52-001

GE Nuclear Energy

Advanced Reactor Programs
Fax No. (408) 925-4257
8*425-4257

Date: 7/30/92

To: E. J. (Ted) Sullivan x43266 (301) 504-1260
C. (Chet) Poslusny x41132

Fax No: _____

From: Jack Fox Phone: (408) 925-4824
8*425-4824

This page plus 53 page(s)

Message:
1) Additional P&ID test connections for IST code pump and valve tests.
2) Current changes (marked) to the IST TABLE 3.9-8 of 7/22/92

D050 1/1

VALVES AND VALVE ACTUATORS

(SEE NOTE 6)

SYMBOLS A1D FIG. 1.7-1(1)

Double Disk GATE VALVE

GATE VALVE

GLOBE VALVE OR ANTICAVITATION VALVE

GLOBE STOP CHECK VALVE

SWING CHECK VALVE

LIFT CHECK VALVE

TESTABLE CHECK VALVE

EXCESS FLOW CHECK VALVE

BUTTERFLY VALVE

PLUG OR BALL VALVE

NEEDLE VALVE

VB — VACUUM BREAKER

THREE WAY VALVE

NEXT PORT OF OPENING

NEXT PORT OF CLOSURE

THREE WAY VALVE

NEXT PORT OF OPENING

EXPLOSIVE VALVE

SAFETY OR RELIEF VALVE

SAUNDERS TYPE VALVE

GLAND LEAK OFF

GLAND SEAL WATER

BELLOWS SEAL

EXTRACT STEAM CHECK VALVE

SUPPLIED WITH ASSOCIATED EQUIPMENT

MO / FXXX — NOTE 5

MOTOR OPERATED NOTE 3

HO / FXXX — NOTE 5

HYDRAULIC OPERATED PISTON NOTE 3

AO / FXXX — NOTE 5

AIR OPERATED PISTON

UH / FXXX — NOTE 5

UNSPECIFIED HANDLER NOTE 3

SOLENOID (NOTE 3)

MANUAL REMOTE NOTE 3

DIAPHRAGM VALVE NOTE 3

FLOAT VALVE NOTE 3

(WITH POSITIONER) NOTE 3

PCV — CONTROL VALVE (PRESSURE)

FXXX

MO / FXXX — FCV

CONTROL VALVE (FLOW)

THREADED

QUICK C... HOSE C...

WELD C...

BLIND FL...

SPECTA...

F — INSULAT...

INCREAS...

EXPANSI...

FLANGE...

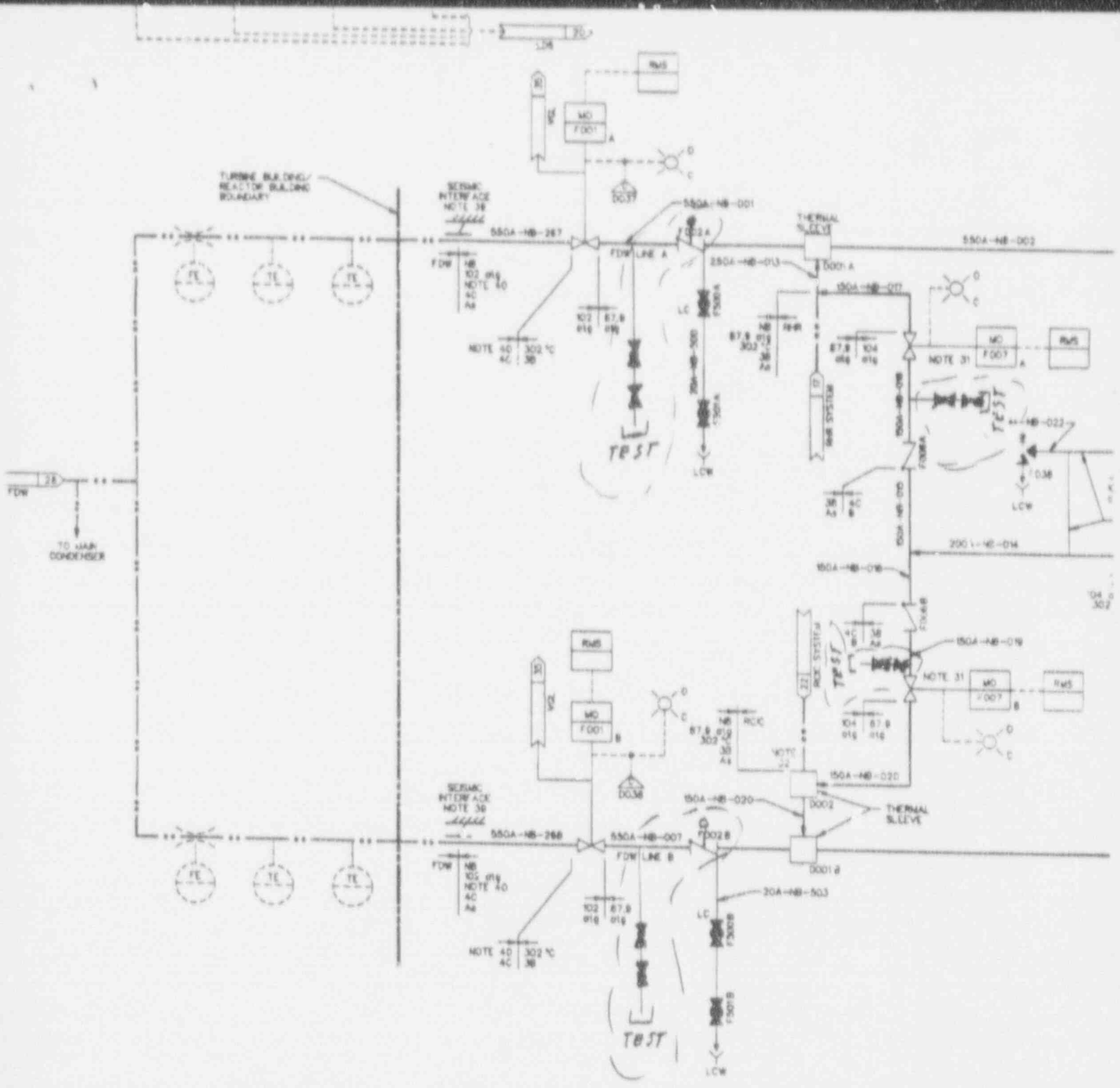
FLEXIBL...

RUPTURE...

SPOOL P...

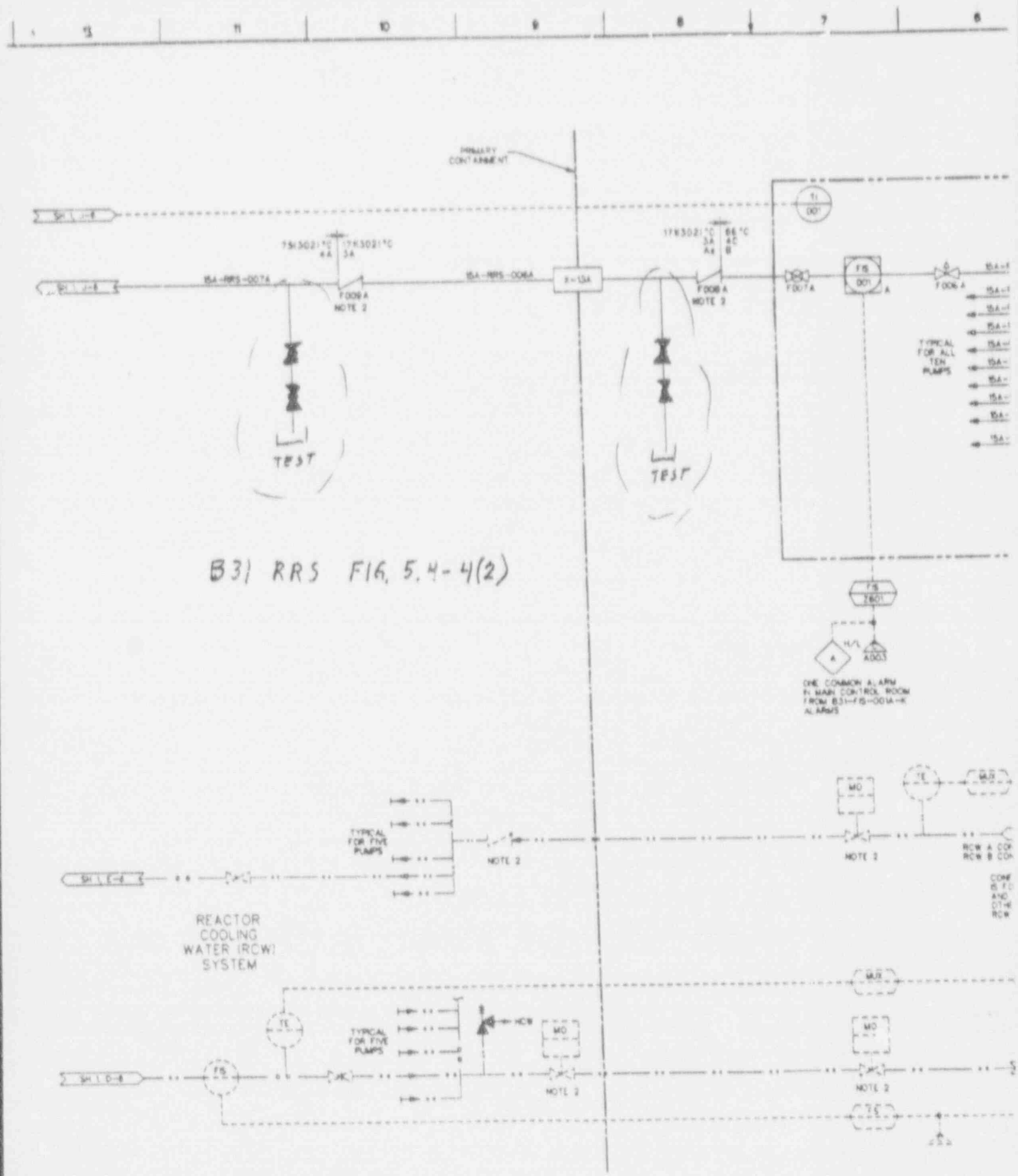
T — TRAP

UNION C...

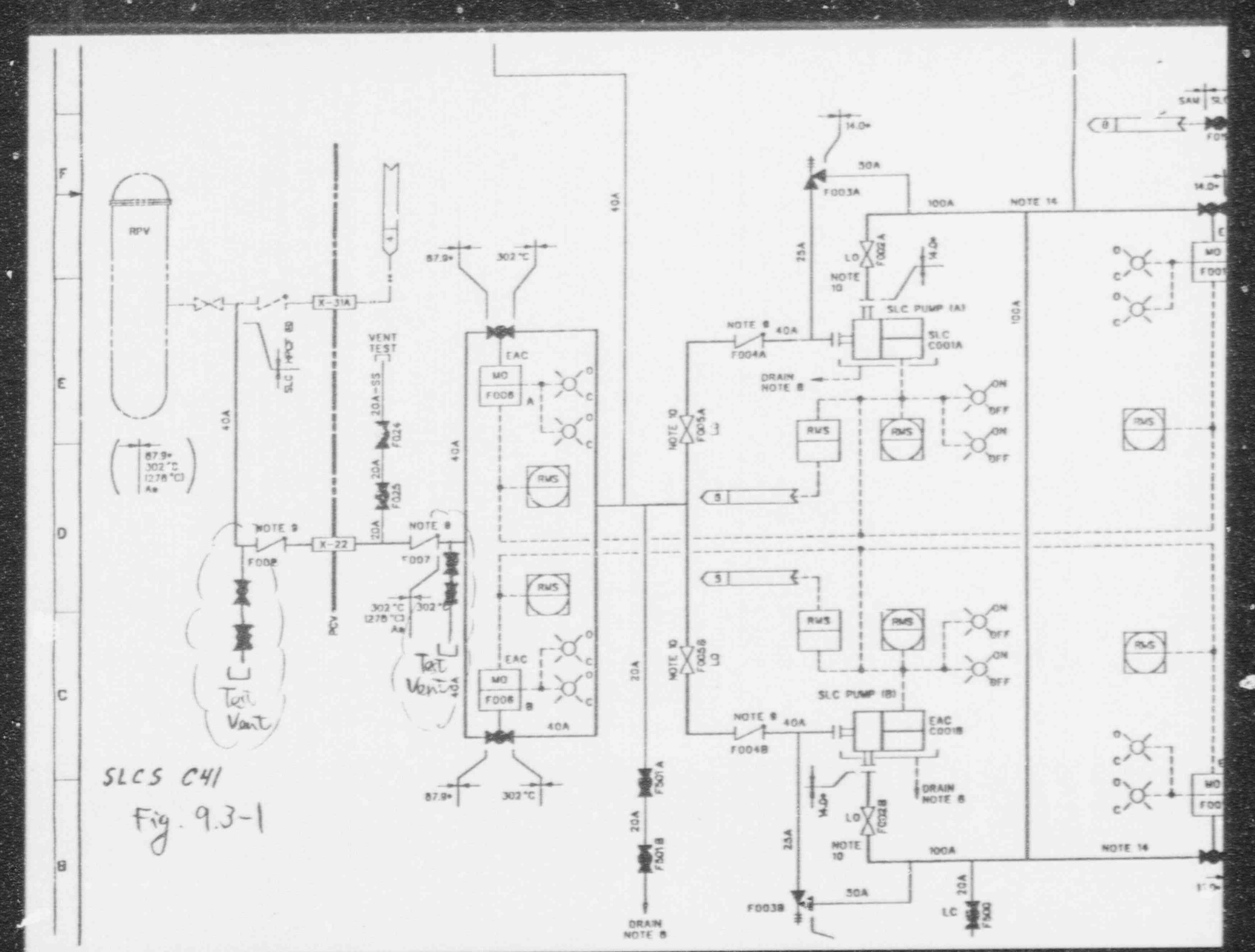


B21 NBS FIG. 5.1-3(4)

13 12 11 10 9 8



B31 RRS FIG. 5.4-4(2)



SLCS C41

Fig. 9.3-1

C51 NMS FIGURE 7.6-1 (1)

SUPPLEMENTAL DOCUMENTS UNDER THE FOLLOWING IDENTITIES ARE TO BE USED IN CONJUNCTION WITH THIS DRAWING:

		WPL NO.
1.	RECIRCULATION FLOW CONTROL SYS. IED	C81-1040
2.	PMCS INPUT/OUTPUT LIST	C90-1080
3.	PIPING AND INSTRUMENT SYMBOLS DIAGRAM	A10-3030
4.	REACTOR PROTECTION SYS. IED	C71-1040
5.	ROD CONTROL AND INFORMATION SYS. IED	C11-1040
6.	PMCS IED	C90-1040
7.	MCRP SYSTEM IED	H11-1040
8.	AUTOMATIC POWER REGULATOR SYS IED	C82-1040
9.	NEUTRON MONITORING SYSTEM, IBD	C51-1030
10.	NEUTRON MONITORING SYS ARR	C51-1070

4 LOC.
4-13
4-21
4-29
4-37
4-45
4-53
4-61
2-13
2-21
2-29
2-37
2-45
2-53
2-61
3-21
3-29
3-37
3-45
3-53
5-37

ABBREVIATIONS

RPS --- REACTOR PROTECTION SYSTEM
SPRM --- STARTUP RANGE NEUTRON MONITOR
LPRM --- LOCAL POWER RANGE MONITOR
APRM --- AVERAGE POWER RANGE MONITOR
ATIP --- AUTOMATED TRAVERSING INCORE PROBE
MRBM --- MULTI-CHANNEL ROD BLOCK MONITOR
UPS --- UNINTERRUPTABLE POWER SUPPLY
NMS --- NEUTRON MONITORING SYSTEM
RC&IS --- ROD CONTROL AND INFORMATION SYSTEM
MCRP --- MAIN CONTROL ROOM PANEL
PMCS --- PERFORMANCE MONITORING CONTROL SYSTEM
APRM --- AUTOMATIC POWER REGULATOR SYSTEM
MSV --- MEAN SQUARE VOLTAGE
ATLM --- AUTOMATED THERMAL LIMIT MONITOR

NOTES:

1. THIS DOCUMENT PRESENTS THE BASIC FUNCTIONAL UNITS ALLOCATION OF TI BASIC FUNCTIONS AND THEIR INPUT A TO OTHER SYSTEMS. IT ALSO INCLUDE LOCATION ASSIGNMENTS IN CORE AS TO DIFFERENT DIVISIONS.

2. ALL EQUIPMENT, INSTRUMENTS AND DI INPUT SIGNALS ARE PREFIXED BY C51 THE PART NUMBERS ARE LOCATED A CONDITIONING EQUIPMENT PERFORMING

3. AN AREA RADIATION MONITOR IS REQ THE TIP DRIVE MECHANISM ROOM.

4. REMOTE DISPLAY MEANS DISPLAY ON FOR DISPLAY DEVICE TYPE, REFER TO

5. REMOTE RECORDING DEVICE SHALL BE IN H11-4010.

6. SPRM NON-COINCIDENT UPSCALE LEV BY MANUAL SWITCH IN RPS.

7. THESE ARE SAFETY RELATED CORE I C81-DPT301A-DI SIGNALS OF THE R DIFFERENTIAL PRESSURE SIGNALS.

8. COMMAND AND CONTROL SIGNALS BE AND THE ATIP OTHER THAN ATIP ME THROUGH THIS DATA ENTRY POINT.

9. IN CASE OF USING MULTIPLEXING UNI DETECTORS SIGNALS ARE DISTRIBUTE UNITS, IN EACH DIVISION ACCORDING THE MULTIPLEXER UNIT ASSIGNMENT STRING LOCATION AND ARE IDENTICA

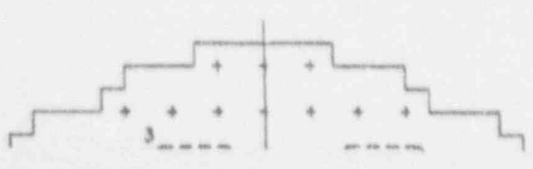
10. THE DATA COMMUNICATION FUNCTION INPUT/OUTPUT FUNCTION OF THE SR IED DOES NOT SPECIFY THE ACTUAL OF THIS DOF.

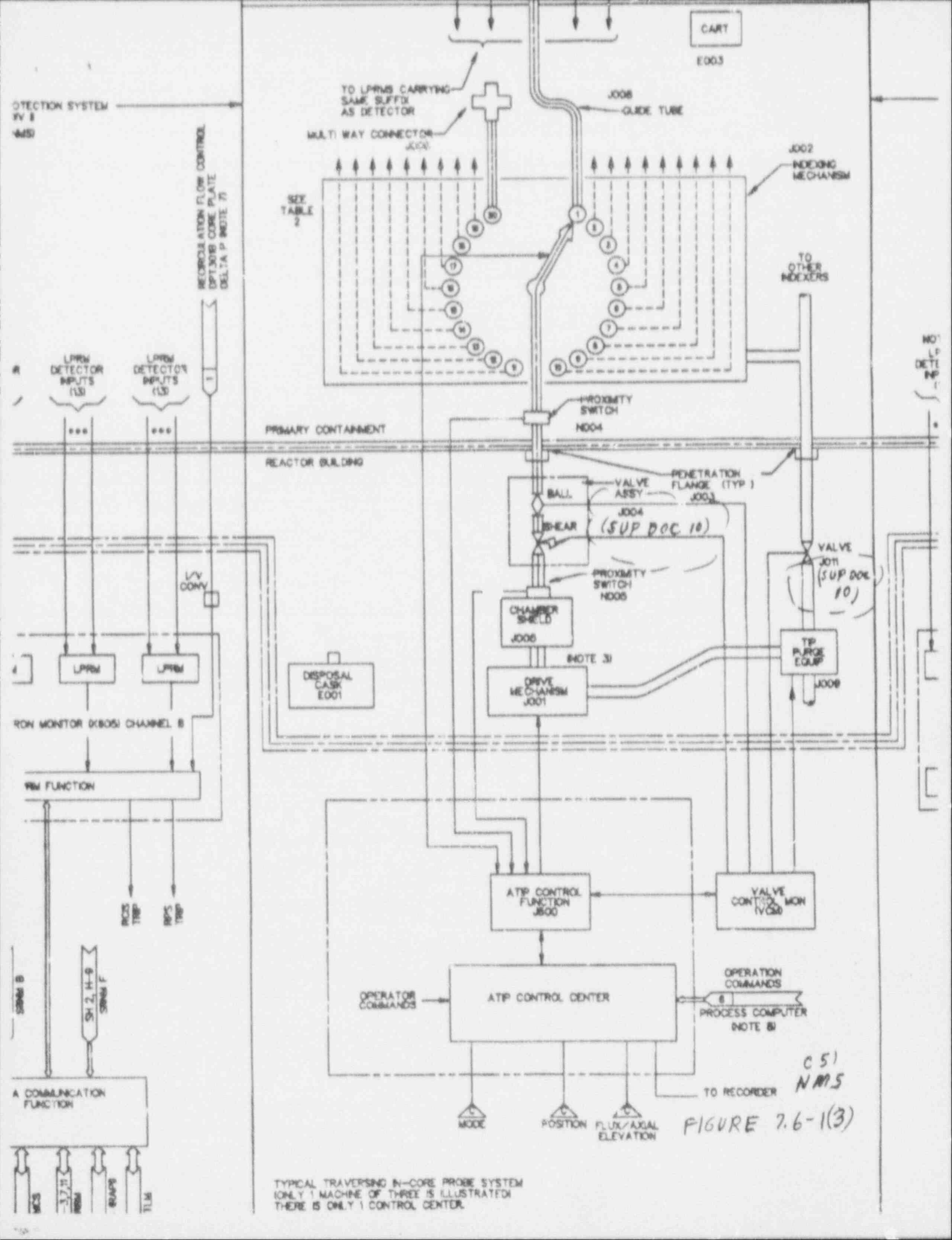
11. FOR DETAIL TRIP SIGNAL FUNCTIONA RCIS & RPS, REFER TO SUPPL DOC SEPARATE RCIS AND RPS TRIP LOGIC OF EACH INDIVIDUAL SPRM CHANNEL

12. THIS IED INCLUDES ALL MAIN INPUT/ REQUIRED TO BE INCLUDED IN THE IN FOR DETAIL BINARY TRIP SIGNALS, R SUPPLEMENTAL DOCUMENT 8.

