

99M

FIRE ZONE: 99-M  
FIRE AREA I

NORTH SWITCHGEAR ROOM

EL. 372 FT.

**NOTE:**  
See section 10.0, Note 1 for time critical actions  
See caution in section 10.0, Note 2

1.0 OCCUPANCIES:

Normally unmanned.

NO SWGR = ~~SWGR~~  
GTM Train

2.0 FIRE BRIGADE ACCESS:

From the turbine building to corridor 98-J via Door #56, thru Door #46 (Primary) from the turbine building stairway No. 5, thru the south switchgear room thru Door #48 and #47 (Secondary)

3.0 PLANT PERSONNEL EGRESS:

Egress routes are the same as those above.

4.0 LIGHTING/COMMUNICATIONS

DC-powered and battery pack emergency lighting (including a hand-held extension light)

Gai-tronics call station G-18 is located on the north wall of corridor 98-J across from door #46 to this zone.

Gai-tronics call station G-19 is located on the north wall of the south switchgear room.

NOTE: The only assured means of communications is portable radio. If phones or gai-tronics are operable, they can be used as secondary means.

5.0 BARRIERS SEPARATING REDUNDANT SAFE SHUTDOWN EQUIPMENT:

South wall is three-hour rated barrier (tech spec) which separates zone from south switchgear room (100-N). North wall is three-hour rated barrier (tech spec) which separates zone from Access Corridor 98 (98-J).

6.0 HAZARDS:

	<u>MATERIAL</u>	<u>CLASS</u>
6.1	Fire:	
	Cable Insulation	A/C
	Other Combustibles	A
	Transient Combustibles	A
6.2	Radiation:	None
6.3	Hazardous Substances:	None
6.4	Physical Hazards:	None

XX-11  
[Signature]

6.5 Electrical Hazards:	<u>Electrical Equipment</u>	<u>Circuit Breakers</u>
4160 V SWITCHGEAR	A4	-
480 V MCC	B55	52-522 (B5); 52-622 (B6)
INVERTER PANEL	Y28	52-6134 (B61)
INVERTER PNL	Y22	52-6121A,B (B61)
480V MCC	B56	52-522 (B5) 52-622 (B6)
SWITCHGEAR ROOM COOLER	VUC 2C	52-5544 (B55)
SWITCHGEAR ROOM COOLER	VUC 2D	52-6246 (B62)
INVERTER PNL	Y24	52-6145A,B (B61)
480V LOAD CENTER	B6	152-401 (A4)
480V M.C.C.	B65	52-634 (B6)
120V INST PANEL/ TRANSFORMER	Y4/X62	52-6512 (B65)
TRANSFORMER	X6	52-612
INVERTER	Y25	52-6315

## 6.6 Compressed Gases:

- A) Cylinders (Self-Contained): none identified  
 B) Non-Self-Contained: none identified

7.0 FIXED FIRE SYSTEMS:

Suppression: None.

Detection: Ionization type smoke detectors.

8.0 MANUAL SUPPRESSION:Portable Extinguishers:

- CO2-252 in north DC equipment room off of corridor zone 98-J
- CO2-204 on south wall of south switchgear room
- CO2-251 in south DC equipment room Zone 110-L
- CO2-233 in west end of corridor zone 98-J
- ABC-160 at stairway No. 45 in corridor zone 98-J
- CO2-289 on north wall of south switchgear room

In Zone:

- CO2-202 on north wall

Hose Reel Stations:

- HR-15 in turbine building accessible thru Door #56 into corridor 98-J (Primary)
- HR-17 on turbine building El. 386' accessible by stairway No. 5 through the south switchgear room doors #48 and #47 (Secondary)
- HR-31 in the west end of corridor zone 98-J (Secondary)

9.0 VENTILATION:

9.1 Fixed System:

a.	Supply	Fans	Damper	Handswitch	Control Panel
	Normal	VSF10	FD 138-6	HS-7814	B15
		VUC2C	FD 100-60	HS-7818	B55
		VUC2D	FD 166-11	HS-7819	B62
		CV 5908			
		CV 5909			
		CV 7861			
		CV 5913			
	Emergency	--	--	--	--
	Exhaust	--	--	--	--

