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ALEXICH,M.P. Indiana & Michigan Electric Co.
RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Revised application for amend to License DPR-74,providing addl info on frequency for torque testing ice condenser inlet doors & capability to isolate containment svc air.Rept on test dates & drawing of isolation valves encl.

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INDIANA & MICHIGAN ELECTRIC COMPANY

P.O. BOX 16631
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April 19, 1984
AEP:NRC:0860G

Donald C. Cook Nuclear Plant Unit 2
Docket No. 50-316
License No. DPR-74
AMENDMENT TO TECHNICAL SPECIFICATION CHANGE REQUEST

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Denton:

This letter provides further information regarding the Technical Specification change request contained in our letter No. AEP:NRC:0860 dated March 1, 1984, as per phone conversations held with members of your staff. Specifically, we were requested to provide additional details with regard to the second and fourth proposed changes in AEP:NRC:0860.

The second change involved the frequency for torque testing the ice condenser inlet doors. Attachment 1 to this letter is plant report No. STP.207 dated February 27, 1984. The plant report shows the lower inlet door test dates and the corresponding condition reports. The condition reports describe the causes for the conditions and the corrective actions taken to assure that the respective doors function properly.

The fourth change involved the capability to isolate containment service air in Modes 1, 2, 3, and 4. Specifically, we requested Table 3.6-1 be changed to add valve PCR-40 to list A and valve PA-342 to list E and to delete valve PA-243 and a blind flange (Item 47) from list E. Attachment 2 to this letter contains a figure and drawing which show the location of the above valves. Figure 9.8.3 from the updated FSAR shows the physical location of the valves. Drawing 1-2-PO-01 shows the isometric location of the valve PCR-40, which would replace a manually operated valve at that location. Upon the initiation of the containment isolation signal, this valve is to close automatically, thus providing containment isolation.

A001
1/1

This document has been prepared following Corporate procedures which incorporate a reasonable set of controls to insure its accuracy and completeness prior to signature by the undersigned.

Very truly yours,

M. P. Alexich
Vice President

th

Attachment

cc: John E. Dolan
W. G. Smith, Jr. - Bridgman
G. Charnoff
R. C. Callen
E. R. Swanson, NRC Resident Inspector - Bridgman

INDIANA & MICHIGAN ELECTRIC COMPANY

AMERICAN ELECTRIC AEP POWER SYSTEM

DATE: February 27, 1984

SUBJECT: STP.207 Report

FROM: A. L. Tetzlaff

TO: K. S. Chapman

STP.207 I/C Lower Inlet Door Test Dates and the Dates Condition Reports Were Written

UNIT 1		UNIT 2	
2-77	None	3-78	N/A to STP.207
9-77	None	5-78	N/A to STP.207
11-77	None	7-78	2-7-78-404
6-78	N/A to STP.207	11-78	2-11-78-617
12-78	1-4-79-176	5-79	2-5-79-242
5-79	None	10-79	None
10-79	1-11-79-479	7-80	None
7-80	None	11-80	None
12-80	1-12-80-348	11-83	None
6-81	1-1-81-001	3-81	2-3-81-102
11-81	None	10-81	None
2-82	None	3-82	None
7-82	None	8-82	None
3-83	None	1-83	None
7-83	None	6-83	2-06-83-527
11-83	None	8-83	2-07-83-614 N/A to STP.207
1-84	None		2-08-83-753
		11-83	None

Please see the following pages for an explanation of what was done to correct and prevent L.I.D. problems.

Condition Reports, Dates, Causes, and Corrective Action

Condition Report 1-4-79-176 LER 028

Discription of Condition/Event Date 4/10/79 Event Time 1515 Unit Affected 1

The torque required to open lower inlet door 3-R beyond 6 inches of travel was measured to be 902 in.- lbs. The applicable Technical Specification limit is 675 in.- lbs. Upon inspecting the door, it was found that sheet metal screws along the bottom of the door were rubbing against the surface of the bottom edge of the door frame.

Corrective Action Taken Initiated JO No. 49689

Depressed lower inlet door 3-R frame bottom edge surface to allow door to be opened beyond 6 inches utilizing an opening torque of 328 in lbs.

As a result of the problem described in the subject Condition Report, two inspections were conducted on April 13, 1979. The first inspection consisted of observations made in bay 3 only. The second inspection consisted of observations conducted throughout the remaining bays based on the results of the first inspection conducted in bay 3.

