve was installed. The vent valve was isolated, removed, and the as found water level in the manway was above the point of connection of the CA system piping. Therefore the nonsafety grade, noncondensate quality water supply required for SG inventory maintenance during SSS operation was assured at the time of discovery.

Based on the physical condition of the valve and the fact that no corrective or preventative maintenance work orders have ever been initiated, a time of failure could not be determined, and unit 2 may have operated for brief periods in the past with its SSS potentially outside its design basis.

The root cause of this event is attributed to the omission of pertinent information during the development of documents which describe system design bases, which led to the exclusion of these vent valves from the preventative maintenance program.

Subsequent corrective actions include placing the vent valves for both unit 1 and 2 in the list of equipment/components required for SSS OPERABILITY and placing both the unit 1 and 2 vent valves in a planned preventative maintenance schedule.

A review of reportable events for the 24 months prior to this event revealed one event involving a technical inaccuracy within the Design Basis Document for the Standby Shutdown System. LER 413/96-004 had as its root cause, misinterpretation of information used during the development of documents which describe system design bases. Therefore, the event reported in this LER is considered to be recurring. However, since this event was discovered during follow-up on a corrective action committed to as a result of the previous event, no additional corrective actions to prevent recurrence are warranted.

CORRECTIVE ACTIONS

IMMEDIATE

1) 2RC-116 was replaced with a new valve under corrective work order number 96054693.

2) 1RC-116 was determined to be operable based on its proper operation.

SUBSEQUENT

1) Valves 1RC-116 and 2RC-116 have been included in a planned preventative maintenance schedule.

2) Valves 1RC-116 and 2RC-116 have been listed as components required for Standby Shutdown System OPERABILITY.

SAFETY ANALYSIS

During a Station Blackout (Loss of All AC Power) the nonsafety grade condensate quality water sources have a sufficient capacity to last for greater than 28 hours. This event is postulated to last 4 hours, so use of the RC supply would not be required.

During a fire event, the nonsafety grade condensate quality water sources and/or at least one train of safety grade RN will be available, so use of the RC supply would not be required.

During a security event, the following must occur before the RC supply would be required.

1) Loss of or depletion of the Auxiliary Feedwater Condensate Storage Tank.
2) Loss of or depletion of the Condensate System's Upper Surge Tank.
3) Loss of or depletion of the Main Condenser Hotwell.
4) Loss of both trains of the Nuclear Service Water System (RN).

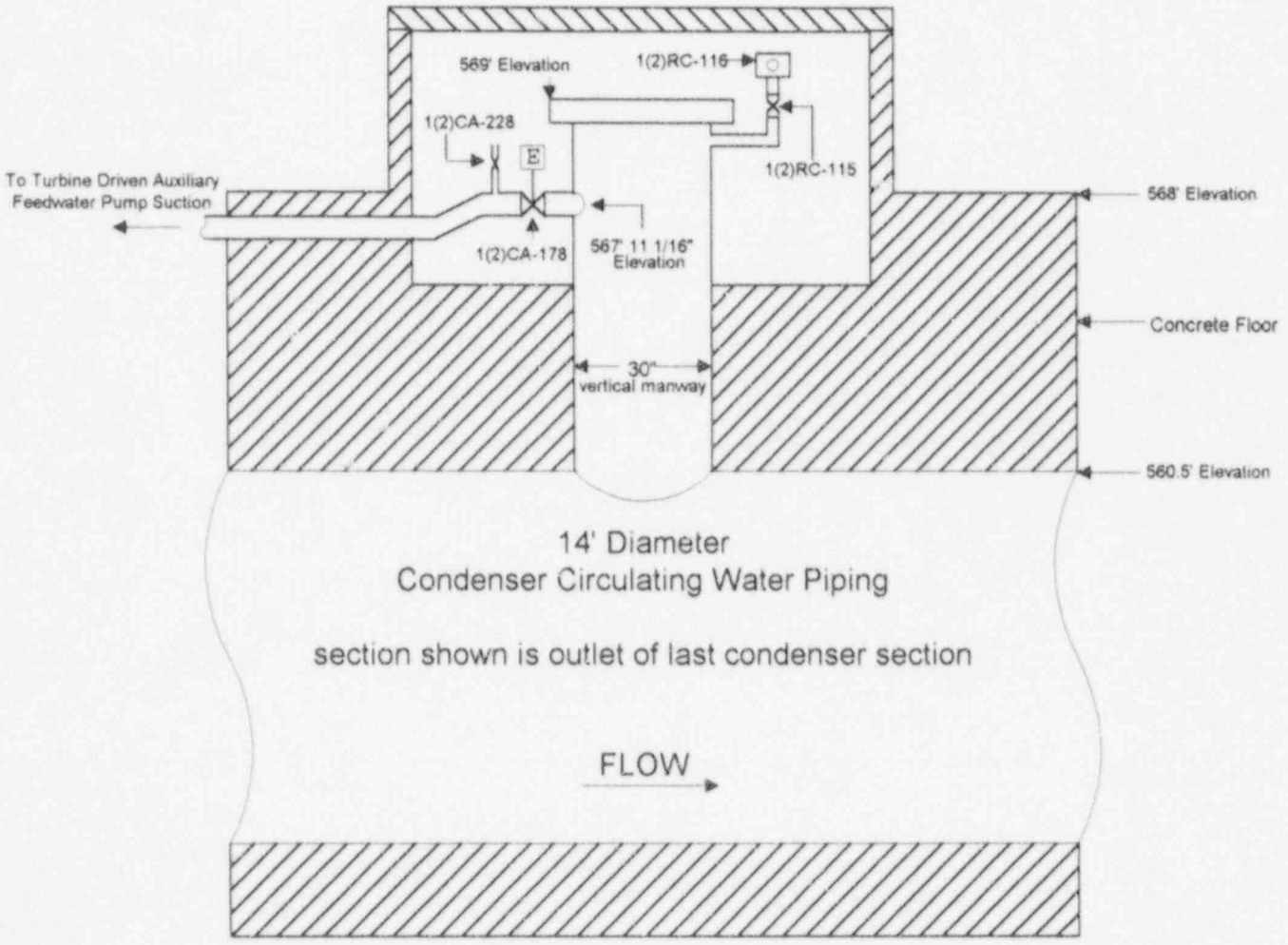
The overall impact of the loss of the RC water source on core damage probability is considered very small. The risk significance of the SSS systems in the Catawba PRA is associated with the Reactor Coolant Pump seal injection function and not the feedwater supply function provided by the TDCAP. The Reactor Coolant Pump seal injection function of the SSS is not affected by this event. For the SSS feedwater function, the PRA sequences of interest do not rely on the RC suction source. Therefore, this event did not impact the PRA analysis and risk results.

Although security events are not addressed in the PRA, the Reactor Coolant Pump seal injection function would still be regarded as the most important SSS function in a security event. The redundancy and capacity of the normal condensate sources provide a reliable feedwater source to the S/Gs. The probability that the RC suction source will be required is also reduced when consideration is given to the fact that there is some spatial separation between the condensate sources in the Turbine Building and the RN assured sources in the Auxiliary Building. The unavailability of the RC source of feedwater would not be considered a significant contributor to overall plant risk.

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

ATTACHMENT 1

GENERAL ARRANGEMENT



DRAWING NOTES:

1. Drawing is not to scale.
2. All components shown are located inside the "Vital Area" enclosure or are embedded in the concrete floor.
3. "Vital Area" shown with welded top plate in place.