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49.106.01
Rev. 0

SR
Safety-Designation

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FERMI 2 POM PROCEDURE - TECHNICAL SECTION - SPECIAL TEST

TITLE: HCU CHECK VALVE SIMULATED FAILURE

PROCEDURE NUMBER: 49.106.01

REVISION NUMBER: 0

PREPARED BY: A. Gechwind **DATE:** 12-28-84

TECHNICAL REVIEW BY: M. J. Chevy **DATE:** 12/29/84

SUBMITTED BY: R. Booker **DATE:** 12/31/84
(Responsible Section Head/Delegate)

RECOMMENDED BY: M Miller **DATE:** 1/3/85
(Supervisor-Operational Assurance/Delegate)

APPROVED BY: Joseph H. Plona **DATE:** 1/3/85
(Responsible Section Head/Delegate)

***RECOMMENDED BY:** E Preol **DATE:** 1-3-85
(OSRO Chairman/Alternate)

***APPROVED BY:** E Preol for R. S. Lenart **DATE:** 1-3-85
(Superintendent-Nuclear Production/Delegate)

*Signatures required for Safety-Related or Superintendent-Designated procedures.

DOCUMENT CONTROL PIC 1-21-85 cab EDISON

CONTROLLED
VOID AFTER 7 DAYS
1-13-85 cab 1-14-85
EXPIRATION DATE

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1.0 PURPOSE

1.1 THIS PROCEDURE WILL BE USED TO SIMULATE A FAILURE OF THE COOLING WATER BALL-CHECK VALVE (138) AND DETERMINE THE DEGREE OF FAILURE (IF ANY) AT WHICH A NOTICEABLE CHANGE IN NORMAL ROD MOVEMENT DURING INSERT OR WITHDRAWAL CAN BE DETECTED. THIS INFORMATION WILL BE USED IN EVALUATING THE TEST METHOD FOR THE (138) VALVE USED TO SATISFY INSERVICE TESTING REQUIREMENTS (TECHNICAL SPECIFICATION 4.0.5).

2.0 REFERENCES

*2.1 FDM PROCEDURE # 23.106, "CONTROL ROD DRIVE HYDRAULIC SYSTEM"

*2.2 FDM PROCEDURE # 12.000.15, " PN-21 (WORK ORDER) PROCESSING"

2.3 DRAWING 6M721-2081 DIAG: CONTROL ROD DRIVE HYDRAULIC SYSTEM - REACTOR BUILDING PART 1 OF 2.

2.4 VENDOR MANUAL VMR1-14, "HYDRAULIC CONTROL UNIT OPERATION AND MAINTENANCE INSTRUCTION MANUAL"

2.5 FERMI 2 - ASME SECTION XI, INSERVICE TESTING, PUMP AND VALVE PROGRAM.

3.0 REQUIRED EQUIPMENT

3.1 NONE

4.0 PRECAUTIONS AND LIMITATIONS

4.1 THIS TEST SHOULD BE TERMINATED PROMPTLY UPON INDICATION OF ANY TEST RELATED ABNORMALITY, THE NSS SHOULD BE NOTIFIED, THE CAUSE INVESTIGATED AND CLEARED BEFORE RESUMING THE TEST.

* DENOTES "USE" REFERENCE

4.2 ENSURE THAT NO OTHER TESTING OR MAINTENANCE IS IN PROGRESS THAT WILL ADVERSELY AFFECT THE PERFORMANCE OF THIS TEST.

5.0 PREREQUISITES

5.1 THE NSS HAS GIVEN PERMISSION TO PERFORM THIS TEST IN ACCORDANCE WITH GENERAL ADMINISTRATIVE PROCEDURE # 12.000.15, "PN-21 (WORK ORDER) PROCESSING." (OP-966453)

5.2 THE CONTROL ROD DRIVE HYDRAULIC SYSTEM IS IN OPERATION IN ACCORDANCE WITH SYSTEM OPERATING PROCEDURE # 23.106, "CONTROL ROD DRIVE HYDRAULIC SYSTEM."