9.2 Portable: None

10.0 AFFECTED COMPONENTS OF INTEREST:

<u>COMPONENT</u>	<u>DESCRIPTION</u>
Y25	125/120VAC INVERTER
Y20	ALTERNATE SHUTDOWN INSTRUMENT POWER SUPPLY
Y22	125VDC/120VAC INVERTER FOR RS2
Y24	125VDC/120VAC INVERTER FOR RS4
B55, 56	ESF 480V MOTOR CONTROL CENTERS
A4	4.16KV (ESF) SWITCHGEAR
B6	480V ESF MOTOR CONTROL CENTER
B65	480V ESF MOTOR CONTROL CENTER
X6	4160/480V TRANSFORMER

CABLES AFFECTING OTHER COMPONENTS OF INTEREST

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>CABLE TYPE</u>	
		<u>CONTROL</u>	<u>POWER</u>
K4A	EMER (SOUTH) DG AND AUX	DC CNTRL	
K4B	EMER (NORTH) DG AND AUX	DC CNTRL	
CV-3807	SW TO EMER DSL JACKET COOLER (E20A)		480 VAC
P16B	EMER DSL FUEL TRANSFER PMP		480 VAC
VEF24C/D	EDG ROOM K4B EXH FANS		480 VAC

COMPONENT	DESCRIPTION	CABLE TYPE	
		CONTROL	POWER
TV7902A/B	EDG ROOM K4B EXH FAN DAMPER		120 VAC
P36A	MAKEUP PMP	DC CNTRL	
P36B	MAKEUP PMP (SWING)	DC CNTRL	4160 VAC
P36C	MAKEUP PMP	DC CNTRL	4160 VAC
P64A	MAKEUP PMP LUBE OIL PUMP	120V	
P64B	MAKEUP PMP LUBE OIL PUMP	120V	
P64C	MAKEUP PMP LUBE OIL PUMP	120V	480 VAC
CV-1406	REACT BLDG SUMP ISOL VLV		480 VAC
CV-1408	BWST OUTLET VALVE		480 VAC
P4A	SW PMP	DC CNTRL	
P4B	SW PMP (SWING)	DC CNTRL	4160 VAC
P4C	SW PMP	DC CNTRL	4160 VAC
CV-3641	SW DISCH TO LOOP II	120V CNTRL	480 VAC
CV-3642	SW XOVER VLV	120V CNTRL	480 VAC
CV-3643	SW DISCH TO AUX. CLG	120V CNTRL	
CV-3644	SW XOVER VLV	120V CNTRL	480 VAC
SG-2, 4, 6&7	SLUICE GATES		480 VAC
CV-1274	RCP SEAL BLEEDOFF BLOCK VLV		480 VAC
SV-1270	P32D BLEEDOFF ISOLATION	125V DC	
SV-1271	P32C BLEEDOFF ISOLATION	125V DC	
SV-1272	P32B BLEEDOFF ISOLATION	125V DC	
SV-1273	P32A BLEEDOFF ISOLATION	125V DC	
CV-1221	LETDOWN ISOL VLV		480 VAC
CV-1227	HPI INJECTION LOOP B		480 VAC
CV-1228	HPI INJECTION LOOP B		480 VAC
P7A	EFW PMP (TURBINE)	INSTRUMENT	
P7B	EFW PMP (MOTOR)	DC CNTRL	
CV-2800	CONDENSATE TO P7B	120V CNTRL	
CV-2802	CONDENSATE TO P7A	120V CNTRL	480 VAC
CV-2626	P7B BLOCK VLV TO SGB		480 VAC
CV-2670	P7B BLOCK VLV TO SGA		480 VAC
CV-2620	P7A BLOCK VLV TO SGB	125 VDC	
CV-2627	P7A BLOCK VLV TO SGA	125 VDC	
CV-2646	P7B DISCH TO SGA	INSTRUMENT	
CV-2648	P7B DISCH TO SGB	INSTRUMENT	
CV-2869	EFIC TEST LOOP (P7B)	120V CNTRL	
CV-2663	P7A STM SUPPLY VLV	125V DC	
CV-2613	P7A STEAM SUPPLY VALVE	125V DC	
SV-2613	P7A STEAM SUPPLY BYPASS	125V DC	
CV-2645	P7A DISCHARGE TO SGA	INSTRUMENT	
CV-2647	P7B DISCHARGE TO SGB	INSTRUMENT	
SV-1072	REACTOR HI-POINT VENT	125V DC	
SV-1074	REACTOR HI-POINT VENT	125V DC	
SV-1082	SG A HI-POINT VENT	125V DC	
SV-1084	SG A HI-POINT VENT	125V DC	
SV-1092	SG B HI-POINT VENT	125V DC	
SV-1094	SG B HI-POINT VENT	125V DC	