During the first inspection, the following observations were made (refer to Attachment #1):

1) abrasion marks appeared on the door frame bottom ledge where two of the door's sheet metal screws were making contact as the door was opened,

2) large dents in plate B were observed directly below the abrasion points thereby suggesting that a mechanical force, imparted on plate B, may have resulted in forcing plate A upwards and also increasing the size of the gap between plates A & B,

3) the RTV sealant, previously installed in the gap between plates A & B, was found missing thereby allowing the possibility of condensation to run from atop plate A down into the insulation to freeze and push plate A upwards and

4) mineral residue, indicating condensation flow across plate A (from warm side to cold side) and down toward the gap between plates A & B, was observed.

During the second inspection, the following verification were made:

1) it was verified that none of the other door frame bottom ledges exhibited significant damage (dents); the type of which was found in bay 3 and

2) it was verified that only bay 14 (in addition to bay 3) was missing the RTV sealant in the gap between plates A and B.

As a result of these inspections, Dayco Sheet Metal Inc. was ordered to remove both plate A and plate B from bays 3 and 14 to allow inspections for ice buildup in the insulation. After the plates were removed, it was verified that the insulation in bay 3 was heavily loaded with ice. The insulation in bay 14, however, revealed no evidence of water or ice buildup.

Based on the observations made during these inspections, it is apparent that door 3-R plate A was forced upwards (and in contact with the door's sheet metal screws) as a result of a combination of mechanical impact transmitted from plate B and insulation expansion as a result of freezing condensation. During the insulation, it became obvious that not only did the blows to plate B force plate A upwards but also resulted in widening the gap between plates A & B which resulted in a high probability of increasing condensation flow into the insulation.

Upon completing the inspections described in the attached investigation report, Dayco Sheet Metal Inc. replaced all of the frozen insulation along the bay 3 door frame bottom ledge and plates A & B were reinstalled in both bay 3 and bay 14. In addition, RTV sealant was installed along the entire length of the gap between plates A & B in both bays. The RTV sealant is considered a permanent fix in prohibiting condensation flow down through the gap and into the insulation.

To verify that an adequate clearance between the sheet metal screws and plate A existed after the completion of the repairs to bays 3 and 14, the following initial opening torque measurements were made:

Bay	Door	Opening Forces	Level Arm	Torque*
3	R	8.5 LBS	41 IN	348 IN LBS
3	L	8.5 LBS	41 IN	348 IN LBS
14	R	9.5 LBS	41 IN	389 IN LBS
14	L	9.0 LBS	41 IN	369 IN LBS

* Technical Specification maximum acceptable torque is 675 IN LBS.

To completely eliminate the possibility of this problem in the future, a RFC has been written to replace the horizontal plate A with a plate that would slope down in the direction as shown in Attachment #2. The sloping feature of the this plate would provide a significantly greater clearance between the plate and the door's sheet metal screws. The greater clearance will allow plate B to absorb impact without causing plant A to interfere with the door's opening travel. It is planned to install the RFC in each unit during each unit's upcoming refueling outage. (This has been completed)

In an attempt to detect any damage to the doors that would result in an increase in the door's opening torque, the initial opening force will be re-measured just prior to power escalation at the end of every ice condenser basket weighing project.

This investigation was done by K. A. Toner May 3, 1979

LER 79-028

Event Description And Probable Consequences:

While performing a routine surveillance test it was discovered that the torque required to open lower ice condenser inlet door 3-R exceeded the limit identified under T.S. 3.6.5.3.

Cause Description And Corrective Actions:

The sheet metal screws located along the bottom of the door were discovered to be rubbing against the surface at the edge of the door frame requiring excessive force to open the door. The door frame edge was depressed to allow proper clearance, and a retest was performed with satisfactory results.(see supplement)