5.3 THE BALL HAS BEEN REMOVED FROM THE COOLING WATER CHECK VALVE (138) "IA TEMP. MOD.) AT THE HCU BEING TESTED AND THE ASSOCIATED COOLING WATER RISER ISOLATION VALVE (FIDH) IS CLOSED. (578056, TMR#85-0001)

5.4 THE ISI ENGINEER, OR HIS DESIGNEE, HAS BEEN NOTIFIED PRIOR TO THE START OF THE TEST.

6.0 PROCEDURE

6.1 GENERAL INSTRUCTIONS

6.1.1 ANY PROBLEMS ENCOUNTERED DURING THE PERFORMANCE OF THIS TEST SHOULD BE NOTED IN THE REMARKS SECTION OF ATTACHMENT 2.

6.1.2 ALL CONTROLS AND INDICATIONS ARE LOCATED ON CONTROL ROOM PANEL H11-P603 UNLESS OTHERWISE NOTED.

6.1.3 ALL PERSONNEL WHOSE INITIALS APPEAR ON EACH ATTACHMENT MUST SIGN IN THE SPACE(S) PROVIDED AT THE END OF EACH ATTACHMENT.

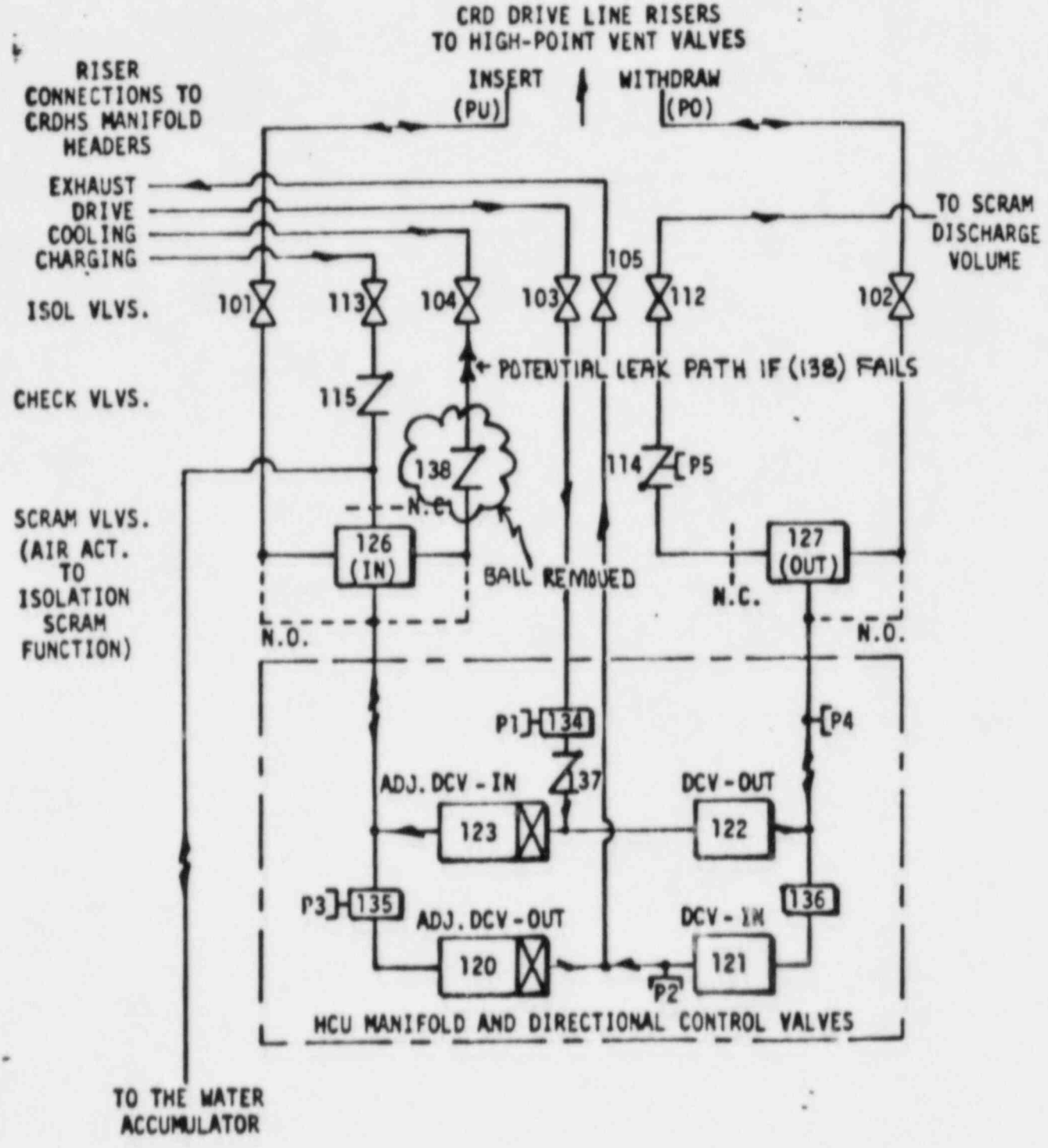
6.2 PERFORM THE HCU CHECK VALVE SIMULATED FAILURE IN ACCORDANCE WITH ATTACHMENT 1.