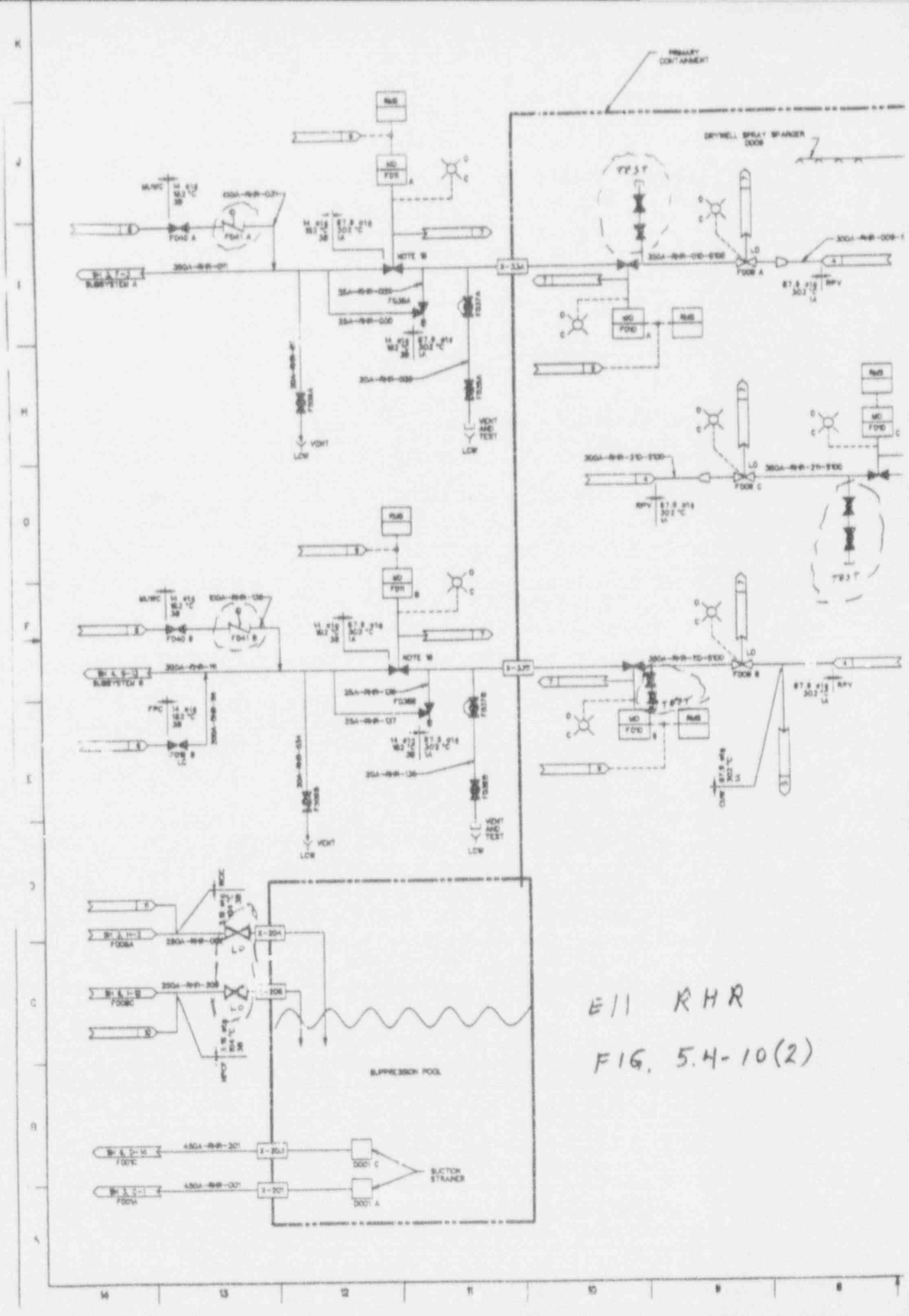
13. THE SIGNAL TRANSMISSION PATH CA MULTIPLEXING OR THROUGH DEDICATI

14. TRIP SIGNALS FROM THE NMS TO TH TRANSMITTED VIA DEDICATED CONDU CABLE WITH PROPER ISOLATION TO TIME DELAY FOR TRIP SEQUENCE RE



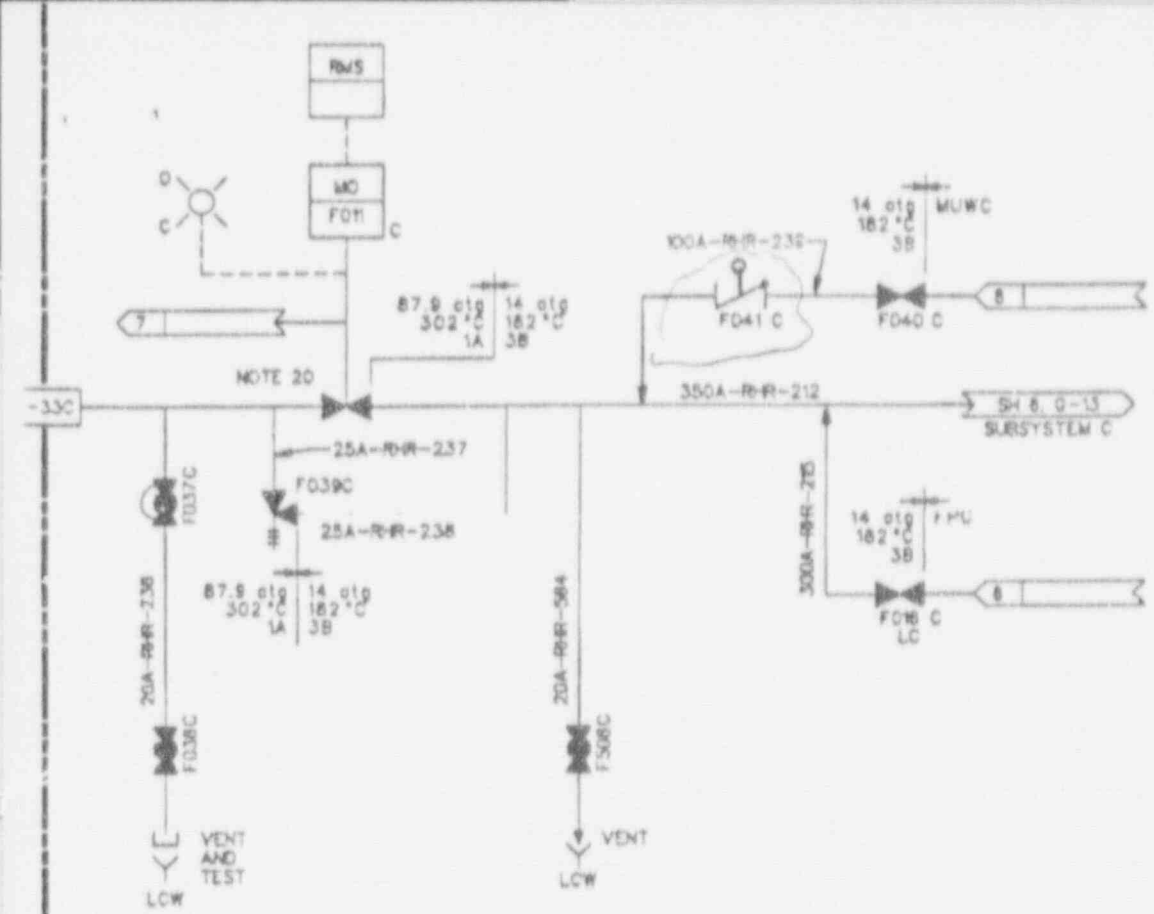


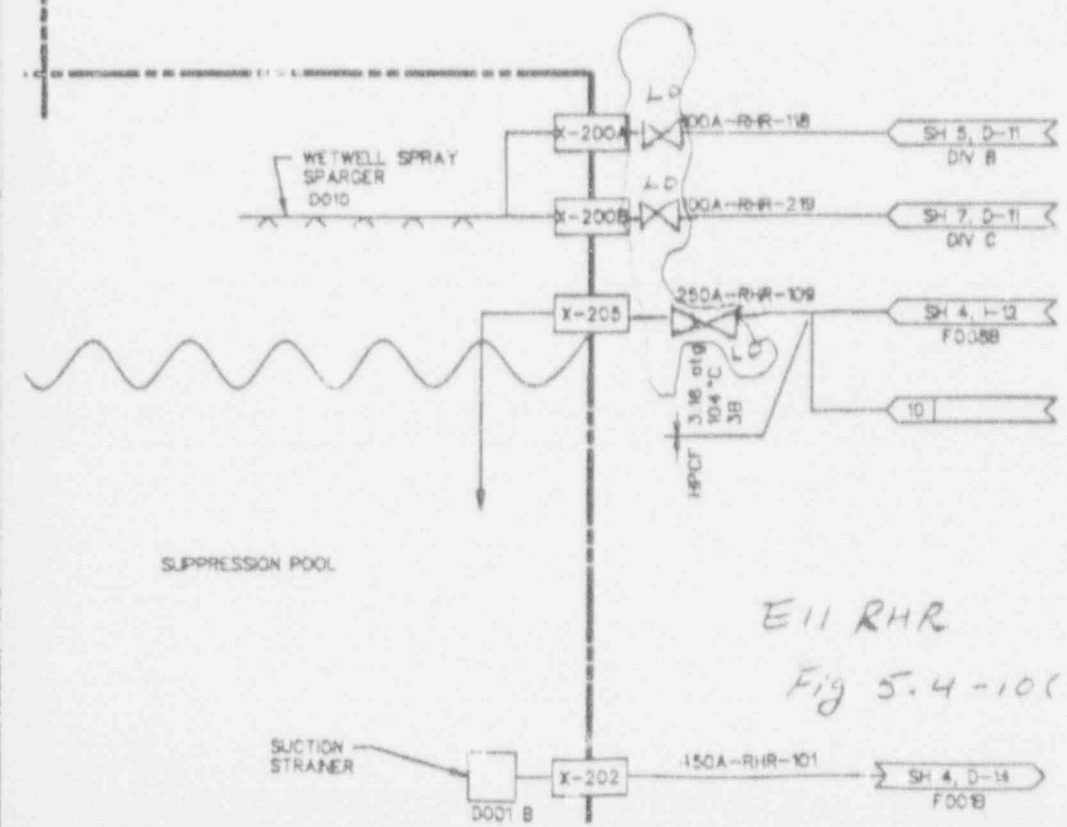
TYPICAL TRAVERSING IN-CORE PROBE SYSTEM
(ONLY 1 MACHINE OF THREE IS ILLUSTRATED)
THERE IS ONLY 1 CONTROL CENTER



E11 RHR

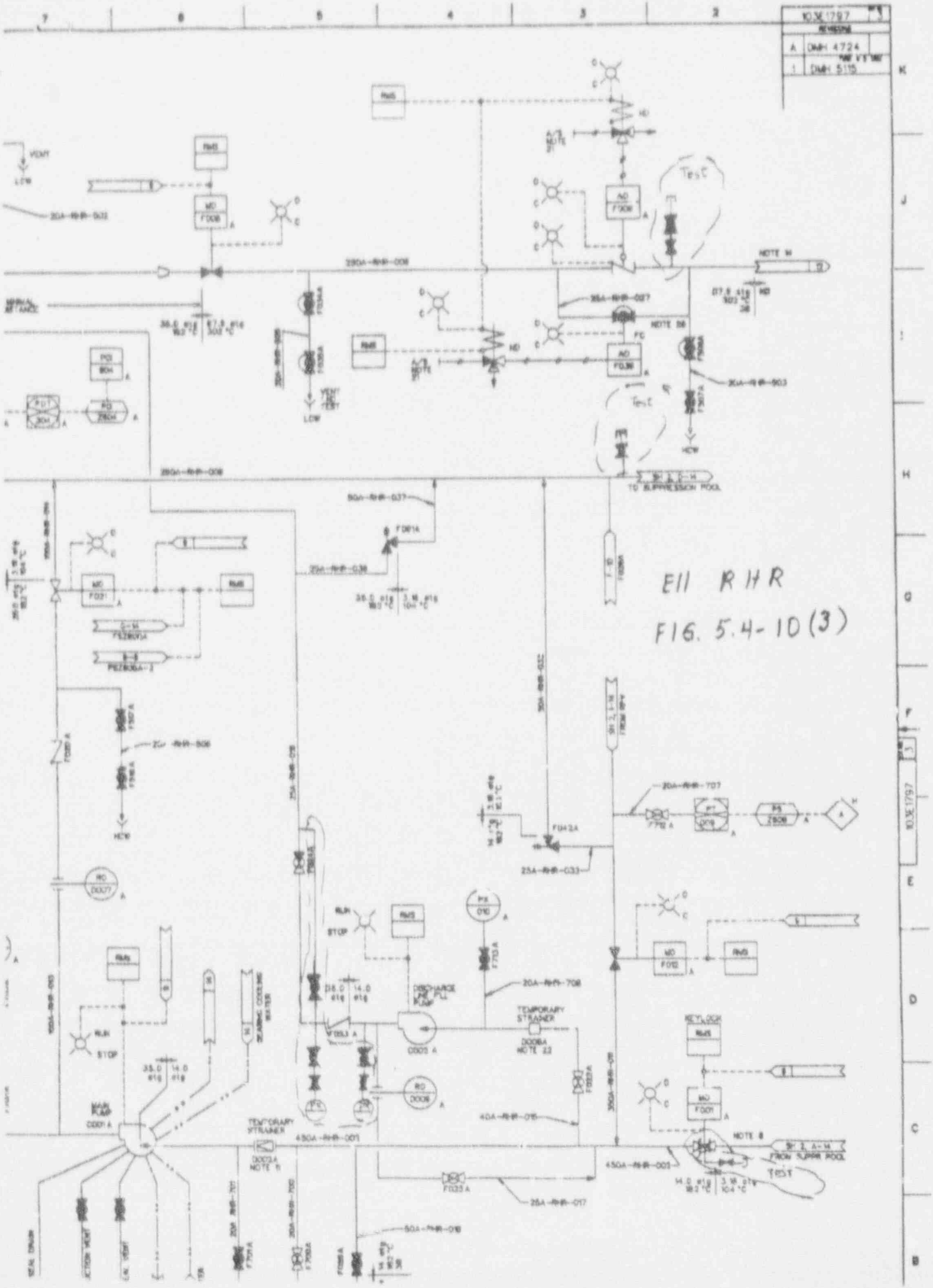
FIG. 5.4-10(2)





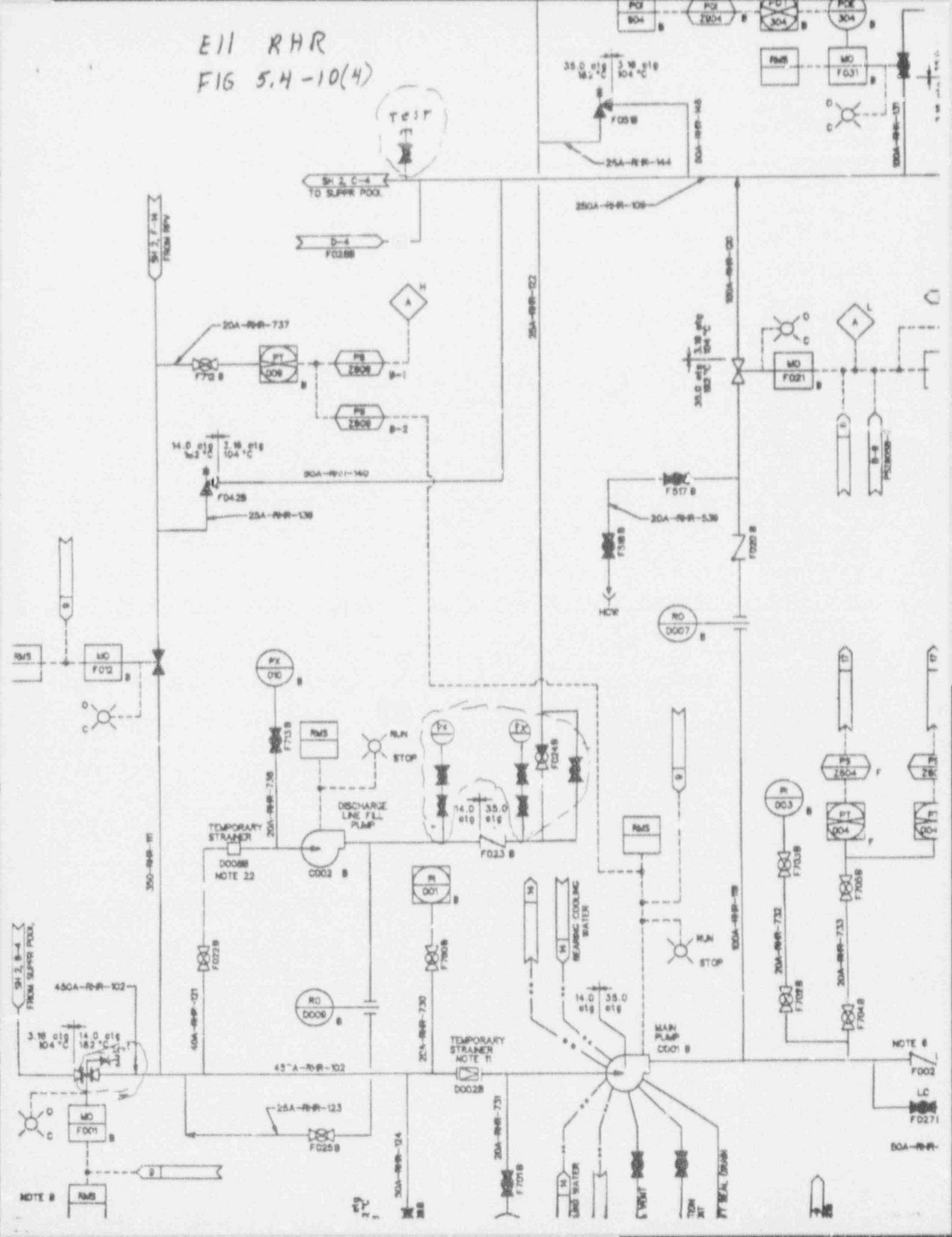
E11 RHR

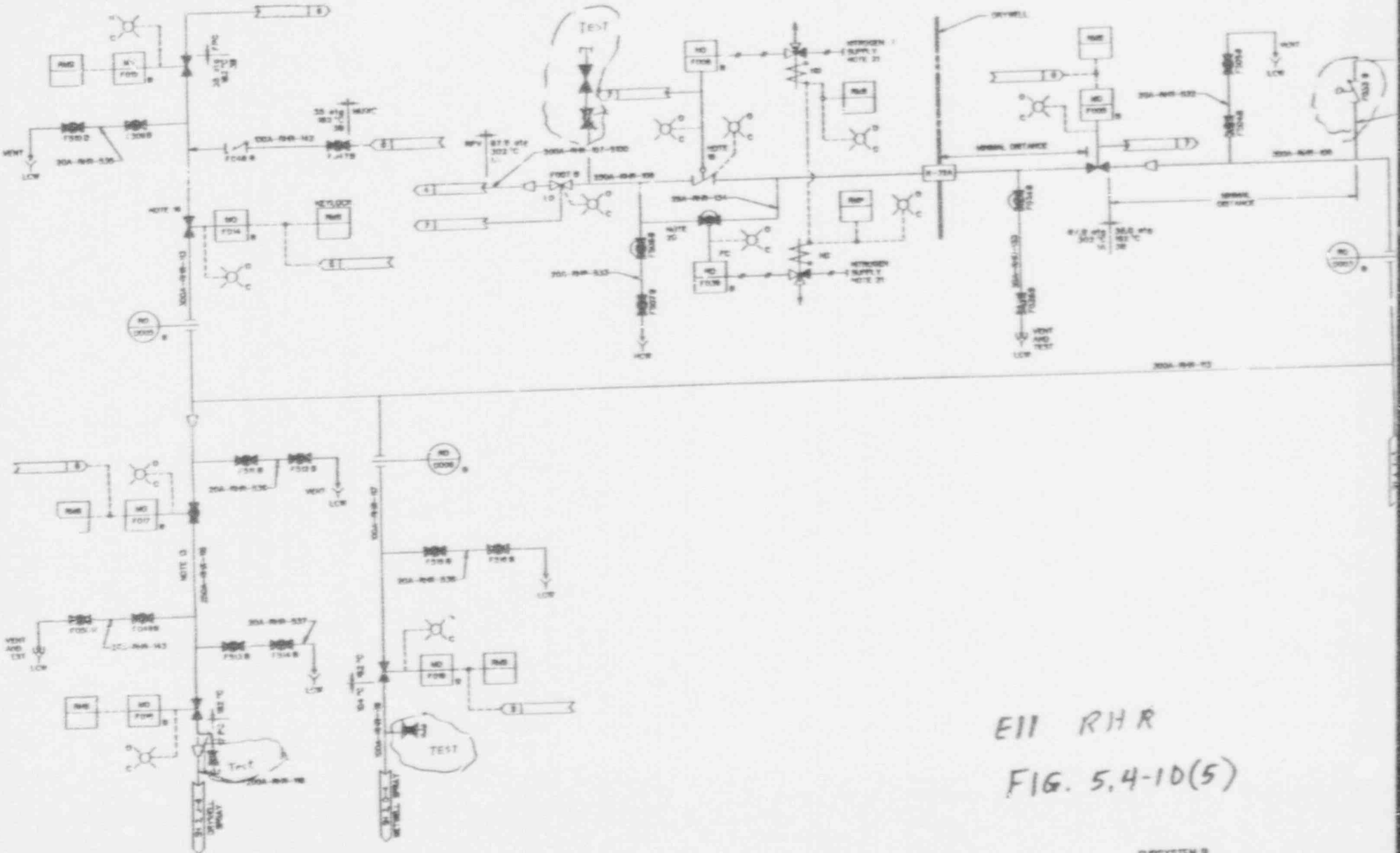
Fig 5.4-10(2)



10.3E1797
REVISIONS
A DMH 4724
1 DMH 5115
NOTE 14
TO SUPPRESSION POOL
Test
Test
TEST
E11 RHR
FIG. 5.4-10 (3)
MAIN PUMP
C001 A
TEMPORARY STRAINER
D003A
NOTE 11
DISCHARGE LINE FILL PUMP
C003 A
TEMPORARY STRAINER
D006A
NOTE 22
KEYLOCK
FROM SUPPR POOL
NOTE 8
450A-RHR-001
450A-RHR-003
25A-RHR-017
25A-RHR-033
20A-RHR-707
20A-RHR-708
40A-RHR-015
50A-RHR-018
250A-RHR-008
25A-RHR-036
50A-RHR-037
20A-RHR-502
20A-RHR-903
RUN
STOP
VENT
LCW
HCW

E11 RHR
FIG 5.4-10(4)

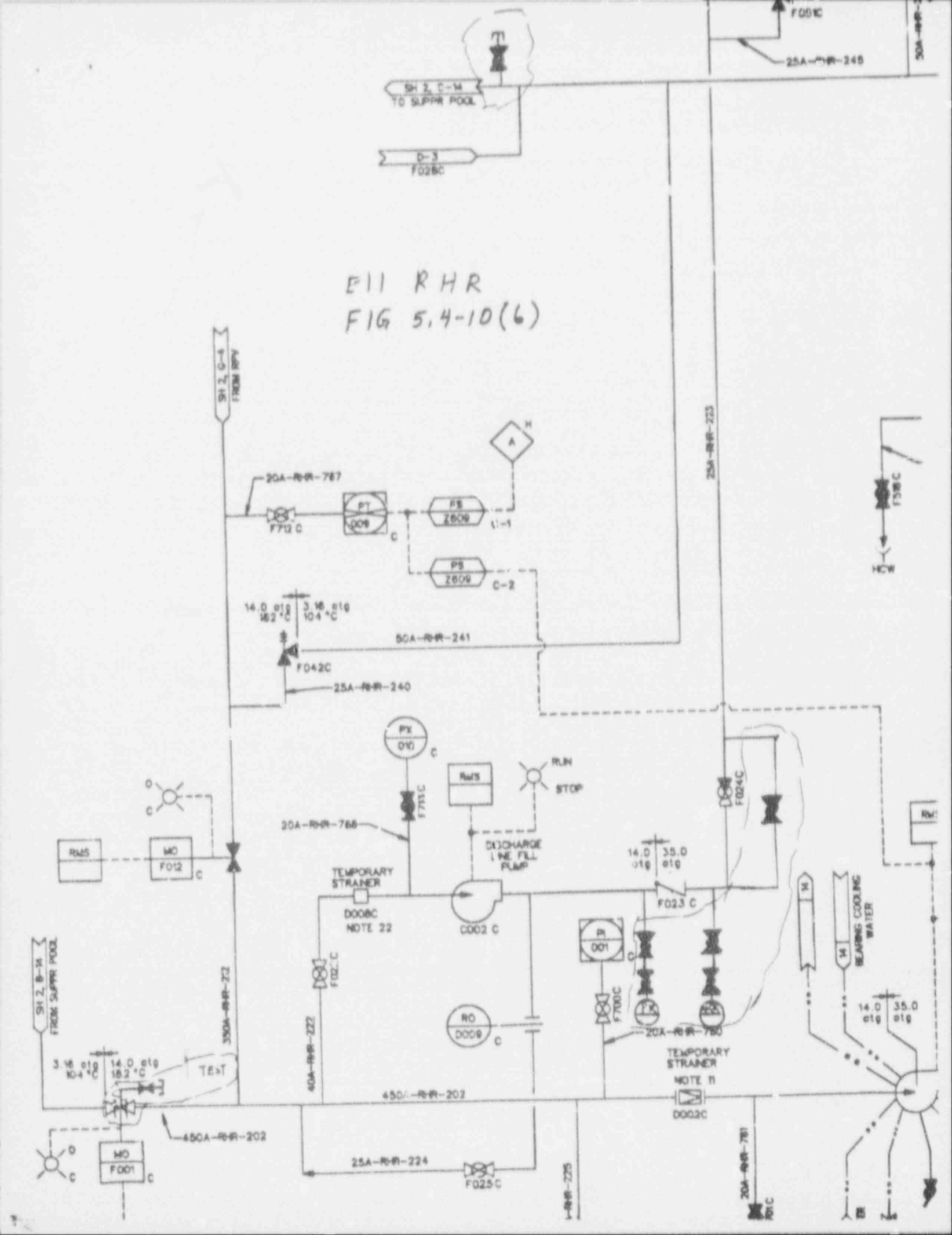


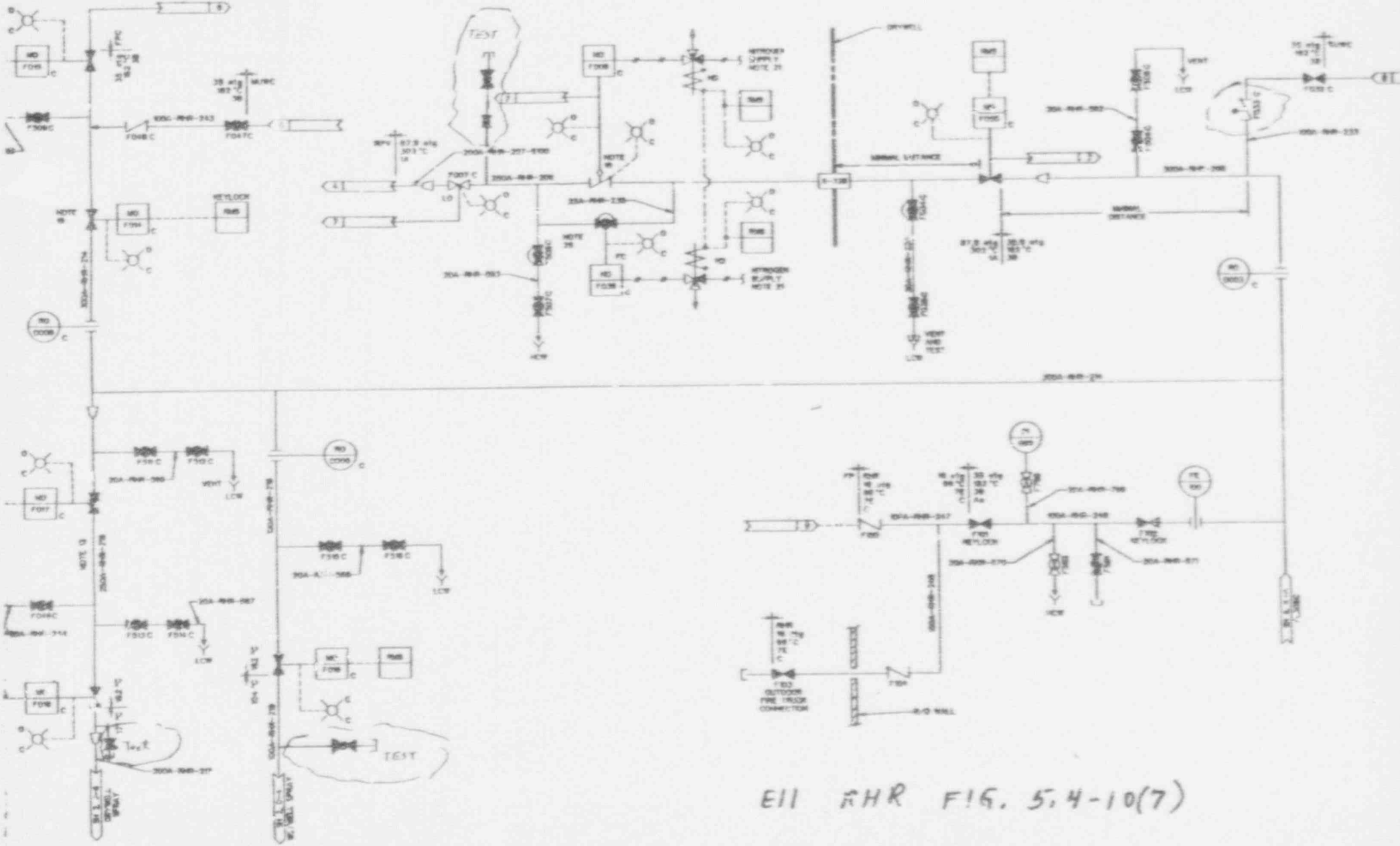


E11 RHR

FIG. 5.4-10(5)

