

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 4	
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TITLE (4)  
Ice Condenser Lower Inlet Doors Blocked Closed

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)												
1	2	3	1	8	4	8	5	-	0	0	2	-	0	0	0	2	0	8	8	5			0 5 0 0 0
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THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

OPERATING MODE (9) 4	20.402(b)	20.406(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 0 0 0	20.406(a)(1)(i)	50.38(e)(1)	X 50.73(a)(2)(v)	73.71(c)
	20.406(a)(1)(ii)	50.38(e)(2)	50.73(a)(2)(vii)	X OTHER (Specify in Abstract below and in Text, NRC Form 388A)
	20.406(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	50.72(b)(2)(iii)
	20.406(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
	20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Roger W. Ouellette, Assistant Engineer - Licensing	TELEPHONE NUMBER 7 1 0 4 3 1 7 1 3 1 - 1 7 1 5 1 3 1 0
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)  NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On December 31, 1984, at 2226 hours, Unit 1 entered Mode 4, Hot Shutdown, with the Ice Condenser Lower Inlet Doors blocked closed, thus rendering the doors inoperable. Technical Specification 3.6.5.3 requires the Lower Inlet Doors to be OPERABLE in MODES 1, 2, 3, and 4. This incident was not discovered until January 9, 1985 at approximately 1900 hours. Catawba Unit 1 was in MODE 2, Start-Up, when this incident was discovered. A Work Request was issued following the discovery of this incident, and the Lower Inlet Doors were unblocked at 2155 hours. This incident is reportable pursuant to 10 CFR 50.73, section (a)(2)(v) and 10 CFR 50.72, section (b)(2)(iii).

This event is classified as a Personnel Error. The Procedural Step verifying that the Ice Condenser Lower Inlet Door Blocking Devices were removed was signed-off when in fact, the Lower Inlet Door Blocking Devices were still installed.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8   5	-   0   0   2	-   0   0	0   2	OF	0   4

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

The Ice Condenser is equipped with twenty-four pairs of Lower Inlet Doors which are located in Lower Containment along the Lower Crane Wall. During a postulated Loss of Coolant Accident (LOCA), if Lower Containment Pressure exceeds Upper Containment Pressure by more than one pound per square foot (1 lb/ft<sup>2</sup>), the Lower Inlet Doors will swing open and allow steam to flow into the Ice Condenser (see Enclosure 1). This allows for the absorption of thermal energy released in the event of a LOCA, for the purpose of limiting the initial peak pressure in Containment.

After entering Mode 5 (Cold Shutdown) and prior to entering Mode 6 (Refueling) the Ice Condenser Lower Inlet Doors are physically blocked closed to ensure that the Lower Inlet Doors do not inadvertently open (see Enclosure 2).

This is required by Operations Procedure OP/1/A/6100/02, Controlling Procedure for Unit Shutdown. Prior to entering Mode 4 (Hot Shutdown) the Door Blocking Devices are required to be removed per a step in OP/1/A/6100/01, Controlling Procedure for Unit Startup.

On December 9, 1984, at 1158 hours, Unit 1 entered Mode 5 for an inspection of the Control Rod Drive Shafts. The Ice Condenser Lower Inlet Doors were blocked closed after entering Mode 5 per Work Request 3189 SWR.

Prior to entering Mode 4, Operations began OP/1/A/6100/01, which outlines steps necessary to take the associated unit from Cold Shutdown to 15% full power. A Maintenance Representative signed off the appropriate step of OP/1/A/6100/01 believing that the Lower Inlet Door Blocking Devices had been removed. On December 31, 1984, at 2226 hours, Unit 1 entered Mode 4.

On January 9, 1985, at approximately 1800 hours, several Health Physics technicians entered the Ice Condenser to perform procedure TP/1/B/2200/01, Biological Shield Survey. After entering the Ice Condenser, they noticed that the Lower Inlet Doors were blocked closed. They notified the Shift Supervisor who requested the Shift Technical Advisor (STA) to investigate the incident. The STA discovered that the doors in Bays 1 through 16 and 18 through 24 were blocked closed. The Blocking Device for the pair of doors in Bay 17 had slipped out of place. Work Request 13784 OPS was issued and at 2155 hours, the Lower Inlet Door Blocking Devices were removed.

