

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: G

TRAIN ACCREDITED FOR SHUTDOWN: 2

4.6.G.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
200	CLN LQD WST MON TNK RM	400	N	MAN
201	CLN LQD WST MON TNK RM	400	N	MAN
203	MONITOR TNK TRANS PMP RM	400	N	MAN
204	CLN WST MON TNK FLTR RM	400	N	MAN
205	MAKE UP TANK ROOM	400	N	MAN
206	MU & PURF FILTERS ROOM	400	Y	MAN
207	MECH PEN RM 1 VESTIBULE	400	N	MAN
209	CORRIDOR MECH PEN RM 1	22,892	Y	AUTO
210	DEMINERALIZER ROOM	400	N	MAN
211	VALVE ROOM	400	Y	MAN
212	VALVE ROOM	400	Y	MAN
221	TOP/TRANSTUBE SHIELD RM	2,049	Y	MAN
227	PASSAGE	35,001	Y	AUTO
228	DEMINERALIZER ROOM	400	N	MAN
230	DEMIN FILTER ROOM	737	Y	MAN
231	CLN WST BOOSTER PUMP RM	400	Y	MAN
232	VALVE ROOM	400	Y	MAN
233	DEMINERALIZER ROOM	400	N	MAN
234	BA EVAPORATOR ROOM 1-2	5,133	Y	MAN
235	BA EVAPORATOR ROOM 1-1	3,683	Y	MAN
240	BA ADDITION TANK ROOM	821	Y	MAN
241	PASSAGE	14,345	Y	MAN
242	VALVE ROOM	400	Y	MAN
243	WASTE GAS CMPRSSR RM 1-2	3,569	Y	MAN
244	WASTE GAS CMPRSSR RM 1-1	16,164	Y	MAN

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4.6.G.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA G

The following components are located in fire area G.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
CCWS	1	CC2645	MOV	CC RETURN HDR 1 VLV
	2	CC2649	MOV	CC RETURN HDR 2 VLV
ESSPWR	1	E11A	MCC	480VAC MCC
	1	E11D	MCC	480VAC MCC
	2	F11D	MCC	480VAC MCC
MUPS	1/2	F-35	FLT	PURIFICATION DEMIN FILTER 1-1
	1/2	MU10A	MOV	PURIFICATION DEMIN 1-1 IN VALVE
	1/2	MU10B	MOV	PURIFICATION DEMIN 1-2 IN VALVE
	1/2	MU11	MOV	RC LETDOWN DIVERTING VLV
	1/2	MU182	MAN	SEAL RETURN TO MAKE UP TANK ISO VLV
	1/2	MU1903	MOV	PURIFICATION DEMIN 1-3 IN VALVE
	1/2	MU97	MAN	SEAL RETURN TO CLEAN WASTE TK ISO VLV
	1/2	T-4	TANK	MAKE-UP TANK
	1/2	T5-1	TANK	MIXED BED PURIF DEMINERALIZER 1-1
	1/2	T5-2	TANK	MIXED BED PURIF DEMINERALIZER 1-2
	1/2	T5-3	TANK	CATION BED PURIF DEMINERALIZER 1-3
	1/2	WC120	MAN	CLEAN WASTE TANKS INLET LINE ISO VLV
	1/2	WC1453	SOV	CLEAN WST PRI DEMIN IN VLV
	1/2	WC3560	SOV	DEGASIFIER BYPASS VLV

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### FIRE AREA G

#### 4.6.G.3 Fire Propagation Control

Fire Area G is located in the Auxiliary Building consisting primarily of the southern portion of the 565' elevation as shown on Drawing A-222F.

A fire that originates in this fire area will be contained in this fire area. This fire area is enclosed by 3-hour rated concrete walls (except as noted below).

The east wall of Room 235 contains one non-rated opening. To preclude any direct flame/fire communication with Room 124, an automatically actuated water curtain is installed.

The floor of Room 227 contains 1 non-rated opening communicating Fire Area G with Fire Area A. This is a ventilation opening and a hatch area. The ventilation opening is protected by a fire damper and the hatch area is protected by Dura Steel.

The floor and ceiling of Room 227 have equipment removal hatches to Room 113A (Fire Area A) and Room 313 (Fire Area U). Based on the construction, automatic wet-pipe sprinkler system and low combustible loadings in the area, a fire will not propagate from one fire area to another.

Room 209 has an opening 23" x 8" in the south wall that FD-1101 is in. Due to high-rad areas and inaccessibilities the damper cannot be inspected or reworked, therefore it is a non-rated opening.

The north wall of Room 235 contains 1 non-rated opening which communicates with Room 236 (Fire Area A). To preclude any direct flame/fire communication with Room 236, an automatically actuated water curtain is installed.

The ceiling of Room 233 has removable concrete plugs which are removed for equipment removals and access. These plugs are in the floor of Room 313 (Fire Area U) and are lifted out from Room 313. Based on the construction of the plugs and the low combustible loading, a fire will not propagate from one fire area to the other. There is a piece of removable structural steel in Room 233 which supports the plugs. This member has been analyzed and, based on the low combustible loadings, will not fail in a fire in Room 233.

The ceiling of Room 209 has removable concrete plugs. These plugs are in the floor of Room 304 (Fire Area V) and are lifted out from Room 304. Based on the construction of the plugs and the low combustible loadings, a fire will not propagate from one fire area to the other.

The concrete block walls and fire doors enclosing the stairwells and elevator shafts (Fire Areas AD and VA) are rated for 2-hours and 1-1/2-hours. Based on the construction arrangement, and low combustible loadings, a fire will not propagate from one fire area to the other. See Fire Area AD and VA for details.

There are several penetrations with inaccessible seals or small annular gaps. These non-rated openings have been evaluated and will not allow the propagation of a fire.

Room 221 has structural steel which does not have a 3-hour fire rating. A detailed analysis shows that the steel will not fail based on the combustible loading in this room.

FIRE AREA G

Room 227 has structural steel which does not have a 3-hour fire rating. Based on analysis of the combustible loadings and automatic wet-pipe sprinklers in this room, the steel will not fail.

Rooms 230, 231, 232, 234, 235, 240, 241, 242, 243 and 244 have structural steel which has fire-proofing which does not conform to a 3-hour tested configuration. A detailed analysis shows that the steel will not fail based on the low combustible loadings. The transient combustible loadings will be limited in these rooms.

5.6.G.4 Fire Detection and Suppression

Fire Area G consists of various rooms and/or plant areas. The following areas have detection:

1. Make-up and Purification Filters Room 206, Fire Detection Zone FDZ 209
2. Corridor to Mechanical Penetration Room 209, Fire Detection Zone FDZ 209
3. Valve Room 211, Fire Detection Zone FDZ 211
4. Valve Room 212, Fire Detection Zone FDZ 211
5. Top of Transtube Shield, Room 221, Fire Detection Zone FDZ 221
6. Passage Room 227, Fire Detection Zone FDZ 227
7. Demin Filter Room 230, Fire Detection Zone FDZ 230
8. Cleans Waste Booster Pump Room 231, Fire Detection Zone FDZ 231
9. Valve Room 232, Fire Detection Zone FDZ 232
10. Boric Acid Evaporator Room 234, Fire Detection Zone FDZ 234
11. Boric Acid Evaporator Room 235, Fire Detection Zone FDZ 235
12. Boric Addition Tank Room 240, Fire Detection Zone FDZ 240
13. Passage, Room 241, Fire Detection Zone FDZ 241
14. Valve Room 242, Fire Detection Zone FDZ 242
15. Waste Gas Compressor 1-2 Room 243, Fire Detection Zone FDZ 243
16. Waste Gas Compressor 1-1 Room 244, Fire Detection Zone FDZ 244

The following rooms are provided with automatic wet-pipe sprinkler systems:

1. Corridor to Mechanical Penetration Room 209
2. Passage Room 227

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### FIRE AREA G

Manual fire suppression equipment is provided for this fire area. Fire extinguishers and Hose Stations (HS) are shown on Drawings A-221F through A-223F.

In the event of a fire, isolation and smoke venting will be accomplished in accordance with the Pre-Fire Plans.

#### 4.6.G.5 Fire Area Safe Shutdown Summary

Train 2 will be used for Safe Shutdown in Fire Area G. Safe Shutdown will be accomplished using the High Pressure Injection System (HPIS) along with the Power-Operated Relief Valve (RC2A) for Reactor Coolant System Inventory Control, the Makeup and Purification System (MUPS) for a Letdown path and HPIS Seal Injection for RCP Seal Cooling. The RCP seals will be restaged using flow through the RCP Seal Return line.

SAFE SHUTDOWN ANALYSIS

FIRE AREA : G

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	1CBE1146B 1CBE1146H			OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1)	14 14
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3871)	OP-02501 (CLOSE AF3871)	14
	AF3872	AFWP 2 DISCH TO SG2	MOV	F	2	O	O	AS IS		H	NONE			N/A	
	AF599	AFW TO SG2 ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	AF6451	AFWP 2 FLOW CTRL VLV	SOV	F	2	O	O/C	FO		H	NONE			N/A	
	FW6460	MDFP FLOW CTRL VLV	SOV	II	2	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	ICS038A	AFPT 2 GOV CTRL VLV	MOV	F	2	O	O/C	AS IS		H	NONE			POWER LOST	27
	MS106A	AFPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	1CBE1271K	PSL4930B		OP-02501 (OPEN MS106A)	14
	MS107	AFPT 2 MS IN ISO VLV	MOV	EE	2	C	O	AS IS		H	2CBF1124X CDF-11D		OP-02501 (OPEN MS106A) OP-02501 (OPEN MS106A)	OP-02501 (OPEN MS106A) OP-02501 (OPEN MS106A)	14 14
	MS107A	AFPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-1)	14
	MS5889B	AFPT 2 STEAM ADMISS VLV	SOV	F	2	C	O	FO		H	NONE			N/A	
	MS728	AFPT 2 MS IN X-CONN	MAN	F	2	C	O	N/A	MS106/107	B H	NONE			OP-02501 (OPEN MS728)	14
	MS733	AFPT 1 MS IN X-CONN	MAN	E	1	C	O	N/A	MS106/107	B H	NONE			OP-02501 (OPEN MS733)	14
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-1)	OP-02501 (TRIP P14-1)	14
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE			N/A	
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	P242-1	MDFP AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	P242-2	MDFP SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
CACS	C1-2	CAC FAN 2	FAN	D	2	O/F	ON	OFF		H	NONE			N/A	
	C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	NONE			N/A	
CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	1PB1173A		OP-02501 (OPEN CC1407A)	OP-02501 (OPEN CC1407A)	13
	CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407B)	OP-02501 (OPEN CC1407B)	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE			N/A	
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1410)	OP-02501 (OPEN CC1410)	16
	CC1411A	CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	1PB1176A		OP-02501 (OPEN CC1411A)	OP-02501 (OPEN CC1411A)	13
	CC1411B	CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	OP-02501 (OPEN CC1411B)	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	N/A	24
	CC1469	DHR CLR 2 OUT ISO VLV	SOV	AB	2	C	O	FO		C	NONE		OP-02501 (OPERATE CC1469)	OP-02501 (OPERATE CC1469)	26
	CC1474	DG JKT CW HK 2 OUT VLV	MAN	J	2	O	O	AS IS		H	NONE			N/A	
	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B H	NONE			OP-02501 (OPERATE CC43)	12,26