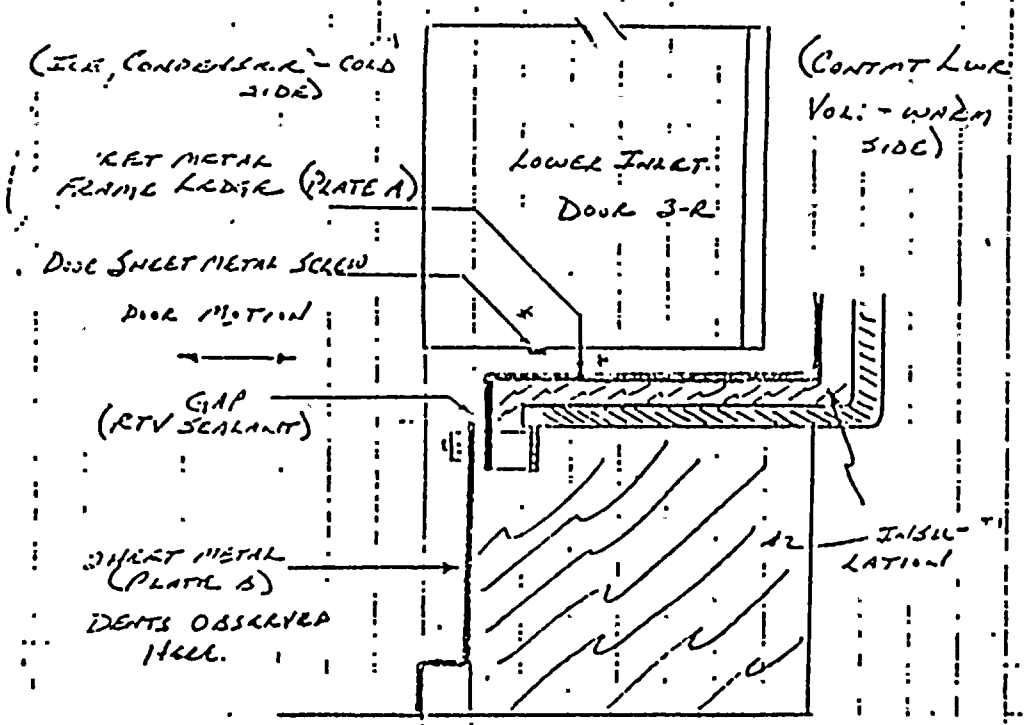
SUPPLEMENT TO LER #79-028/03L-0

SUPPLEMENT TO CAUSE DESCRIPTION

Following an inspection of the remaining ice condenser doors for similar problems, a design change was submitted to change the positioning of the lower inlet door frames to allow a greater clearance between the door and frame.

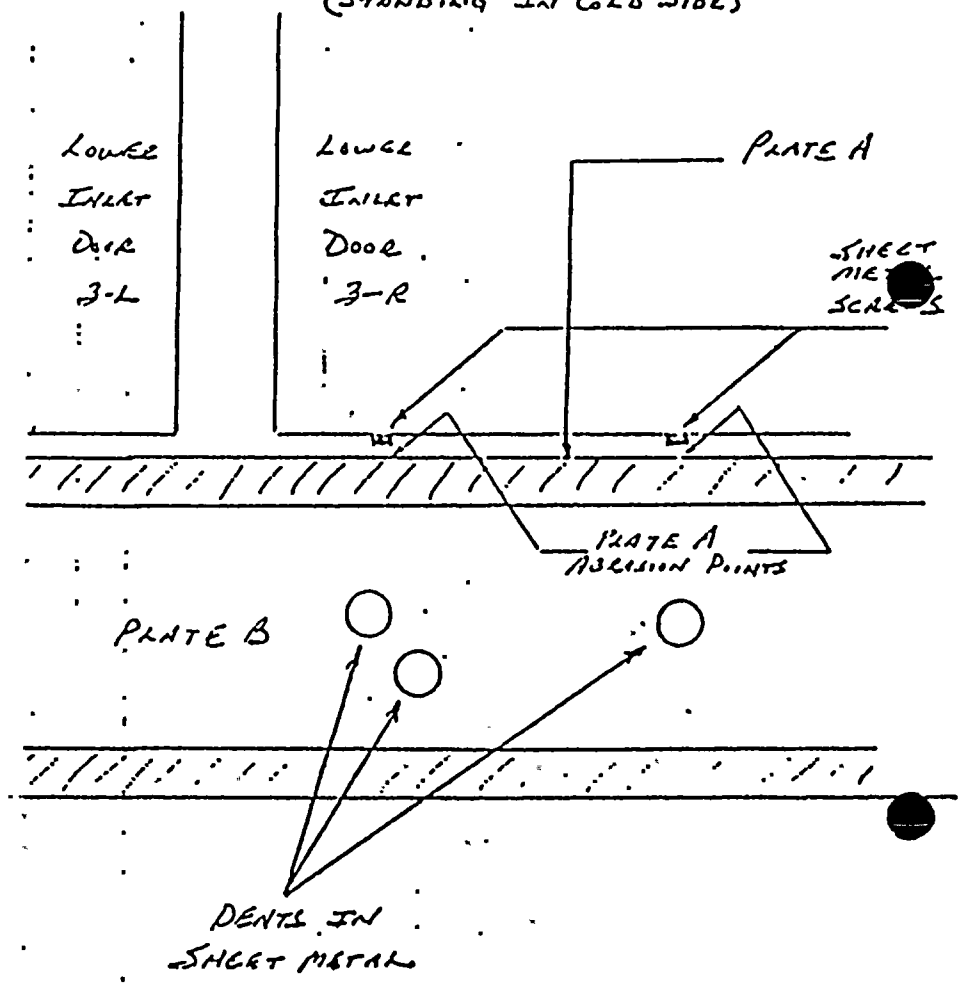
UNIT #1 - LOWER ICE CONDENSER
DOOR 3-R 4/10/79
KLM.