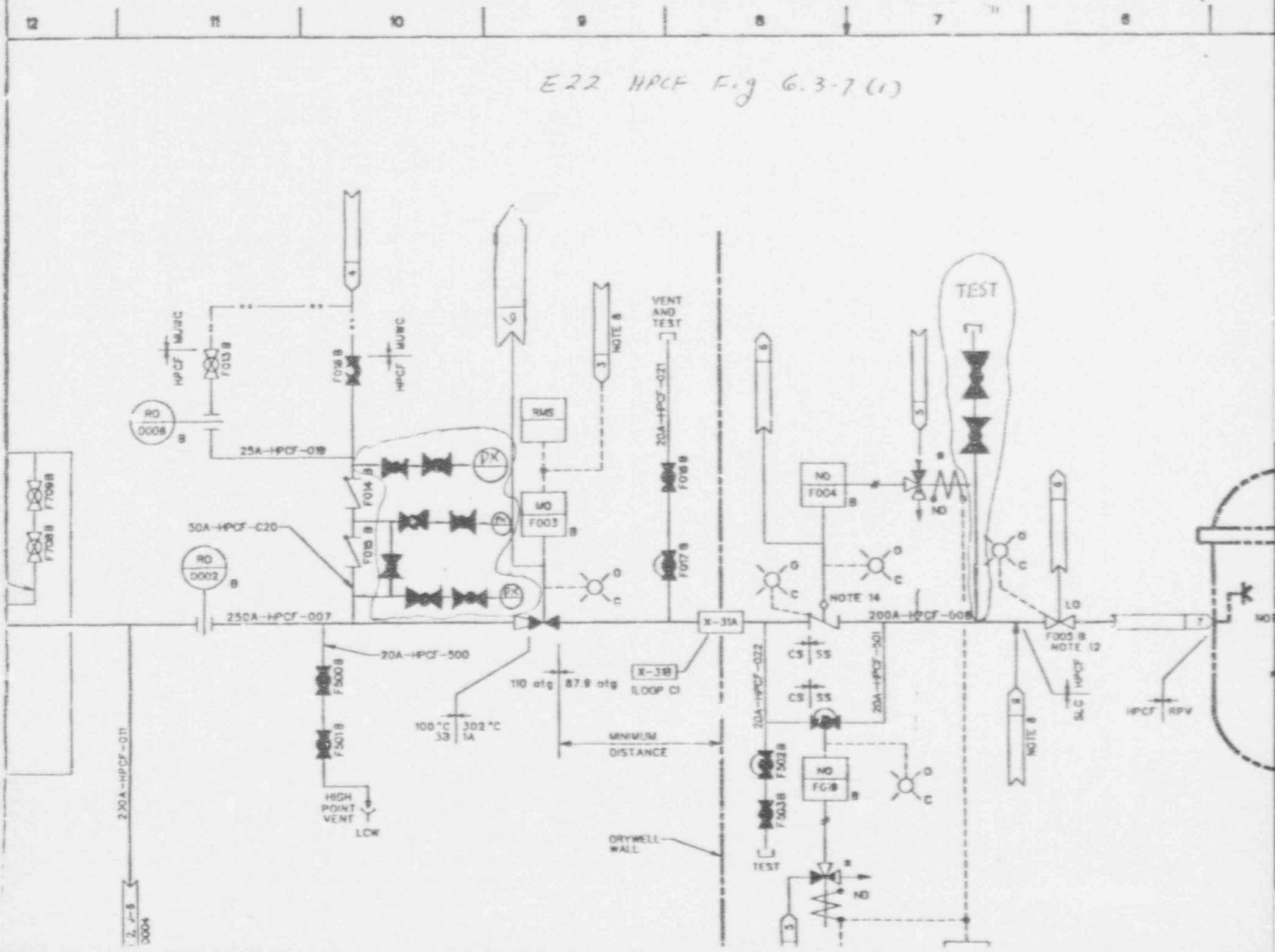
E11 RHR
FIG 5.4-10(6)

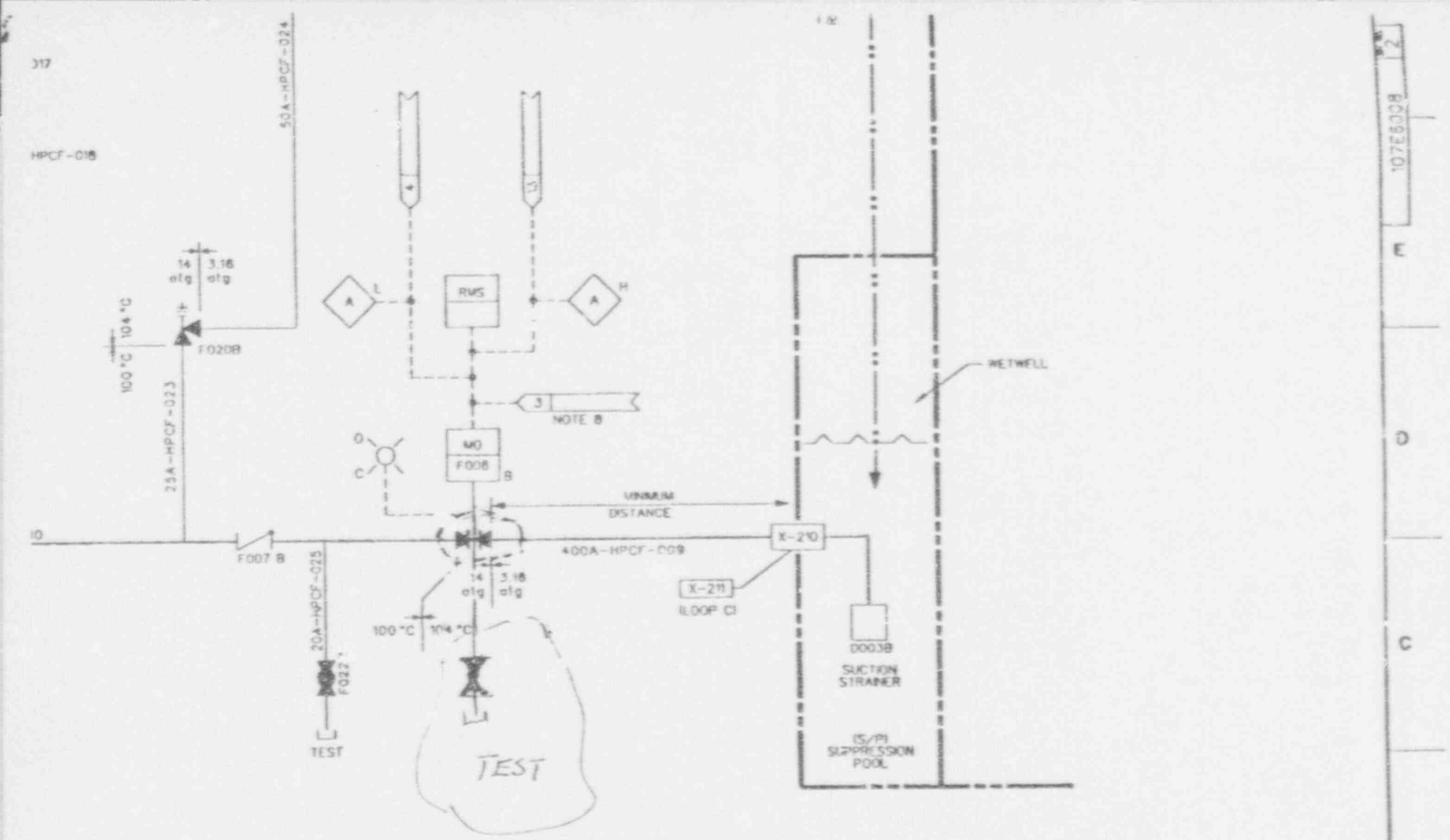




EII AHR FIG. 5.4-10(7)

E22 HPCF Fig 6.3-7 (1)

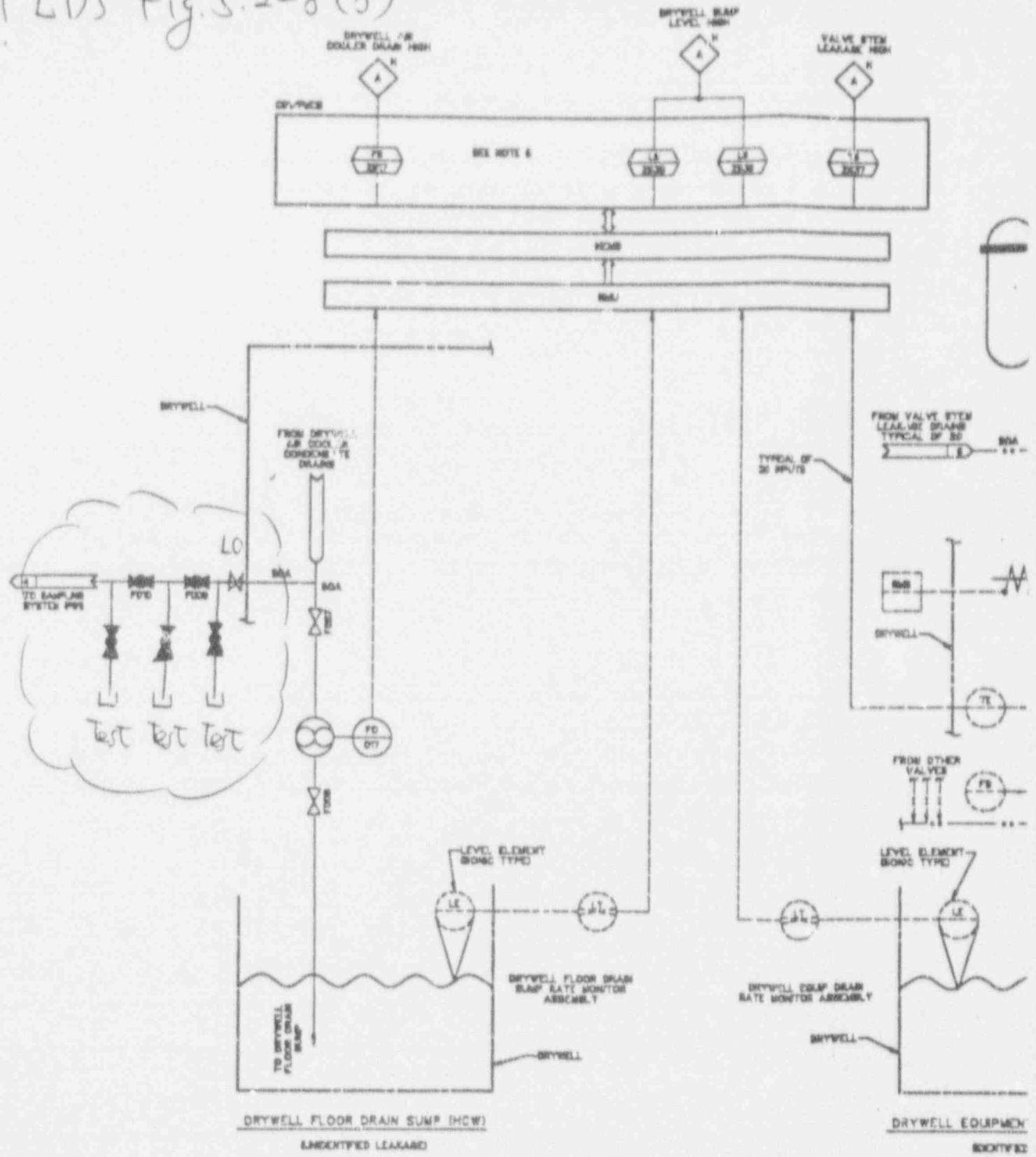




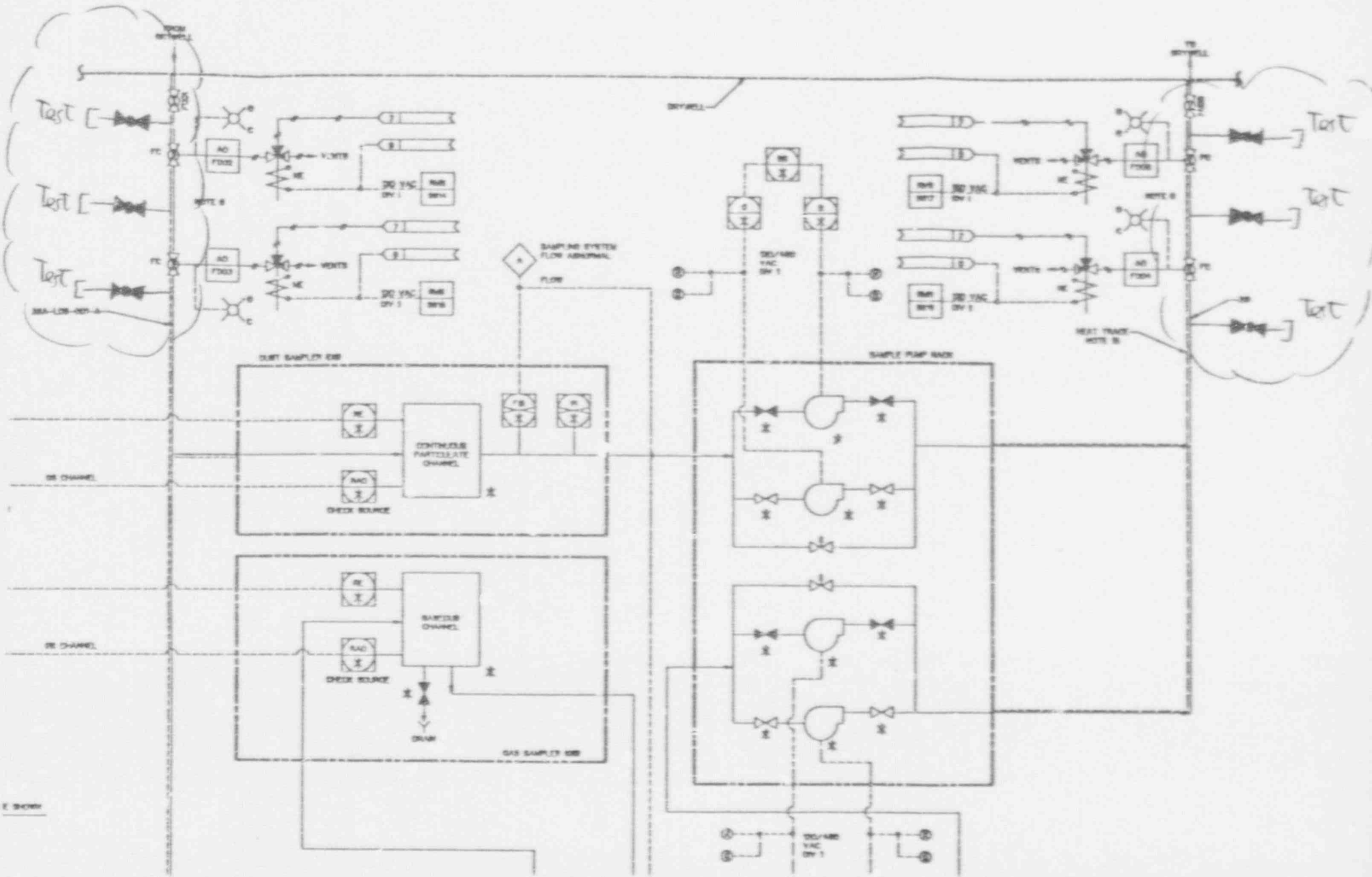
E22 HPCF FIG 6.3-7(2)

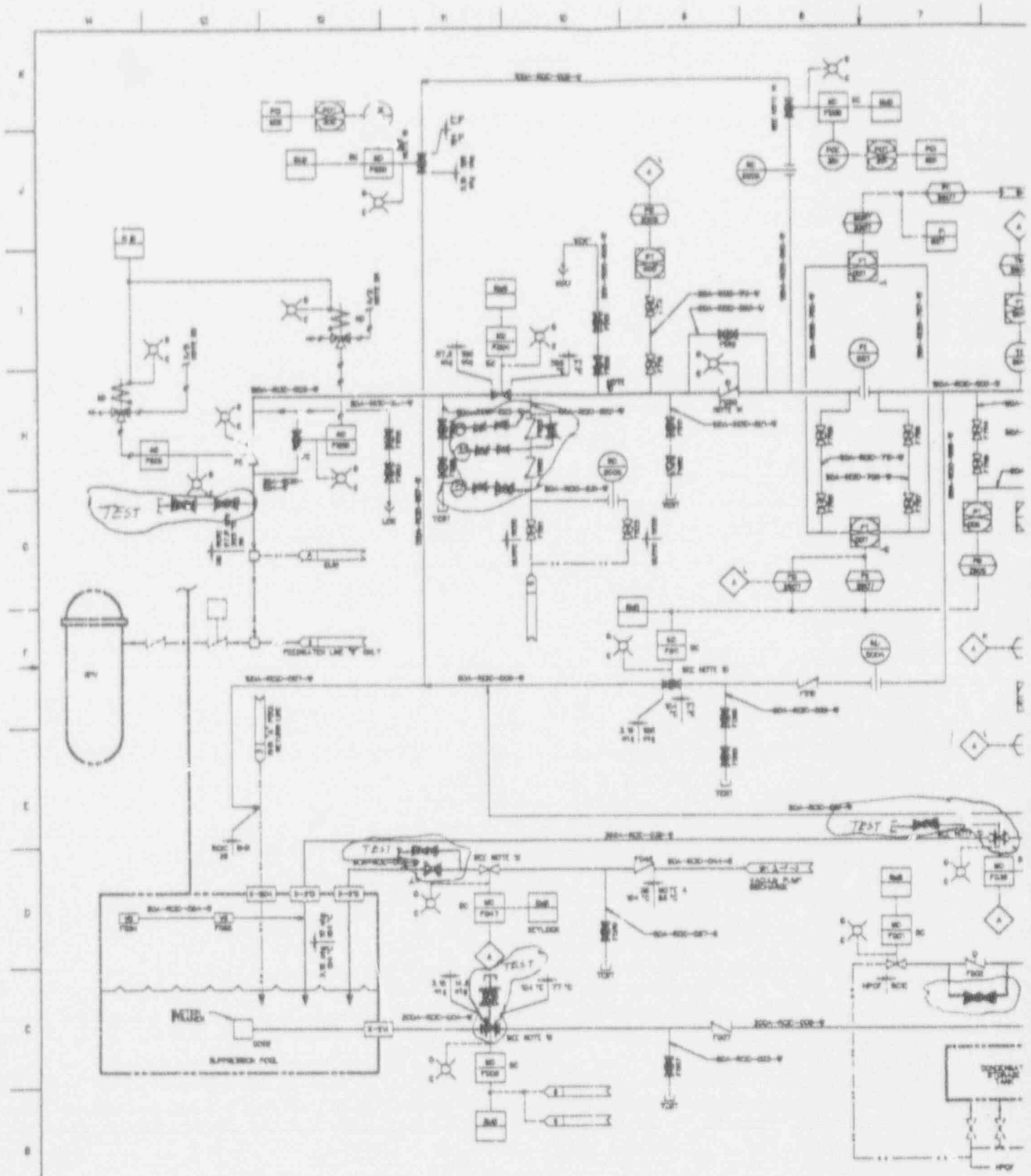
LOOP "B" (TYPICAL FOR LOOP C EXCEPT AS NOTED)

E31 LDS Fig. 5.2-8(8)



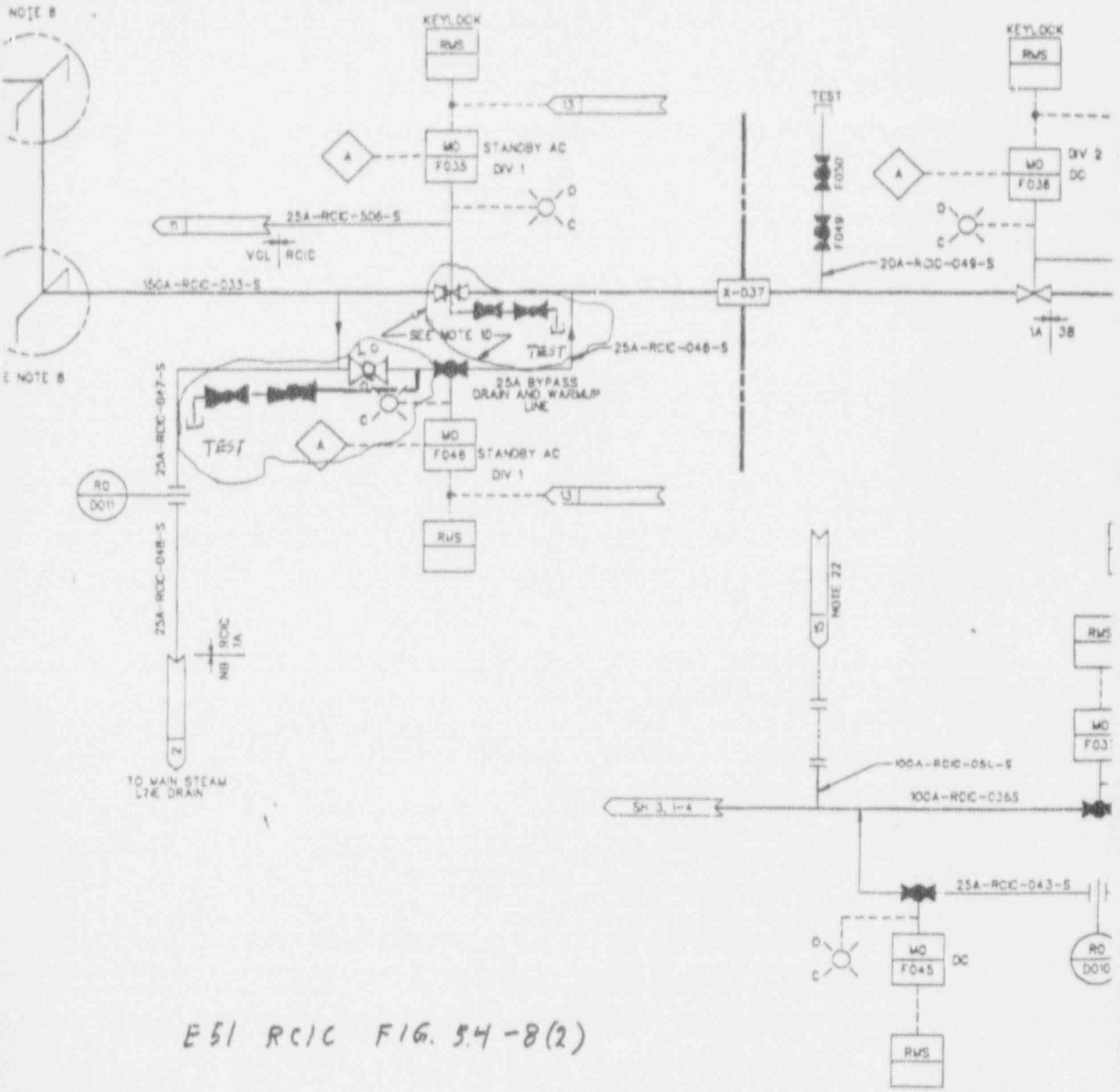
E31 LDS Fig. 5.2-8(7)





ESI RCIC Fig 5.4-8(1)

Figure 5.4-8 RE



E51 RCIC FIG. 5.4-8(2)

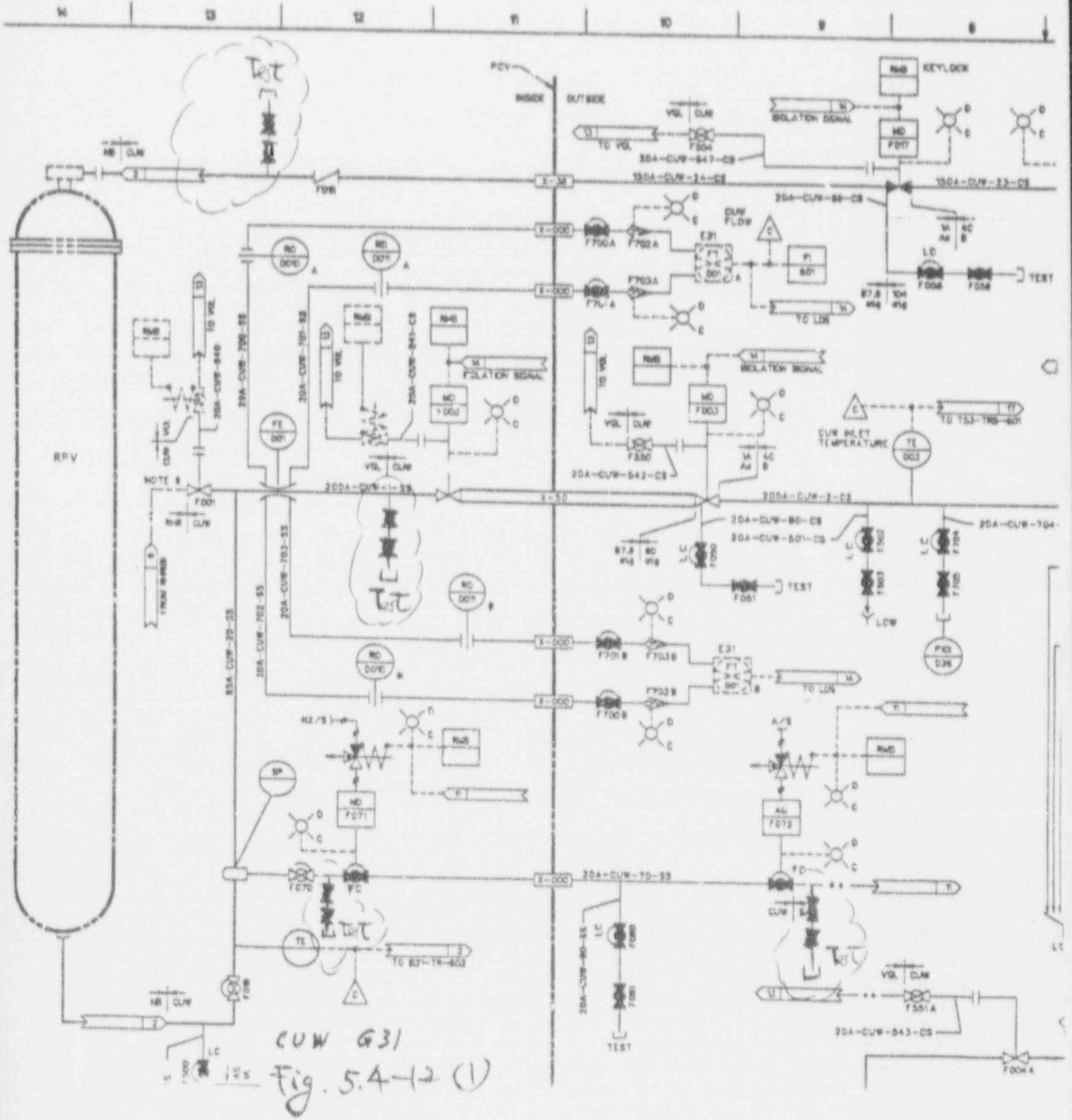

RPV
PCV
INSIDE
OUTSIDE
KEYLOCK
ISOLATION SIGNAL
TO VGL
TO LDW
TO TE3-TNS-601
TEST
CUW FLOW
CUW INLET TEMPERATURE
FROM RHRB
NOTE 5
20A-CUW-1-SS
20A-CUW-2-CS
20A-CUW-70-SS
20A-CUW-80-CS
20A-CUW-104-
20A-CUW-843-CS
150A-CUW-24-CS
150A-CUW-32-CS
CUW G31

Fig. 5.4-12 (1)

107E6042 REV 1
REVISIONS

FC (OR FO) INDICATES VALVES ARE FAIL CLOSED OR FAILED OPEN ON LOSS OF AIR PRESSURE TO AIR OR ELECTRIC POWER VALVE OPERATORS.