The Work Request for unblocking the Lower Inlet Doors, 3194 SWR, was issued to Planning by Preventive Maintenance (PM). Normally, when a Standing Work Request (SWR) is issued to Planning during an Outage, the SWR is pre-planned and held until the work is to be performed. The responsible group tracks the specific task and notifies Planning when the work needs to be performed. Planning then issues the SWR to Mechanical or Instrument and Electrical Maintenance.

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During the tracking process of 3194 SWR, it was overlooked as an outstanding item for entry into Mode 4. Therefore, the Work Request was never issued to Mechanical Maintenance.

The Maintenance Representative however, was under the impression from conversations with a co-worker that the Door Blocking Devices had been removed. He then signed the appropriate step in OP/1/A/6100/01. Since OP/1/A/6100/01 does not require an Independent Verification for this step, no one else verified that the Door Blocking Devices had been removed prior to entering Mode 4.

This incident is classified as a Personnel Error. The Maintenance Representative should have verified visually or by means of a completed Work Request that the Lower Inlet Door Blocking Devices had been removed. Also, if this activity had not been overlooked and the Work Request properly issued to Mechanical Maintenance, the Door Blocking Devices would have been removed.

CORRECTIVE ACTION

1. The STA investigated door blockage.
2. Work Request 13784 OPS was issued to remove Blocking Devices.
3. The Door Blocking Devices were removed.
4. Training sessions were conducted to stress the significance of procedure sign-off's to the appropriate Supervisory Personnel.
5. All Unit 1 Door Blocking Devices were painted fluorescent orange and will be sequentially numbered (1 through 24). All Unit 2 Door Blocking Devices will be painted fluorescent green and sequentially numbered (1 through 24). This is to ensure that the Blocking Devices will be accountable and highly visible when installed in the Ice Condenser.
6. Mechanical Maintenance will develop a Maintenance Procedure to provide a method of documenting the status of Mechanical Maintenance's Technical Specification Requirements. This is to ensure that all Mode requirements falling under the responsibility of Mechanical Maintenance have been satisfied prior to entering each Mode of Operation.
7. Mechanical Maintenance will develop a Maintenance Procedure to provide guidelines for Installation and Removal of the Lower Inlet Door Blocking Devices. An independent verification will be required.
8. Appropriate station personnel will review methods used to assure completion of required work pertaining to OP/1/A/6100/01, as requested by Station Manager.