SIDE VIEW



* CONTACT BETWEEN THESE TWO POINTS INDICATED BY ABRASION MARKS ON FRAME LEDGE (PLATE A)

FRONT VIEW
(STANDING IN COLD SIDE)



C.R.# 1-11-79-479 LER # 79-056

Investigation Report C/R 1-11-79-479

Evaluation of the test data taken during the performance of THP 4030 STP.207 revealed that the opening torque limit of 195 in-lbs was exceeded only on lower inlet doors 17L & 21R.

Examination of past data taken on the Unit 1 lower inet doors shows that the doors in bays 17 and 21 have been a problem in the past. These doors have always tested near or slightly above the limit of 195 in-lbs. It seems likely from this data that the springs used in these particular doors might be slightly stiffer than those in the doors in other bays.

The spring tension adjustment bolts on these doors (bays 17 & 21) are now backed out to their limit and the door opening torques are below the limit but only slightly, so as a permanent solution either the springs should be replaced or the spring tension adjustment bolts should be replaced with longer bolts.

Preventative Action:

An RFC has been written to replace the spring adjustment bolts in order to relieve the spring tension on those lower inlet doors which have high opening torque values (RFC 12-1762). (This has been completed)

LER #79-056

SUPPLEMENT TO CAUSE DESCRIPTION

A design change has been initiated to replace the spring adjustment bolts with longer bolts in order to relieve the spring tension on the lower doors, (RFC 12-1762). (This has been completed)

The doors were immediately readjusted when the problem was found and no action was required by Technical Specifications.

C.R. #1-12-80-348 LER 80-028

Insulation slipped down causing 2 doors to fail when testing 25% of doors per Technical Specification 4.6.5.3-1-b. Bay 1 & Bay 3 hinge friction was found existing per Technical Specification 4.6.5.3.1-b5.

Corrective Action Taken: Initiated JO No. 59677

Emergency RFC 01-1819 was written to replace slipped insulation.

J.O. 59677 was written to make door repairs.

Dayco Sheet Metal Company was assigned the job for raising the insulation and adding sheet metal screws to hold it inplace on the door jams.

All bays were repaired per RFC 01-1819, and retested per 12 THP 4030 STP.207 for opening and closing torque and hinge friction. All doors were then acceptable, meeting all Technical Specifications.

J.O. number 59684 has been written to check the Unit 2 lower inlet doors during the next outage in April of 1981. (This has been completed)

The exact failure mechnism was not determined due to unit start time constraints. Door removal would have been necessary to determine exact failure mode. Two modes are thought to be possible;

1- Failure of the 3-M Scotch Grip #34 adhesive due to age fatiguing. No temperature range of the adhesive could be determined. Westinghouse Drawing #1139E97.

2- Shearing of the pourious insulation blocks causing failure of the metal to insulation bond.

Written by: Art Tetzlaff

LER 80-28

Cause Description And Corrective Actions:

The insulation around the two doors was found to be slipping in the downward direction. The rubbing between the doors and the insulation at this interface was the cause of the excessive torque. By design, the insulation is bonded to the metal by an adhesive and it was this bond that failed. An Emergency design change was issued (RFC 01-1819) to add sheet metal screws to the insulation on all the lower doors. This was done and all doors were tested and found to meet Technical Specifications. A Job Order has been written to check the Unit 2 lower ice condenser door insulation during the next refueling outage.

Note: This was done on Unit 2

Written by: Art Tetzlaff

C.R. #1-1-81-001 No LER

Description of Condition:

Bays 2, 3, 4, 5, 14, 18, 20, 21, 22 had pin cotter keys missing. The subject pins attached the lower inlet door springs to the door.

Corrective Action Taken: Initiated JO No. 59776

Job Order written to install all cotter keys will be installed before Unit 1 startup.