ALL AIR OPERATED VALVES TO HAVE OPEN-CLOSED INDICATING LIGHTS OPERATED FROM VALVE CONTROL SWITCH ON VALVE STEMS. ALL AIR OPERATED VALVES SHALL HAVE LIMIT SWITCHES.

NO VALVES OR INSTRUMENTS ARE TO BE LOCATED IN THE SHIELDED COMPARTMENT CONTAINING THE FILTER/DEMINERALIZER.

A COMMON TROUBLE ALARM FROM THE LOCAL ANNUNCIATOR SHALL ALARM IN THE MAIN CONTROL ROOM.

VALVE F028 IS LC AND NOT OPENED UNLESS SPENT FUEL STORAGE POOL GATE IS IN CLOSED POSITION.

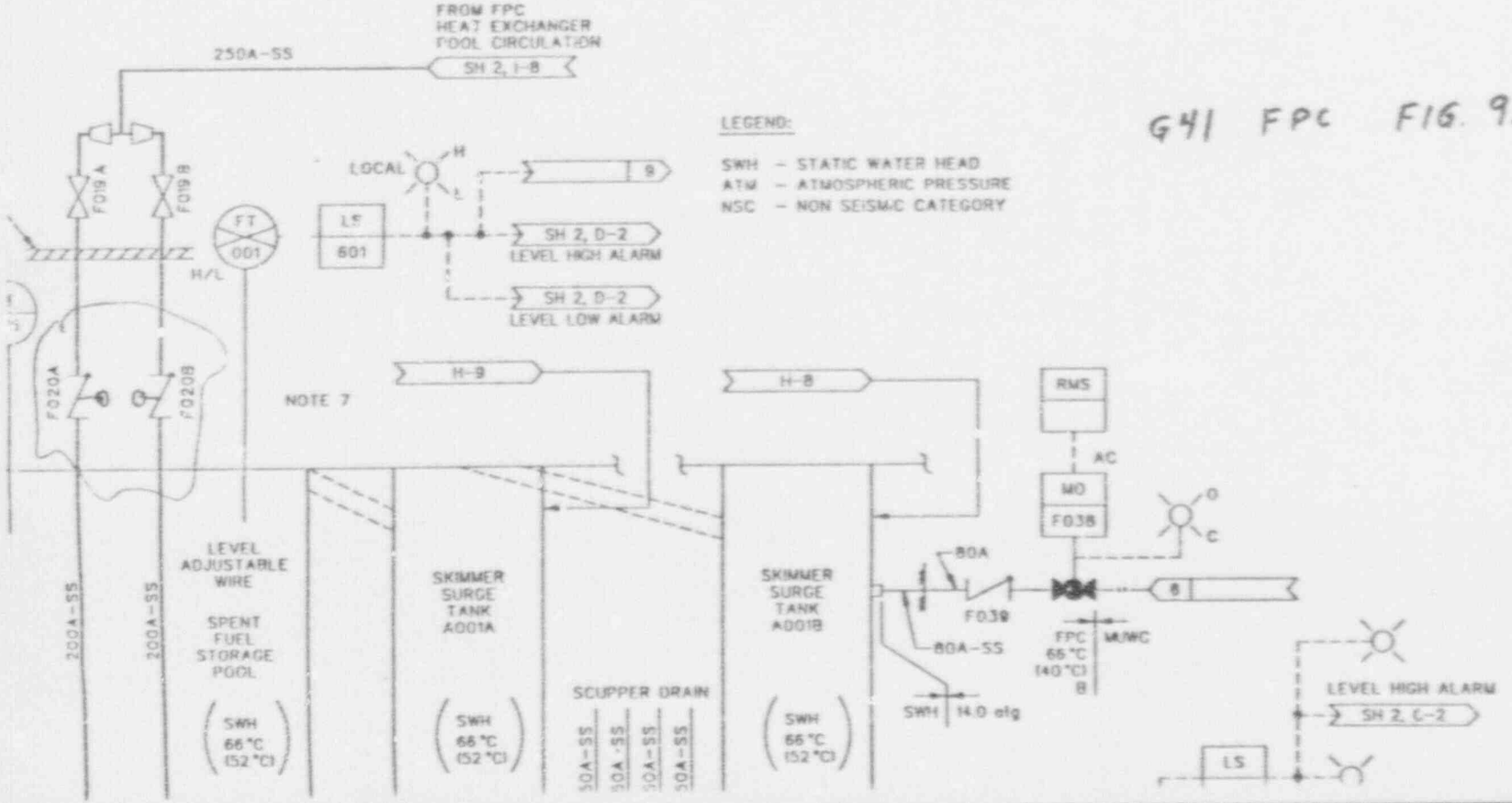
REFERENCE DOCUMENTS:

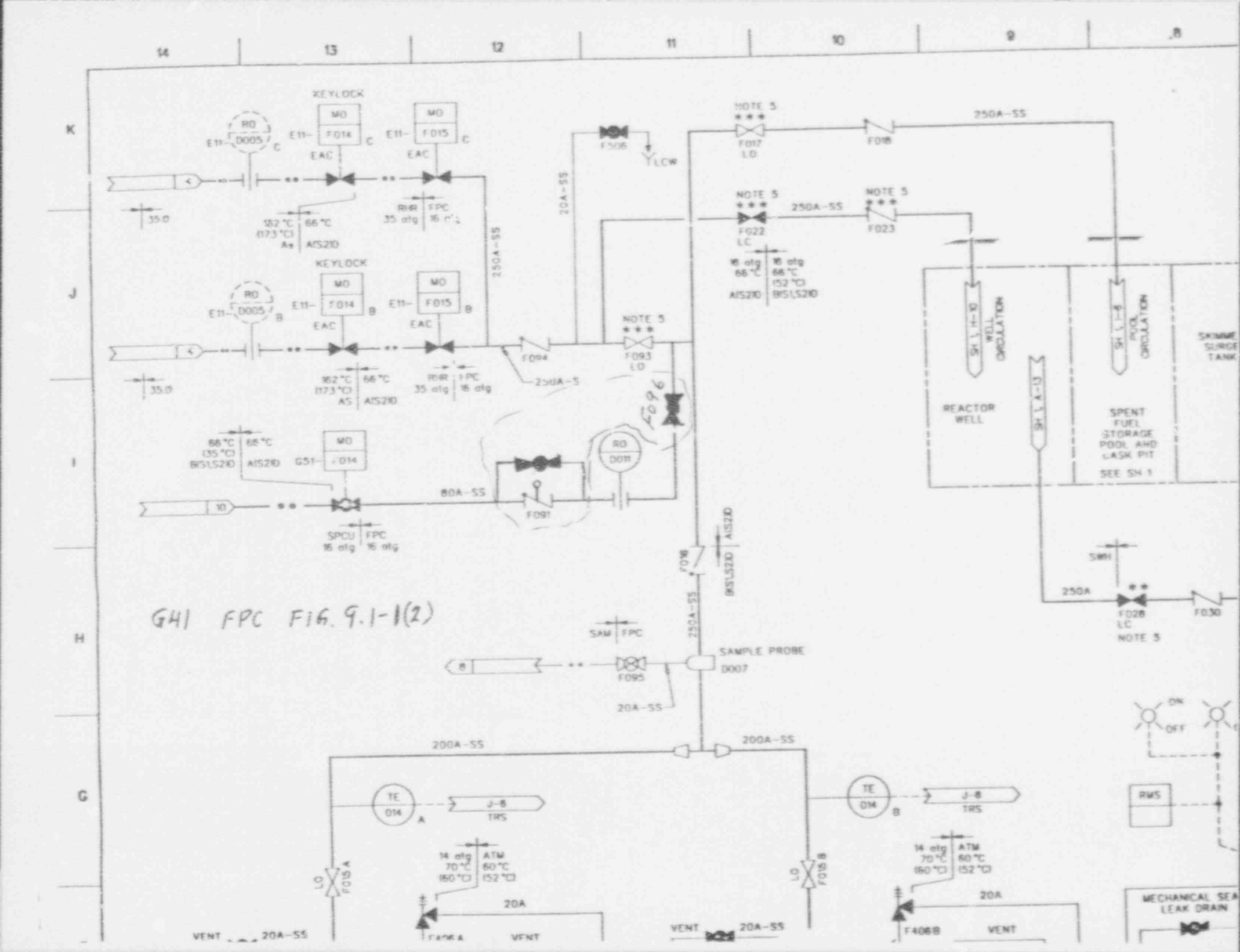
		MPL NO.
1.	PIPING AND INSTRUMENT SYMBOLS DIAGRAM	A10-3030
2.	FUEL POOL COOLING & CLEANUP SYS PFD	G41-1020
3.	FUEL POOL COOLING & CLEANUP SYSTEM IBD	G41-1030
4.	RHR SYSTEM P&ID	E11-1010
5.	RADWASTE SYSTEM P&ID	K17-1010
6.	MAKEUP WATER SYSTEM (CONDENSATE)	P13-1010
7.	REAC BLDG COOLING WATER SYS P&ID	P21-1010
8.	SAMPLING SYSTEM P&ID	P91-1010
9.	HVAC SYSTEM P&ID	U41-1010
10.	SUPPRESSION POOL CLEANUP SYS P&ID	G51-1010
11.	NUCLEAR BOILER SYSTEM P&ID	B21-1010
12.	INSTRUMENT AIR SYSTEM P&ID	P52-1010
13.	REACTOR WATER CLEANUP SYS P&ID	G31-1010
14.	STANDBY GAS TREATMENT SYSTEM	T22-1010

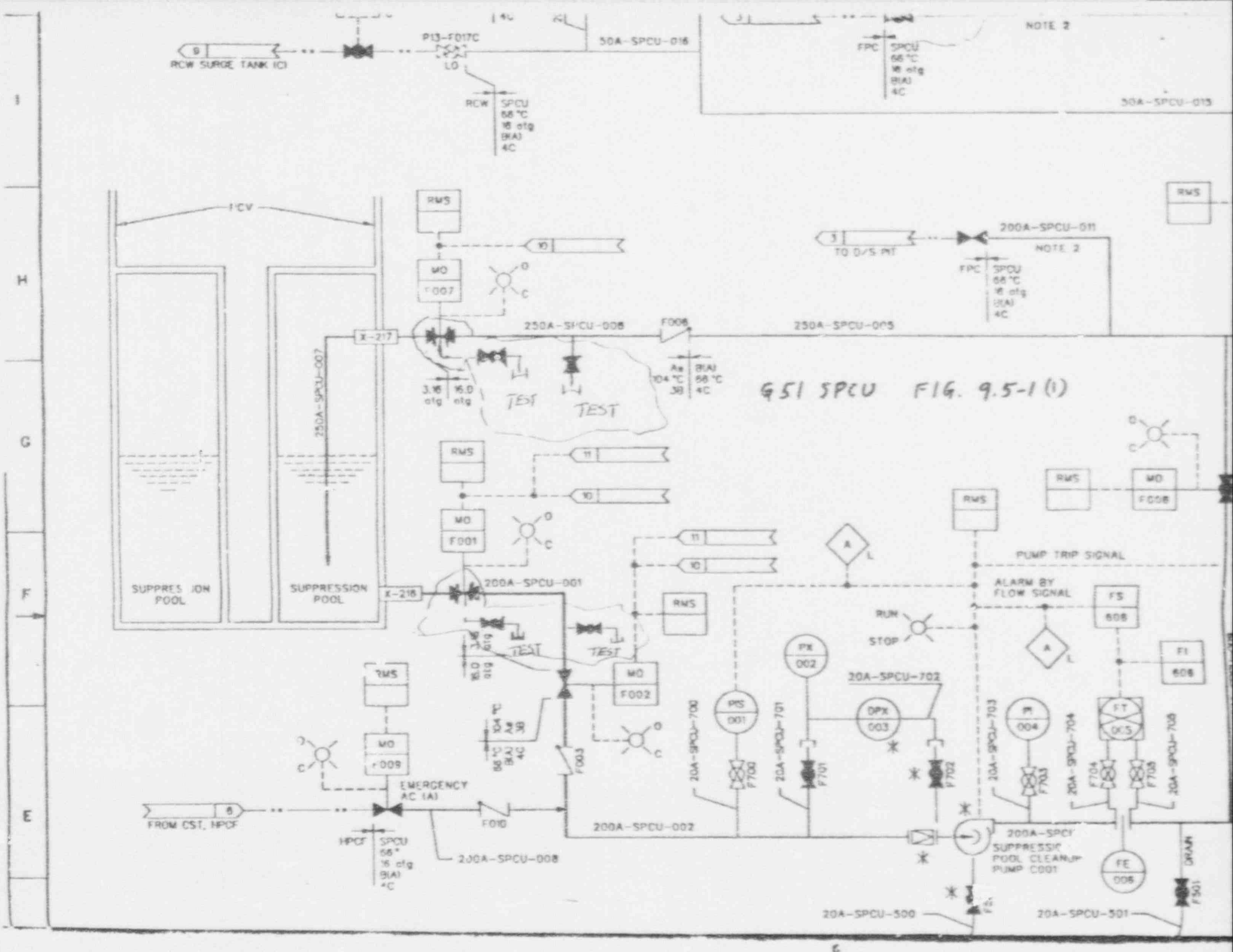
LEGEND:

SWH - STATIC WATER HEAD
ATM - ATMOSPHERIC PRESSURE
NSC - NON SEISMIC CATEGORY

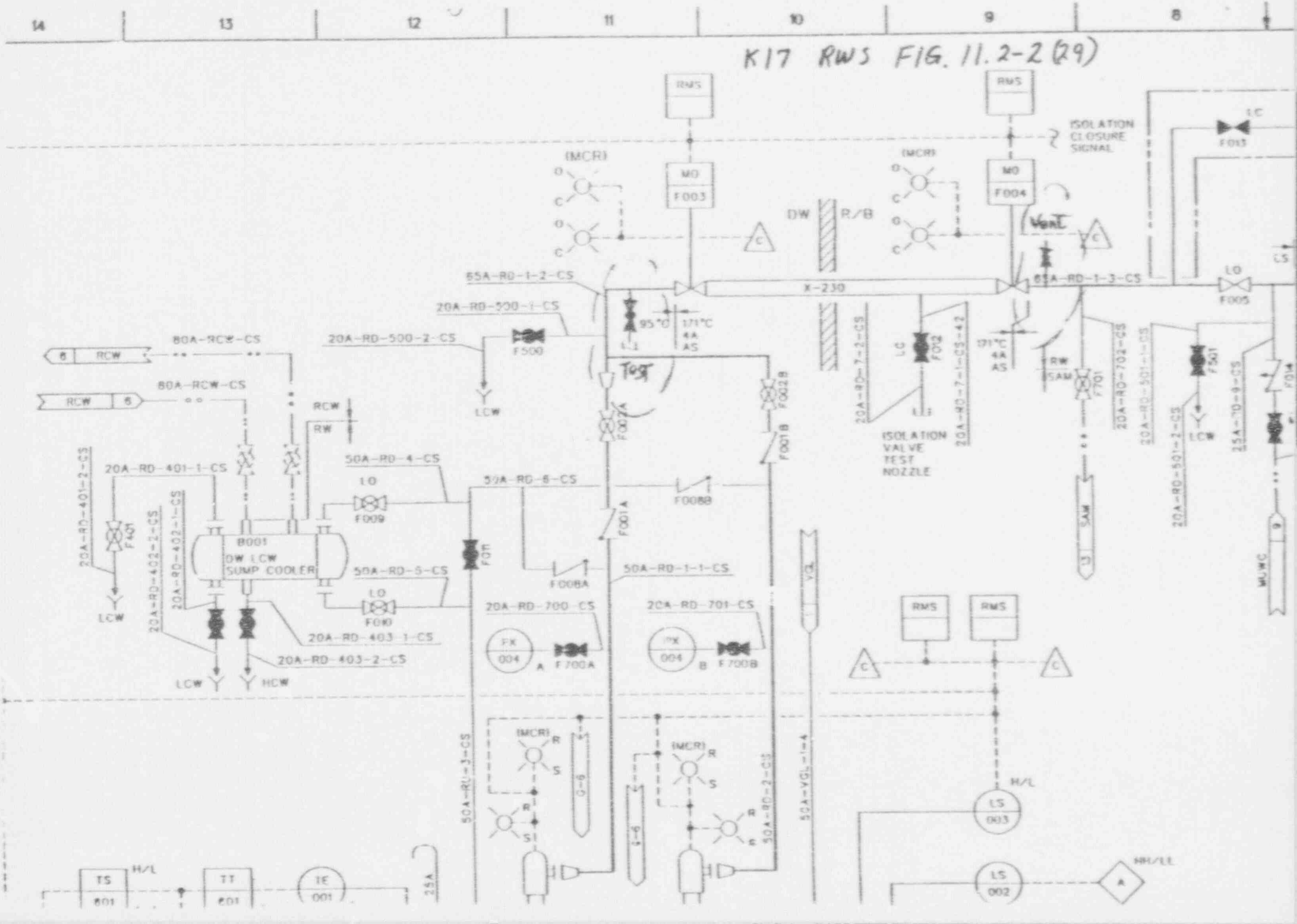
G41 FPC FIG. 9.1-1(1)



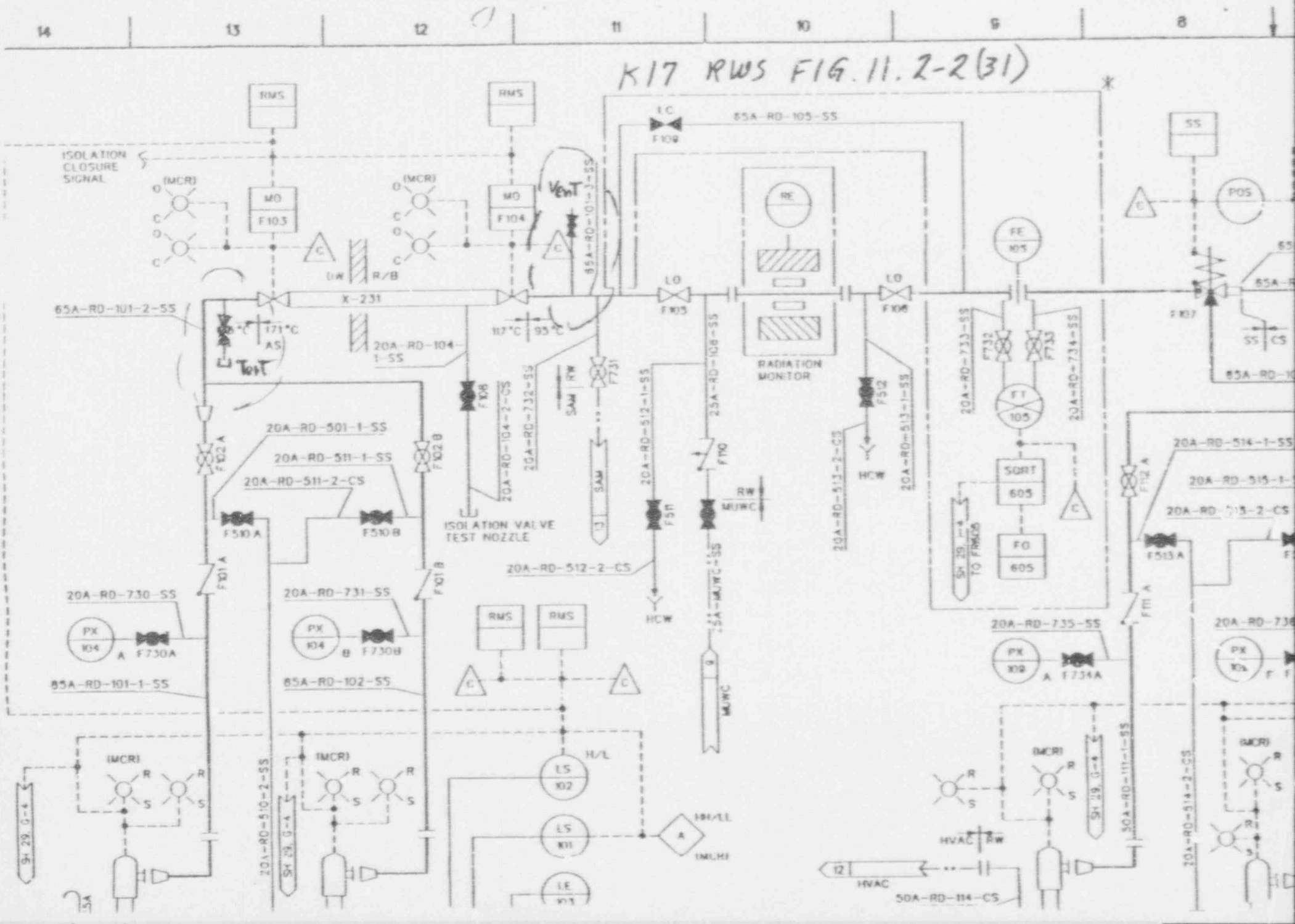

14
13
12
11
10
9
8
K
J
I
H
G
KEYLOCK
RO
D005
C
E11-
MO
F014
C
EAC
MO
F015
C
EAC
35.0
182 °C (173 °C) As
66 °C
AIS210
RHR
35 atg
FPC
16 atg
250A-SS
20A-SS
F506
LCW
NOTE 5
F017
LO
250A-SS
F018
NOTE 5
F022
LC
250A-SS
NOTE 5
F023
16 atg
66 °C
AIS210
16 atg
66 °C
152 °C
BIS\LS210
KEYLOCK
RO
D005
B
E11-
MO
F014
B
EAC
MO
F015
B
EAC
35.0
182 °C (173 °C) AS
66 °C
AIS210
RHR
35 atg
FPC
16 atg
F094
250A-S
NOTE 5
F093
LO
F096
SH 1, H-10
WELL CIRCULATION
SH 1, I-8
POOL CIRCULATION
REACTOR WELL
SH 1, A-13
SPENT FUEL STORAGE POOL AND CASK PIT
SEE SH 1
SKIMME
SURGE
TANK
68 °C (35 °C) BIS\LS210
68 °C AIS210
MO
G51-
F014
80A-SS
F091
RO
D011
SPCU
16 atg
FPC
16 atg
F096
AIS210
BIS\LS210
250A-SS
SWH
250A
F028
LC
NOTE 5
F030
G41 FPC Fig. 9.1-1(2)
SAM
FPC
SAMPLE PROBE
D007
F095
20A-SS
200A-SS
200A-SS
ON
OFF
RWS
TE
014
A
J-8
TRS
TE
014
B
J-8
TRS
14 atg
70 °C (60 °C)
ATM
60 °C (52 °C)
LO
F015A
LO
F015B
14 atg
70 °C (60 °C)
ATM
60 °C (52 °C)
20A
20A
VENT
20A-SS
VENT
20A-SS
F406A
F406B
VENT
MECHANICAL SEA
LEAK DRAIN