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : G

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC2649	CC RETURN HDR 2 VLV	MOV	G	2	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	2CBF1161B	AD113 2/X3 LSLL/X2	OP-02501 (OPEN CC2649)	OP-02501 (OPEN CC2649)	16, 21
											2CBF1161C		OP-02501 (OPEN CC2649)	OP-02501 (OPEN CC2649)	16, 21
											2CBF1161D		OP-02501 (OPEN CC2649)	OP-02501 (OPEN CC2649)	16, 21
											2CBF1161E		OP-02501 (OPEN CC2649)	OP-02501 (OPEN CC2649)	16, 21
											2CBF1161F		OP-02501 (OPEN CC2649)	OP-02501 (OPEN CC2649)	16, 21
											2CBF1161G		OP-02501 (OPEN CC2649)	OP-02501 (OPEN CC2649)	16, 21
											2CBF1161I		OP-02501 (OPEN CC2649)	OP-02501 (OPEN CC2649)	16, 21
											2CBF1161J		OP-02501 (OPEN CC2649)	OP-02501 (OPEN CC2649)	16, 21
											2CCEW002B		OP-02501 (OPEN CC2649)	OP-02501 (OPEN CC2649)	16, 21
											2CCEW002C		OP-02501 (OPEN CC2649)	OP-02501 (OPEN CC2649)	16, 21
											2PBF1161A		OP-02501 (OPEN CC2649)	OP-02501 (OPEN CC2649)	16, 21
											BF1161		OP-02501 (OPEN CC2649)	OP-02501 (OPEN CC2649)	16, 21
											CDP-11D		OP-02501 (OPEN CC2649)	OP-02501 (OPEN CC2649)	16, 21
											EV2649		OP-02501 (OPEN CC2649)	OP-02501 (OPEN CC2649)	16, 21
MV2649	OP-02501 (OPEN CC2649)	OP-02501 (OPEN CC2649)	16, 21												
NV2649	OP-02501 (OPEN CC2649)	OP-02501 (OPEN CC2649)	16, 21												
CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A		
CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501 (OPERATE CC43)	OP-02501 (OPERATE CC43)	12, 26	
CC5096	CC HDR 2 IN ISO VLV	MOV	T	2	O/C	O	AS IS		H	2CCEW002B 2CCEW002C			EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1*	
CC5098	CCW LINE 2 RET ISO VLV	MOV	T	2	O/C	O/C	AS IS		H	2CCEW002B 2CCEW002C			EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1*	
FIS1422D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A		
FIS1427D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A		
FIS1432D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A		
P43-2	CCW PUMP 2	PUMP	T	2	O/F	ON	OFF		H	2CAD113D				EMBEDDED CONDUIT	1*
										2CAD113H				EMBEDDED CONDUIT	1*
P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	2CAD113I				EMBEDDED CONDUIT	1*
										2CCEW002B				EMBEDDED CONDUIT	1*
										2CCEW003B				EMBEDDED CONDUIT	1*
										2PAD113A				EMBEDDED CONDUIT	1*
										2CAD108E				EMBEDDED CONDUIT	1*
2CAD108F	EMBEDDED CONDUIT	1*													
2CAD108G	EMBEDDED CONDUIT	1*													
2CAD108K	EMBEDDED CONDUIT	1*													
3PACD1A	EMBEDDED CONDUIT	1*													
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B	C	NONE		N/A	
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B	C	1PB1162A	OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	22
CREVS	C21-2	CTRM EVS FAN 2	FAN	HH	2	OFF	ON	OFF		H	NONE			N/A	
	S33-2	CTRM EMERG A/C UNIT 2	A/C	HH	2	OFF	ON	OFF		H	NONE			N/A	
	SV4827A	CREVS CONDENSER UNIT 2 (S33-2) IN VLV	SOV	HH	2	C	O	CLOSED		H	NONE			N/A	
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B	H	1CBE1156F		OP-02501 (TRIP P56-1)	13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B	H	NONE		OP-02501 (TRIP P56-2)	13
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B	H	1CBE111F	OP-02501 (TRIP P56-1)	OP-02501 (TRIP P56-1)	13

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : G

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CSS	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE		OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2)	13
DHRS	DH01A	LPI LINE 2 VLV	MOV	A	2	O	O	AS IS		C	NONE			N/A	
	DH07A	BWST ISO VLV A	MOV	AC	2	O	O	AS IS		H	2CBF1148J			VALVE DE-ENERGIZED	18
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	2CBF1142J 2CBF1142K 2CBF1142L 2CBF1142M	MVDH07A MVDH07A	MOD 89-0089 MOD 89-0089	VALVE DE-ENERGIZED VALVE DE-ENERGIZED DEPOWERED DEPOWERED DEPOWERED	18 18 18 18 18
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	1CBE1112B 1CBE1112E 1CBE1112F 1CBE1112G 1CBE1112J 1PBE1112A BE1112	MVDH07B	MOD 89-0089 MOD 89-0089 MOD 89-0089 MOD 89-0089 MOD 89-0089 MOD 89-0089 MOD 89-0089	VALVE DE-ENERGIZED VALVE DE-ENERGIZED VALVE DE-ENERGIZED VALVE DE-ENERGIZED VALVE DE-ENERGIZED VALVE DE-ENERGIZED VALVE DE-ENERGIZED	18 18 18 18 18 18 18
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	1PBE1183A		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH13A	DH CLR 2 BYPASS VLV	SOV	AB	2	C	C	FC		C	NONE			N/A	
	DH14A	DH CLR 2 OUT VLV	SOV	AB	2	O	O	FO		C	2CVDH14AF RC2701			SPURIOUS CLOSURE NOT CREDIBLE SPURIOUS CLOSURE NOT CREDIBLE	5C 5C
	DH1518	DH NORM SUCT LINE 2 VLV	MOV	A	2	C	O/C	AS IS		C	NONE			N/A	
	DH2734	DH PUMP 2 BWST SUCT VLV	MOV	AB	2	O	O/C	AS IS		C	NONE			N/A	
	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	
	DH63	LPI/HPI CROSS-TIE VLV	MOV	A	2	C	C	AS IS		C	2CBF1195D 2CBF1195F CDF-11D		OP-02501 (CLOSE DH63) OP-02501 (CLOSE DH63) OP-02501 (CLOSE DH63)	OP-02501 (CLOSE DH63) OP-02501 (CLOSE DH63) OP-02501 (CLOSE DH63)	29 29 29
	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-1)	OP-02501 (TRIP P42-1)	13
	P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	OP-02501 (TRIP P42-2)	13
EDG	DA1148A/B	EDG 2 AIR START VLV	SOV	J	2	C	O	FC		H	NONE			N/A	
	DA2989	AIR START RCVR 1-2-1 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA2994	AIR START RCVR 1-2-2 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA62	AIR START RCVR 1-2-1 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA63	AIR START RCVR 1-2-2 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	K5-2	EMERG DIESEL GENERATOR 2	EDG	J	2	O/F	ON	OFF		H	NONE			N/A	
	P148-2A	EDG JACKET WATER PUMP (RIGHT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P148-2B	EDG JACKET WATER PUMP (LEFT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P195-2	EDG FUEL OIL TRANSFER PUMP 2	PUMP	BN	2	OFF	ON	OFF		C	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : G

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
EDG	P201-2	EDG 1-2 M/D FUEL OIL PUMP	PUMP	J	1	O/F	ON	OFF	P205-2	H	NONE			N/A	
	P205-2	EDG 1-2 E/D FUEL OIL PUMP	PUMP	J	2	O/F	ON	OFF	P201-2	H	NONE			N/A	
	S207-01	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-02	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-03	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-04	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
ESSPWR	2N	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	2P	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	NONE			N/A	
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1, -2, -3	H	NONE			NOT REQUIRED FOR S/D	7
	C3616	EDG1-2 PANEL LIGHTS (ALT PWR)	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	C3629	CONT POWER ESS METER HPI FLOW Y	PNL	R	2	ON	ON	OFF		H	NONE			N/A	
	C4602	NEUTRON FLUX MON. CABINET (CH.2)	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	C4625	CONT POWER TO AUX FW CONTROL PANEL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5755C	SFAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5755E	CONTROL ROOM REACT PROT. SYS PNL(CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755G	POST ACCIDENT MON. RACK (CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5756D	SFAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5759C	INST POWER NNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762A	CONTROL POWER TO SFRCS CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762C	SFAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			SFAS INITIATED	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
C5792	CONTROL ROOM SFRCS CABINET (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A		
C5792A	CH 2 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A		
C5798	POST ACCIDENT MON. IND. PNL (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A		

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : G

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPW	C6709	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	C6715	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	CDF-11A-1	CONTROL DISCONNECT TRANSFER SWITCH	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	CDF-12A-1	D2P CONT POWER TO AFWP GOV (ICS038B)	PNL	X	2	ON	ON	OFF		H	2CD2P20D			FCV REMAINS AVAILABLE	27
	D1	4.16KV AC SWGR	SWGR	Q	2	ON	ON	OFF		H	NONE			N/A	
	D2	4.16KV SWGR	SWGR	Q	2	ON	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	D2N	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	D2P	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBC2N	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2P	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2PN	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF	DBC2P, DBC2N	H	2PBF1187A BF1187			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7
	DBN	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBP	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DC MCC 2	250/125V DC MCC	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	F1	480 V AC MCC F1	SWGR	X	2	ON	ON	OFF		H	NONE			N/A	
	F11A	480VAC MCC	MCC	DF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11B	480VAC MCC	MCC	V	2	ON	ON	OFF		H	NONE			N/A	
	F11C	480VAC MCC	MCC	A	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11D	480VAC MCC	MCC	G	2	ON	ON	OFF		H	2PBF1146A F11D			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	21 21
	F11E	480VAC MCC	MCC	B	2	ON	ON	OFF		C	NONE			N/A	
	F12A	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12B	480VAC MCC	MCC	J	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12C	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12D	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE			N/A	
	F14	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F15	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F16A	480V AC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	BCYBU41A			OP-02501 (OPEN WC1747)	12
	RC3602	DC CONTROL POWER RCP MONITOR	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