Job Order 59776 was written to have Dayco Sheet Metal Co. reinstall the missing cotter pins.

All missing pins were replaced and checked in place before the Unit 1 start-up.

RFC 1-2-1762 was completed on Unit 1 lower inlet doors during the 1980 Refueling Outage. This RFC changed the door spring adjusters to give more spring adjustment. It is believed the cotter pins were left out at this time.

Because the door spring pins are held in by gravity, at no time were the lower doors inoperable due to the missing cotter pins.

It is recommended that subject Condition Report be reclassified 'E'.

Remarks: The original Condition Report was lost and this new report was completed on 3-30-81

Written by: Art Tetzlaff 3-30-84

C.R. # 2-7-78-404 LER 78-057

Description of Condition:

While running STP.207 Ice Condenser Lower Inlet Doors
Doors 1-R and 14-L exceed the acceptance criteria of 675 inch pounds force to open the door.

Corrective Action Taken:

Smoothed out rough spots on door frames. When retested, the doors had an opening force of 613.2 (1-R) and 567 inch pounds (14.L) which fall within the acceptance criteria as stated in STP.207.

Investigation Report:

All the doors were checked for other rough spots, but none were found as noted in STP.207. When rechecked, doors 1-R and 14-L were found to be in spec.

LER 78-057

During a surveillance test on the ice condenser lower inlet doors, doors 1-R and 14-L exceeded the initial opeing torque specified by T.S. 4.6.5.3.1.b.1

Cause Description and Corrective Actions

Investigation revealed that the door seals were catching on rough spots on the door frames. These rough spots were smoothed and the doors were retested with the initial opening force meeting the Technical Specification requirements. All other doors were check for similar rough areas, none were found.

CR # 2-11-78-617 LER None

Description of Condition:

Inlet door No. 9.L stuck about 2" open and exceeded the 675 in-lbs torque to open.

Corrective Action Taken Initiated JO No. 04892

Job Order Written

Investigation Report:

Bay door 9L would not open more than 2 inches without excessive force. A Job Order was written to repair. The door was found to have a small ice build-up probably from the defrost completed several days prior. A satisfactory retest was completed. All other doors were found in spec.

Preventive Action Taken

Initial openning force for STP.207 is completed prior to any ice condenser defrost activity.

2-5-79-242 LER None

Description of Condition

THP 4030 STP.207 step 5.1.11 Ice Condenser door annunciator does not alarm in the control room. SV panel drop 94. Contrary to the requirements of TS 4.6.5.3.1.

Written by: Bill Gillett

Corrective Action Taken Initiated JO No. 10800

Job Order to correct condition

C.R. # 2-5-79-242

Investigation into the cause of the alarm failure revealed that the annunciator card for the ice condenser door alarm had failed. The card was replaced and the annunicator tested for proper operation. Step 5.1.11 was performed again and proper indication in the control room was received.

Written By: B. Hullinger

This failure was only the audible alarm function, all indicating lights functioned properly per B. Gillett.

Written By: J. L. Rischling

2-3-81-102 C.R. LER # None

Item reported on Unit 2 lower ice condenser inlet door springs

Description of Condition

Bay 9 left top door springs have two cotter pins missing. The missing cotter pins did not affect door operation.

Written By: Art Tetzlaff

J.O. 59684 was written to check cotter keys on Unit 2 during March 1981 refueling outage per Condition Report 1-2-81 #1-1-81-001.

All bay doors 1-24 were checked 3-20-81, bay 9 top left door spring cotter pins were found missing. This did not effect door operation in any way.

J.O. 07232 was written on 3-20-81 to replace the missing cotter pins.

Pins were replaced 3-21-81.

Written By: Art Tetzlaff

It could not be determined what happened to the missing cotter keys or if any were ever installed.

Written By: J. L. Rischling

C.R. # 2-6-83-527 LER #83-056

Item Reported On

Unit 2 Ice Condenser Lower Inlet Doors

Description of Condition

While performing lower inlet door test (**12 THP 4030 STP.207), door 3L of bay 3 did not meet the acceptance criteria of initial opening torques of ≤ 675 in. lbs. The door required 912 in lbs. to open.

Written By: M. J. Stark

Immediate Action Taken:

The door was inspected visually it was determined that the door seal was dirty which caused the door to stick initially. A Job Order was written to have the doors and seals cleaned.