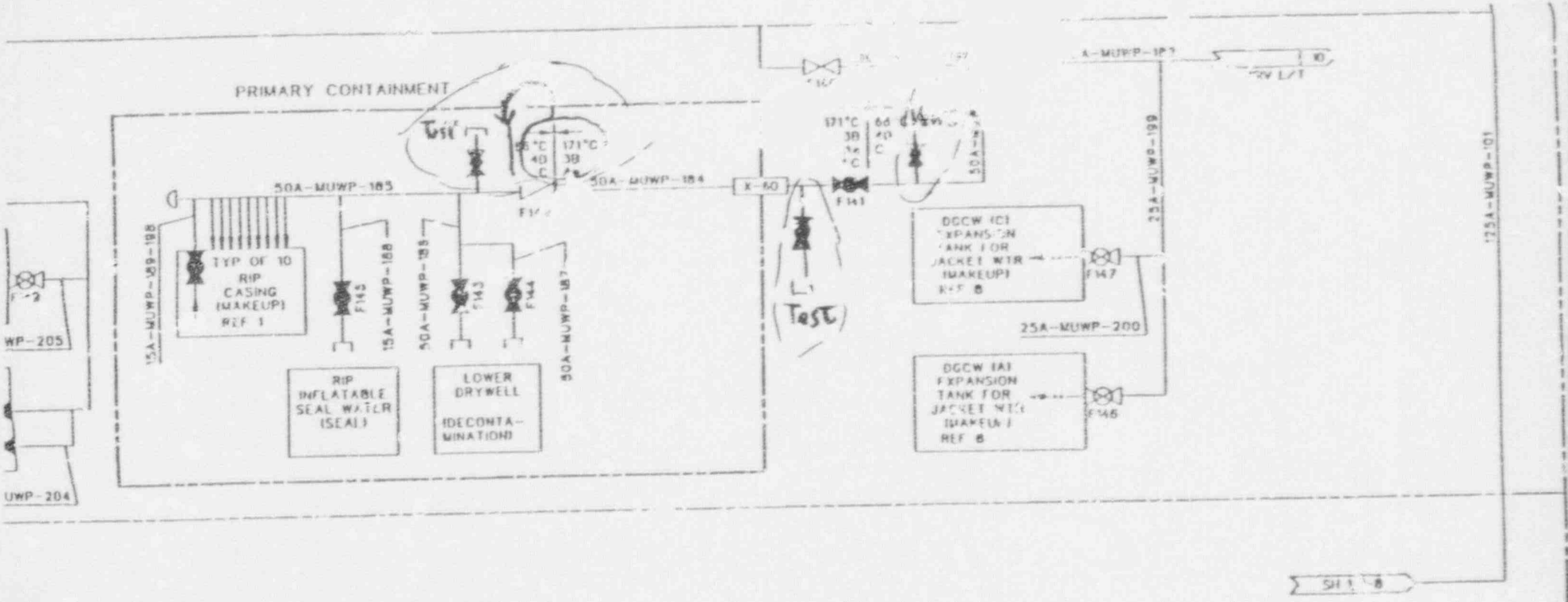

RCW SURGE TANK (C)
P13-F017C
LO
RCW
SPCU
66 °C
16 atg
(RA)
4C
50A-SPCU-016
50A-SPCU-015
NOTE 2
FPC
TO D/S PIT
200A-SPCU-011
250A-SPCU-005
250A-SPCU-008
F006
X-217
X-216
250A-SPCU-007
SUPPRESSION POOL
SUPPRESSION POOL
FCV
RWS
MO
F007
F001
F002
F003
F009
F010
200A-SPCU-001
200A-SPCU-002
200A-SPCU-008
TEST
3.16 atg
16.0 atg
104 °C
38
66 °C
18 °C
(RA)
58 °C
4C
G51 SPCU FIG. 9.5-1 (1)
PUMP TRIP SIGNAL
ALARM BY FLOW SIGNAL
RUN
STOP
PX 002
DPX 003
PDS 001
PT 004
FT 005
FS 606
FI 606
FE 006
200A-SPCU-700
200A-SPCU-701
200A-SPCU-702
200A-SPCU-703
200A-SPCU-704
200A-SPCU-705
F700
F701
F702
F703
F704
F705
F501
EMERGENCY AC (A)
FROM CST, HPCF
HPCF
SPCU
56°
16 atg
(RA)
4C
200A-SPCU-SPCF
SUPPRESSION POOL CLEANUP PUMP C001
DRAIN
20A-SPCU-500
20A-SPCU-501

K17 RWS FIG. 11.2-2 (29)



K17 RWS FIG. 11.2-2(31)



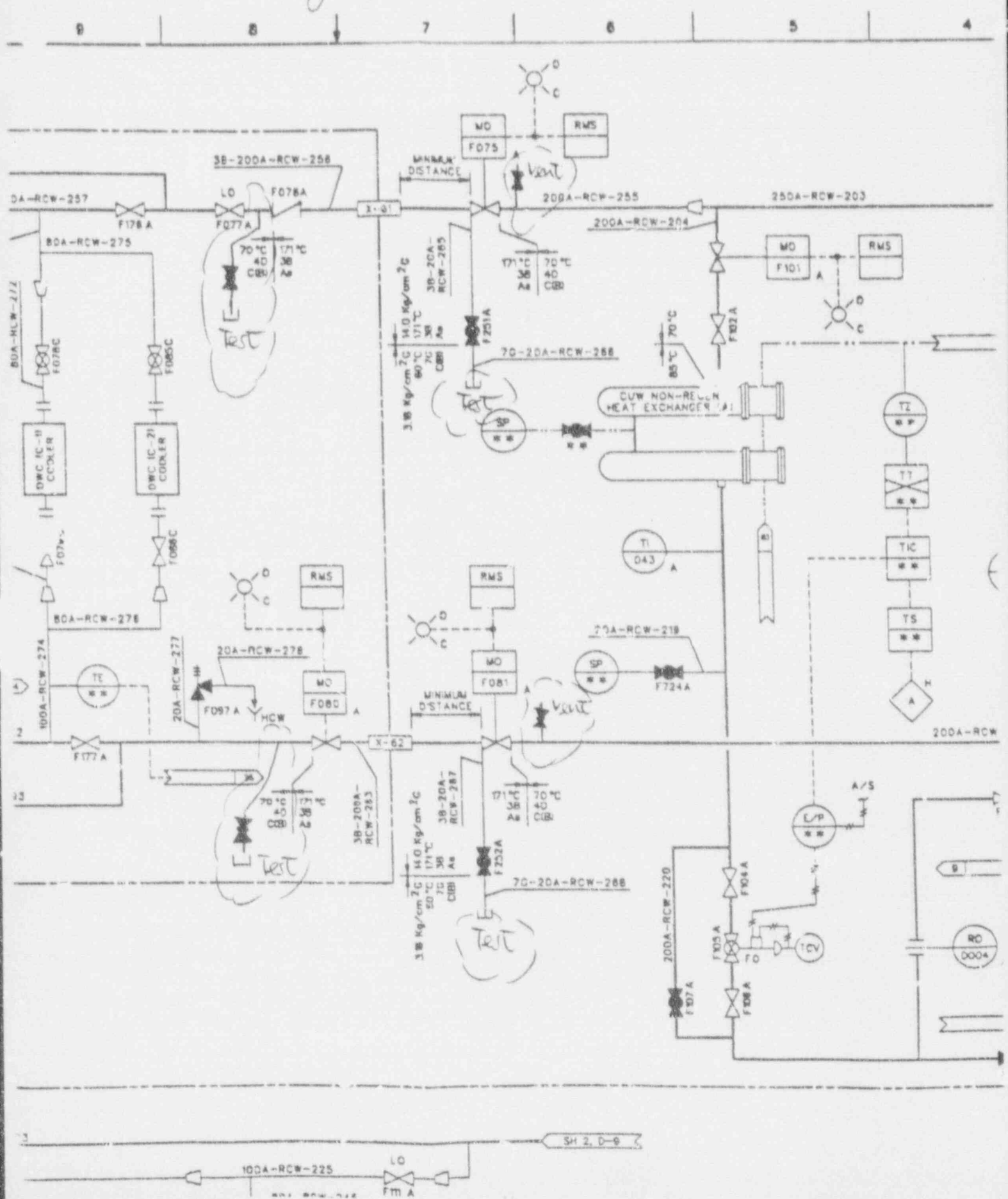


P11 P Fig. 9.2-5(2)

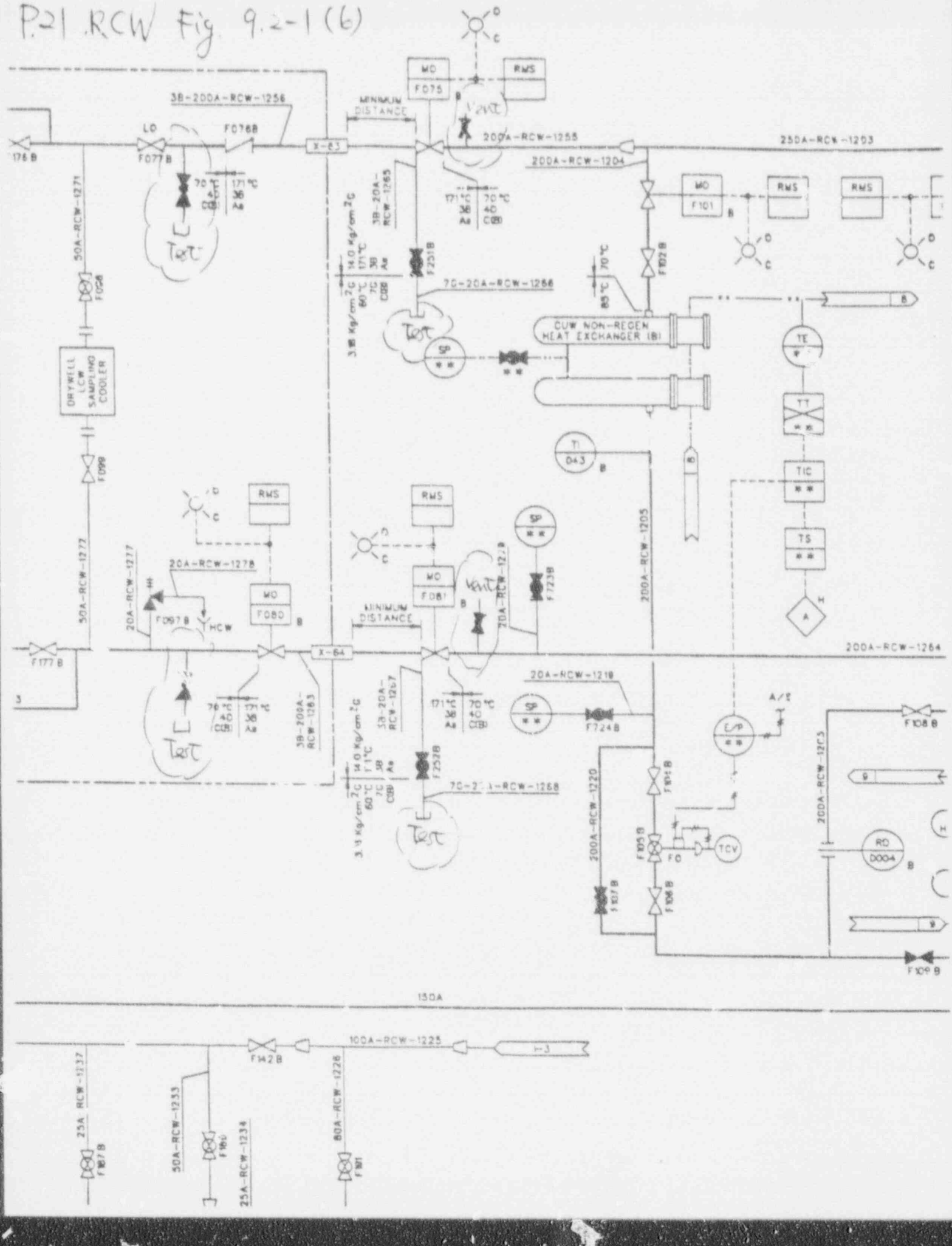
WB TIMES	23	1	91
FE WB 341 M8	13	2	91

8 7 6 4 3

P21 RCW Fig. 9.2-1 (3)



P.21 RCW Fig. 9.2-1 (6)

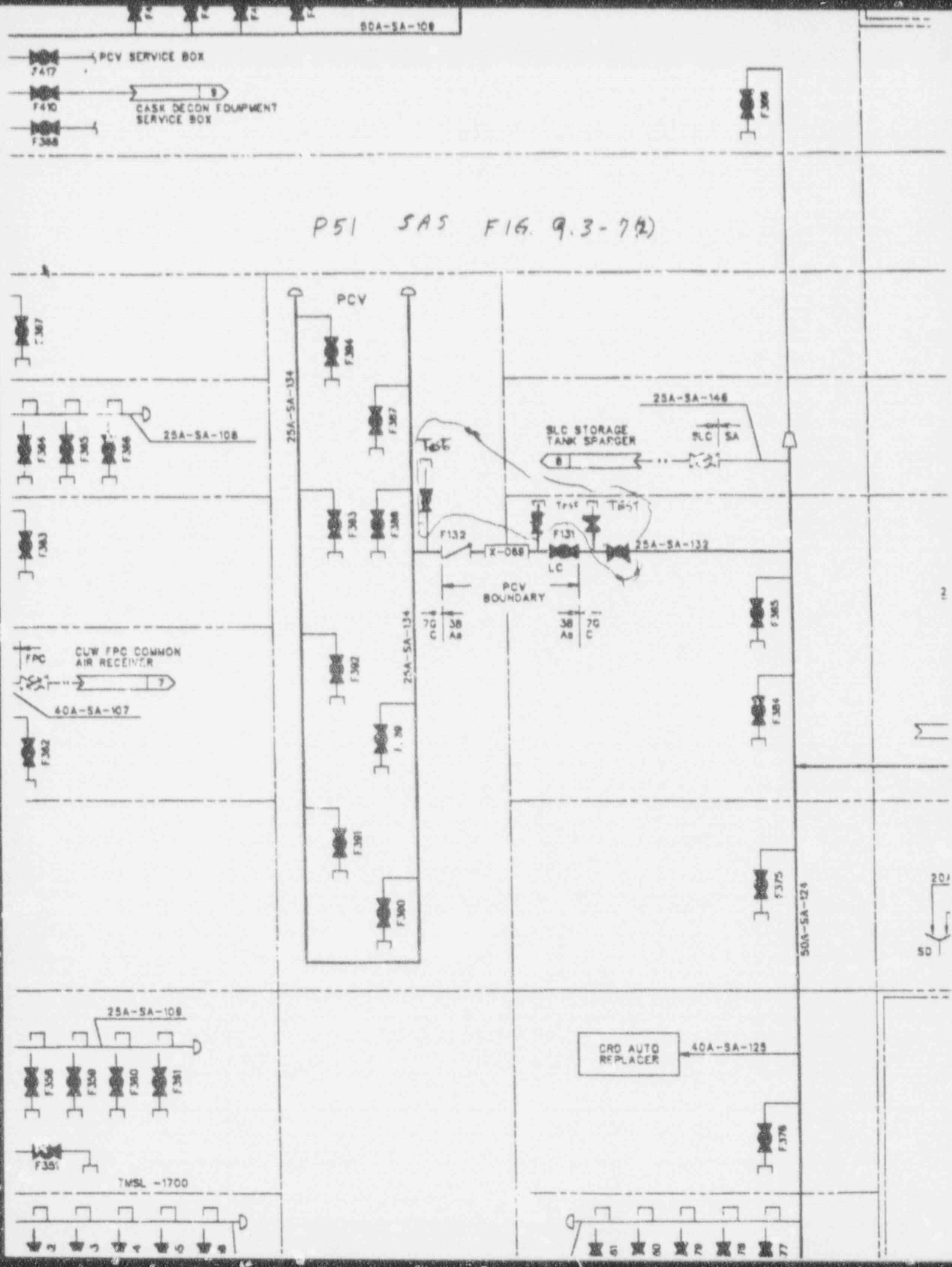


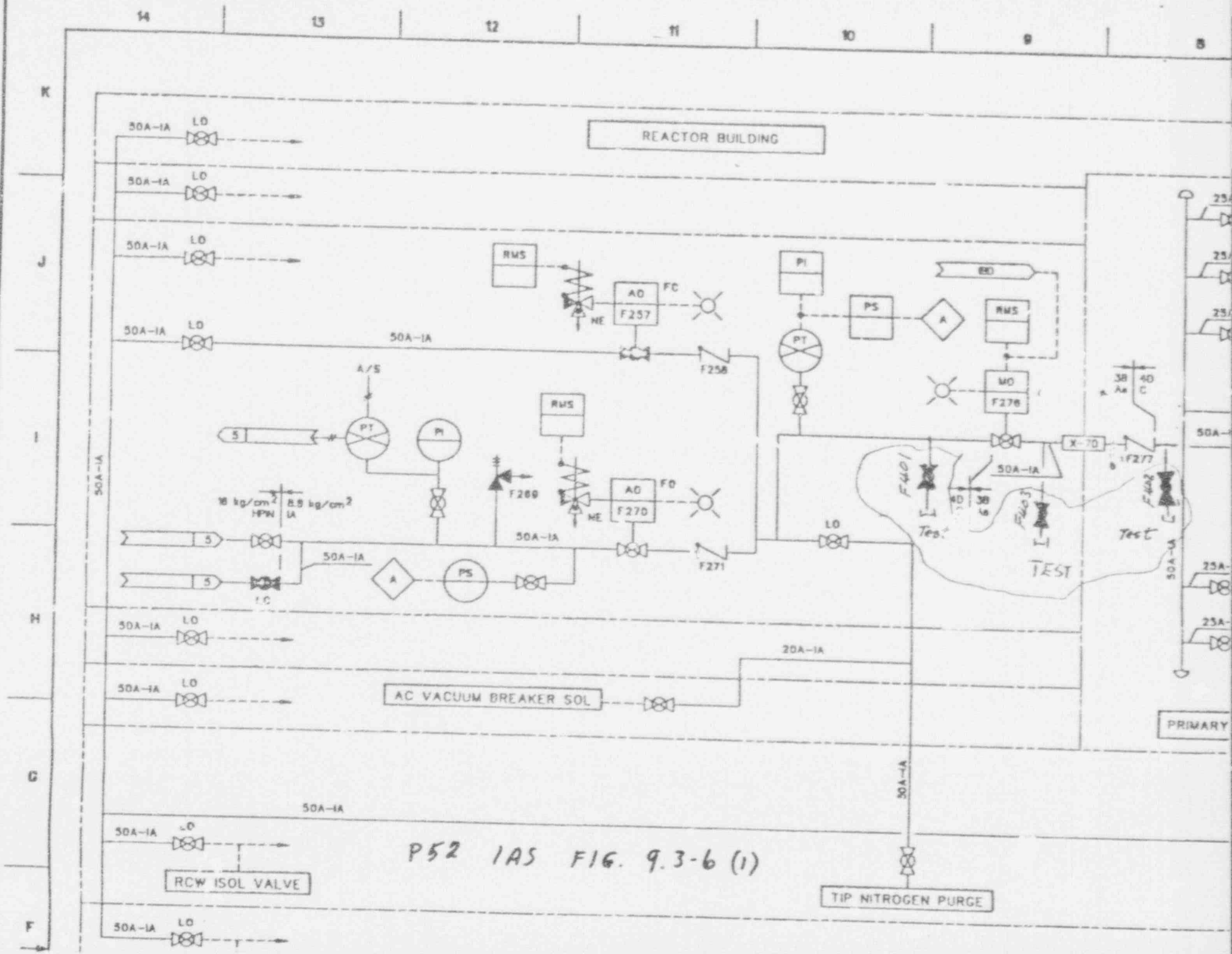
P24
HNCW Fig. 9.2-2

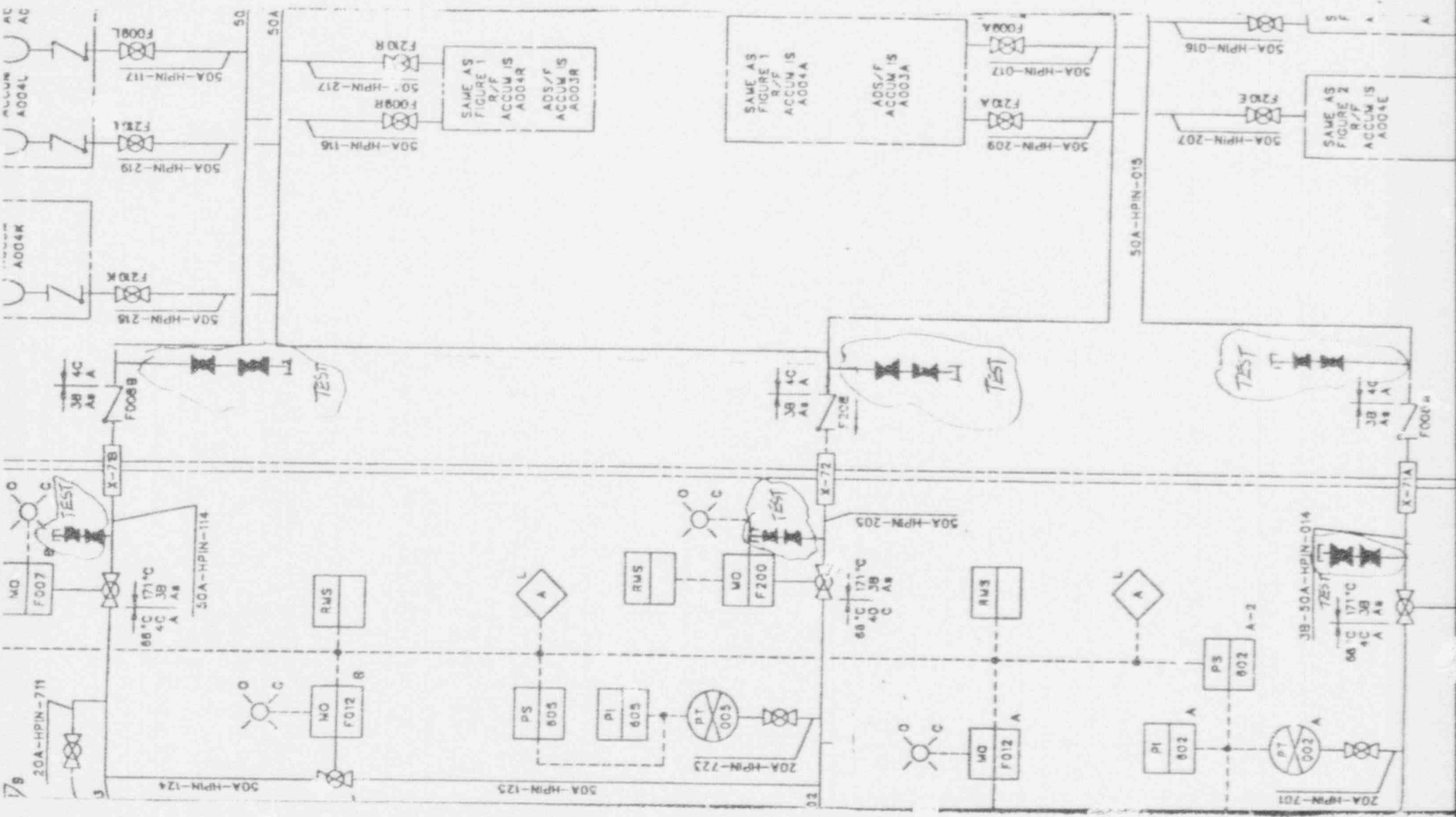
LOCA SIGNAL
(HIGH DW PRESSURE
LOW REACTOR
WATER LEVEL (L1))

RMS
RMS
RMS
O
C
O
C
O
C
F-4
F-4
LO
LO
Test
Test
MO
F142
MO
F053
Test
Test
*A8
X-68
X-65
RCCV
T41-B002
MO
F141
F054
Test
Test
DRYWELL B002A
65A
F138
100A
65A
F057
100A
DRYWELL B002B
65A
F139
65A
F056
HNCW
DWC

TCV
2
A/S
FC
E-4
F218
F216
F215
F217
F-4
F192
125A
SUPPLY UNIT U41-B201A
F213
F194
F214
F193


50A-SA-109
PCV SERVICE BOX
F417
F410
CASK DECON EQUIPMENT SERVICE BOX
F388
P51 SAS FIG. 9.3-7(2)
PCV
F387
F384
F385
F386
25A-SA-108
F383
F382
FPC
CUW FPC COMMON AIR RECEIVER
40A-SA-107
25A-SA-134
F387
F383
F388
F132
X-068
F131
LC
PCV BOUNDARY
25A-SA-132
25A-SA-146
SLC STORAGE TANK SPARGER
SLC
SA
Test
F385
F384
F382
F381
F380
F375
50A-SA-124
20A
SD
25A-SA-108
F358
F359
F360
F361
F351
7MSL -1700
CRD AUTO REPLACER
40A-SA-125
F376