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

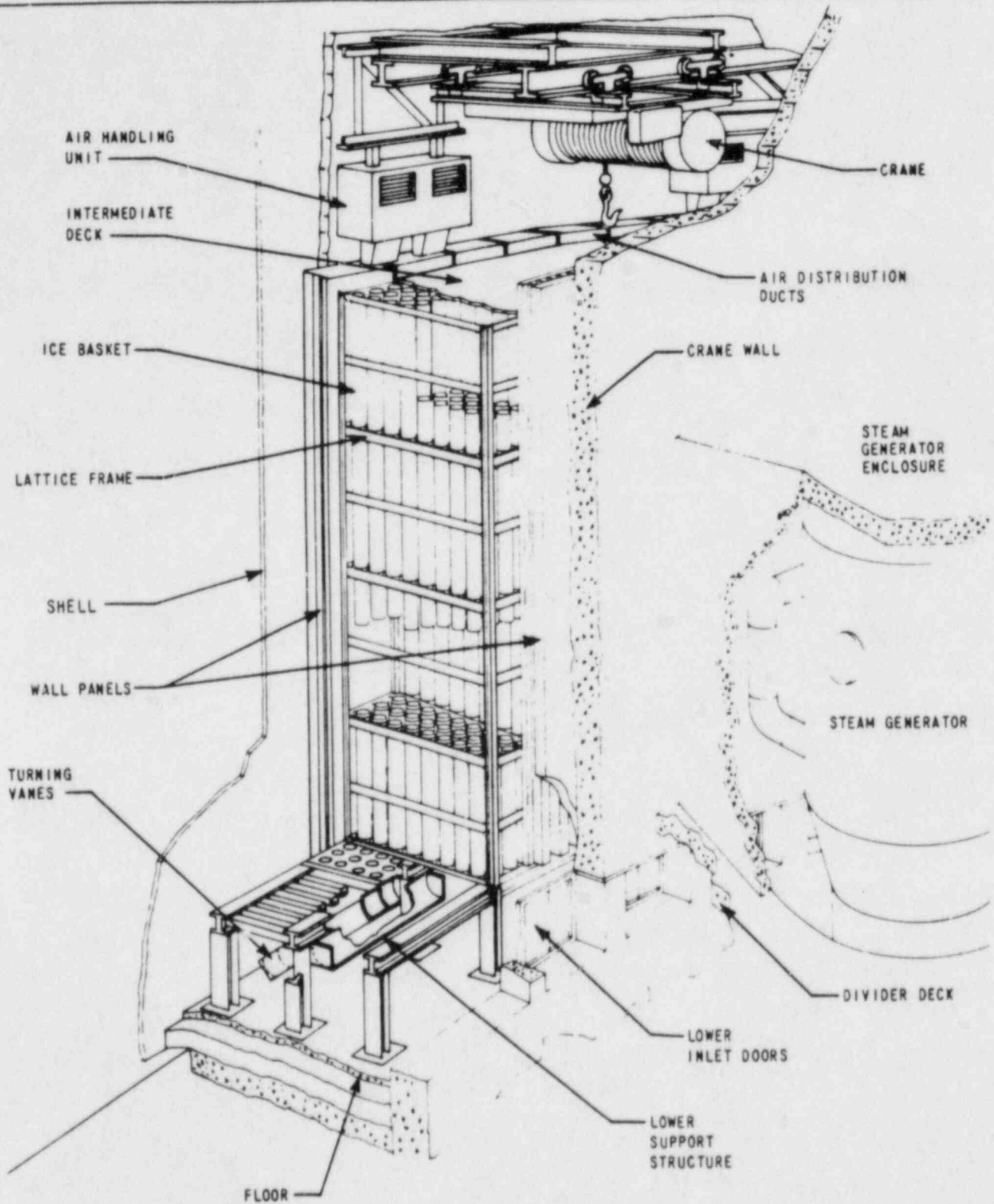
SAFETY ANALYSIS

The concern raised by leaving the inlet door blocking mechanisms in place is a possible degradation in the ability of the ice condenser to control containment pressure following a postulated high energy line break inside containment. During such a break, lower containment (and upper containment) pressure will increase due to mass and energy releases. If the pressure differential across the ice condenser exceeds a certain value, the inlet doors will open. Calculations have shown that this value is less than approximately 0.1 psi, with the blocking mechanisms conservatively assumed to be wedged in place horizontally. This differential pressure will develop a force across the doors sufficient to buckle the blocking mechanism. In fact, the mechanisms are not wedged in place, but are simply allowed to drop into the space between the doors and the turning vane, thus holding the doors closed by their weight alone. The pressures developed by all but the smallest high energy line breaks would therefore easily push the mechanisms aside and allow the doors to fully open. For the very small breaks, which do not develop sufficient differential pressure to open the doors, containment spray, initiated by upper containment pressure increases due to bypass leakage, will control the pressure increase.