Written By: M. J. Stark

Investigation Report CR # 2-06-83-527

The ice condenser lower inlet door surveillance test 12 THP 4030 STP.207 was performed on June 24, 1983 to satisfy Technical Specification 4.6.5.3.1. The left door of Bay three failed the initial opening torque limit of ≤ 675 in-lbs. The door required a torque of 912 in-lbs to open.

The door hinges, and frame seals were visually inspected to try to determine the problem. The problem was the result of the frame seals initially sticking to the door because of glycol on the seals. The door was lined to contact the seals as designed.

Preventive Action

A Job Order was written to have the door seals repaired or replaced (Job Order 12967). Upon visual inspection, it was determined that cleaning of the seals would eliminate the problem. The seals were cleaned and the door retested July 5, 1983. The door satisfied the Technical Specification limit of ≤ 675 in-lbs. No further preventive action is planned at this time.

Note: Seals are cleaned after evey ice condenser basket weighing.

Written By: M. J. Stark

LER 83-056

During surveillance testing on the ice condenser lower inlet doors, it was found that door 3L of bay 3 3xceeded the maximum allowable torque limit of less than or equal to 675 inch pounds required to initially open the door. This event is non-conservative with respect to Technical Specification 4.6.5.3.1.b.1. The action requirements were met. Public health and safety were not affected. This is the first occurrence of this type.

Cause Description and Corrective Actions

Investigation found the problem was the result of the frame seals initially sticking to the door because of glycol being on the seals. The frame seals were cleaned and the door was retested satisfactorily. No futher action is planned at this time since this is the first occurrence associated with glycol.

C.R. # 2-08-83-753 LER 83-083

Item Reported On

STP.207 Lower Inlet Door Test

Description of Condition

The following conditions were found during the test:

Bay 1, Left door stuck at about 4" open
Bay 3, Right door exceeded 675" pounds
Bay 10, Left door stuck at about 4" open - 36" to open
Bay 13, Right door closed RTD cable.
Bay 14, Right door would not open past 4"
Bay 18, RTD string loose - Dropped about 10'

Written By: W. T. Gillett

Immediate Action Taken: Initiated JO No. 12977 & 13127

Job Order to Maintenance to repair doors
Job Order to Controls and Instrumentation to repair RTD string

Written By: W. T. Gillett

Investigation Report CR # 2-08-83-753

While conducting STP-207 ("Lower Inlet Door Test"), Unit 2, five doors were found that exceeded the 675 inch-pound opening torque required by Technical Specification 3.6.5.3.

In bay-13 the right door was closed on a loose RTD cable. The cable was removed from the door and tie-wrapped up out of the way. The door was retested satisfactorily.

Bay-1 left door, bay-10 left door, and bay-14 right door, all exceeded the 675 inch-pound Technical Specification limit. Job Order 12977 was sent to Maintenance to repair the doors. Maintenance found the doors to be sticking at the top. They moved the door frame to provide the necessary gap. The doors were retested satisfactorily.

Bay-3's right door exceeded the opening force of 675 inch-pounds. The door was inspected and the seals were cleaned. The door was retested satisfactorily.

In bay-18 an RTD string had dropped about ten feet. The RTD string was pulled up and attached to the ice condenser framework, as per C&I Job Order number 13127.

Preventive Action C.R. 2-08-83-753

Change sheet was written to **12 THP 4030 STP.211, "Ice Basket Weighing." This TP will insure that all doors are free from obstruction following an ice basket weighing project. This TP also insures the door seals and sealing surfaces are free from debris that could cause binding. This T.P. has been incorporated into the ice basket procedure in the recent revision.

Written By: K. S. Chapman/W. T. Gillett

LER # 83-083

During performance of the ice condenser lower inlet doors surveillance test, it was found that five doors exceeded the maximum initial opening force specifications. This event was non-conservative with respect to Technical Specification 4.6.5.3.1.b. The action requirements were met. Public Health and Safety were not affected. Previous occurrences of a similar nature included: 050-315/75-069, 76-001, 024, 030, 038, 70-028, 052, 83-002, 316/78-057, 83-056.

Cause Description and Corrective Actions:

Investigation revealed that three (3) of the doors required adjustments to the door frame. One door was found to be closed on a loose RTD cable. The cable was removed and secured away from the door. The remaining door was inspected and the seals were cleaned. The doors were retested satisfactorily. (See Lower Supplement)

Attachment to LER #

Supplement to Cause Description

Investigation revealed that three (3) of the doors required adjustments to the door frame. One door was found to be closed on a loose RTD cable. The cable was removed and secured away from the door. The remaining door was inspected and the seals were cleaned. The doors were retested satisfactorily. To prevent recurrence, the appropriate procedure has been modified to insure that all doors are free from obstructions and that the seals and sealing surfaces are free from debris that could cause binding following completion of ice basket weighing/repair project.