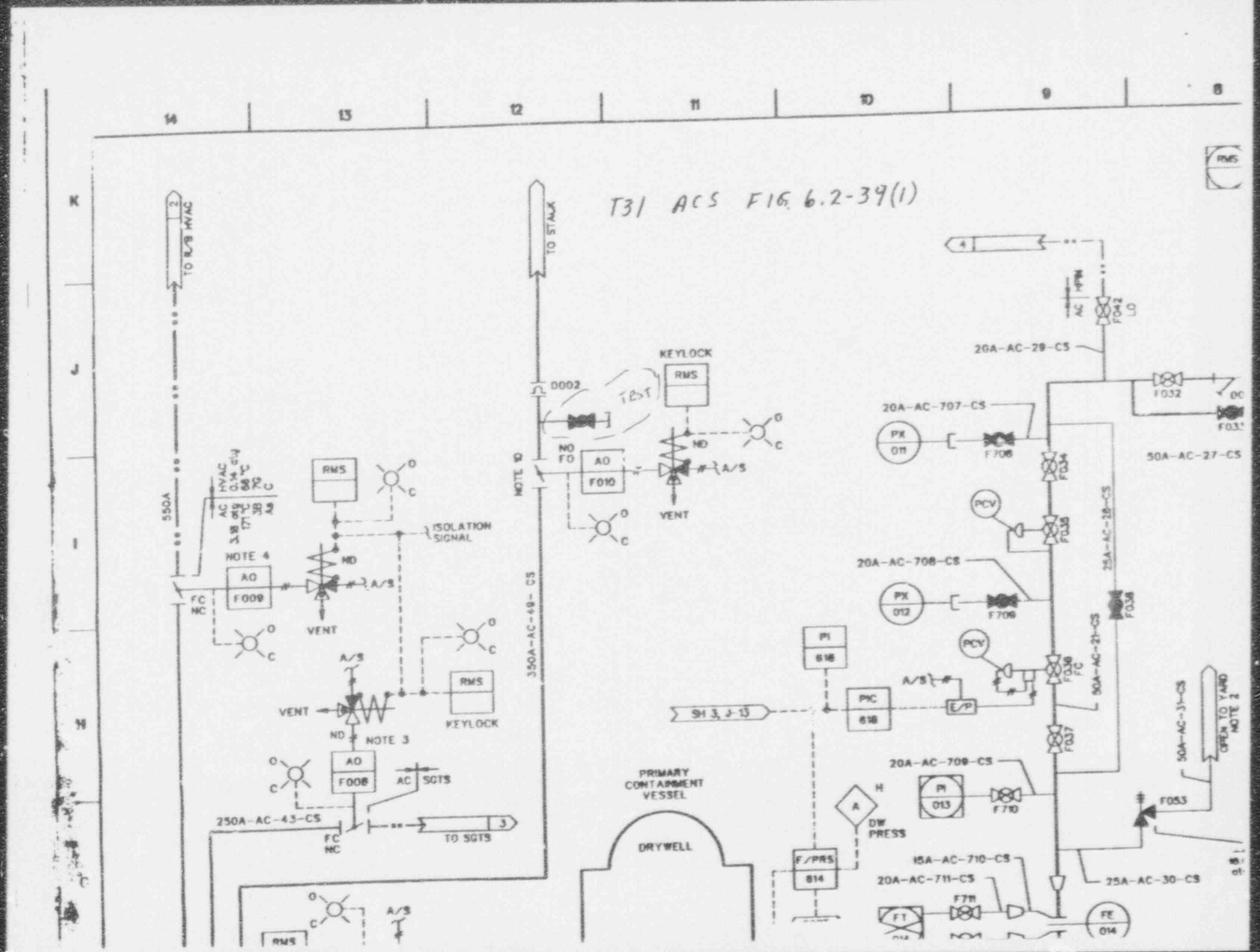

14
13
12
11
10
9
8
K
J
I
H
G
F
REACTOR BUILDING
50A-1A
LO
RWS
AO
F257
FC
ME
F258
A/S
PT
PI
F269
AO
F270
FO
F271
PS
A
LC
PI
PS
PT
RWS
MO
F278
X-70
F277
50A-1A
F401
F402
F403
Test
TEST
38 A
40 C
20A-1A
AC VACUUM BREAKER SOL
RCW ISOL VALVE
TIP NITROGEN PURGE
PRIMARY
P52 1A5 FIG. 9.3-6 (1)

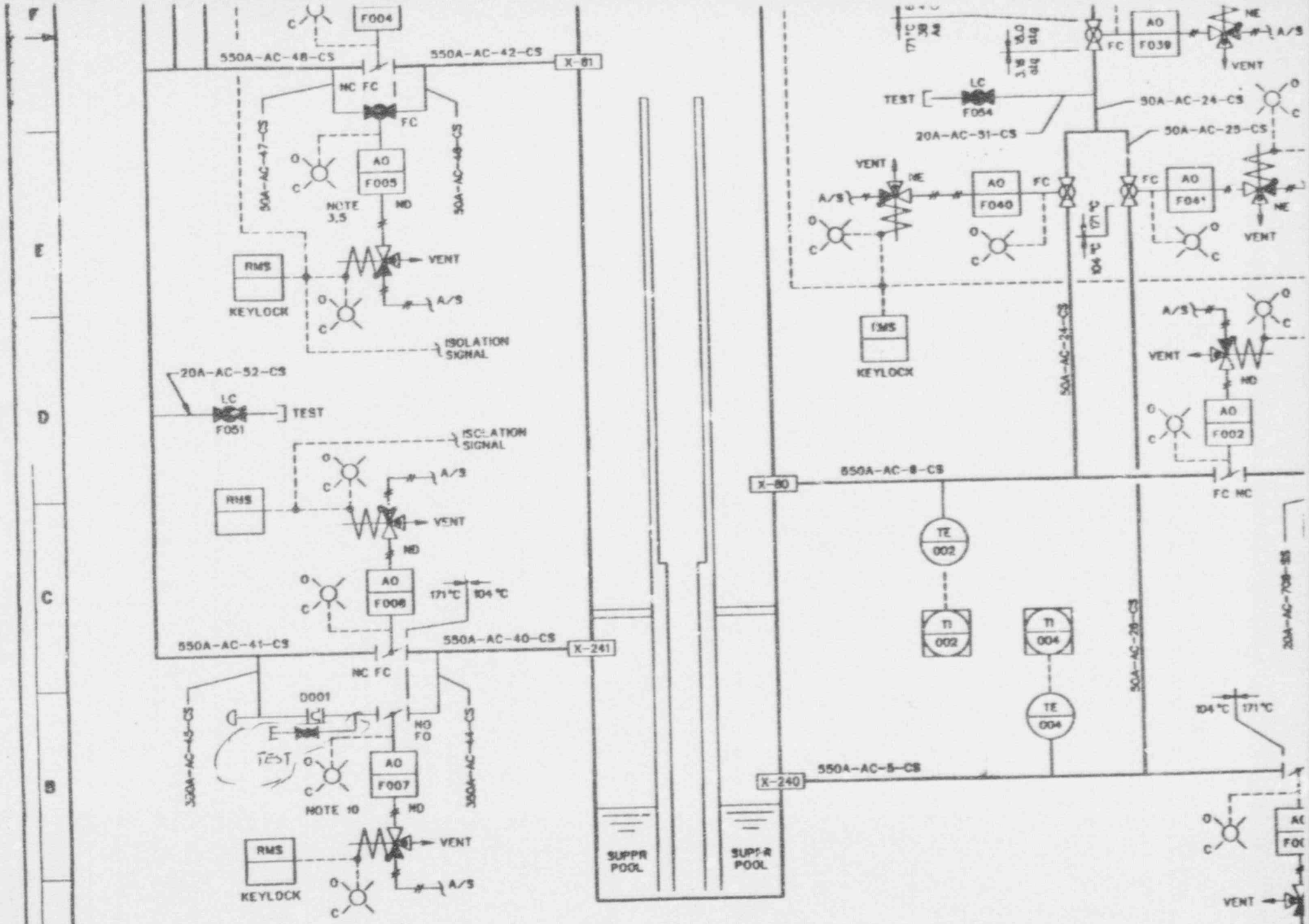


P54 HPIN

Fig 6.7-1

T31 ACS FIG 6.2-39(1)

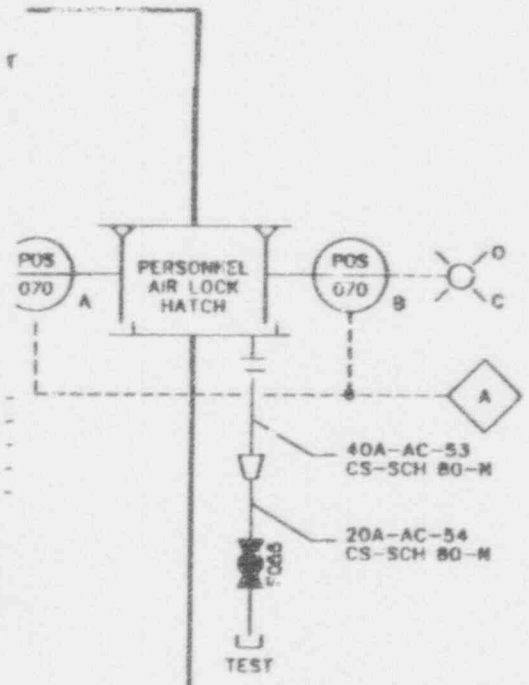


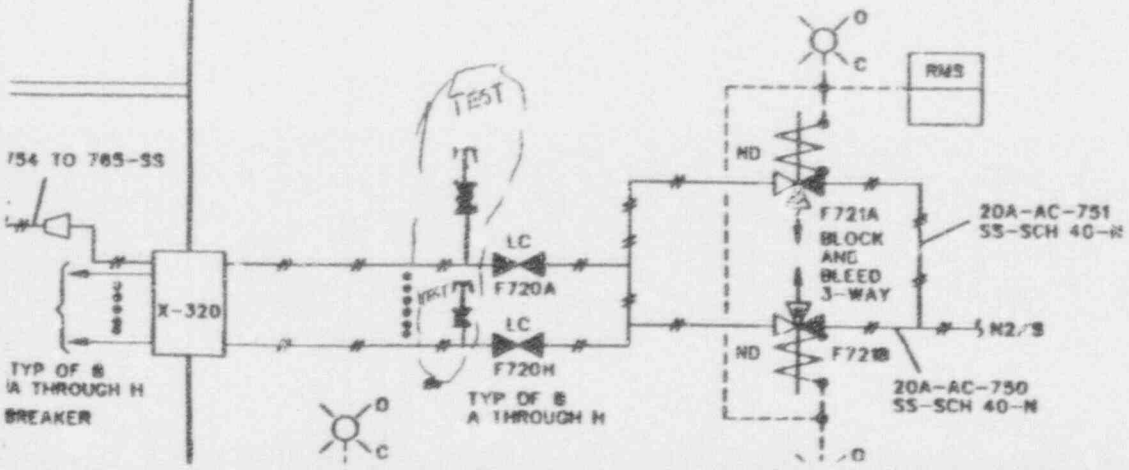


T31 ACS FIG. 6.2-39(1)

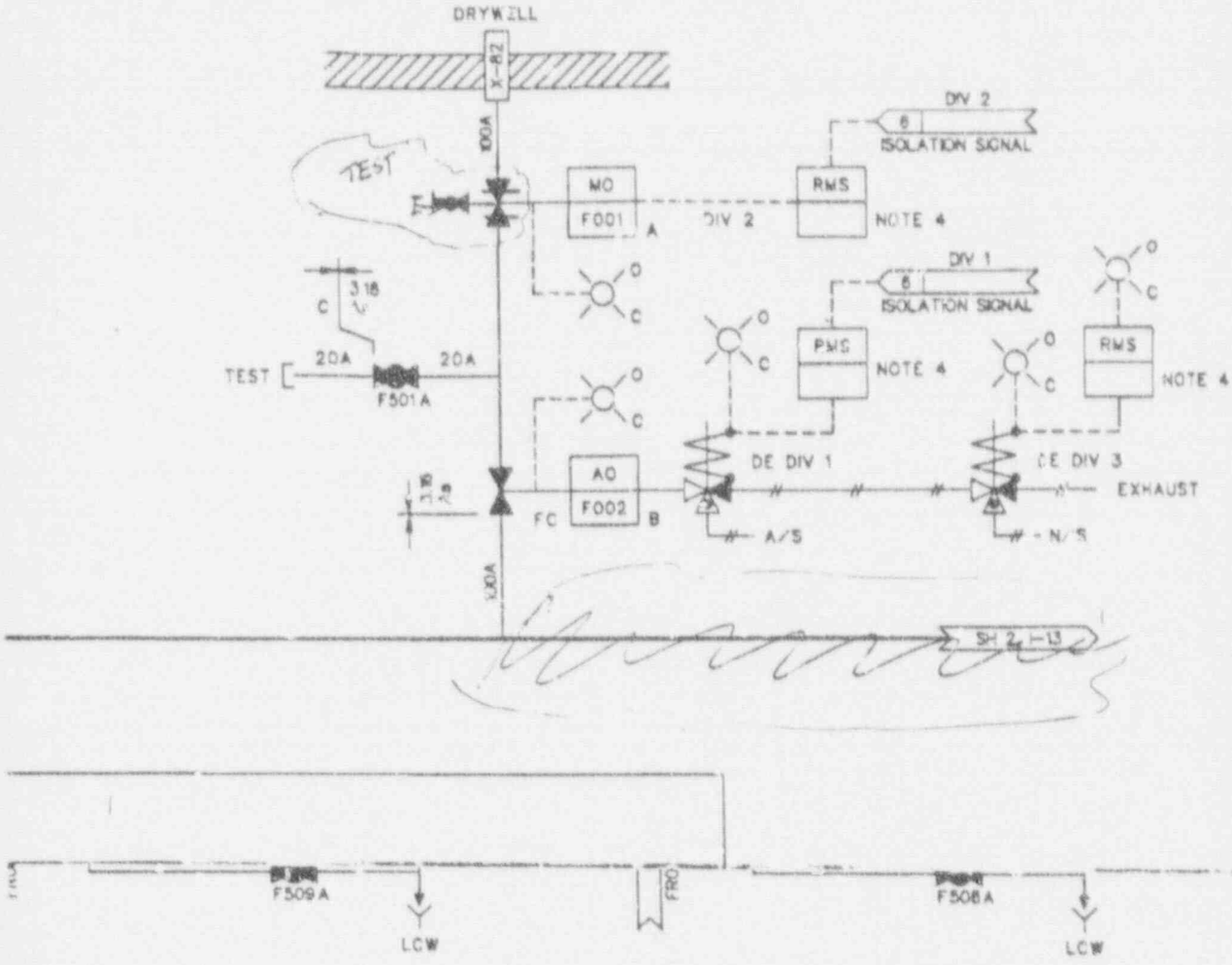
TABLE 1 : LOCATION AND USE OF TEMPERATURE ELEMENTS INSIDE PCV

TAG NUMBER		LOCATION	USE
TE-050	A,B	LOWER DRYWELL (AROUND CRD HOUSING)	INDICATION & ALARM
	C	LOWER DRYWELL (AROUND CRD HOUSING)	RESERVE
TE-051	A,B,C	AROUND RPV HEAD FLANGE	INDICATION
	D,E,F,G,H	AROUND SRV	INDICATION
	J	SUPPLY DUCT TO DRYWELL TOP HEAD	INDICATION
	K	RETURN DUCT FROM DRYWELL TOP HEAD	INDICATION
	L,M,N	SUPPLY DUCT TO ANNULUS AREA BETWEEN RPV AND GAMMA SHIELD	INDICATION
	P,R,S	RETURN DUCT FROM ANNULUS AREA BETWEEN RPV AND GAMMA SHIELD	INDICATION
TE-052	A,B,C	SUCTION AT EACH DRYWELL COOLER	RECORD & ALARM
	D,E,F	DISCHARGE AT EACH DRYWELL COOLER	RECORD & ALARM
	G,H	SUPPLY DUCT TO UPPER DRYWELL	RECORD & ALARM
	J,K,L,M,N	AROUND RPV FLANGE	RECORD & ALARM
	P,R,S,T	SUPPRESSION CHAMBER FREE VOLUME	RECORD & ALARM
TE-053	A,B	LOWER DRYWELL (CRD PIPE TUNNEL)	INDICATION
	C,D	LOWER DRYWELL (CRD PIPE TUNNEL)	INDICATION
	E,F,G,H	LOWER DRYWELL (AROUND CRD PIPE HOUSING)	INDICATION
	J,K,L,M	LOWER DRWELL (AROUND CRD PIPE NEAR AREA TC INTERNAL PUMP)	INDICATION





T31 ACS FIG. 6.2-39(2)



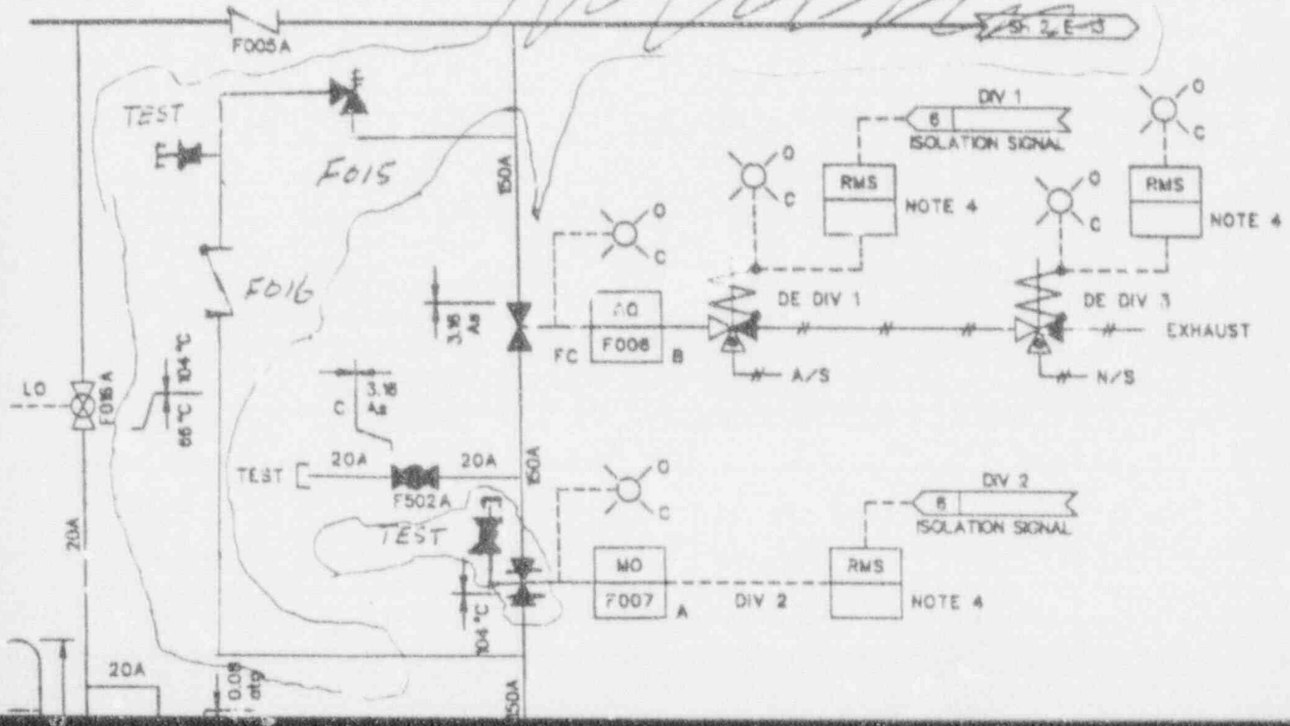
NOTES:

1. PIPING BETW HAVE THE S
   A. FROM D SHALL
   B. FROM R SHALL
2. TEMPERATUR THERMAL WE
3. DRAIN PIPING SHALL HAVE
4. RMS OPEN S
5. THE DESIGN UNLESS OTH

REFERENCE

1. PIPING A
2. RHR SYS
3. MAKEUP
4. FLAMMAB
5. RHR SYS
6. LEAK DE

T49 FCS FIG. 6.2-40(1)



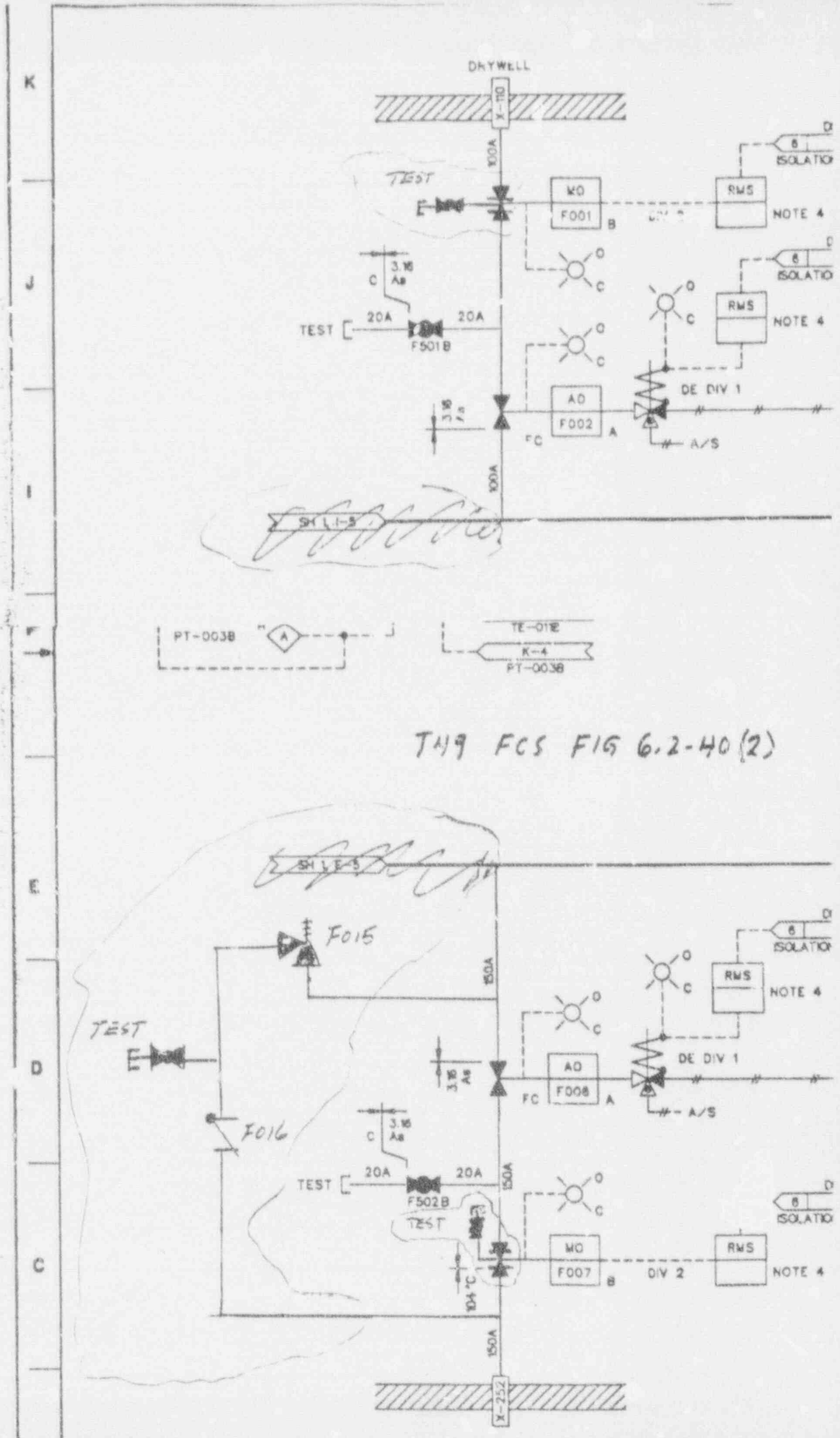

DRYWELL
X-110
100A
TEST
MO
F001
B
RWS
NOTE 4
ISOLATIO
3.16 Aa
C
TEST
20A
20A
F501B
AO
F002
A
FC
DE DIV 1
A/S
SH 1, 1-5
PT-003B
A
TE-012E
K-4
PT-003B
TH9 FCS FIG 6.2-40 (2)
SH 1, E-5
F015
F016
150A
AO
F008
F502B
MO
F007
B
DIV 2
X-252

Table 3.9-8 (Continued)

INSERVICE TESTING SAFETY-RELATED PUMPS AND VALVES

System Pumps

No.	Qty	Description (h)(i)	Saiety Class (a)	Test Param (b)	Test Freq. (f)	SSAR Fig. (g)
C41-C001	2	Standby Liquid Control System pump (i1)	2	Pd,Vd,Q	3 mo	9.3-1
E11-C001	3	Residual Heat Removal System Pump	2	Fd,Pi Q,Vv	3 mo	5.4-10(3,4,6)
E11-C002	3	Residual Heat Removal System fill pump (i2)	2	Pd Pi,Vv	E10	5.4-10(3,4,6)
E22-C001	2	High Pressure Core Flooder pump	2	Pd,Pi Q,Vv	3 mo	6.3-7(2)
E[illegible]-C001	1	Reactor Core Isolation Cooling pump	2	N,Pd,Pi, Q,Vv	3 mo	5.4-8(1)
P21-C001	6	Reactor Building Cooling Water pump	3	Pd,Pi,Q Vv	E10	9.2-1(1,4,7)
P25-C001	4	HVAC Emergency Cooling Water Sys pump	3	Pd,Pi,Q Vv	E10	9.2-3(1,2,3)
P41-C001	6	Reactor Service Water System pump	3	Pd,Pi,Q Vv	E10	9.2-7(1,2,3)
Y52-C001	6	Standby D/G Fuel Oil Transfer Pump	3	Pd,Pi Q,Vv	3 mo	9.5-6

Table 3.9-8 (Continued)