SAFE SHUTDOWN ANALYSIS

FIRE AREA : G

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPPWR	RC3608	CONTROL POWER (TO CCCW002)	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3702	DC CONTROL POWER TO CAC 2 OUT VLV	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3705	CONT POWER RC3705 (LR3758)	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	ACDAP28B			OP-02501 (CLOSE WC1453)	32
	RC3716										NONE			N/A	
	RC4606	DC CONT PWR (MU6406,RC4610A,PORV)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	NONE			NOT REQUIRED FOR S/D	7
	XY2	CONSTANT VOLT TRANSFORMER (CVT CH 2)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	XY4	CONSTANT VOLT TRANSFORMER (CVT CH 4)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	XYA										NONE			NOT REQUIRED FOR S/D	7
	Y2	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y2A	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y3602	CONTROL POWER (MU19 & MU32)	PNL	II	2	ON	ON	OFF		H	NONE			N/A	
	Y4	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YBU	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YF1	120VAC MCC	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	YF2	240/120VAC MCC	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	YV2	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YV4	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YVB	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
ZC6451	AFP #2 CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A		
ZC6460	MDFP CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A		
HPIS	HP02A	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02B	H	NONE		OP-02501 (OVERRIDE SFAS)	SFAS ACTUATES	13
	HP02B	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02A	H	NONE		OP-02501 (OVERRIDE SFAS)	SFAS ACTUATES	13
	HP31	HPI PMP 2 RECIRC VLV	MOV	A	2	O	O	AS IS		H	2CBF1194D 2CBF1194F CDF-11D			VALVE DE-ENERGIZED VALVE DE-ENERGIZED VALVE DE-ENERGIZED	16 16 16
	P198-1	HPI PMP 2 AC LO PMP	PUMP	A	2	OFF	ON	OFF		H	NONE			N/A	
	P198-2	HPI PMP 2 DC LO PUMP	PUMP	A	2	OFF	ON	OFF	P198-1	H	NONE			N/A	
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	OP-02501 (TRIP P58-1)	13
	P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE			SFAS ACTUATES	13
HVAC	C133	LV SWGR RM VENT FAN 2	FAN	EE	2	O/F	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

4.6.G .6 TABLE1  
Detailed Analysis

FIRE HAZARDS ANALYSIS

DAVIS BESSE

SAFE SHUTDOWN ANALYSIS

FIRE AREA : G

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
HVAC	C25-3	EDG RM 2 VENT FAN 3	FAN	J	2	O/F	ON	OFF		H	NONE			N/A		
	C25-4	EDG RM 2 VENT FAN 4	FAN	J	2	O/F	ON	OFF		H	NONE			N/A		
	C73-2	APP RM VENT FAN 2	FAN	F	2	O/F	ON	OFF		H	NONE			N/A		
	C78-2	BATT RM VENT FAN 2	FAN	X	2	O/F	ON	OFF		H	NONE			N/A		
	C99-3	SW PMP RM EXH FAN 3	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A		
	C99-4	SW PMP RM EXH FAN 4	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A		
	HV5314	LV SWGR RM 428 DAMPER	DMPR	EE	2	O/C	O	AS IS		H	NONE				N/A	
	HV5314A	LV SWGR RM 428 DAMPER	DMPR	X	2	O/C	O	AS IS		H	NONE				N/A	
	HV5336A	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE				N/A	
	HV5336B	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FO		H	NONE				N/A	
	HV5336C	EDG ROOM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE				N/A	
	HV5444C										NONE				N/A	
	HV5598	BATT RM 428A ATM DMPR	DMPR	X	2	O/C	O	AS IS		H	NONE				N/A	
	MSS	ICS11A	MSL 2 ATM VENT VLV	SOV	DH	2	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11A)	LOSS OF AIR	12
MS100		MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A		
MS100-1		MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A		
MS101		MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A		
MS101-1		MSIV 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	NONE			N/A		
PSV-SP17A1		MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
PSV-SP17A2		MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
PSV-SP17A3		MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
PSV-SP17A4		MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
PSV-SP17A5		MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
PSV-SP17A6		MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
PSV-SP17A7		MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
PSV-SP17A8		MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
PSV-SP17A9		MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
MUPS	F-35	PURIFICATION DEMIN FILTER 1-1	FLT	G	1/2	FUNC	FUNC	N/A		H	NONE			LOW COMBUSTIBLE LOADING	33	
	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE			N/A		
	HP27	HPI TO RCP SEALS	MAN	A	2	C	O	AS IS		H	NONE		OP-02501 (OPEN HP27)	OP-02501 (OPEN HP27)	16	
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE			N/A		

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : G

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE			N/A	
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE		OP-02501 (OPEN MU01B)	OP-02501 (OPEN MU01B)	16
	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	2CSF1744B 2CVMU03C 2CVMU03E	PSLLMU03	OP-02501 (OPEN MU03) OP-02501 (OPEN MU03) OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03) OP-02501 (OPEN MU03) OP-02501 (OPEN MU03)	13 13 13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	ACBE2259B ACBE2259C APBE2259A BE2259		OP-02501 (OPEN MU04) OP-02501 (OPEN MU04) OP-02501 (OPEN MU04) OP-02501 (OPEN MU04)	OP-02501 (OPEN MU04) OP-02501 (OPEN MU04) OP-02501 (OPEN MU04) OP-02501 (OPEN MU04)	16 16 16 16
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	ACBE2262B ACBE2262C ACBE2262D ACBE2262E APBE2262A BE2262		OP-02501 (OPEN MU10A) OP-02501 (OPEN MU10A) OP-02501 (OPEN MU10A) OP-02501 (OPEN MU10A) OP-02501 (OPEN MU10A) OP-02501 (OPEN MU10A) OP-02501 (OPEN MU10A) OP-02501 (OPEN MU10A) OP-02501 (OPEN MU10A) OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A) OP-02501 (OPEN MU10A) OP-02501 (OPEN MU10A) OP-02501 (OPEN MU10A) OP-02501 (OPEN MU10A) OP-02501 (OPEN MU10A) OP-02501 (OPEN MU10A) OP-02501 (OPEN MU10A) OP-02501 (OPEN MU10A) OP-02501 (OPEN MU10A)	16 16 16 16 16 16 16 16 16 16
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	ACBE2263B ACBE2263B ACBE2263C ACBE2263D ACBE2263E APBE2263A BE2263 EVMU10B MVMU10B NVMU10B			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7 7 7 7 7 7 7 7
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	ACBE2278B ACBE2278C ACBE2278D ACBE2278E ACBE2278F ACBE2278G ACBE2278I ACBE2278J ACBE2278L ACBE2278M ACBE2278N APBE2278A BE2278 EVMU110 MVMU110 NVMU110 RC2825	FYIC-MU39 86/FB	OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT)	16 16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	BLNNI261D			OP-02501 (OPERATE MU214 & MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	ACBE2271B ACBE2271C ACBE2271D			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : G

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	ACBE2271E APBE2271A BE2271 EVI9030 MVI9030 NVI9030			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7 7 7
	MU203	Recirc to Seal Return Stop Valve	MAN	AB	2	O	O/C	AS IS		H	NONE			N/A	
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU32	RC MU ISO VLV	FCV	AB	2	O/C	O	FO	HPIS TRAIN 1&2	H	BCNNI264C BCY36217A BLCOP532C BLNNI264D			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B H	2CVMU38C 2CVMU38D 2CVMU38E		OP-02501 (OPEN MU38) OP-02501 (OPEN MU38) OP-02501 (OPEN MU38)	OP-02501 (OPEN MU38) OP-02501 (OPEN MU38) OP-02501 (OPEN MU38)	13 13 13
	MU3971	RC MU PUMP SUCT VLV	MOV	AB	2	C	O/C	AS IS	HPIS TRAIN 2	H	2CBF1617E 2PBF1617D			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	1PBE1174A		OP-02501 (OPEN MU59A)	OP-02501 (OPEN MU59A)	13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	1PBE1175A		OP-02501 (OPEN MU59B)	OP-02501 (OPEN MU59B)	13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	1PBE1177A		OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C)	13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	1PBE1178A		OP-02501 (OPEN MU59D)	OP-02501 (OPEN MU59D)	13
	MU6406	MU RECIRC ISO VLV	AOV	AB	2	O	O/C	FO	HPIS TRAIN 2	H	2CV6406C 2CV6406D			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7
	MU6408	MU CROSS CONNECT ISO VLV	MOV	AB	2	O	O	AS IS	HPIS TRAIN 2	H	2CBF1208C 2PBF1208F			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7
	MU6420	MU32 BYPASS VLV	MOV	AB	2	C	O	AS IS	HPIS, MU32	H	2CBF1616C 2PBF1616F			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7
	MU6422	MU CTMT ISO VLV	MOV	A	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	2CSF1748A 2CVMU66AB 2CVMU66AD		OP-02501 (OPEN MU66A) OP-02501 (OPEN MU66A) OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A) OP-02501 (OPEN MU66A) OP-02501 (OPEN MU66A)	13 13 13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	1CSF1736A 1CVMU66BB 1CVMU66BD	KA, KB KA, KB	OP-02501 (OPEN MU66B) OP-02501 (OPEN MU66B) OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B) OP-02501 (OPEN MU66B) OP-02501 (OPEN MU66B)	13 13 13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	1CSF1737A 1CVMU66CB 1CVMU66CD	KA, KB KA, KB	OP-02501 (OPEN MU66C) OP-02501 (OPEN MU66C) OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C) OP-02501 (OPEN MU66C) OP-02501 (OPEN MU66C)	13 13 13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	2CSF1749A 2CVMU66DB 2CVMU66DD	KA, KB	OP-02501 (OPEN MU66D) OP-02501 (OPEN MU66D) OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D) OP-02501 (OPEN MU66D) OP-02501 (OPEN MU66D)	13 13 13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : G

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	P-372A										NONE			N/A	
	P-372B	MUP 2 MAIN LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	BCBF1167B BCBF1167C RC2826	RX-2, RX-11-2		NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7
	P-372C	MUP 2 AUX LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS, P-372B	H	BCD217B BCD217D BCD217E BCD217F BCD217G RC2826	PS2MU105A AD105		NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7 7 7
	P-372D	MUP 2 AUX GEAR LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	BCBF1168B BCBF1168C BCBF1168D BCBF1168E BCBF1168F BCBF1168G BCBF1168I RC2826	BF1167 PSMU102A D217 AD105		NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7 7 7 7 7
	P37-2	MU PUMP 2	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	BCAD105E BCAD105F BCAD105G BCAD105H BCAD105K RC2825 RC2826	MV3971		NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7 7 7 7
	T5-1	MIXED BED PURIF DEMINERALIZER 1-1	TANK	G	1/2	FUNC	FUNC	N/A	T5-2	H	NONE			LOW COMBUSTIBLE LOADING	33
	T5-2	MIXED BED PURIF DEMINERALIZER 1-2	TANK	G	1/2	FUNC	FUNC	N/A	T5-1	H	NONE			LOW COMBUSTIBLE LOADING	33
	T5-3	CATION BED PURIF DEMINERALIZER 1-3	TANK	G	1/2	FUNC	FUNC	N/A	T5-1, 2	H	NONE			LOW COMBUSTIBLE LOADING	33
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	ACV1453A ACV1453B ACV1453C ACV1453D ACV1453E ACV1453F ACV1453G EV1453 NV1453 RC3715 SV1453 TSHH1740		OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453)	OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453)	32 32 32 32 32 32 32 32 32 32 32 32 32 32
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1743)	OP-02501 (OPEN WC1743)	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	BCV1747C BCV1747D BCV1747E BCV1747G		OP-02501 (OPEN WC1747) OP-02501 (OPEN WC1747) OP-02501 (OPEN WC1747) OP-02501 (OPEN WC1747)	OP-02501 (OPEN WC1747) OP-02501 (OPEN WC1747) OP-02501 (OPEN WC1747) OP-02501 (OPEN WC1747)	12 12 12 12
	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	ACV3560A ACV3560B ACV3560C		OP-02501 (OPEN WC3560) OP-02501 (OPEN WC3560) OP-02501 (OPEN WC3560)	OP-02501 (OPEN WC3560) OP-02501 (OPEN WC3560) OP-02501 (OPEN WC3560)	16 16 16