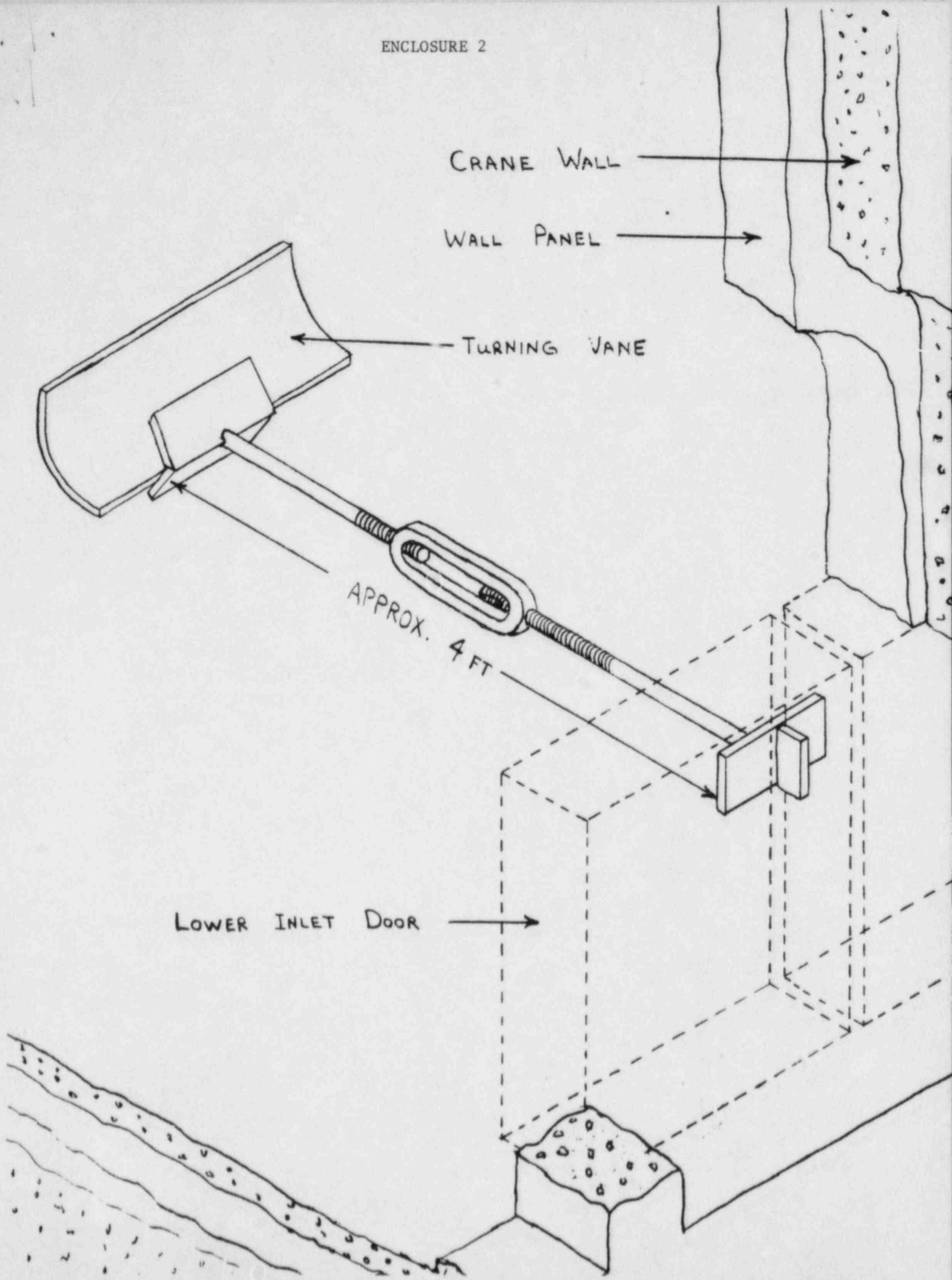
The consequences of a postulated high energy line break inside the containment with the mechanisms in place were further decreased since the Catawba Unit 1 core was essentially at zero burnup. The blocking mechanisms were completely removed no later than 50 hours after initial criticality. Thus, very small fission product inventories had accumulated. Further, the very low decay heat levels ensured that the core would be recovered, assuming ECCS availability, well before clad damage could provide a pathway for significant release of the core activity. In summary, the failure to remove the blocking mechanisms prior to entering hot shutdown did not significantly degrade the ice condenser performance, and the incident posed no threat to the health and safety of the public.



# Ice condenser



ENCLOSURE 2



DUKE POWER COMPANY

P.O. BOX 33189  
CHARLOTTE, N.C. 28242

HAL B. TUCKER  
VICE PRESIDENT  
NUCLEAR PRODUCTION

TELEPHONE  
(704) 373-4531

February 8, 1985

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

Subject: Catawba Nuclear Station, Unit 1  
Docket No. 50-413

Gentlemen:

Pursuant to 10 CFR 50.73 Section (a) (1) and (d), attached is Licensee Event Report 413/85-02 concerning the Ice Condenser Lower Inlet Doors being blocked closed. This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

*H.B. Tucker*

Hal B. Tucker

RWO:slb

Attachment

cc: Dr. J. Nelson Grace, Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30323

Mr. Jesse L. Riley  
Carolina Environmental Study Group  
854 Henley Place  
Charlotte, North Carolina 28207

Robert Guild, Esq.  
P. O. Box 12097  
Charleston, South Carolina 29412

Palmetto Alliance  
2135½ Devine Street  
Columbia, South Carolina 29205

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

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

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

NRC Resident Inspector  
Catawba Nuclear Station

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