INSERVICE TESTING SAFETY-RELATED PUMPS AND VALVES

B21 Nuclear Boiler System Valves

No.	Qty	Description (h)(i)	Safety Class (a)	Code Cat. (c)	Valve Func. (d)	Test Para (e)	Test Freq (f)	SSAR Fig. (g)
F001	2	Feedwater line Motor-Operated Valve (MOV)	2	B	P		E1	5.1-3(4)
F002	2	Upstream (First) FW line check valve (h3)	2	C	A	S	RO	5.1-3(4)
F003	2	FW line outboard check valve-Air-Operated (AO)(h4)	1	A,C	I,A	L,P,S	RO	5.1-3(4)
F004	2	FW line inboard check valve (h1)	1	A,C	I,A	L,S	RO	5.1-3(4)
F005	2	FW line inboard maintenance valve	1	B	P		E1	5.1-3(4)
F006	2	RWCU (or CUW) System injection line check valve (h3)	2	C	A	S	RO	5.1-3(4)
F007	2	RWCU (or CUW) System injection line MOV	2	B	P	S	E1	5.1-3(4)
F008	4	Inboard Main Steam Iso. Vlv. (MSIV)	1	A	I,A	L,P S	RO 3 mo	5.1-3(3)
F009	4	Outboard Main Steam Iso. Vlv (MSIV)	1	A	I,A	L,P S	RO 3 mo	5.1-3(3)
F010	18	Safety/Relief Valve (SRV)(h2)	1	A,C	A	R P,S	5 yrs RO	5.1-3(2)
F011	1	MSL bypass/drain line inb. iso. vlv	1	A	I,A	L,P S	RO 3 mo	5.1-3(3)
F012	1	MSL bypass/drain line outb. iso. vlv	1	A	I,A	L,P S	RO 3 mo	5.1-3(3)
F013	1	M. warm-up line valve	2	B	P		E1	5.1-3(3)
F015	1	MSL downstream drain line header valve	2	B	P		E1	5.1-3(3)
F017	1	MSL downstream drain line header bypass	2	B	A	P S	RO 3 mo	5.1-3(3)
F018	1	RPV non-condensible gas removal line	1	B	P		E1	5.1-3(2)
F019	1	RPV head vent inboard shutoff valve (h1)	1	B	A	P,S	RO	5.1-3(2)
F020	1	RPV head vent outboard shutoff valve (h1)	1	B	A	P,S	RO	5.1-3(2)
F021	18	SRV discharge line vacuum breaker (h1)	3	C	A	R,S	RO	5.1-3(2)
F022	18	SRV discharge line vacuum breaker (h1)	3	C	A	R,S	RO	5.1-3(2)
F024	4	Inboard MSIV nitrogen supply line check valve (h1)	3	C	A	S	RO	5.1-3(3)
F025	4	Outboard MSIV air supply line check vlv (h1)	3	C	A	S	RO	5.1-3(3)
F026	8	SRV ADS pneumatic supply line chk vlv (h1)	3	C	A	S	RO	5.1-3(2)
F029	18	SRV pneumatic supply check valve (h1)	3	C	A	S	RO	5.1-3(2)
F031	2	Inboard valve on the outb. FW line check valve test line	2	B	P		E1	5.1-3(4)
F033	4	Inboard shutoff valve on the outboard MSIV test line	2	B	P		E1	5.1-3(3)
F035	1	Inboard test line valve for the MSL bypass/drain valve	2	B	P		E1	5.1-3(3)
F039	2	Inboard test line valve for the inboard FW line check valve	2	B	P		E1	5.3-3(3)

Table 3.9-8 (Continued)

INSERVICE TESTING SAFETY-RELATED PUMPS AND VALVES

D23 Containment Atmosphere Monitoring System Valves (Continued)

No.	Qty	Description (h)(i)	Safety Class (a)	Cod. Cat. (c)	Valve Func. (d)	Test Para (e)	Test Freq. (f)	SSAR Fig. (g)
F006	2	CAMS wetwell sample line outboard containment isolation valve	2	A	I,A	L,P	RO	7.6-7(2)
F007	2	CAMS wetwell return line outboard containment isolation valve	2	A	I,A	L,P	RO	7.6-7(2)
F008	2	CAMS rack drain line outboard containment isolation valve	2	A	I,A	L,P	RO	7.6-7(2)
F009	2	CAMS drywell pressure instrument line outboard isolation valve	2	B	P		E1	7.6-7(2)
F010	2	CAMS drywell sample line outboard valve	2	B	P		E1	7.6-7(2)
F011	2	CAMS drywell return line outboard valve	2	B	P		E1	7.6-7(2)
F012	2	CAMS wetwell sample line outboard valve	2	B	P		E1	7.6-7(2)
F013	2	CAMS wetwell return line outboard valve	2	B	P		E1	7.6-7(2)
F014	2	CAMS rack drain line outboard valve ment isoaltion valve	2	B	P		E1	7.6-7(2)

E11 Residual Heat Removal System Valves

F001	3	Suppression pool suction valve	2	A	I,A	L,P S	RO 3 mo	5.4-10(3,4,6)
F002	3	RHR pump discharge line check valve	2	C	A	S	3 mo	5.4-10(3,4,6)
F003	3	RHR pump disharge line maintainence valve	2	B	P		E1	5.4-10(3,4,6)
F004	3	Heat Exchanger flow control valve	2	B	A	P S	2 yrs 3 mo	5.4-10(3,4,6)
F005	1	RPV injection valve (h6)	2	A	A	L,P S	RO CS	5.4-10(3)
F005	2	RPV injection valve (h6)	1	A	I,A	L,P S	RO CS	5.4-10(5,7)
F006	1	RPV injection line check valve	2	A,C	A	L,P S	RO 3 mo	5.5-10(3)
F006	2	RPV injection line check valve	1	A,C	I,A	L,P S	RO 3 mo	5.4-10(5,7)
F007	2	RPV injection line inboard maint. valve	1	B	P		E1	5.4-10(5,7)

Table 3.9-8 (Continued)

INSERVICE TESTING SAFETY-RELATED PUMPS AND VALVES

E11 Residual Heat Removal System Valves (Continued)

No.	Qty	Description (h)(i)	Safety Class (a)	Code Cat. (c)	Valve Func. (d)	Test Para (e)	Test Freq. (f)	SSAR Fig. (g)
F008	3	Suppression pool return line MOV	2	A	I,A	L,P S	RO 3 mo	5.4-10(3,4,6)
F009	3	Shutdown Cooling suct. line maint. vlv	1	B	P		E1	5.4-10(2)
F010	3	Shutdown Cooling suct line inb. iso. vlv (h6)	1	A	I,A	L,P S	RO CS	5.4-10(2)
F011	3	Shutdown Cooling suct line outb iso. vlv (h6)	1	A	I,A	L,P S	RO CS	5.4-10(2)
F012	3	Shutdown Cooling suction line adm. vlv	2	B	A	P S	2 yrs 3 mo	5.4-10(3,4,6)
F013	3	Heat exchanger bypass flow control vlv	2	B	A	P S	2 yrs 3 mo	5.4-10(3,4,6)
F014	2	Fuel Pool Cooling supply line MOV (h8)	2	B	A	P,S	RO	5.4-10(5,7)
F015	2	Fuel Pool Cooling supply line outb MOV (h8)	2	B	A	P,S	RO	5.4-10(5,7)
F016	2	Gate vlv-line from Fuel Pool Clg (FPC) (h8)	2	B	A	S	RO	5.4-10(2)
F017	2	Drywell spray line inboard valve	2	A	I,A	L,P S	RO 3 mo	5.4-10(5,7)
F018	2	Drywell spray line outboard valve	2	A	I,A	L,P S	RO 3 mo	5.4-10(5,7)
F019	2	Wetwell spray line MOV	2	A	I,A	L,P S	RO 3 mo	5.4-10(5,7)
F020	3	RHR pump min flow bypass line check vlv	2	C	A	S	3 mo	5.4-10(3,4,6)
F021	3	RHR pump min flow bypass line MOV	2	A	I,A	L,P S	2 yrs 3 mo	5.4-10(3,4,6)
F022	3	Discharge line fill pump suction line valve	2	B	P		E1	5.4-10(3,4,6)
F023	3	Fill pump discharge line check valve	2	C	A	S	3 mo	5.4-10(3,4,6)
F024	3	Fill pump discharge line stop check valve	2	C	A	S	3 mo	5.4-10(3,4,6)
F025	3	Fill pump minimum flow line globe valve	2	B	P		E1	5.4-10(3,4,6)
F026	3	RHR pump suction to High Conductivity Waste (HCW)	2	B	P		E1	5.4-10(3,4,6)
F027	3	Bypass line around the check valve MPL E11-F002	2	B	P		E1	5.4-10(3,4,6)
F028	3	Heat exchanger outlet line relief valve	2	C	A	R	5 yrs	5.4-10(3,4,6)
F029	3	Inboard reactor well drain line valve	2	B	P		E1	5.4-10(3,4,6)
F030	3	Drain to radwaste valve	2	B	P		E1	5.4-10(3,4,6)
F031	3	Outb reactor well drain line valve (to SP)	2	A	I,P	L,P	RO	5.4-10(3,4,6)
F032	3	Shutoff valve - line from MUWC	2	B	P		E1	5.4-10(3,4,6)
F033	3	Check valve in the line from MUWC	2	C	A	S	3 mo	5.4-10(3,4,6)
F034	1	RPV injection line vent/test line inbd vlv	2	B	P		E1	5.4-10(3)
F034	2	RPV injection line vent/test line inbd vlv	1	B	P		E1	5.4-10(5,7)
F036	1	Press equal valve around chk vlv E11-F006	2	A	P		E1	5.4-10(3)
F036	2	Press equal valve around chk vlv E11-F006	1	A	P		E1	5.4-10(5,7)

Table 3.9-8 (Coninued)

INSERVICE TESTING SAFETY-RELATED PUMPS AND VALVES

E11 Residual Heat Removal System Valves (Continued)

No.	Qty	Description (h)(i)	Safety Class (a)	Code Cat. (c)	Valve Func. (d)	Test Para (e)	Test Freq. (f)	SSAR Fig. (q)
F037	3	Shutdown cooling suction line test line	1	A	P		E1	5.4-10(2)
F039	3	Relief vlv around the MOV MPL E11-F011	1	C	A	R	5 yrs	5.4-10(2)
F040	3	Shutoff valve - line from MUWC	2	B	P		E1	5.4-10(2)
F041	3	Check valve - line from Make-Up Water Condenser (MUWC)	2	C	A	S	3 mo	5.4-10(2)
F042	3	Shutdown Cooling Mode suction line relief valve	2	C	A		E1	5.4-10(3,4,5)
F043	3	HX outlet to the Sampling System (SS) test inboard valve	2	B	P		E1	5.4-10(5,7)
F045	1	HX outlet to the PASS board valve	2	B	A	P S	2 yrs 3 mo	5.4-10(3)
F046	1	HX outlet to the PASS - outboard valve	2	B	A	P S	2 yrs 3 mo	5.4-10(3)
F047	2	Shutoff - line from MUWC	2	B	P		E1	5.4-10(5,7)
F048	2	Check Valve - line from MUWC	2	C	P		E1	5.4-10(5,7)
F049	2	Drywell spray line vent & test line inboard valve	2	B	P		E1	5.4-10(5,7)
F051	3	Fill pump discharge line relief valve	2	C	A	R	5 yrs	5.4-10(3,4,6)
F052	1	Drain Line for the suppression pool	2	B	P		E1	5.4-10(4)
F101	1	AC independent water addition input vlv	2	B	A	S	3 mo	5.4-10(7)
F102	1	AC independent water addition input vlv	2	B	A	S	3 mo	5.4-10(7)
F500	3	Heat exchanger inlet drain line inboard valve	2	B	P		E1	5.4-10(3,4,6)
F502	3	HX outlet line drain line inboard vlv	2	B	P		E1	5.4-10(3,4,6)
F504	3	RPV injection line vent line inb vlv	2	B	P		E1	5.4-10(3,4,7)
F506	1	RPV injection line drain line inb vlv	2	B	P		E1	5.4-10(3)
F506	2	RPV injection line drain line inb vlv	1	B	P		E1	5.4-10(5,7)
F508	3	Shutdown Cooling suct line vent line vlv	2	B	P		E1	5.4-10(2)
F509	2	Vent valve - FPC return line	2	B	P		E1	5.4-10(5,7)
F511	2	Drywell spray line inboard drain line vlv	2	B	P		E1	5.4-10(5,7)
F513	2	Drywell spray line inboard drain line vlv	2	B	P		E1	5.4-10(5,7)
F515	2	Wetwell spray line inboard drain line vlv	2	B	P		E1	5.4-10(5,7)
F517	3	RHR pump min flow line drn line inb vlv	2	B	P		E1	5.4-10(3,4,6)
F700	3	RHR pump suction line pressure instr line	2	B	P		E1	5.4-10(3,4,6)
F701	3	RHR pump suction line pressure instr line	2	B	P		E1	5.4-10(3,4,6)
F702	3	RHR pump discharge line press. instr line	2	B	P		E1	5.4-10(3,4,6)
F704	3	RHR pump discharge line press. instr line	2	B	P		E1	5.4-10(3,4,6)
F706	3	RHR pump discharge line press. instr line	2	B	P		E1	5.4-10(3,4,6)
F707	3	RHR pump discharge line press. instr line	2	B	P		E1	5.4-10(3,4,6)
F708	3	FT MPL E11-FT008 instr line inb root vlv	2	B	P		E1	5.4-10(3,4,6)
F709	3	FT MPL E11-FT008 instr line outb root vlv	2	B	P		E1	5.4-10(3,4,6)

Table 3.9-8 (Continued)

INSERVICE TESTING SAFETY-RELATED PUMPS AND VALVES

E22 High Pressure Core Flooder System Valves (Continued)

No.	Qty	Description (h)(i)	Safety Class (a)	Code Cat. (c)	Valve Func. (d)	Test Para (e)	Test Freq. (f)	SSAR Fig. (g)
F705	2	Pump discharge line pressure instrument line outboard valve	2	B	P		E1	6.3-7(2)
F706	2	Pump discharge line flow instrument line inboard valve	2	B	P		E1	6.3-7(2)
F707	2	Pump discharge line flow instrument line outboard valve	2	B	P		E1	6.3-7(2)
F708	2	Pump discharge line flow instrument line inboard valve	2	B	P		E1	6.3-7(2)
F709	2	Pump discharge line flow instrument line outboard valve	2	B	P		E1	6.3-7(2)

E31 Leak Detection and Isolation System Valves

F001	1	Drywell fission product monitoring line maintenance valve	2	B	P		E1	5.2-8(9)
F002	1	Drywell fission product monitoring line inboard isolation valve	2	A	I,A	L,P S	RO 3mo	5.2-8(9)
F003	1	Drywell fission product monitoring line outboard isolation valve	2	A	I,A	L,P S	RO 3 mo	5.2-8(9)
F004	1	Drywell fission product monitoring line outboard isolation valve	2	A	I,A	L,P S	RO 3 mo	5.2-8(9)
F005	1	Drywell fission product monitoring line inboard isolation valve	2	A	I,A	L,P S	RO 3 mo	5.2-8(9)
F006	1	Drywell fission product monitoring line maintenance valve	2	B	P		E1	5.2-8(9)
F009	1	Drywell cooler condensate smplg line iso vlv	2	A	I,P	L	RO	5.2-8(8)
F010	1	Drywell cooler condensate smplg line iso vlv	2	A	I,P	L	RO	5.2-8(8)
F701	4	RCIC instrument line manual maint valve	2	B	P		E1	5.2-8(6)
F702	4	RCIC instr line iso excess flow chk vlv (h3)	2	A,C	I,A	L,S	RO	5.2-8(6)
F703	4	RCIC instrument line manual maint valve	2	B	P		E1	5.2-8(6)
F704	4	RCIC instr line iso excess flow chk vlv (h3)	2	A,C	I,A	L,S	RO	5.2-8(6)

E51 Reactor Core Isolation Cooling System Valves

F001	1	Condensate Storage Pool (CSP) suction line MOV	2	B	A	P S	2 yrs 3 mo	5.4-8(1)
F002	1	CSP suction line check valve	2	C	A	S	3 mo	5.4-8(1)

Table 3.9-8 (Continued)

INSERVICE TESTING SAFETY-RELATED PUMPS AND VALVES

E51 Reactor Core Isolation Cooling System Valves (Continued)

No.	Qty	Description (h)(i)	Safety Class (a)	Code Cat. (c)	Valve Func. (d)	Test Para (e)	Test Freq. (f)	SSAR Fig. (g)
F720	1	Steam supply line drain pot instrument root valve	2	B	P		E1	5.4-8(2)
F721	1	Steam supply line drain pot instrument root valve	2	B	P		E1	5.4-8(2)
F722	1	Turbine exhaust pressure instrument root valve	2	B	P		E1	5.4-8(3)
F723	1	Turbine exhaust pressure instrument root valve	2	B	P		E1	5.4-8(3)
F724	1	Turbine exhaust pressure between rupture disk instrument root valve	2	B	P		E1	5.4-8(3)
F725	1	Turbine exhaust pressure between rupture disk instrument root valve	2	B	P		E1	5.4-8(2)
D014	1	Turbine exhaust pressure rupture disk	2	D	A	Rplc.	5 yrs	5.4-8(3)
D015	1	Turbine exhaust pressure rupture disk	2	D	A	Rplc	5 yrs	5.4-8(3)

G31 Reactor Water Cleanup System Valves

F001	1	Line inside containment from RHR system maintenance valve	1	B	P		E1	5.4-12(1)
F002	1	CUW System suction line inboard isolation valve (h1)	1	A	I,A	L,P,S	RO	5.4-12(1)
F003	1	CUW System suction line outboard isolation valve (h3)	1	A	I,A	L,P S	RO CS	5.4-12(1)
F017	1	CUW System RPV head spray line outboard isolation valve (h3)	1	A	I,A	L,P S	RO CS	5.4-12(1)
F018	1	CUW System RPV head spray line inboard check valve (h1)	1	A,C	I,A	L,S	RO	5.4-12(1)
F019	1	CUW Sys bottom head drain line maintenance valve	1	B	P		E1	5.4-12(1)
F050	1	Test line off the suct line outboard isolation valve G31-F003	2	B	P		E1	5.4-12(1)
F058	1	Test line off RPV head spray line outboard isolation valve	2	B	P		E1	5.4-12(1)
F060	1	RPV bottom head drain line sample line test line valve	2	B	P		E1	5.4-12(1)
F070	1	RPV bottom head drain line sample line maintenance valve	2	B	P		E1	5.4-12(1)
F071	1	RPV bottom head drain line sample line inboard valve	2	A	I,A	L,P S	RO 3 mo	5.4-12(1)

Table 3.9-8 (Continued)

INSERVICE TESTING SAFETY-RELATED PUMPS AND VALVES

G51 Suppression Pool Cleanup System Valves

No.	Qty	Description (h)(i)	Safety Class (a)	Code Cat. (c)	Valve Func. (d)	Test Type (e)	Test Freq. (f)	SSAR Fig. (g)
F001	1	SPCU suction Line inboard isolation valve	2	A	I,A	L,P S	RO 3 mo	9.5-1
F002	1	SPCU suction line outboard isolation valve	2	A	I,A	L,P S	RO 3mo	9.5-1
F006	1	SPCU return line isolation valve	2	A	I,A	L,P S	RO 3 mo	9.5-1
F007	1	SPCU return line isolation valve	2	A	I,A	L,P S	RO 3 mo	9.5-1

K17 Radwaste System Valves

F003	1	Drywell LCW sump pump inboard disch. line isolation valve	2	A	I,A	L,P S	RO 3 mo	11.2-2(29)
F004	1	Drywell LCW sump pump outboard disch. line isolation valve	2	A	I,A	L,P S	RO 3 mo	11.2-2(29)
F103	1	Drywell HCW sump pump inboard disch line isolation valve	2	A	I,A	L,P S	RO 3 mo	11.2-2(31)
F104	1	Drywell HCW sump pump outboard disch line isolation valve	2	A	I,A	L,P S	RO 3 mo	11.2-2(31)

P11 Makeup Water (Purified) System Valves

F141	1	Outboard isolation valve	2	A	I,P	L	RO	9.2-5(2)
F142	1	Inboard isolation valve	2	A,C	I,P	L	RO	9.2-5(2)

P21 Reactor Building Cooling Water System Valves

F001	6	Pump discharge line check valve	3	C	A	S	E2	9.2-1(1,4,7)
F002	6	Pump discharge line maintenance valve	3	B	P		E1	9.2-1(1,4,7)
F003	9	Heat exchanger inlet line valve	3	B	P		E1	9.2-1(1,4,7)
F004	9	Heat exchanger outlet line MOV	3	B	P	P	2 yrs	9.2-1(1,4,7)
F005	3	Cold water line to hot/cold water blender	3	B	P		E1	9.2-1(1,4,7)
F006	3	Hot/cold water blender valve - cold water	3	B	A	S	F2	9.2-1(1,4,7)
F007	3	Hot/cold water blender outlet line valve	3	B	P		E1	9.2-1(1,4,7)
F008	3	Hot/cold water blender cold water byps line	3	B	P		E1	9.2-1(1,4,7)
F009	3	Hot water line to hot/cold water blender	3	B	P		E1	9.2-1(1,4,7)
F010	3	Hot/cold water blender valve - hot water	3	B	A	S	E2	9.2-1(1,4,7)
F011	3	Hot/cold water blender hot water bypass line	3	B	P		E1	9.2-1(1,4,7)

Table 3.9-8 (Continued)

INSERVICE TESTING SAFETY-RELATED PUMPS AND VALVES

P21 Reactor Building Cooling Water System Valves (Continued)

No.	Qty	Description (h)(i)	Safety Class (a)	Code Cat. (c)	Valve Func. (d)	Test Para (e)	Test Freq. (f)	SSAR Fig. (g)
F012	3	Cooling water supply line to RHR System maintenance valve	3	B	P		E1	9.2-1(2,5,8)
F013	3	Cooling wtr return line from RHR Sys MOV	3	B	A	P S	2yrs 3 mo	9.2-1(2,5,8)
F014	3	Cooling water return line from RHR Hx maintenace valve	3	B	P		E1	9.2-1(2,5,8)
F015	6	Pump suction line maintenance valve	3	B	P		E1	9.2-1(1,4,7)
F016	3	Surge tank outlet line to RCW pump suction	3	B	P		E1	9.2-1(2,5,8)
F017	3	Surge tank make-up water line from SPCU	3	B	P		E1	9.2-1(2,5,8)
F018	3	Surge tank make-up water line from SPCU	3	B	P	P	2 yrs	9.2-1(2,5,8)
F019	3	Surge tank make-up from MUWP	3	B	P	P	2 yrs	9.2-1(2,5,8)
F020	3	Surge tank make-up water line from MUWP	3	B	P		E1	9.2-1(2,5,8)
F021	2	Chemical addition tank inlet line valve	3	B	P		E1	9.2-1(1,4)
F022	2	Chemical addition tank outlet line valve	3	B	P		E1	9.2-1(1,4)
F024	6	Cooling water supply line to HECW refrigator maintenance valve	3	B	P		E1	9.2-1(2,5,8)
F025	5	Cooling wtr supply line to HECW refrig PCV	3	B	A	S	E2	9.2-1(2,5,8)
F026	5	Cooling water supply line to HECW refrigator maintenance valve	3	B	P		E1	9.2-1(2,5,8)
F027	5	Cooling water line to HECW refrigator bypass line	3	B	P		E1	9.2-1(2,5,8)
F028	5	Cooling water return line from HECW refrig	3	B	P		E1	9.2-1(2,5,8)
F029	2	Cooling water supply line to FPC HX	3	B	P		E1	9.2-1(2,5)
F030	2	Cooling water return line from FPC HX	3	B	P		E1	9.2-1(2,5)
F031	2	Cooling water supply line to FPC pump room air conditioning	3	B	P		E1	9.2-1(2,5)
F032	2	Cooling wtr return line from FPC pump room air conditioner	3	B	P		E1	9.2-1(2,5)
F033	2	Cooling wtr line to PCV Atmos Monit Sys clr	3	B	P		E1	9.2-1(2,5)
F034	2	Return line from PCV Atmos Monit Sys clr	3	B	P		E1	9.2-1(2,5)
F035	2	Cooling wtr supply line to SGTS rm air cond.	3	B	P		E1	9.2-1(2,5)
F036	2	Cooling water return line fr SGTS room air conditioner	3	B	P		E1	9.2-1(2,5)
F037	2	Cooling water supply line to FCS room air conditioner	3	B	P		E1	9.2-1(2,5)
F038	2	Cooling water return line fr FCS room air conditioner	3	B	P		E1	9.2-1(2,5)
F039	3	Cooling water supply line to RHR equipment room air conditioner	3	B	P		E1	9.2-1(2,5,8)
F040	3	Cooling water return line from RHR equipment room air conditioner	3	B	P		E1	9.2-1(2,5,8)
F041	3	Cooling water supply line to RHR pump m[illegible]	3	B	P		E1	9.2-1(2,5,8)

Table 3.9-8 (Continued)

INSERVICE TESTING SAFETY-RELATED PUMPS AND VALVES

P21 Reactor Building Cooling Water System Valves (Continued)

No.	Qty	Description (h)(i)	Safety Class (a)	Code Cat. (c)	Valve Func. (d)	Test Para (e)	Test Freq. (f)	SSAR Fig. (g)
F042	3	Cooling water return line fr RHR pump mtr	3	B	P		E1	9.2-1(2,5,8)
F043	3	Clng wtr sply line to RHR pump mech seals	3	B	P		E1	9.2-1(2,5,8)
F044	3	Cing wtr return line fr RHR pump mech seals	3	B	P		E1	9.2-1(2,5,8)
F045	1	Cooling water supply line to RCIC equipment room air conditioner	3	B	P		E1	9.2-1(2)
F046	1	Cooling water supply line from RCIC equipment room air conditioner	3	B	P		E1	9.2-1(2)
F047	2	Cooling water supply line to HPCF equipment room air conditioner	3	B	P		E1	9.2-1(5,8)
F048	2	Cooling water supply line from HPCF equipment room air conditioner	3	B	P		E1	9.2-1(5,8)
F049	2	Cooling water supply line to HPCF pump motor bearing	3	B	P		E1	9.2-1(5,8)
F050	2	Cooling water return linr from HPCF pump motor bearing	3	B	P		E1	9.2-1(5,8)
F051	2	Cooling water supply line to HPCF pump mechanical seals	3	B	P		E1	9.2-1(5,8)
F052	2	Cooling water return from HPCF pump mechanical seals	3	B	P		E1	9.2-1(5,8)
F053	3	Surge tank outlet line to HECW System	3	B	P		E1	9.2-1(2,5,8)
F055	6	Cooling water return line from Emer Diesel Generator	3	B B	A	P S	2 yrs 3 mo	9.2-1(2,5,8)
F056	3	Cooling water return line from Emer Diesel Generator maintenance valve	3	B	P		E1	9.2-1(2,5,8)
F057	2	Cooling water line to PCV Atmos Monitor System air conditioner	3	B	P		E1	9.2-1(2,5)
F058	2	Return line from PCV Atmos Monitor System air conditioner	3	B	P		E1	9.2-1(2,5)
F061	3	Cooling water line Emer Diesel Generators	3	B	P		E1	9.2-1(2,5,8)
F071	6	Cooling water supply line-to non-essential coolers	3	B	P		E1	9.2-1(2,5,8)
F072	6	Cooling water supply line-to non-essential coolers	3	B	A	P S	2 yrs 3 mo	9.2-1(2,5,8)
F075	2	Cooling water supply line to PCV outboard isolation valve (h3)	2	A	I,A	L,P S	RO CS	9.2-1(3,6)
F076	2	Cooling water supply line to PCV inboard check isolation valve (h1)	2	A,C	I,A	L,S	RO	9.2-1(3,6)
F080	2	Cooling water return line fr PCV inboard isolation valve (h1)	2	A	I,A	L,P,S	RO	9.2-1(3,6)
F081	2	Cooling water retrun line fr PCV outboard isolation valve (h3)	2	A	I,A	L,P S	RO CS	9.2-1(3,6)