6.3 PERFORM THE INDEPENDENT VERIFICATION IN ACCORDANCE WITH ATTACHMENT 3.

6.4 PERFORM THE TEST RESULTS EVALUATION WITH THE ISI ENGINEER (OR HIS DESIGNEE) IN ACCORDANCE WITH ATTACHMENT 4.

7.0 ACCEPTANCE CRITERIA

RECOGNITION OF ABNORMAL ROD MOVEMENT AS A RESULT OF A SIMULATED (138) BALL CHECK VALVE FAILURE INDICATES ACCEPTABLE TEST RESULTS - REFER TO ATTACHMENT 4.



HYDRAULIC CONTROL UNIT
CIRCUIT DIAGRAM

HCU CHECK VALVE SIMULATED FAILURE

STEP No.		INITIAL/DATE
1.0	VERIFY THAT ALL PREREQUISITES OF SECTION 5.0 ARE COMPLETE.	AHG 11-17-85
	NOTE: FURTHER REFERENCES TO CRD OR HCU ARE MEANT TO INCLUDE ONLY THE CRD/HCU BEING TESTED.	
2.0	RECORD THE CORE LOCATION OF THE CRD/HCU BEING TESTED.	
	CORE LOCATION: 42-27	AHG 11-17-85
3.0	SELECT AND FULLY WITHDRAW THE CRD. THEN INSERT THE CRD AND RECORD THE TOTAL TIME REQUIRED TO TRAVEL FROM POSITION 48 TO POSITION 00 - IF NECESSARY, ADJUST IN ACCORDANCE WITH SOP # 23.106.	
	STROKE TIME: 43 SECONDS	AHG 11-17-85
4.0	WITHDRAW THE CRD TO POSITION 24.	AHG 11-17-85
5.0	AT THE HCU, OPEN THE COOLING WATER RISER ISOLATION VALVE (F104) ONE-HALF TURN FROM FULL CLOSED. THEN, PERFORM A SINGLE NOTCH-IN AND A SINGLE NOTCH-OUT WHILE OBSERVING ALL PARAMETERS FOR ANY ABNORMAL INDICATIONS. ENTER THE REQUESTED DATA AND ANY REMARKS ON ATTACHMENT 2.	AHG 11-17-85
6.0	REPEAT STEP 5.0 ABOVE USING ONE-HALF TURN INCREMENTS AND COMPLETING ATTACHMENT 2 UNTIL VALVE (F104) IS FULLY OPEN (APPROXIMATELY 8 3/4 TURNS FROM FULL CLOSED). IN THE EVENT THAT IT BECOMES NECESSARY TO DEVIATE FROM USING ONE-HALF TURN INCREMENTS, SUCH AS UNDESIREABLE TEST RESULTS OR TO OBTAIN MORE REFINED TEST DATA, THE INCREMENTS MAY BE CHANGED AT THE DISCRETION OF THE TEST LEADER.	AHG 11-17-85