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

FIRE HAZARDS ANALYSIS  
SAFE SHUTDOWN ANALYSIS  
FIRE AREA : G  
TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	ACV3560D ACV3560E EV3560 NV3560 RC3715 SV3560		OP-02501 (OPEN WC3560) OP-02501 (OPEN WC3560) OP-02501 (OPEN WC3560) OP-02501 (OPEN WC3560) OP-02501 (OPEN WC3560) OP-02501 (OPEN WC3560) OP-02501 (OPEN WC3560)	OP-02501 (OPEN WC3560) OP-02501 (OPEN WC3560) OP-02501 (OPEN WC3560) OP-02501 (OPEN WC3560) OP-02501 (OPEN WC3560) OP-02501 (OPEN WC3560) OP-02501 (OPEN WC3560)	16 16 16 16 16 16 16
NI	NI-5875A	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	NI-NI1	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
NNI	FI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A1	HPI FLOW IND. (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B1	HPI FLOW IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-2	PRZR LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-4	PRZR LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A1	SG1-2 START-UP LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A3	SG1-2 START-UP LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A8	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A8A	SG1-2 START-UP LEVEL IND (C5710)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A9	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LRS-RC14	PRZR LEVEL RECORDER	REC	FF	2	ON	ON	OFF	LI-RC14-1-4	H	NONE			N/A	
	PI-6365A	RCS LOOP 2 EXTENDED RANGE PRESS	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-6365A1	RCS LOOP2 EXTENDED RANGE PRESS (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A3	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A4	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1	SG1-2 OUTLET PRESS IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1-A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF	PI-SP12A	H	NONE			N/A	
	TE-RC3A6	RCS LOOP 2 HOT LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TE-RC4A2	RCS LOOP 2 COLD LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A4	RCS LOOP 2 HOT LEG TEMP (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A5	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A6	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : G

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
NNI	TI-RC4A2	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A4	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A	
	RC13A	RCS CODE SAFETY VALVE	SV	D	2	C	C	CLOSED		H	NONE			N/A	
	RC147	PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
	RC200	PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A	
	RC239A	PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	2CBF1126H			RC200 REMAINS CLOSED	30
	RC239B	PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	2CBF1127G			RC200 REMAINS CLOSED	30
	RC2A	PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			N/A	
	RC4608A	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	NONE			N/A	
	RC4608B	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A	
	RC4610A	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A	
	RC4610B	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A	
	RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	2CV4632B 2CV4632D			RC200 REMAINS CLOSED RC200 REMAINS CLOSED	30 30
SPAS	C5755D	SPAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5762D	SPAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5763D	SPAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5765D	SPAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	1LSFLT11A			N/A	13
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	2LSFLT21A			N/A	13
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	3LSFLT31A			N/A	13
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	4LSFLT41A			SPAS ACTUATES	13
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13

LEGEND

H - required for hot standby

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H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : G

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
SFAS	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	SFRCS	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
		HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
HIS101B		LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14	
HIS101C		LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14	
HIS3869B		BLOCK CIRCUIT AP3869 (APP-1 TO SG-2)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14	
HIS3870B		BLOCK CIRCUIT AP3870 (APP-1 TO SG-1)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14	
HIS3871B		BLOCK CIRCUIT AP3871 (APP-2 TO SG-1)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14	
HIS3872B		BLOCK CIRCUIT AP3872 (APP-2 TO SG-2)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14	
HIS603B		BLOCK CIRCUIT MS603 (SG-2 DRAIN STOP)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14	
HIS6402		CH 2/4 MANUAL START APPT-2 C5707	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14	
HIS6404		CH 2/4 MAN STRT APPT-2 & ISOL SG-2 C57	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14	
LLTSP9A6		SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14	
LLTSP9A7		SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14	
LLTSP9A8		SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14	
LLTSP9A9		SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14	
LLTSP9B6		SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14	
LLTSP9B7		SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



SAFE SHUTDOWN ANALYSIS

FIRE AREA : G

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	LLTSP988	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP989	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	1CRCPD31C			SFRCS ACTUATES	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	1CRCPM31B			SFRCS INITIATES ON LOOP	14
	RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	P3-2	SW PUMP 2	PUMP	BF	2	O/F	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : G

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SWS	P3-3	SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1, P3-2	H	NONE			N/A	
	SW1357	CAC 2 OUT ISO VLV	SOV	A	2	O/C	O	FO		H	NONE			N/A	
	SW1358	CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	NONE			N/A	
	SW1367	CAC 2 IN ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	SW1368	CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	NONE			N/A	
	SW1383	AFP 2 SUCT VLV FROM SW	MOV	A	2	C	O/C	AS IS		H	NONE			N/A	
	SW1395	TPCW HX IN HEADER ISO VLV	MOV	BG	2	O/C	C	AS IS		H	NONE			N/A	
	SW1429	SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	3CV1429A 3CV1429B		MOD 87-1315 MOD 87-1315	FAILS TO S/D POSITION FAILS TO S/D POSITION	31 31
	SW1434	SW FROM CC HX 2 ISO VLV	SOV	T	2	O/C	O	FO		H	NONE			N/A	
	SW2928	CTRM EVS COND UNIT IN VLV	MOV	HH	2	C	O	AS IS		H	NONE			N/A	
	SW2930	SW TO INT FOREBAY VLV	MOV	BG	2	O/C	O	AS IS	SW2929, 31, 32	H	NONE			N/A	
	SW2932	SW TO COLLECT BASIN VLV	MOV	BG	2	O/C	O	AS IS	SW2929, 30, 31	H	NONE			N/A	
	SW54	TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A	
	SW55	TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A	
	SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A	
ASSCKT	MV0830	DHR CLR 2 OUT KOVER									2PBF1185A	F11D		NOT REQUIRED FOR S/D	21
ASSCKT	MV5068	CTMT H2 PURGE FN 2 IN VLV									2PBF1164A	F11D		NOT REQUIRED FOR S/D	21
ASSCKT	MV5423	ECCS RM 113 CLR 3 OUT VLV									2PBF1163A	F11D		NOT REQUIRED FOR S/D	21
ASSCKT	MV5441	ECCS RM 115 HVAC ISO VLV									2PBF1178A	F11D		NOT REQUIRED FOR S/D	21
ASSCKT	MV5442	ECCS RM 115 HVAC ISO VLV									2PBF1179A	F11D		NOT REQUIRED FOR S/D	21

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA G TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent upstream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA G TABLE 1 NOTES

- 9. NOT USED
- 10. NOT USED
- 11. NOT USED
- 12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:

ICS11A	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

- 13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level setpoint is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Train 1, Complimentary Channels, SFAS could actuate. This actuation could operate the following components.

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531 HP02A, B	CS Iso Vlv HPI 2 Disch Iso Vlv	Open Open	Stop P56-1, -2 Operate from the CR after blocking SFAS
P42-1 P42-2	LPI Pump 1 LPI Pump 2	On On	Trip Bkr AC112 at C1 Stop P42-2 from CR after blocking SFAS
P56-1 P56-2	CS Pump 1 CS Pump 2	On On	Trip Bkr BE111 at E1 Stop P56-2 from CR after blocking SFAS
P58-1 P58-2 CC1407A, B	HPI Pump 1 HPI Pump 2 CCW Out Iso Vlv	On On Closed	Trip Bkr AC111 at C1 Req'd for RCS Inventory Control Open CC1407A, B and Trip Bkr BE1173 at E11B & BF1158 at F11B
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip Bkr BE1176 at E11B & BF1159 at F11B
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03 MU38	RC Lt Dn Cooler Out RCP Seal Rtn Isol	Closed Closed	Open MU03 Open MU38

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA G TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

If AF3871 is manually closed, first trip Breaker BF1201 at F12A.

In this fire area, hot shorts may damage MS107 such that it can not be manually operated (Ref. 2.7.F). Use MS106A, MS 733 and MS 728 to achieve the necessary flow path.

15. NOT USED
16. RCP Inventory Control and RCP Seal Integrity are maintained by reestablishing Seal Return, Seal Injection and RCS Letdown.

RCP Seal Return, Seal Injection and Letdown Flow (after 8-hours)

The following manual valves will need to be operated:

MU97	Open	MU216	Throttle
MU182	Close	WC119	Open
MU208	Open	WC120	Open
MU214	Close		

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA G TABLE 1 NOTES

Additionally, the following valves may need to be manually operated:

CC1410	Open	MU04	Open*
CC2649	Open	MU10A	Open*
MU01B	Open	MU11	Direct flow to CWRT*
MU02B	Open	WC3560	Open

\* Trip Breaker BE2230 at MCC E22A to de-energize E22B which is located in this fire area. All equipment powered via E22B is Train 1 equipment and therefore not required for this fire area.

RCS Inventory Control

HPI Pump 2 will be operated for RCS Inventory Control. To prevent spurious operation, HP31 is de-energized.

The following valve may need to be manually operated:

HP27            Open HP27

17. NOT USED
18. To prevent spurious operation, Valves DH09A, DH9B, DH7A, and DH7B are deenergized.
19. NOT USED
20. NOT USED
21. MCC F11D is located in this fire area. In order to de-energize CC2649, Fused Disconnect Switch BF1146 on MCC F11A will be tripped. The only other Safe Shutdown equipment affected by loss of MCC F11D is Backup Battery Charger (DBC2PN). Safe Shutdown can be achieved in this fire area in spite of the loss of power to these components.
22. The Core Flood Isolation Valves CF01A, B are normally open and are required to be closed when cooling down before going below 700 psig. Breakers BF1120 at F11A and BE1162 at E11B are normally open; manual action may be required to close CF01B before going below 700 psig.
23. NOT USED
24. Essential CCW has been provided to the Makeup, Pump Coolers bypassing CC1460.
25. Valves DH11 and DH12 are depowered. Bypass Valves DH21 and DH23 will therefore be manually operated to place the DHR System in service.
26. The DHR Cooler 1-2 Isolation Valve CC1469 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRS cooldown.

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA G TABLE 1 NOTES

The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467(CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467(CC1469).