Table 3.9-8 (Continued)

INSERVICE TESTING SAFETY-RELATED PUMPS AND VALVES

P21 Reacto. Building Cooling Water System Valves (Continued)

No.	Qty	Description (h)(i)	Safety Class (a)	Code Cat. (c)	Valve Func. (d)	Test Para (e)	Test Freq. (f)	SSAR Fig. (g)
F083	3	Cooling water return line from non-essential coolers (h4)	3	C	A	S	RO	9.2-1(2,5,8)
F084	3	Cooling water return line fr contmt bypss line	3	B	P		E1	9.2-1(2,5,8)
F175	3	Cooling water supply to RHR System HX pressure relief valve	3	C	A	R	5 yrs	9.2-1(2,5,8)
F2??	9	Bypass line around RCW Sys otlt line MOV	3	B	P		E1	9.2-1(1,4,7)
F251	2	Cooling water supply line to PCV test line	2	B	P		E1	9.2-1(3,6)
F252	2	Cooling water return line fr PCV test line	2	B	P		E1	9.2-1(3,6)
F501	9	Heat exchanger shell side vent line	3	B	P		E1	9.2-1(1,4,7)
F502	9	Heat exchanger shell side drain e	3	B	P		E1	9.2-1(1,4,7)
F503	3	Surge tank drain line to SD.	3	B	P		E1	9.2-1(2,5,8)
F601	3	Cooling water supply line to RHR System drain line to SD	3	B	P		E1	9.2-1(2,5,8)
F602	3	Cooling water supply line to RHR System drain line to HCW	3	B	P		E1	9.2-1(2,5,8)
F603	3	Cooling water return line from RHR HX drain line to SD	3	B	P		E1	9.2-1(2,5,8)
F604	3	Cooling water return line from RHR HX drain line to HCW	3	B	P		E1	9.2-1(2,5,8)
F701	6	Pump discharge line press instr line	3	B	P		E1	9.2-1(1,4,7)
F702	9	HX discharge line sample line valve	3	B	P		E1	9.2-1(1,4,7)
F703	3	Cooling water supply line press instr root vlv	3	B	P		E1	9.2-1(1,4,7)
F704	3	Cooling water supply line sample valve	3	B	P		E1	9.2-1(1,4,7)
F705	3	Cooling wtr supply line elbow tap instr rt vlv	3	B	P		E1	9.2-1(1,4,7)
F706	3	Cooling wtr supply line elbow tap instr rt vlv	3	B	P		E1	9.2-1(1,4,7)
F707	3	Coolg wtr sply line to RHR Sys FT instr rt vlv	3	B	P		E1	9.2-1(2,5,8)
F708	3	Coolg wtr sply line to RHR Sys FT instr rt vlv	3	B	P		E1	9.2-1(2,5,8)
F709	3	Cooling wtr rtn line fr RHR HX sample valve	3	B	P		E1	9.2-1(2,5,8)
F710	6	Pump suction line PX instr root valve	3	B	P		E1	9.2-1(1,4,7)
F711	6	Pump suction line press instr root valve	3	B	P		E1	9.2-1(1,4,7)
F712	3	Surge tank level instr root valve	3	B	P		E1	9.2-1(2,5,8)
F713	3	Surge tank level instr line root valve	3	B	P		E1	9.2-1(2,5,8)
F714	3	Surge tank level instr line root valve	3	B	P		E1	9.2-1(2,5,8)
F717	3	Cooling water line to DG instr line	3	B	P		E1	9.2-1(2,5,8)
F718	3	Return water line from DG instr line	3	B	P		E1	9.2-1(2,5,8)
F719	3	Cooling wtr line to DG instr line	3	B	P		E1	9.2-1(2,5,8)
F720	3	Return wtr line from DG instr line	3	B	P		E1	9.2-1(2,5,8)
F721	3	Cooling wtr sply line to non-ess coolers FT instr root valve	3	B	P		E1	9.2-1(2,5,8)
F722	3	Cooling wtr sply line to non-ess coolers FT instr root valve	3	B	P		E1	9.2-1(2,5,8)

Table 3.9-8 (Continued)

INSERVICE TESTING SAFETY-RELATED PUMPS AND VALVES

P25 HVAC Emergency Cooling Water System Valves (Continued)

No.	Qty	Description (h)(i)	Safety Class (a)	Code Cat. (c)	Valve Func. (d)	Test Para (e)	Test Freq. (f)	SSAR Fig. (g)
F022	3	HECW supply to DG zone cooler Temp Cont Valve	3	B	A	S	E2	9.2-3(1,2,3)
F023	3	Maint vlv at HECW supply to DG zone cooler TCV	3	B	P		E1	9.2-3(1,2,3)
F024	6	Maint vlv at HECW supply to DG zone cooler	3	B	P		E1	9.2-3(1,2,3)
F025	6	Maint vlv at HECW return from DG zone cooler	3	B	P		E1	9.2-3(1,2,3)
F026	3	TCV byp vlv at HECW supply to DG zone cooler	3	B	P		E1	9.2-3(1,2,3)
F030	3	Chemical addition tank return vlv from HECW	3	B	P		E1	9.2-3(1,2,3)
F031	3	Chemical addition tank feed valve to HECW	3	B	P		E1	9.2-3(1,2,3)
F050	2	Make-up Water Purified (MUWP) line to pump suction check valve	3	C	A	S	E2	9.2-3(1,2,3)
F070	5	Pump disch line drain valve	3	B	P		E1	9.2-3(1,2,3)
F400	5	Pump drain line valve	3	B	P		E1	9.2-3(1,2,3)
F401	5	Pump bearing cooling wtr needle vlv	3	B	P		E1	9.2-3(1,2,3)
F402	3	Refrig outlet line sample valve	3	B	P		E1	9.2-3(1,2,3)
F700	5	Pump disch line pressure instr line root valve	3	B	P		E1	9.2-3(1,2,3)
F701	5	FE P25-FE003 upstrm instr line root valve	3	B	P		E1	9.2-3(1,2,3)
F702	5	FE P25-FE003 dwnstrm instr line root valve	3	B	P		E1	9.2-3(1,2,3)
F703	5	Pump suction pressure instr line root valve	3	B	P		E1	9.2-3(1,2,3)
F704	6	Pump suct/disch line dpt instr line root vlv	3	B	P		E1	9.2-3(1,2,3)

P41 Reactor Service Water System Valves

F001	6	Pump discharge line check valve	3	C	A	S	E2	9.2-7(1,2,3)
F002	6	Pump discharge line maintenance valve	3	B	P		E1	9.2-7(1,2,3)
F003	9	Service water inlet valve to RCW System heat exchanger	3	B	P	P	2 yrs	9.2-7(1,2,3)
F004	6	Service water inlet valve to service water strainer	3	B	P	P	2 yrs	9.2-7(1,2,3)
F005	9	Service water outlet valve from RCW heat exchanger	3	B	P	P	2 yrs	9.2-7(1,2,3)
F006	6	Service water strainer blowout valve	3	B	P	P	2 yrs	9.2-7(1,2,3)
F007	9	Supply line from Domestic water check valve	3	C	P		E1	9.2-7(1,2,3)
F008	9	Supply line from Domestic water check valve	3	C	P		E1	9.2-7(1,2,3)
F009	9	Supply valve from Domestic Water (DW) Sys	3	B	A	P S	2 yrs E2	9.2-7(1,2,3)

Table 3.9-8 (Continued)

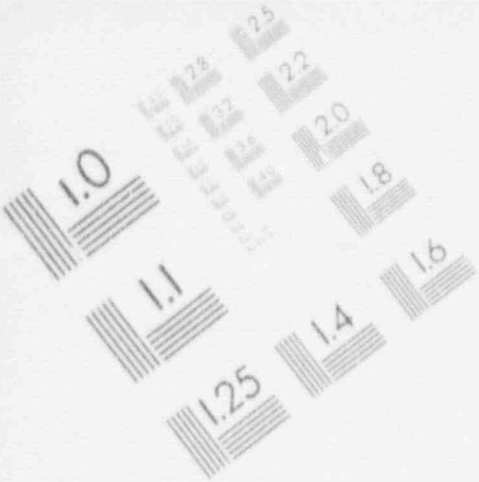
INSERVICE TESTING SAFETY-RELATED PUMPS AND VALVES

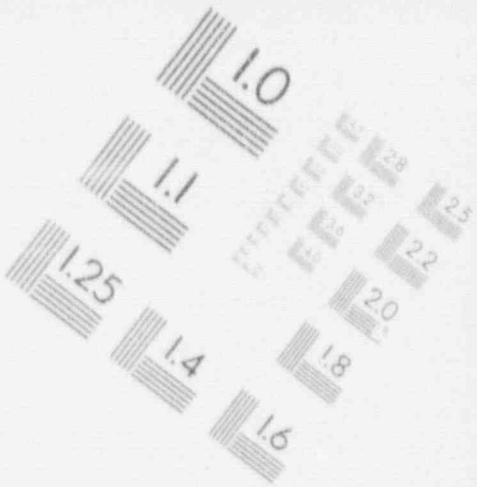
T31 Atmospheric Control System Valves

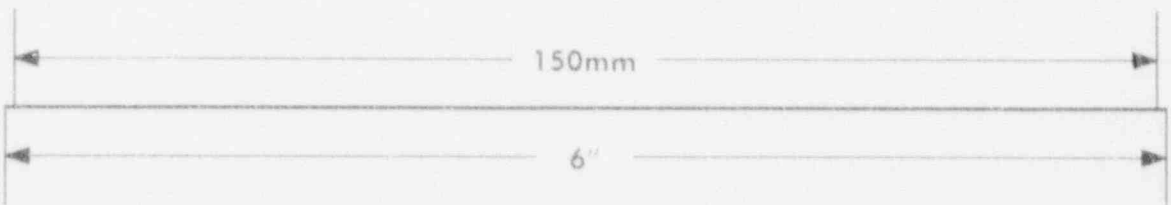
No.	Qty	Description (h)(i)	Safety Class (a)	Code Cat. (c)	Valve Func. (d)	Test Para (e)	Test Freq. (f)	SSAR Fig. (g)
F008	1	Containment atmosphere exhaust line to SGTS	2	A	I,A	L,P S	2 yrs 3 mo	6.2-39(1)
F009	1	Containment atmosphere exhaust line to R/B HVAC	2	A	I,A	L,P S	2 yrs 3 mo	6.2-39(1)
F010	1	Drywell overpressure line valve	2	A	P	L,P	2 yrs	6.2-39(1)
F025	1	N2 supply line from K-5 outboard containment isolation valve	2	A	I,A	L,P S	2 yrs 3 mo	6.2-39(1)
F039	1	N2 supply line from K-5 outboard containment isolation valve	2	A	I,A	L,P S	2 yrs 3 mo	6.2-39(1)
F040	1	N2 supply line from K-5 to drywell inboard isolation valve	2	A	I,A	L,P S	2 yrs 3 mo	6.2-39(1)
F041	1	N2 supply line from K-5 to wetwell inboard isolation valve	2	A	I,A	L,P S	2 yrs 3 mo	6.2-39(1)
F044	8	Drywell/wetwell vacuum breaker valve	2	C	A	P R	RO E3	6.2-3[illegible]
F050	1	N2 supply line to drywell test line valve	2	B	P		E1	6.2-39(1)
F051	1	Containment atmosphere exhaust line test line valve	2	B	P		E1	6.2-39(1)
F054	1	Drywell personnel air lock hatch test line valve	2	B	P		E1	6.2-39(2)
F055	1	N2 supply line from test line valve	2	B	P		E1	6.2-39(1)
F056	1	Wetwell personnel air lock hatch test line valve	2	B	P		E1	6.2-39(2)
F700	1	N2 supply line to drywell FE upstream instrument line	2	B	P		E1	6.2-39(1)
F701	1	N2 supply line to drywell FE downstream instrument line	2	B	P		E1	6.2-39(1)
F702	1	N2 supply line to wetwell FE upstream instrument line	2	B	P		E1	6.2-39(1)
F703	1	N2 supply line to wetwell FE downstream instrument line	2	B	P		E1	6.2-39(1)
F720	8	DW/WW vacuum breaker valve N2 supply line isolation valve	2	A	I,P	L	RO	6.2-39(2)
F730	1	Drywell pressure instrument line isolation valve	2	B	P		E1	6.2-39(2)
F731	1	Drywell pressure instrument line solenoid isolation valve	2	A	I,P	L,P	RO	6.2-39(2)
F732	2	Drywell pressure instrument line valve	2	B	P		E1	6.2-39(2)
F733	2	Drywell pressure instrument line solenoid isolation valve	2	A	I,P	L,P	RO	6.2-39(2)
F734	4	Drywell pressure instrument line for NBS valve	2	B	P		E1	6.2-39(2)

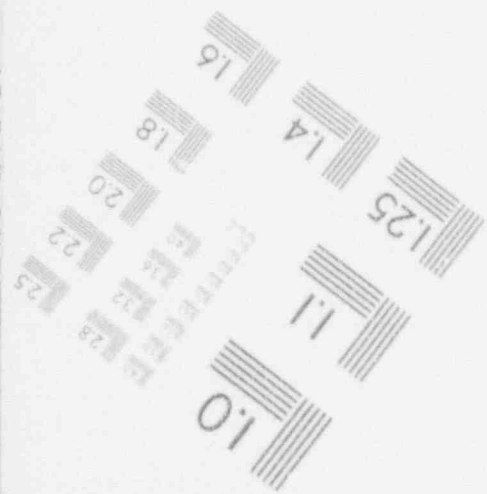
2

IMAGE EVALUATION TEST TARGET (MT-3)









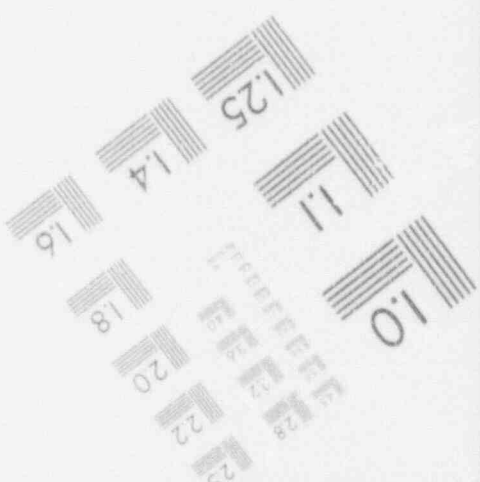


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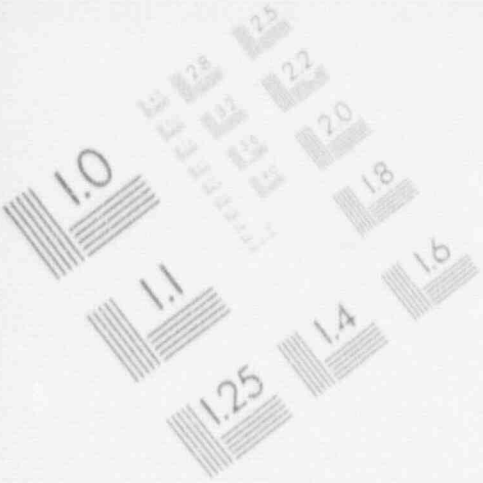
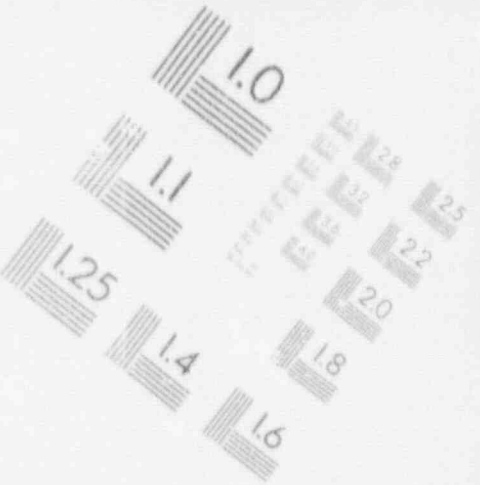
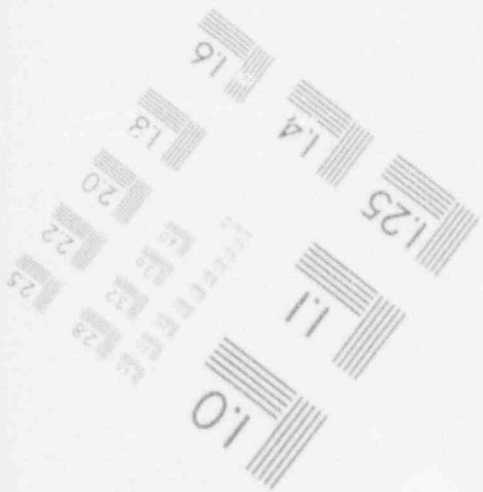
IMAGE EVALUATION TEST TARGET (MT-3)







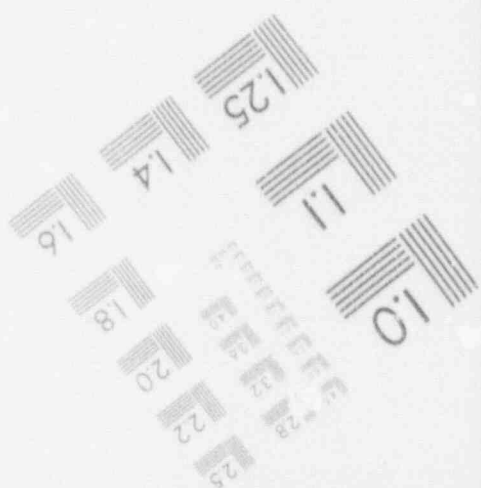


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IMAGE EVALUATION TEST TARGET (MT-3)

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Table 3.9-8 (Continued)

INSERVICE TESTING SAFETY-RELATED PUMPS AND VALVES

T49 Flammability Control System Valves

No.	Qty	Description(h)(i)	Safety Class (a)	Code Cat. (c)	Valve Func. (d)	Test Para (e)	Test Freq. (f)	SSAR Fig. (g)
F003	2	Flow control valve for the FCS inlet line from drywell	3	B	A	P S	2 yrs 3 mo	6.2-40
F004	2	Blower bypass line flow control valve	3	B	A	P S	2 yrs 3 mo	6.2-40
F005	2	Blower discharge line to wetwell check valve	3	C	A	S	3 mo	6.2-40
F006	2	Discharge line to wetwell outboard isolation valve	2	A	I,A	L,P S	2 yrs 3 mo	6.2-40
F007	2	Discharge line to wetwell inboard isolation valve	2	A	I,A	L,P S	2 yrs 3 mo	6.2-40
F008	2	Cooling water supply line from the RHR System MOV	3	B	A	P S	2 yrs 3 mo	6.2-40
F009	2	Cooling water supply line maintenance valve	3	B	P		E1	6.2-40
F010	2	Cooling water supply line admission MOV	3	B	A	P S	2 yrs 3 mo	6.2-40
F013	2	Inlet line from drywell drain line valve	3	B	P		E1	6.2-40
F014	2	Blower drain line valve	3	B	P		E1	6.2-40
F015	2	Blower discharge line to wetwell pressure relief valve	2	A,C	I,A	R L	5 yrs RO	6.2-40
F016	2	Blower discharge line to wetwell pressure relief line check valve (h3)	2	A,C	I,A	L,S	RO	6.2-40
F501	2	Inlet line from drywell test line valve	2	B	P		E1	6.2-40
F502	2	Discharge line to wetwell test line valve	2	B	P		E1	6.2-40
F504	2	Blower suction line test line valve	3	B	P		E1	6.2-40
F505	2	Blower discharge line test line valve	3	B	P		E1	6.2-40
F506	2	Drain line to Low Conductivity Waste (LCW) valve	3	B	P		E1	6.2-40
F507	2	Cooling water supply line test line valve	3	B	P		E1	6.2-40
F701	2	FE T49-FE002 upstream instrument line root valve	3	B	P		E1	6.2-40
F702	2	FE T49-FE002 downstream instrument line root valve	3	B	P		E1	6.2-40
F703	2	Blower suction line pressure instrument line root valve	3	B	P		E1	6.2-40
F704	2	FE T49-FE004 upstream instrument line root valve	3	B	P		E1	6.2-40
F705	2	FE T49-FE004 downstream instrument line root valve	3	B	P		E1	6.2-40

Table 3.9-8 (Continued)

INSERVICE TESTING SAFETY-RELATED PUMPS AND VALVES

U41 Heating, Ventilating and Air Conditioning System Valves

No.	Qty	Description(h)(i)	Safety Class (a)	Code Cat. (c)	Valve Func. (d)	Test Para (e)	Test Freq. (f)	SSAR Fig. (g)
F001	2	Reactor area supply isolation valve	2	B	A	P	2 yrs	9.4-3(1)
						S	3 mo	
F002	2	Reactor area exhaust isolation valve	2	B	A	P	2 yrs	9.4-3(1)
						S	3 mo	
F003	3	Reactor bldg area divisional HVAC supply isolation valve	2	B	A	P	2 yrs	9.4-3(1)
						S	3 mo	
F004	3	Reactor bldg area divisional HVAC exhaust isolation valve	2	B	A	P	2 yrs	9.4-3(1)
						S	3 mo	
F007	4	MCR area HVAC bypass line isolation valve	2	B	A	P	2 yrs	9.4-1(1,2)
						S	3 mo	
F008	4	MCR area HVAC supply isolation valve	2	B	A	P	2 yrs	9.4-1(1,2)
						S	3 mo	
F009	4	MCR area HVAC emergency HVAC supply	2	B	A	P	2 yrs	9.4-1(1,2)
						S	3 mo	
F010	4	MCR area HVAC exhaust isolation valve	2	B	A	P	2 yrs	9.4-1(1,2)
						S	3 mo	

Y52 Oil Storage Transfer System Valves

F001	6	D/G transfer pump discharge line check vlv	3	C	A	S	3 mo	9.5-6
F002	3	D/G transfer pump discharge line relief vlv	3	C	A	R	5 yrs	9.5-6
F003	3	D/G transfer pump discharge line ball (plug) valve	3	B	P		E1	9.5-6
F004	3	D/G fuel oil day tank return to storage tank valve	3	B	P		E1	9.5-6
F501	3	D/G transfer pump discharge line drain vlv	3	B	P		E1	9.5-6
F502	3	D/G transfer pump discharge line vent vlv	3	B	P		E1	9.5-6

Table 3.9-8 (Continued)

INSERVICE TESTING SAFETY-RELATED PUMPS AND VALVES

NOTES:

(a) 1, 2, or 3 - Safety Classification, SSAR Subsection 3.2.3.

(b) Pump test parameters per ASME OM Code 1990, Section ISTB:

- N - Speed
- Pd - Discharge Pressure
- Pi - Inlet Pressure
- Q - Flow Rate
- Vd - Peak-to-peak vibration displacement
- Vv - Peak vibration velocity

(c) A, B, C or D - Valve category per ASME OM Code 1990, Subsection ISTC.

(d) Valve function:

- 1 - Primary containment isolation, SSAR Subsection 6.2.4
- A or P - Active or passive per ASME Code in (c) above (Paragraph ISTC 1.3).

(e) Valve test parameters per ASME Code in (c) above:

- L - Leakage rate (Paragraph ISTC 4.3, SSAR Table 6.2-7 for valves with function I in (d) above))
- P - Local position verification (Paragraph ISTC 4.1)
- R - Relief valve test including visual examination set pressure and seat tightness testing (Paragraph ISTC 4.4).
- S - Stroke exercise Category A or B (Paragraphs ISTC 4.2.1, 4.2.2)
  Category C (Paragraphs ISTC 4.5.1, 4.5.2, 4.5.4)
- X - Explosive charge test (Paragraph ISTC 4.6)

(f) Pump or valve test exclusions, alternatives and frequency per ASME Code in (b) or (c) above or Appendix I:

- CS- Cold shutdown
- RO- Refueling outage and/or no case greater than two years.
- E1- Used for operating convenience, i.e., passive vent, drain, instrument, test, maintenance valves, or a system control valve. Test are not required (Paragraph ISTC 1.2).
- E2- In regular use. Test frequency is not required provided the test parameters are analyzed and recorded at an operation interval not exceeding three months.
  Category A or B, Stroke (Paragraph ISTC 4.2.5).
  Category C, Stroke (Paragraph ISTC 4.5.3).
- E3- Operability test every six months. Set pressure and leak test every refueling outage. (ASME OM Code-1990, Appendix I, I 1.3.7).
- E10- In Regular use. Test frequency is not required provided the test parameters are recorded at least once every three months of operation (Paragraph ISTB 5.3).
- E11- Lacking required fluid inventory. Test shall be performed at least once every two years with required fluid inventory provided (Paragraph ISTB 5.5).