STEP NO.		INITIAL / DATE
7.0	CLOSE THE COOLING WATER RISER ISOLATION VALVE (F104).	AHG 11-17-85
8.0	INSERT THE CRD TO POSITION 00.	AHG 11-17-85
9.0	PERFORM THE INDEPENDENT VERIFICATION IN ACCORDANCE WITH ATTACHMENT 3.	AHG 11-17-85
10.0	NOTIFY THE NSS UPON COMPLETION OF TEST AND OF ANY STEP OR CONDITION WHICH DOES NOT SATISFY THE REQUIREMENTS OF THIS TEST.	AHG 11-17-85

TEST PERSONNEL NAME (PRINT)	INITIALS	SIGNATURE
ARTHUR H. GESCHWIND	AHG	Arthur H. Geschwind

NI = Notch In
NO = Notch Out

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DATA SHEET

No. TURNS OPEN	REMARKS*	INITIAL / DATE
1/2	NI+NO (Nothing) Both successful	AHG 1-17-85
1	NI+NO Both Successful	AHG 1-17-85
1 1/2	NI and NO unsuccessful - rod did not move in or out.	AHG 1-17-85
		AHG 1-17-85
1 1/4	NI Successful but slow	AHG 1-17-85
	NO from 22 went to 26 (instead of 24)	AHG 1-17-85
1 1/2	NI and NO unsuccessful again	AHG 1-17-85
*		

ADDITIONAL REMARKS: * Tested AHG terminated after 1 1/2 turns since notch-in and notch-out were both unsuccessful at this number of turns open.

TEST PERSONNEL NAME (PRINT)	INITIALS	SIGNATURE
ARTHUR H. GESCHWIND	AHG	Arthur H. Geschwind

* INDICATE NOTCH-IN (NI) OR NOTCH-OUT (NO)

HCU CHECK VALVE SIMULATED FAILURE
INDEPENDENT POSITION VERIFICATION SHEET

1.0 - AFTER COMPLETION OF THE TEST VERIFY THE FOLLOWING ARE LINED UP AS FOLLOWS:

REACTOR 1st FLOOR HCU's

VALVE/DEVICE	POSITION	INITIAL
C11-F104 (FOR THE HCU THAT WAS TESTED) CORE LOCATION: 42 27	CLOSED*	

2.0 INDEPENDENT POSITION VERIFICATION PERFORMED BY:

Harold Pearce | | 1-17-85
NAME (PRINT) / SIGNATURE / DATE

* RETURNED TO INITIAL POSITION - VALVE IS NORMALLY OPEN.

TEST RESULTS EVALUATION SHEET

1.0 BRIEFLY DESCRIBE HOW THE TEST RESULTS SATISFIED OR FAILED TO SATISFY BOTH THE PURPOSE (SECTION 1.0) AND THE ACCEPTANCE CRITERIA (SECTION 7.0):