COMPONENT	DESCRIPTION	CABLE TYPE	
		CONTROL	POWER
CV-2617	P7A STM SUPPLY BLOCK VLV	120V CNTRL	
CV-2667	P7A STM SUPPLY BLOCK VLV	120V CNTRL	
CV-2803	SW LOOP I TO P7B	120V CNTRL	
CV-2806	SW LOOP II TO P7A	120V CNTRL	480 VAC
CV-3850	SW LOOP I TO P7B	120V CNTRL	
CV-3851	SW LOOP II TO P7A	120V CNTRL	480 VAC
CV-2668	SGB ATM DUMP VLV	INSTRUMENT	
CV-2691	MSIV SGB	DC CNTRL	
CV-2618	SGB ATMOS DUMP VLV	INSTRUMENT	
CV-2619	SGB ATMOS DUMP BLOCK VLV		480 VAC
RS2	120 VAC VITAL BUS. NO. 2	120VAC VITAL	
RS4	120 VAC VITAL BUS. NO. 4	120VAC VITAL	
D15	125V DC MCC	125VDC	
D21	125V DC MCC	125VDC	
D25	125V DC MCC	125VDC	
RA2	125V DC DISTRIBUTION PANEL	125VDC	
B61, 62, 63	480V MCC		480 VAC
CV-1000	PRESSURIZER ERV BLOCK VALVE		480 VAC
CV-3821	DH COOLER (E35) SW INLET	120V CNTRL	480 VAC
P34B	DHR PUMP B	DC CNTRL	4160 VAC
CV-1404	DECAY HEAT RETURN ISOL. VLV	DC CNTRL	480 VAC
CV-1400	DECAY HEAT COOLER E35B ISOL		480 VAC
CV-1410	DECAY HEAT SUCTION ISOL VLV		480 VAC
CV-1435	"B" DH SUCTION FROM RCS	120V	480 VAC
CV-1437	"B" DH SUCTION FROM BWST	120V	480 VAC
CV-3841	SW to P34B COOLER	INSTRUMENT	
TE-1115	RCS LOOP A COLD LEG TEMP (GREEN)		120 VAC
TI-1115	RCS LOOP A COLD LEG TEMP (GREEN)	INSTRUMENT	
TE-1147	RCS LOOP B COLD LEG TEMP (GREEN)		120 VAC
TI-1147	RCS LOOP B COLD LEG TEMP (GREEN)	INSTRUMENT	
TI-1111	RCS LOOP A HOT LEG TEMP (RED)		120 VAC
TE-1112	RCS LOOP A HOT LEG TEMP (RED)	INSTRUMENT	
TE-1013	RCS LOOP A HOT LEG TEMP TO TSAT MONITOR		120 VAC
TE-1139	RCS LOOP B HOT LEG TEMP (GREEN)		120 VAC
TR-1139	RCS LOOP B HOT LEG TEMP (GREEN)	INSTRUMENT	
TE-1041	RCS LOOP B HOT LEG TEMP TO TSAT MONITOR		120 VAC
LI-2618	OTSG-A LO RANGE LEVEL (RED)	INSTRUMENT	
LT-2622	OTSG-A LO RANGE LEVEL (RED)		120 VAC
LI-2622	OTSG-A LO RANGE LEVEL (GREEN)	INSTRUMENT	
LI-2620	OTSG-A LO RANGE LEVEL (RED)	INSTRUMENT	
LT-2624	OTSG-A LO RANGE LEVEL (GREEN)		120 VAC
LI-2624	OTSG-A LO RANGE LEVEL (GREEN)	INSTRUMENT	