A. L. Tetzlaff

tsc

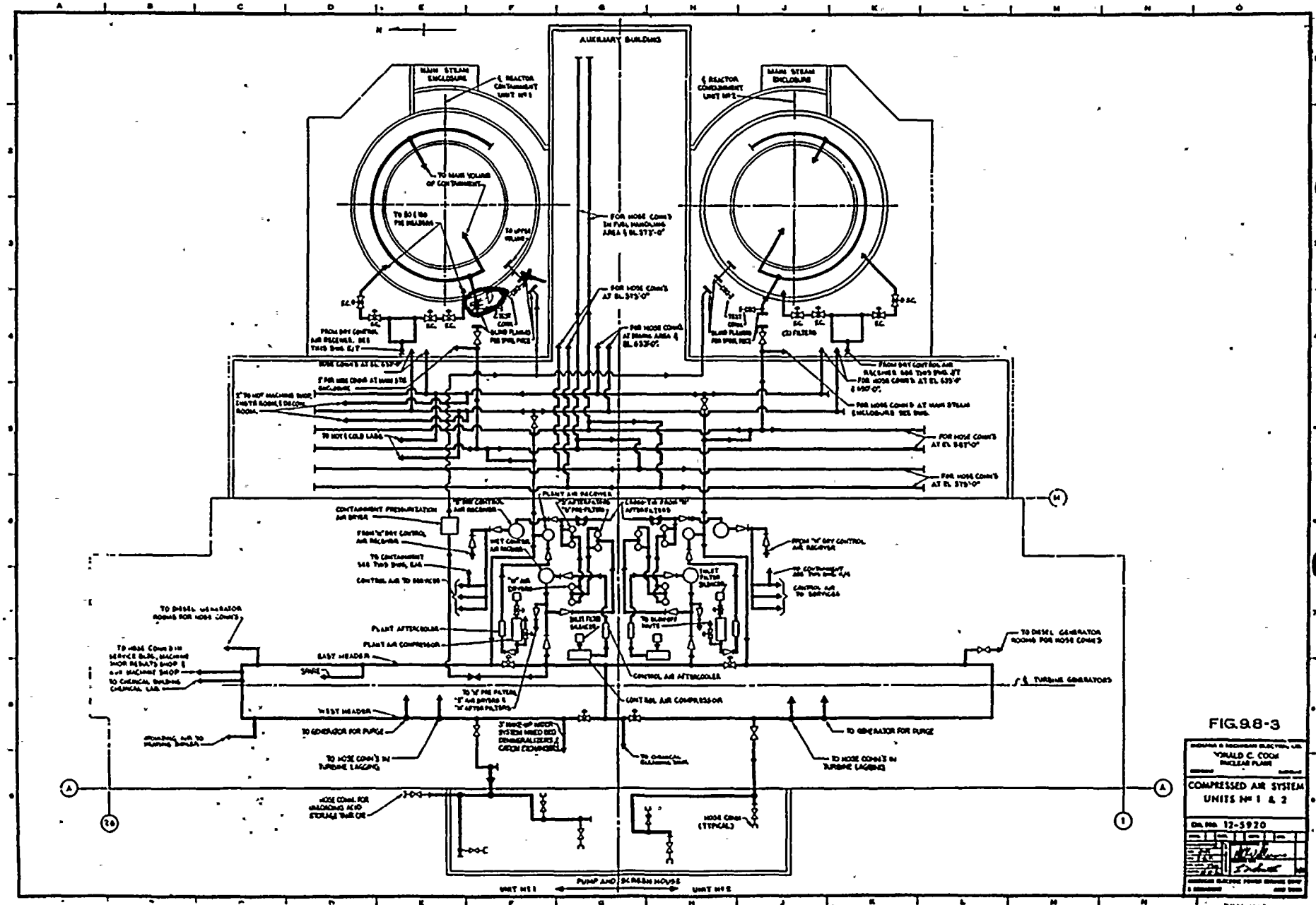


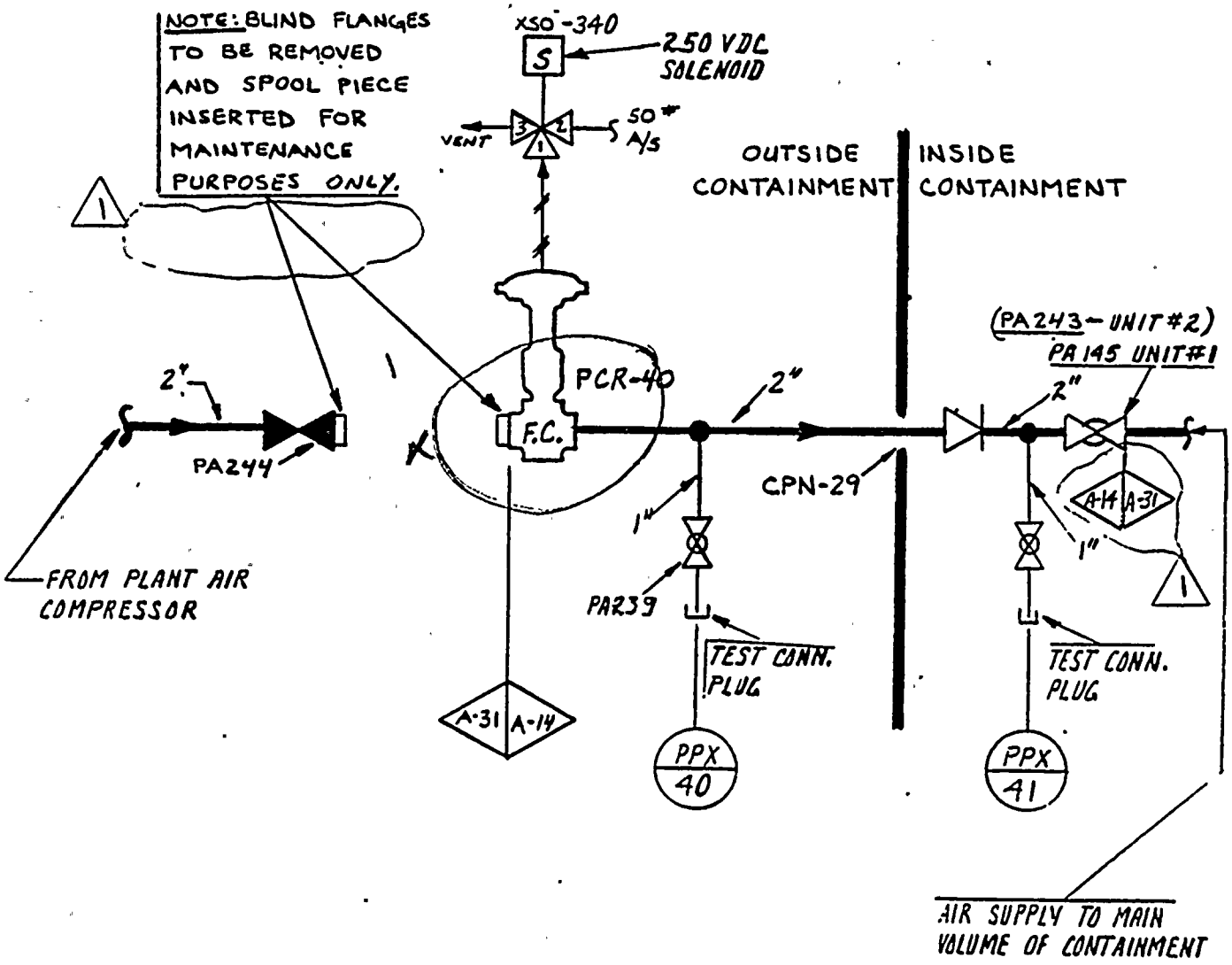
FIG. 9.8-3

DONALD C. COOK NUCLEAR PLANT

COMPRESSED AIR SYSTEM UNITS Nº 1 & 2

DWG. NO. 12-5920

JULY 1972



REF. DWG: 12-5120B

AMERICAN ELECTRIC POWER SERVICE CORPORATION			INSTRUMENTATION & CONTROL E. C. P. SKETCH
LD ENG R. SHOBERG DR L. J. HOLLAND CH R. L. Shoberg DATE 10-8-80	APPROVED BY	INST. & CONTROLS SECTION 10/28/80	PLANT D.C. COOK - UNIT #1 OR #2 CONTAINMENT CLEAN-UP PLANT AIR ISOLATION VALVES
SCHEMATIC DIAGRAM			DWG. 1-2-PO-01 REV. 1 SHEET 3 OF 4

A.I.D. E.C.P. 052378