27. Loss of Circuit 2CD2P20D would result in loss of power to CDF-12A-1. The only Safe Shutdown component powered via CDF-12A-1 is the AFPT 2 Governor Control Valve (ICS038A). Since ICS038A is normally on the high speed stop and remains on the high speed stop upon loss of power, loss of Circuit 2CD2P20D is of no concern. The AFW Flow Control Valve AF6451 remains available.
28. NOT USED
29. Failure of Circuits 2CBF1195D or F could result in spurious closure of DH63. Procedure DB-OP-02501 will include instructions to close/verify closed DH63 and open Breaker BF1195 on MCC F11E. Due to the torque/limit switches possibly being bypassed by a hot short, the valve operator may be damaged. If this occurs, procedures instruct plant personnel to remove the operator, replace it with a dedicated spare operator and then manually close the valve. Since this valve is only needed to go to cold shutdown, GL 86-10 allows repairs to be made.
30. Failure of Circuits 2CBF1126H, 2CBF1127G, or 2CV4632B(or D) could result in spurious opening of Valves RC239A, RC239B or RC4632. However, Valve RC200 is unaffected by a fire in this area and is in series with each of these valves. Therefore, RC200 would be available as the High/Low Pressure Interface.
31. Circuits 3CV1429A and B area normally energized, allowing SW1429 to be positioned via the temperature controller. SW1429 fails open which is acceptable for Safe Shutdown.
32. A fire in this area may affect the circuits for WC1453, resulting in spurious operation. Fail WC1453 closed by isolating and bleeding off its air supply.
33. The Mixed Bed Purification Demineralizers (T5-1, -2, and -3) and the Purification Demineralizer Filter (F-35) are passive metal components located in an area of low combustible loading.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: HH

TRAIN ACCREDITED FOR SHUTDOWN: 1

4.6.HH.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
603	AC EQUIPMENT ROOM	15,271	Y	MAN
603A	RECORDS & STORAGE AREA	400	N	MAN
603B	VESTIBULE	400	N	MAN

4.6.HH.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA HH

The following components are located in fire area HH.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
CREVS	1	C21-1	FAN	CTRM EVS FAN 1
	2	C21-2	FAN	CTRM EVS FAN 2
	1	E106-1	H/EX	CREVS COOLING COIL
	2	E106-2	H/EX	CREVS COOLING COIL
	1	F22-1	FLT	CREVS FILTER BANK
	2	F22-2	FLT	CREVS FILTER BANK
	1	S33-1	A/C	CTRM EMERG A/C UNIT 1
	2	S33-2	A/C	CTRM EMERG A/C UNIT 2
	1	SV4823A	SOV	CREVS CONDENSER UNIT 1 (S33-1) IN VLV
	2	SV4827A	SOV	CREVS CONDENSER UNIT 2 (S33-2) IN VLV
ESSPWR	1	C6708	PNL	CTRM EMERGENCY HVAC CONTROL PANEL
	2	C6709	PNL	CTRM EMERGENCY HVAC CONTROL PANEL
	1	C6714	PNL	CTRM EMERGENCY HVAC CONTROL PANEL
	2	C6715	PNL	CTRM EMERGENCY HVAC CONTROL PANEL
SWS	1	SW2927	MOV	CTRM EVS COND UNIT IN VLV
	2	SW2928	MOV	CTRM EVS COND UNIT IN VLV



## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA HH

#### 4.6.HH.3 Fire Propagation Control

Fire Area HH is located at the 643' elevation of the Auxiliary Building as shown on Drawing A-226F.

A fire that originates in this fire area will be contained in the fire area. The fire area is enclosed by 3-hour fire-rated floors and walls (except as noted below).

The Pressure Doors 601 and 602 are not UL listed fire doors. Based on the low combustible loading and construction of the doors, a fire will not propagate from one area to the other.

The walls between Room 603B and the stairwell and elevator (Fire Area UU) are 2-hour fire-rated barriers. Based on the low combustible loading, a fire will not propagate from one area to the other.

#### 4.6.HH.4 Fire Detection and Suppression

Fire Detection is provided in the AC Equipment Room, 603 (Fire Detection Zone FDZ-603).

Manual fire suppression equipment is provided for this fire area. Fire extinguishers and Hose Stations (HS) are shown on Drawing A-226F.

In the event of a fire, isolation and smoke venting will be accomplished in accordance with the Pre-Fire Plans.

#### 4.6.HH.5 Fire Area Safe Shutdown Summary

Train 1 will be used for Safe Shutdown in Fire Area HH. Safe Shutdown will be accomplished using the Makeup and Purification System (MUPS) for Reactor Coolant System Inventory Control, a Letdown path and Seal Injection for RCP Seal Cooling.

An exemption from 10CFR50, Appendix R, Section III.G.3 regarding the lack of area-wide fixed fire suppression and detection in an area where Alternate Shutdown capability is provided (evacuating the Control Room) has been approved by the NRC (Ref.2.5.V).

SAFE SHUTDOWN ANALYSIS

FIRE AREA : HH

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3869)	OP-02501 (CLOSE AF3869)	14
	AF3870	AFWP 1 DISCH TO SG1	MOV	E	1	O	O	AS IS		H	NONE			N/A	
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE			OP-02501 (TRIP P14-2)	14
	AF608	AFW TO SG1 ISO VLV	MOV	AB	1	O	O	AS IS		H	NONE			N/A	
	AF6452	AFWP 1 FLOW CTRL VLV	SOV	E	1	O	O/C	FO		H	NONE		OP-02501 (FAIL OPEN AF6452)	OP-02501 (FAIL OPEN AF6452)	20
	FW6459	MDFP FLOW CTRL VALVE	SOV	II	1	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	ICS038B	AFPT 1 GOV CTRL VLV	MOV	E	1	O	O/C	AS IS		H	NONE		OP-02501 (OPER ICS038B AT ASP)	OP-02501 (OPER ICS038B AT ASP)	19,20
	MS106	AFPT 1 MS IN ISO VLV	MOV	EE	1	C	O	AS IS		H	NONE			N/A	
	MS106A	AFPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	NONE			N/A	
	MS107A	AFPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-2)	14
	MS5889A	AFPT 1 STEAM ADMISS VLV	SOV	E	1	C	O	FO		H	NONE			N/A	
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H	NONE			N/A	
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-2)	OP-02501 (TRIP P14-2)	14
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	P242-1	MDFP AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	P242-2	MDFP SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
CACs	C1-1	CAC FAN 1	FAN	D	1	O/F	ON	OFF		H	NONE		OP-02501 (CONTROL LOCALLY)	OP-02501 (CONTROL LOCALLY)	21
	C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	NONE			NOT REQUIRED FOR S/D	7
CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	SPAS INITIATED	13
	CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407B)	SPAS INITIATED	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1409)	OP-02501 (OPEN CC1409)	16
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE			N/A	
	CC1411A	CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411A)	SPAS INITIATED	13
	CC1411B	CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	SPAS INITIATED	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	N/A	24
	CC1467	DHR CLR 1 OUT ISO VLV	SOV	AB	1	C	O	FO		C	NONE		OP-02501 (OPERATE CC1467)	OP-02501 (OPERATE CC1467)	10
	CC1471	DG JKT CW HX 1 OUT VLV	MAN	K	1	O	O	AS IS		H	NONE			N/A	
	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B H	NONE			OP-02501 (OPERATE CC43)	10,12
	CC2645	CC RETURN HDR 1 VLV	MOV	G	1	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	NONE			N/A	
	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	
CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501(OPERATE CC43)	OP-02501(OPERATE CC43)	10,12	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



SAFE SHUTDOWN ANALYSIS

FIRE AREA : HH

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
CSS	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	NONE			OP-02501 (TRIP P56-2)	13	
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	NONE		OP-02501 (TRIP P56-1)	OP-02501 (TRIP P56-1)	13	
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE		OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2)	13	
DHRS	DH01B	LPI LINE 1 VLV	MOV	AB	1	O	O	AS IS		C	NONE		OP-02501 (OPEN DH01B)	OP-02501 (OPEN DH01B)	21	
	DH07B	BWST ISO VLV B	MOV	AC	1	O	O	AS IS		H	NONE			VALVE DE-ENERGIZED	18	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE	MOD 89-0089		VALVE DE-ENERGIZED	18	
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	NONE	MOD 89-0089		VALVE DE-ENERGIZED	18	
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21, 23)	VALVE DE-ENERGIZED	15	
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21, 23)	VALVE DE-ENERGIZED	15	
	DH13B	DH CLR 1 BYPASS VLV	SOV	AB	1	C	C	FC		C	NONE			N/A		
	DH14B	DH CLR 1 OUT VLV	SOV	AB	1	O	O	FO		C	NONE			N/A		
	DH1517	DH NORM SUCT LINE 1 VLV	MOV	A	1	C	O/C	AS IS		C	NONE			N/A		
	DH2733	DH PUMP 1 BWST SUCT VLV	MOV	AB	1	O	O/C	AS IS		C	NONE			N/A		
	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A		
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A		
	DH64	LPI/HPI CROSS-TIE VLV	MOV	AB	1	C	C	AS IS		C	NONE			N/A		
	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-1)	SPAS INITIATED	13,21	
	P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	SPAS INITIATED	13	
	EDG	DA1147A/B	EDG 1 AIR START VLV	SOV	K	1	C	O	FC		H	NONE			N/A	
		DA2987	AIR START RCVR 1-1-1 DISCH VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
DA2988		AIR START RCVR 1-1-2 DISCH VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A		
DA60		AIR START RCVR 1-1-1 RELAY VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A		
DA61		AIR START RCVR 1-1-2 RELAY VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A		
K5-1		EMERG DIESEL GENERATOR 1	EDG	K	1	O/F	ON	OFF		H	NONE		OP-02501 (OPERATE EDG1 LOCALLY)	OP-02501 (OPERATE EDG1 LOCALLY)	21	
P148-1A		EDG JACKET WATER PUMP (RIGHT)	PUMP	K	1	O/F	O	OFF		H	NONE			N/A		
P148-1B		EDG JACKET WATER PUMP (LEFT)	PUMP	K	1	O/F	O	OFF		H	NONE			N/A		
P195-1		EDG FUEL OIL TRANSFER PUMP 1	PUMP	BN	1	OFF	ON	OFF		C	NONE			N/A		
P201-1		EDG 1-1 M/D FUEL OIL PUMP	PUMP	K	1	O/F	ON	OFF	P205-1	H	NONE			N/A		
P205-1		EDG 1-1 E/D FUEL OIL PUMP	PUMP	K	2	O/F	ON	OFF	P201-1	H	NONE			N/A		
P8-1	DO XFER PUMP 1	PUMP	BM	1	O/F	O	OFF	P195-1	H	NONE			N/A			
S206-01	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A			

LEGEND

H - required for hot standby

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H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : HH

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
EDG	S206-02	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-03	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-04	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
BSSPWR	1N	125VDC STATION BATTERY	BATT	Y	1	ON	ON	OFF		H	NONE			N/A	
	1P	125VDC STATION BATTERY	BATT	Y	1	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	NONE			N/A	
	C1	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF		H	NONE			N/A	
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1,-2,-3	H	NONE			N/A	7
	C3615	EDG1-1 ELECT CONTROL & RELAY PANEL	PNL	K	1	ON	ON	OFF		H	NONE			N/A	
	C3628	CONT POWER BSS METER HPI FLOW X	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C3645	CONT POWER TO AUX FW CONTROL PNL	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	C4808	NEUTRON FLUX MON. CABINET (CH.1)	PNL	DG	1	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5755C	SPAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755D	SPAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5756D	SPAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5759C	INST POWER NNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	C5762A	CONTROL POWER TO SFRCS CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	14
	C5762C	SPAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	13
	C5762D	SPAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5762E	CONTROL ROOM REACT PROT. SYS PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5763A	POST ACCIDENT MON. SYS PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5763D	SPAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5792A	CH 2 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			LOSS OF CH 2/4 INITIATES AFW	14
	C5799	POST ACCIDENT MON. IND. PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C6708	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	1	ON	ON	OFF		H	1CY104A 1CY104B			CONTROL ROOM EVACUATION CONTROL ROOM EVACUATION	11 11