COMPONENT	DESCRIPTION	CABLE TYPE	
		CONTROL	POWER
LI-2667	OTSG-B LO RANGE LEVEL (RED)	INSTRUMENT	
LT-2671	OTSG-B LO RANGE LEVEL (GREEN)		120 VAC
LI-2671	OTSG-B LO RANGE LEVEL (GREEN)	INSTRUMENT	
LI-2669	OTSG-B LO RANGE LEVEL (RED)	INSTRUMENT	
LT-2673	OTSG-B LO RANGE LEVEL (GREEN)		120 VAC
LI-2673	OTSG-B LO RANGE LEVEL (GREEN)	INSTRUMENT	
C-540(+)	GREEN INSTRUMENT NEST		120 VAC
EFIC-B(+)	EFW INITIATION SYSTEM		120 VAC
LRS-4204	COND STOR TANK T41B LEVEL (RED)	INSTRUMENT	
LT-4205	COND STOR TANK T41B LEVEL (GREEN)		120 VAC
LIS-4205	COND STOR TANK T41B LEVEL (GREEN)	INSTRUMENT	
LRS-1001	PRESS LEVEL (RED)	INSTRUMENT	
LT-1002	PRESS LEVEL (GREEN)		120 VAC
LIS-1002	PRESS LEVEL (GREEN)	INSTRUMENT	
TE-1002A	PRESS LEVEL TEMP COMP (GREEN)		120 VAC
PI-2618A	OTSG "A" PRESSURE (RED)	INSTRUMENT	
PT-2618B	OTSG "A" PRESSURE (GREEN)		120 VAC
PI-2618B	OTSG "A" PRESSURE (GREEN)	INSTRUMENT	
PR-2667A	OTSG "B" PRESSURE (RED)	INSTRUMENT	
PT-2667B	OTSG "B" PRESSURE (GREEN)		120 VAC
PI-2667B	OTSG "B" PRESSURE (GREEN)	INSTRUMENT	
NI-501	SOURCE RANGE (RED)	INSTRUMENT	
NE-502	SOURCE RANGE (GREEN)		120 VAC
NI-502	SOURCE RANGE (GREEN)	INSTRUMENT	
PT-1041	RCS PRESSURE (GREEN)		120 VAC
PI-1041	RCS PRESSURE (GREEN)	INSTRUMENT	
PR-1042	RCS PRESSURE (RED)	INSTRUMENT	
52-512	B5 MAIN BRKR FROM X5		
52-513	B5 to B6 TIE BRKR		
152-308	DG K4A OUTPUT BRKR		
72-1109	D11 BRANCH FDR TO B5		
152-310	A3 TO A4 TIE BRKR		
72-0241B(*)	DO2 TO Y28 SUPPLY BRKR		
72-0242A(*)	DC SUPPLY FROM DO2 TO Y22		
72-0242B(*)	DC SUPPLY		
72-1104	D11 FEED TO A3		

NOTES:

#1 The loss of operability of service water pumps P4A, P4B and P4C due to cable damage in this zone, could cause the loss of all service water capability. P4a and/or P4B can be manually controlled locally in the red switchgear room.

SWPs

Due to the limited amount of response time available prior to incurring mechanical damage to the diesel generators, immediately address the following: If either diesel is running, ensure that at least one service water pump is operating and aligned to the associated diesel jacket cooler. Power may be lost to CV-2807, which will necessitate manual operation of this valve if K4B is running. If service water cannot be readily assured, it maybe necessary to stop the diesels until the correct pump/valve alignment is obtained. It may be prudent to deenergize the DC control power for breakers A302 and/or a303, to prevent a spurious trip of the service water pump(s) during diesel generator operation.

#2 The loss of operability of the EFW pumps P7A and P7B due to cable damage in this zone may cause loss of EFW. Credit is taken for manual operation of breaker A310 for P7B. Locally manual control of P7A may be necessary, including the manual operation of valves SV-2613, CV-2613, CV-2617, CV-2663, and/or CV-2667.

EFW pumps

EFW suction valves

Caution: CV-2800, CV-2803 and CV-3850 are subject to spurious operation due to cable damage in this zone. In order to minimize the possibility of pump damage due to loss of suction, it may be prudent to deenergize these valves to assure proper alignment before operating P7B.

#3 The loss of operability of makeup pumps P36A, P36B, P36C and lube oil pumps P64A, P64B, P64C due to cable damage in this zone may cause loss of all makeup capability. P36A and P36B can be manually operated from the south switchgear room. Local/manual operation of P64A and P64B starters and manual operation of the P64B transfer switch will assure makeup pump availability.