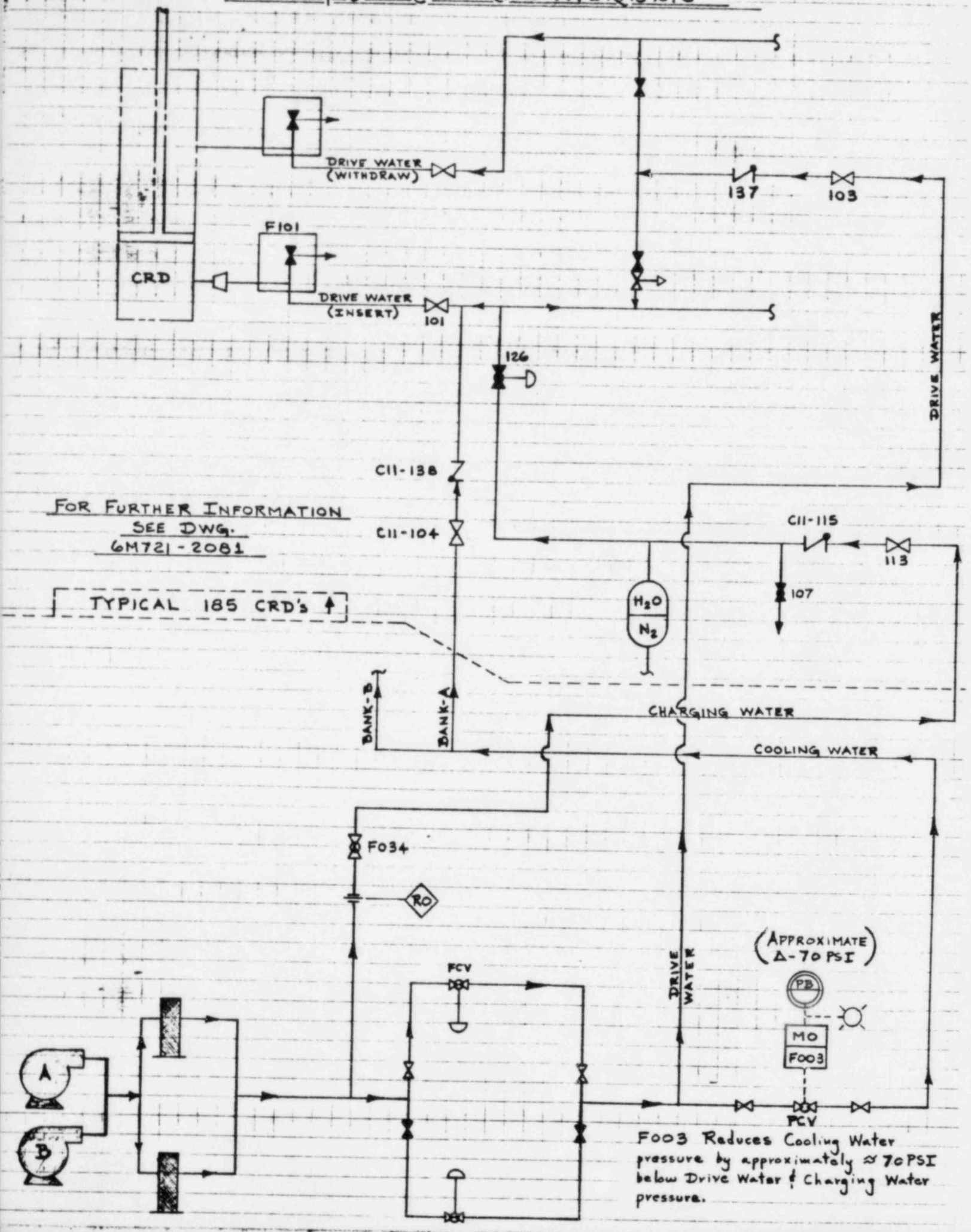
Approximately 8 3/4 turn on valve no CII-F104 moved the valve from full open to full closed. Failure of the control rod to move occurred at 1 1/2 turns or approximately 20% open. From the above it is reasonable to conclude that a 25% partially open failure of check valve CII-F138 would result in the same affect on control rod movement. In conclusion it can be stated that the testing methodology presented in Relief Request VR-44 is sound based on both the theory and conclusive results of this test

EVALUATORS NAME (PRINT)	SIGNATURE / DATE
ARTHUR N GESCHWIND (TEST LEADER)	3-7-85
BRUCE J. SHEFFEL (ISI ENGINEER)	13-4-85

BRUCE J. SHEFFEL

END

CONTROL ROD DRIVE HYDRAULIC



F003 Reduces Cooling Water pressure by approximately ≈ 70 PSI below Drive Water & Charging Water pressure.