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : HH

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	C6714	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	1	ON	ON	OFF		H	1CY104A 1CY104B 1LV4906B			CONTROL ROOM EVACUATION CONTROL ROOM EVACUATION CONTROL ROOM EVACUATION	11 11 11
	CDE-11B-1	CONTROL POWER (LOADS NON-SSD)	PNL	V	1	ON	OFF	ON		H	NONE			N/A	
	CDE-11B-2	CONT POWER TO DH12 INTLK	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	CDE-12A-1	D1P CONT POWER TO AFWP GOV (ICS038A)	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1N	125VDC DIST PNL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1NA	125VDC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1P	125VDC DIST PNL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1PA	125VDC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DAN	125VDC DIST PANEL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DAP	125VDC DIST PANEL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DBC1N	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC1P	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC1PN	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF	DBC1P, DBC1N	H	NONE			N/A	
	DC MCC 1	250/125V DC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	E1	480 VAC MCC E1	SWGR	Y	1	ON	ON	OFF		H	NONE			N/A	
	E11A	480VAC MCC	MCC	G	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E11B	480VAC MCC	MCC	V	1	ON	ON	OFF		H	NONE			N/A	
	E11C	480VAC MCC	MCC	V	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E11D	480VAC MCC	MCC	G	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E11E	480VAC MCC	MCC	DG	1	ON	ON	OFF		H	NONE			N/A	
	E12A	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E12B	480VAC MCC	MCC	K	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E12C	480VAC MCC	MCC	BE	1	ON	ON	OFF		H	NONE			N/A	
	E12D	480V AC MCC	MCC	BE	1	ON	ON	OFF		H	NONE			N/A	
	E12E	480VAC MCC	MCC	B	1	ON	ON	OFF		H	NONE			N/A	
	E12F	480VAC MCC	MCC	K	1	ON	ON	OFF		H	NONE			N/A	
	E14	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E15	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E16A	480V AC MCC	MCC	EE	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E16B	480VAC MCC	MCC	DG	1	ON	ON	OFF		H	NONE			N/A	
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : HH

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	NONE			N/A	
	RC3601	DC CONT POWER RCP MONITOR	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	RC3607	CONTROL POWER (TO CCCW001)	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	RC3701	DC CONTROL POWER TO CAC 1 OUT VLV	PNL	A	1	ON	ON	OFF		H	NONE			N/A	
	RC3706	CONTROL POWER (LOADS NON-SSD)	PNL	V	1	ON	OFF	ON		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	NONE			N/A	
	RC3716										NONE			N/A	
	RC4801	DC CONT PWR TO RC4801 (MU6405, MU6407)	PNL	DG	1	ON	ON	OFF		H	NONE			N/A	
	RC4802	CONT PWR (TO MUTK, SG DRN RLY)	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	NONE			NOT REQUIRED FOR S/D	7
	XY1	CONSTANT VOLT TRANSFORMER (CVT CH 1)	XFMR	Y	1	ON	ON	OFF		H	NONE			N/A	
	XY3	CONSTANT VOLT TRANSFORMER (CVT CH 3)	XFMR	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y1	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y1A	120 VAC ESS INSTR DISTR PANEL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y3	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	YAU	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	YE1	120VAC MCC	PNL	K	1	ON	ON	OFF		H	NONE			N/A	
	YE2	240/120VAC MCC	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	YV1	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	YV3	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	YVA	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	ZC6452	AFP #1 CTRL VLV POSITION CONTROLLER	PNL	E	1	ON	ON	OFF		H	NONE			N/A	
ZC6459	MDFP CONTROL VLV POSITION CONTROLLER	PNL	II	1	ON	ON	OFF		H	NONE			N/A		
HPIS	HP02C	HPI 1 DISCH ISO VLV	MOV	AB	1	C	O	AS IS	HP02D	H	NONE			NOT REQUIRED FOR S/D	7
	HP02D	HPI 1 DISCH ISO VLV	MOV	AB	1	C	O	AS IS	HP02C	H	NONE			NOT REQUIRED FOR S/D	7
	HP32	HPI PMP 1 RECIRC VLV	MOV	AB	1	O	O	AS IS		H	NONE			NOT REQUIRED FOR S/D	7
	P197-1	HPI PMP 1 AC LO PUMP	PUMP	AB	1	OFF	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	P197-2	HPI PMP 1 DC LO PMP	PUMP	AB	1	OFF	ON	OFF	P197-1	H	NONE			NOT REQUIRED FOR S/D	7
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	SFAS INITIATED	13
P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-2)	SFAS INITIATED	13	
HVAC	C100	TRAV SCR AREA EXH FAN (B/U SW PUMP)	FAN	BD	1	O/F	O/F	OFF		H	NONE			NOT REQUIRED FOR S/D	7

LEGEND

H - required for hot standby

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : HH

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
HVAC	C25-1	EDG RM 1 VENT FAN 1	FAN	K	1	O/F	ON	OFF		H	NONE			N/A	
	C25-2	EDG RM 1 VENT FAN 2	FAN	K	1	O/F	ON	OFF		H	NONE			N/A	
	C71-1	LV SWGR RM VENT FAN 1	FAN	Y	1	O/F	ON	OFF		H	NONE			N/A	
	C73-1	AFP RM VENT FAN 1	FAN	E	1	O/F	ON	OFF		H	NONE			N/A	
	C78-1	BATT RM VENT FAN 1	FAN	Y	1	O/F	ON	OFF		H	NONE			N/A	
	C99-1	SW PMP RM EXH FAN 1	FAN	BF	1	O/F	ON	OFF		H	NONE			N/A	
	C99-2	SW PMP RM EXH FAN 2	FAN	BF	1	O/F	ON	OFF		H	NONE			N/A	
	HV0531A	AIR IN LVR FOR B/U SW PUMP	DMPR	BD	1	O/C	O/C	OPEN		H	NONE			N/A	
	HV0532A	AIR IN LVR FOR B/U SW PUMP	DMPR	BD	1	O/C	O/C	OPEN		H	NONE			N/A	
	HV5305	LV SWGR RM FAN 1 DAMPER	DMPR	Y	1	O/C	O	AS IS		H	NONE			N/A	
	HV5305A	LV SWGR RM 429 DAMPER	DMPR	Y	1	O/C	O	AS IS	HV5305B	H	NONE			N/A	
	HV5305B	LV SWGR RM 429 DAMPER	DMPR	Y	1	O/C	O	AS IS	HV5305A	H	NONE			N/A	
	HV5329A	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FC		H	NONE			N/A	
	HV5329B	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FO		H	NONE			N/A	
	HV5329C	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FC		H	NONE			N/A	
	HV5597	BATT RM 429B ATM DMPR	DMPR	Y	1	O/C	O	AS IS		H	NONE			N/A	
MSS	ICS11B	MSL 1 ATM VENT VLV	SOV	DH	1	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11B)	LOSS OF AIR	12
	MS100	MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	1CFV00BG			SO NOT POSSIBLE	5C
	MS100-1	MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A	
	MS101	MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A	
	MS101-1	MSIV 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	NONE			N/A	
	PSV-SP17B1	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B2	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B3	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B4	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B5	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B6	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP1556)	OP-02501 (OPEN HP1556)	16

LEGEND

H - required for hot standby

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N/A - not affected



SAFE SHUTDOWN ANALYSIS

FIRE AREA : HH

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	HP26	HPI TO RCP SEALS	MAN	AB	1	C	O	AS IS		H	NONE			NOT REQUIRED FOR S/D	7
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP29)	OP-02501 (OPEN HP29)	16
	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE		OP-02501 (OPEN MU01A)	OP-02501 (OPEN MU01A)	16
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE			N/A	
	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	NONE		OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03)	13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	NONE			N/A	
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	NONE		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	16
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	NONE		OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT)	16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	NONE			OP-02501 (OPERATE MU214 & MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU206	Recirc to Seal Return Stop Valve	MAN	AB	1	O	O/C	AS IS		H	NONE		OP-02501 (CLOSE MU206)	OP-02501 (CLOSE MU206)	16
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (COSE MU214)	OP-02501 (CLOSE MU214)	16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B	NONE		OP-02501 (OPEN MU38)	OP-02501 (OPEN MU38)	13
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59A)	OP-02501 (OPEN MU59A)	13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59B)	OP-02501 (OPEN MU59B)	13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C)	13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59D)	OP-02501 (OPEN MU59D)	13
	MU6405	RC MU PUMP SUCT VLV	MOV	AB	1	C	O/C	AS IS	HPIS TRAIN 1	H	NONE		OP-02501 (ALIGN MU6405 TO BWST)	OP-02501 (ALIGN MU6405 TO BWST)	21
	MU6407	MU RECIRC ISO VLV	AOV	AB	1	O	O/C	FO	HPIS TRAIN 1	H	NONE			N/A	
	MU6409	MU CROSS CONNECT ISO VLV	MOV	AB	1	O	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6419	MU DISCH VLV	MOV	AB	1	C	O	AS IS	HPIS TRAIN 1	H	NONE		OP-02501 (OPEN MU6419)	OP-02501 (OPEN MU6419)	21
	MU6421	MU CTMT ISO VLV	MOV	AB	1	C	O	AS IS	HPIS TRAIN 1	H	NONE		OP-02501 (OPEN MU6421)	OP-02501 (OPEN MU6421)	21
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A)	13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B)	13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C)	13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D)	13

LEGEND

H - required for hot standby

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H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : HH