MUPs

#4 The loss of DG K4B output breaker 152-408 in this zone and loss of DG K4A output breaker 152-308 operability in zone 100-N due to cable damage in this zone (spurious tripping) would cause loss of both DG power supply trains. Credit is taken for local/manual operation of breakers after isolating control power from switchgear or deenergization of DG output breaker control power. Damage to cables could cause EDG lockout relay to trip, but this could not prevent a local restart.

EDGs

#5 The loss of operability of DHR return isolation valve CV-1404 and CV-1410 due to cable damage in this zone may result in loss of the DHR function. Credit is taken for manual operation of these valves.

DHR

#6 Valves CV-1221, CV-1227, CV-1228, CV-1274, CV-1400, CV-1406, CV-1408, SV-1270, SV-1271, SV-1272 and SV-1273 are noted because the power feeds to their respective electrical sources are located in this zone. Credit is taken for manual operation and/or use of redundant equipment, as necessary.

RCPs  
ATPA

all gn

control bleed off of RCPs

DHR  
inj  
gr<sup>2</sup>

RB  
Sump

BWSR  
outlet  
GMM

Prevents  
BWSR  
from  
dm

2803 2667 2668 2869 2800 ~~some~~ red 3880

EFW

#7 The loss of operability of EFW valves CV-2620, CV-2626, CV-2627, CV-2645, CV-2646, CV-2647 and CV-2648 could result in the loss of EFW flow to the OTSGs. CV-2646 and CV-2648 can be deenergized by operating the switch located in the Lower South Electrical Penetration Room (Zone 105-T). EFW flow from P7B can be regulated by manual operation of CV-2626 and CV-2670. CV-2645 and CV-2647 can be deenergized at RA2. Once control power has been isolated at D15, EFW flow from P7A can be regulated by manual operation of CV-2620 and CV-2627.

Hi Pt Vents

#8 Power to the High point vents (i.e. SV-1072, SV-1074, etc.) may be lost in this zone. The desired position of these valves is closed (deenergized). Therefore, loss of operability of these valves will not impact safe shutdown.

ADV's

#9 The loss of operability of the ADVs (CV-2618 and CV-2668) and block valve CV-2619 could affect the ability to control the OTSG relief function. By failing these valves closed, initial steam relief will be performed by the MSRVs. Credit is taken for the manual positioning of the ADVs and CV-2619.

(\*) Component Not Included on "Component of Interest" List

11.0 AVAILABLE SAFE SHUTDOWN INSTRUMENTATION

A. Local

- TIT-1404 - P34A Suction Inlet Temperature Indication (Local)
- TIT-1405 - P34B Suction Inlet Temperature Indication (Local)
- \*PI-2682 - OTSG A Main Steam Line Pressure (Local)
- \*PI-2683 - OTSG B Main Steam Line Pressure (Local)
- PI-2811A - P7A Discharge Pressure Indication (Local)

\*Operator Aid Only

B. Steam Generator Level

- LT-2620 - OTSG A Level Hi Range (Red) to SPDS (Safe Shutdown Display)
- LT-2618 - OTSG A Level Lo Range (Red) to SPDS (Safe Shutdown Display)
- LT-2669 - OTSG B Level Hi Range (Red) to SPDS (Safe Shutdown Display)
- LT-2667 - OTSG B Level Lo Range (Red) to SPDS (Safe Shutdown Display)

C. Pressurizer Level

- LT-1001 & TE-1001A - Pzr. Level (Red) to SPDS (Safe Shutdown Display)