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-371B	MUP 1 MAIN LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE		OP-02501 (OPERATE LOCALLY)	OP-02501 (OPERATE LOCALLY)	21
	P-371C	MUP 1 AUX LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS,P-371B	H	NONE			NOT REQUIRED FOR S/D	7
	P-371D	MUP 1 AUX GEAR LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE		OP-02501(OPERATE P-371D LOCALLY)	OP-02501(OPERATE P-371D LOCALLY)	21
	P37-1	MU PUMP 1	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE		OP-02501 (OPERATE P37-1 LOCALLY)	OP-02501 (OPERATE P37-1 LOCALLY)	21
	P371A	MU PMP 1 MAIN GEAR LO PMP	PUMP	AB	1	O/F	O	OFF	P371D	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1743)	OP-02501 (OPEN WC1743)	12,16
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1747)	OP-02501 (OPEN WC1747)	12,16
	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	NONE			N/A	
NI	NI-5874A	SOURCE RANGE IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	NI-5874C	LOCAL SOURCE RANGE IND	IND	DG	1	ON	ON	OFF	NI-5874A	H	NONE		OP-02501 (MONITOR LOCALLY)	OP-02501 (MONITOR LOCALLY)	21
	NI-NI2	SOURCE RANGE IND	IND	FF	1	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
NNI	FI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI6425	RC MU FLOW-HI RANGE	IND	FF	1	ON	ON	OFF		H	NONE			OP-02501 (MON LI-RC14-1 AT ASP)	19
	FI6435	RC MU FLOW-LOW RANGE	IND	FF	1	ON	ON	OFF		H	NONE			OP-02501 (MON LI-RC14-1 AT ASP)	19
	FYI-HP03C	HPI FLOW INDICATION	IND	FF	1	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	FYI-HP03C1	HPI FLOW IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03D	HPI FLOW INDICATION	IND	FF	1	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	FYI-HP03D1	HPI FLOW IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	LI-RC14-1	PRZR LEVEL IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE		OP-02501(MON LI-RC14-1 AT ASP)	OP-02501 (MON LI-RC14-1 AT ASP)	19
	LI-RC14-3	PRZR LEVEL IND	IND	FF	1	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	LI-SP09B1	SG1-1 START-UP LEVEL IND	IND	FF	1	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	LI-SP09B3	SG1-1 START-UP LEVEL IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE		OP-02501 (MON LI-SP09B3 AT ASP)	OP-02501 (MON LI-SP09B3 AT ASP)	19
	LI-SP09B8	SG1-1 START-UP LEVEL IND (C5761A)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			NOT REQUIRED FOR S/D	7
	LI-SP09B8A	SG1-1 START-UP LEVEL IND (C5708)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			NOT REQUIRED FOR S/D	7
	LI-SP09B9	SG1-1 START-UP LEVEL IND (C5761A)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			NOT REQUIRED FOR S/D	7
	PI-6365B	RCS LOOP 1 EXTENDED RANGE PRESS	IND	FF	1	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : HH

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
NNI	PI-6365B1	RCS LOOP 1 EXTENDED RANGE PRESS (ASP)	IND	R	1	ON	ON	OFF		H	NONE		OP-02501 (MON PI-6365B1 AT ASP)	OP-02501 (MON PI-6365B1 AT ASP)	19
	PI-RC2B3	RCS LOOP 1 PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	PI-RC2B4	RCS LOOP 1 PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	PI-SP12B	SG1-1 OUTLET PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	PI-SP12B1	SG1-1 OUTLET PRESS IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE		OP-02501 (MON PI-SP12B1 AT ASP)	OP-02501 (MON PI-SP12B1 AT ASP)	19
	PI-SP12B2	SG1-1 OUTLET PRESS IND	IND	FF	1	ON	ON	OFF	PI-SP12B-1	H	NONE			NOT REQUIRED FOR S/D	7
	TE-RC3A6	RCS LOOP 2 HOT LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			OP-02519 (MONITOR IN ROOM 314)	26
	TE-RC3B5	RCS LOOP 1 HOT LEG TEMP (RM 303)	TE	D	1	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	TE-RC4A2	RCS LOOP 2 COLD LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			OP-02519 (MONITOR IN ROOM 314)	26
	TE-RC4B3	RCS LOOP 1 COLD LEG TEMP (RM 303)	TE	D	1	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	TI-RC3B2	RCS LOOP 1 HOT LEG TEMP (ASP)	IND	R	1	ON	ON	OFF		H	NONE		OP-02501 (MONITOR AT ASP)	OP-02501 (MONITOR AT ASP)	19
	TI-RC3B5	RCS LOOP 1 HOT LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			OP-02501 (MONITOR AT ASP)	19
	TI-RC3B6	RCS LOOP 1 HOT LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	TI-RC4B2	RCS LOOP 1 COLD LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
TI-RC4B4	RCS LOOP 1 COLD LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7	
RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A	
	RC13B	RCS CODE SAFETY VALVE	SV	D	1	C	C	CLOSED		H	NONE			N/A	
	RC147	PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
	RC200	PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A	
	RC239A	PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A	
	RC239B	PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A	
	RC2A	PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			N/A	
	RC4608A	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	NONE			N/A	
	RC4608B	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A	
	RC4610A	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A	
RC4610B	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A		
RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	NONE			N/A		
SPAS	C5755D	SPAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5762D	SPAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5763D	SPAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5765D	SPAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : HH

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
SFAS	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	SFRCs	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
		HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
HIS101B		LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14	
HIS101C		LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : HH

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	HIS3869B	BLOCK CIRCUIT AF3869 (AFP-1 TO SG-2)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS3870B	BLOCK CIRCUIT AF3870 (AFP-1 TO SG-1)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS611B	BLOCK CIRCUIT MS611 (SG-1 DRAIN STOP)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS6401	CH 1/3 MANUAL START AFPT-1 C5707	HIS	FF	1	OFF	ON	OFF		H	NONE			N/A	14
	HIS6403	CH 1/3 MAN STRT AFPT-1 & ISOL SG-1 C57	HIS	FF	1	OFF	ON	OFF		H	NONE			N/A	14
	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : HH

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	13
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	13
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	13
	RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	13
SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	P3-1	SW PUMP 1	PUMP	BF	1	O/F	ON	OFF		H	NONE		OP-02501 (OPERATE P3-1 LOCALLY)	OP-02501 (OPERATE P3-1 LOCALLY)	21
	P3-3	SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1, P3-2	H	NONE		OP-02501 (OPERATE P3-3 LOCALLY)	OP-02501 (OPERATE P3-3 LOCALLY)	21
	SW1356	CAC 1 OUT ISO VLV	SOV	A	1	O/C	O	FO		H	NONE			N/A	
	SW1358	CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	NONE			N/A	
	SW1366	CAC 1 IN ISO VLV	MOV	A	1	O	O	AS IS		H	NONE			N/A	
	SW1368	CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	NONE			N/A	
	SW1382	APP 1 SUCT VLV FROM SW	MOV	E	1	C	O/C	AS IS		C	NONE		OP-02501 (OPEN SW1382)	OP-02501 (OPEN SW1382)	21
	SW1399	TPCW HX IN HEADER ISO VLV	MOV	BG	1	O/C	C	AS IS		H	NONE		OP-02501 (OPERATE LOCALLY)	OP-02501 (OPERATE LOCALLY)	21
	SW1424	SW FROM CC HX 1 ISO VLV	SOV	T	1	O/C	O	FO		H	NONE		OP-02501 (OPERATE LOCALLY)	OP-02501 (OPERATE LOCALLY)	21
	SW1429	SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	NONE		OP-02501 (OPERATE LOCALLY)	OP-02501 (OPERATE LOCALLY)	21
	SW2927	CTRM EVS COND UNIT IN VLV	MOV	HH	1	C	O	AS IS		H	1CBE1232B 1CBE1232C 1CBE1232D 1CBE1232X 1PBE1232A C6708 EV2927 MV2927 NV2927	TIS4921/FS4921		CONTROL ROOM EVACUATION CONTROL ROOM EVACUATION CONTROL ROOM EVACUATION CONTROL ROOM EVACUATION CONTROL ROOM EVACUATION CONTROL ROOM EVACUATION CONTROL ROOM EVACUATION CONTROL ROOM EVACUATION CONTROL ROOM EVACUATION CONTROL ROOM EVACUATION	11 11 11 11 11 11 11 11 11 11
	SW2929	SW TO INT STRU VLV	MOV	BG	1	O/C	O	AS IS	SW2930, 31, 32	H	NONE			N/A	
	SW2931	SW TO CLG TOWER MU VLV	MOV	BG	1	O/C	O	AS IS	SW2929, 30, 32	H	NONE			N/A	
	SW54	TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A	
	SW55	TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A	
	SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A	
ASSCKT	MV4906	CTRM STANDBY COND 1 DMPR									1PBE1148A	E11E		ASSCKT- MOV	6*

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA HH TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent up-stream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED

FIRE AREA HH TABLE 1 NOTES

9. NOT USED

10. The DHR Cooler 1-1 Isolation Valve CC1467 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRS Cooldown.

The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467 (CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467 (CC1469).

11. The Control Room Emergency Ventilation System (CREVS) components C21-1, F22-1, S33-1, E106-1, SV4823A and SW2927 are required for controlled ventilation on Loss of Offsite Power, to maintain Control Room habitability. A fire-induced failure of the above components or their associated cables would result in loss of Control Room Cooling.

For a fire in this area, it is not possible to protect the components or circuits for Train 1 due to the close proximity of both Trains of the CREVS A/C units and fans.

In the event that CREVS is not available for Control Room cooling and it is impractical to remain in the Control Room, the operators can evacuate the Control Room and perform Safe Shutdown from the Auxiliary Shutdown Panel.

An exemption from Section III.G.3 of Appendix R to the extent it requires area-wide fixed fire suppression and detection in an area where Alternate Shutdown capability is provided (evacuation of the Control Room) has been approved by the NRC (Ref. 2.5.V).

12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:

ICS11B	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level setpoint is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components:



Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA HH TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531 P42-1	CS Iso Vlv LPI Pump 1	Open On	Stop P56-1, -2 Stop P42-1 from the CR after blocking SFAS
P42-2 P56-1	LPI Pump 2 CS Pump 1	On On	Trip Bkr AD112 at D1 Stop P56-1 from the CR after blocking SFAS
P56-2 P58-1	CS Pump 2 HPI Pump 1	On On	Trip Bkr BF111 at F1 Stop P58-1 from the CR after blocking SFAS
P58-2 CC1407A, B	HPI Pump 2 CCW Out Iso Vlv	On Closed	Trip Bkr AD111 at D1 Open CC1407A, B and Trip Bkr BE1173 at E11B & BF1158 at F11B
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip Bkr BE1176 at E11B & BF1159 at F11B
MU02A	RC Lt Dn Cooler Out Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03	RC Lt Dn Cooler Out	Closed	Open MU03
MU38	RCP Seal Rtn Isol	Closed	Open MU38
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

FIRE AREA HH TABLE 1 NOTES

If AF3869 is manually closed, first trip Breaker BE1146 at E11E.

15. Decay Heat Inlet Isolation Valves DH11 & 12 are normally closed and de-powered during plant operations. Due to loss of Train 2 power, open Inlet Isolation Valve Bypass Valve DH21 & 23.
16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or by performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injections and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.

Inventory Control will be maintained using Makeup Train 1. After transferring the Makeup Suction to the BWST, MU206 will be manually closed after opening MU208, HP29, and HP1556 to route MUPS Recirc to the BWST rather than the Makeup Tank and Clean Waste Receiver Tank to conserve BWST Inventory.

RCP Seal Flow will be used to restage the seals draining to the Clean Waste Receiver Tanks.

The following valves may need to be operated:

CC1409	Open	MU97	Closed
MU01A	Open	MU182	Closed
MU02B	Open	WC119	Open
MU10A	Open	WC120	Open
MU11	Direct Flow to CWRT	WC1743	Open
MU214	Close	WC1747	Open
MU216	Throttle		

In addition, RCP Seal Cooling may be accomplished by CCW to the Seals.