D. Source Range

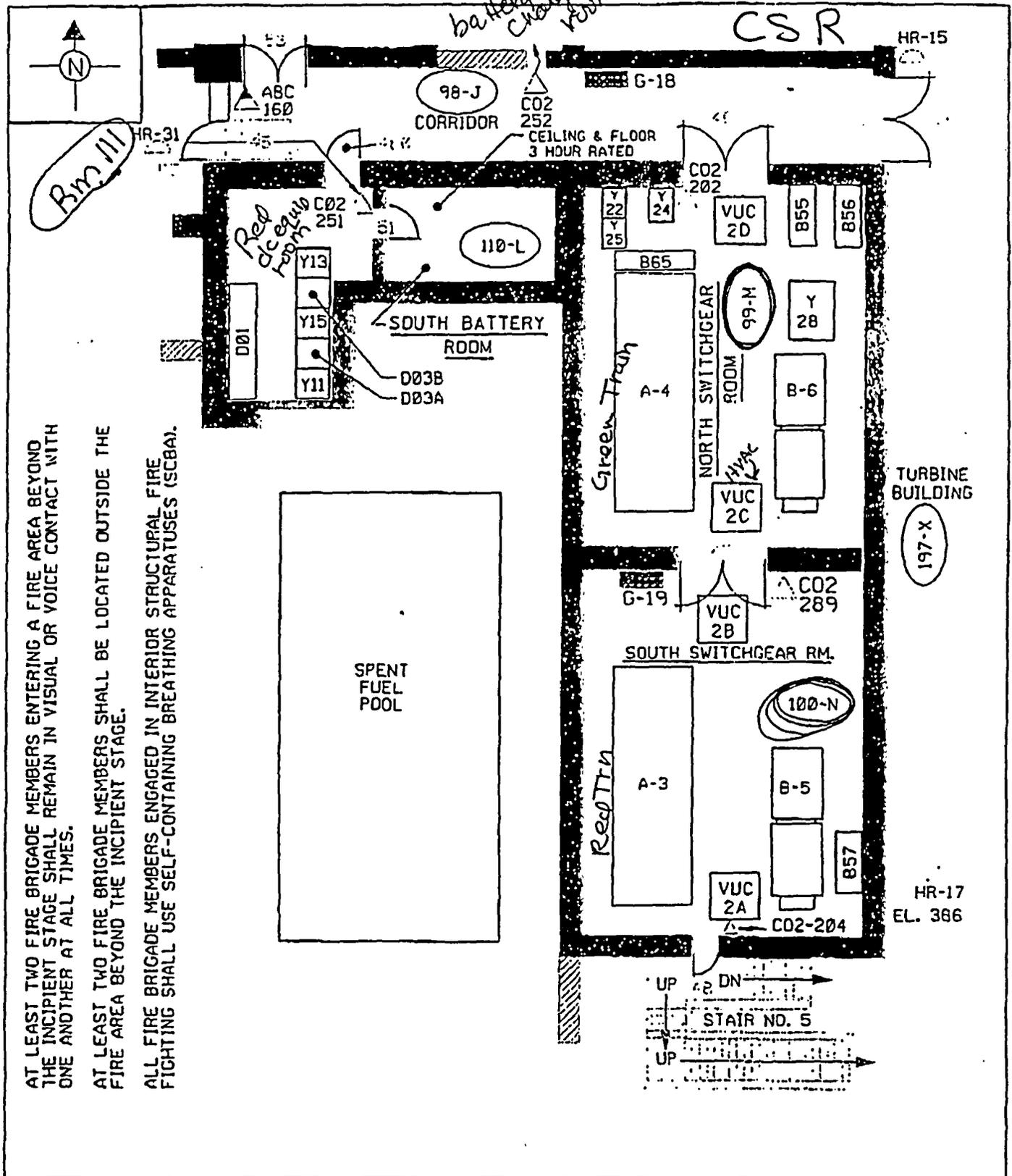
- NE-501 - Source Range (Red) to SPDS (Safe Shutdown Display)

E. RCS Pressure

- PT-1042 - RCS Pressure Wide Range (Red) to SPDS (Safe Shutdown Display)

F. Steam Generator Pressure

- PT-2618A - OTSG "A" Pressure (Red) to SPDS (Safe Shutdown Display)
- PT-, 2667A - OTSG "B" Pressure (Red) to SPDS (Safe Shutdown Display)



AREA: F,I,E,	ELEV: 372'-0"	ZONE: 110-L, 99-M, 100-N		
ARKANSAS NUCLEAR ONE UNIT 1 RUSSELLVILLE, ARKANSAS			SCALE : NONE	
			DRAWN : K.WINSTEAD	
FIRE ZONE DETAIL SO. BATTERY RM. 110-L, 99-M, 100-N BY: & SO. FWT. 06/29/01		DESIGN : ENTERGY		
		CAD NO : 00020146.fln		
		DETAIL NO.	SHEET	REV
		FZ-1045	1	2