17. Core Flood Tank Isolation Valve CF01A is normally open and is required to be closed when cooling down before going below 600 psig. Due to loss of Train 2 power, trip Breaker BF1120 at F11A and close CF01A manually before going below 600 psig.
18. To prevent spurious operation, Valves DH09A, DH9B, DH7A, and DH7B are deenergized.
19. Due to Control Room evacuation, perform function at Auxiliary Shutdown Panel.
20. Due to Control Room evacuation, manual operation of AFW Flow Control Valve AF6452 is not possible. Use AFPT-1 Governor Valve ICS038B to control AFW Flow. Fail open AF6452 by opening Breaker D1P13 at 125V DC Distribution Panel D1P.
21. Due to Control Room evacuation local control of this equipment may be required. This equipment can be disconnected from the Control Room.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA HH TABLE 1 NOTES

22. NOT USED
23. NOT USED
24. Essential CCW has been provided to the Makeup Pump Cooler, bypassing CC1460.
25. In the event the Control Room is evacuated due to loss of ventilation, instrumentation at the ASP is available. Pressurizer Level, SG 1-1 Startup Level, SG 1-1 Pressure Indication, RCS Loop 1 Pressure, and SG 2 Startup Level and SG 2 Pressure Indication will be monitored at the Auxiliary Shutdown Panel (ASP). The SG 1 Level and Pressure indicators on the ASP are used to read the SG 2 Level and Pressure by transferring the two-position selector switch on the ASP from SG 1 to SG 2. The cable/connector for the SG 2 pressure signal is manually connected to the selector switch only during unit shutdown (for testing) or during a fire event to ensure that channel separation is maintained. This type of repair is similar to the repair for Hot and Cold Leg Temperature instrumentation documented in the NRC SER (Ref. 2.5.R).
26. In the event the Control Room is evacuated due to loss of ventilation, instrumentation at the ASP is available. RCS Loop 1 Hot and Cold Leg Temperatures and RCS Loop 2 Hot and Cold Leg Temperatures will be monitored locally using a portable instrument. Acceptability of this repair is documented in the NRC SER (Ref. 2.5.R).

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: II

TRAIN ACCREDITED FOR SHUTDOWN: 2

4.6.II.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM NO.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT <sup>2</sup> )	DETECTION Y/N	SUPPRESSION MAN/AUTO
245	COLLING WATER TANK RM	0	N	MAN
246	CONDENSER PIT	3,961	N	AUTO
247	HEATER DRAINS VALVE ROOM	18,833	N	AUTO
248	COND DMIN HOLD UP TNK RM	1,865	N	MAN
249	LUBE OIL STORAGE TNK RM	4,288,450	N	AUTO
249DC	TUR BLDG DUCT CHASE	0	N	MAN
252	FEED WATER PUMP ROOM	145,447	N	AUTO
253	CONDENSATE PUMP PIT	17,932	N	AUTO
254	STORAGE AREA	40,000	N	AUTO
326	HEATER BAY AREA	14,126	N	AUTO
331	AUXILIARY BOILER ROOM	1,902	N	AUTO
333	SEAL OIL ROOM	289,881	Y	AUTO
334	TURBINE PEDESTAL AREA	14,524	N	AUTO
334A	DEMIN BACK WASH TNK AREA	2,696	N	AUTO
334B	PLANT CHEM LAB	36,000	N	MAN
335	WELDING AREA	26,154	N	AUTO
336	MAIN WORKSHOP	43,564	N	AUTO
336A	TOOL CRIB	24,000	N	AUTO
336B	SUPPLY STORAGE	24,000	N	AUTO
336C	MAINT FOREMAN OFFICE	24,000	N	MAN
337	OIL DRUM STORAGE RM	1,365,735	N	AUTO
338	TOILET	1,600	N	MAN
339	MAINTENANCE OFFICE	24,000	N	MAN
340	STOREKEEPER ROOM	24,000	N	AUTO
340A	ELEC FOREMAN OFFICE	40,000	N	AUTO
341	MAIN TOOLROOM	41,756	N	AUTO
345	COND STORAGE TANK ROOM	14,427	N	MAN
346	JANITOR'S CLOSET	24,800	N	AUTO
347	LUBE OIL FILTER ROOM	376,085	N	AUTO
348	CIRC WATER PUMP HOUSE	5,746	N	MAN
430	HEATER BAY AREA	117,080	N	AUTO
431	TURBINE AREA	18,906	N	AUTO
431A	COND DEMIN AREA	400	N	AUTO
432	TURBINE LUBE OIL TNK RM	1,670,648	N	AUTO
508	CONTROL RM VESTIBULE	400	N	MAN
514	HEATER BAY AREA	11,325	N	AUTO
516	NON RAD SUP ...EQP RM	25,321	Y	MAN

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ROOM NO.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
517	TURBINE OPERATING FLOOR	3,454	N	AUTO
517A	BATTERY RACK ROOM	35,809	N	MAN
517B	BATTERY CHARGER ROOM	1,433	N	MAN
518A	FIRE BRIGRADE LOCKER ROOM	24,000	N	AUTO
518B	OFFICE AREA	24,000	N	AUTO
604	HEATER BAY AREA	400	N	AUTO
707	HEATER BAY AREA	400	N	AUTO

4.6.II.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA II

The following components are located in fire area II.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
AFWS	1/2	E183	CLR	MDFP SEAL WTR COOLERS
	1/2	E184-1	CLR	MDFP SEAL WTR COOLERS
	1/2	E184-2	CLR	MDFP SEAL WTR COOLERS
	1	FW6397	MAN	MDFP Flow Iso Valve
	1	FW6459	SOV	MDFP FLOW CTRL VALVE
	2	FW6460	SOV	MDFP FLOW CTRL VLV
	1/2	P241	PUMP	MTR DRIVEN FEED PUMP
	1/2	P242-1	PUMP	MDFP AUX LUBE OIL PUMP
	1/2	P242-2	PUMP	MDFP SHAFT DRVN LO PUMP
	1/2	T31-1	TANK	COND STO TANK 1-1
ESSPWR	1/2	T31-2	TANK	COND STO TANK 1-2
	1/2	F7	MCC	480V AC MCC F7
	1/2	F71	MCC	480V AC MCC
	2	Y3602	PNL	CONTROL POWER (MU19 & MU32)
SFRCS	1	ZC6459	PNL	MDFP CONTROL VLV POSITION CONTROLLER
	1/2	PDS2685A	PDS	CH 2 MN FW < SG2 PRESSURE SWITCH
	1/2	PDS2685B	PDS	CH 4 MN FW < SG2 PRESSURE SWITCH
	1/2	PDS2685C	PDS	CH 1 MN FW < SG2 PRESSURE SWITCH
SWS	1/2	PDS2685D	PDS	CH 3 MN FW < SG2 PRESSURE SWITCH
	1	SW54	MAN	TPCW HX1 OUTLET
	2	SW55	MAN	TPCW HX2 OUTLET
	1/2	SW56	MAN	TPCW HX3 OUTLET

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA II

#### 4.6.II.3 Fire Propagation Control

Fire Area II consists primarily of the Turbine Building, Heater Bay, Circ Water Pumphouse and Condensate Storage Tank area, as shown on Drawings A-222F through A-223F.

A fire that originates in this fire area will be contained in this fire area.

This fire area is separated from other Safe Shutdown fire areas by 3-hour fire barrier except as noted below, and nonsafety shutdown areas by a minimum of 2-hour fire-rated barriers.

Fire Area II contains several rooms which are separated from the rest of the area by 3-hour fire-rated barriers due to their potential fire hazard and are listed below.

1. Lube Oil Storage Tank Room and Lube Oil Filter Room 347, provided with automatic wet-pipe sprinklers.
2. Hydrogen Seal Oil Room 333, provided with a deluge sprinkler system.
3. Oil Drum Storage Room 337, provided with wet-pipe sprinkler system.
4. Turbine Lube Oil Tank Room 432, provided with wet-pipe sprinkler system. 432 has 3 concrete equipment removal plugs in the ceiling opening to Room 431 also Fire Area II. Based on the construction and wet-pipe sprinklers a fire will not breach this fire barrier.
5. Auxiliary Boiler Room 331, is provide with automatic wet-pipe sprinklers. The north exterior wall of Fire Area II (separates Fire Area II from the Station transformers) is provided with 2-hour fire barriers. The west exterior wall is a non-rated barrier.

There are four ventilation openings in the floor of Room 326 (Fire Area II), two into Room 237 (Fire Area E) and two into Room 238 (Fire Area F). These openings are not provided with fire dampers. Analysis shows that these openings will not affect Safe Shutdown.

The south wall of Room 326 contains three steel plates which are removable so that the CCW heat exchanger tube bundles can be removed. This wall opens into Room 328 (Fire Area T). Based on the construction of these steel plates and the automatic wet-pipe sprinklers in both rooms, a fire will not propagate from one fire area to the other.

The west wall of Room 326 contains 6 non-rated openings which communicate with Room 314 (Fire Area A). To preclude any direct flame/fire communication with Room 314, an automatically actuated water curtain is installed.

The west exterior wall of Room 517 is a non-rated barrier.

The concrete block walls enclosing the stairwells and elevator shaft (Fire Area UU) adjacent to Room 508 are rated for 2-hours. Based on the construction, arrangement and low combustible loadings, a fire will not propagate from one fire area to the other. See Fire Area UU for more details.

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA II

Door 509 (separating II from FF, Room 508 from 509) is not a UL listed fire door. This door is a steel double door, used as part of the pressure boundary for the Control Room and was built to UL standards for a fire door. Based on the door's design and construction, and the low combustible loading in the area, a fire will not propagate from one fire area to the other.

Door 219 between Room 334 (Fire Area II) and Room 251 (Fire Area BG) is not a UL listed fire door. Based on the sprinkler system in Room 334, the low combustible loading and the construction of the door, a fire will not spread from one fire area to the other.

Door 517 in Room 514 has had its latch removed and is held closed by two blow-out fasteners. This was to provide a vent path for postulated high energy line breaks in the Auxiliary Building. Based on automatic wet-pipe sprinkler protection, low combustible loading, a fire will not spread to Room 501 (Fire Area EE).

There is a small vent duct which penetrates the wall of Room 519 above the parapet. The duct goes from Room 601A (Fire Area DH) to the roof (without any opening at the roof), then into the west wall of Room 517. Based on the location and low combustible loading, a fire will not propagate from one fire area to the other.

The Auxiliary Boiler Air Intake Plenum is located in Room 517. The opening to the outside through the north exterior wall is not provided with a fire damper. Based on the location of the opening, the construction of the Plenum and the low combustible loadings in the area, a fire will not propagate from one fire area to the other.

The structural steel in the Heater Bay and Turbine Building does not have a 3-hour fire rating. Based on the automatic wet-pipe sprinklers in these areas, the steel will not fail. See the listing below of rooms with suppression systems. Those marked with an asterisk (\*) provide steel protection.

The Condensate Storage Tank Room 345 contains the two condensate storage tanks and has catwalk steel which is not fire-proofed. Based on the construction of the storage tanks, the low combustible loading in the room and the fact that Room 345 is separate from the rest of Fire Area II by a 3-hour fire barrier, the condensate storage tanks will not be damaged by a fire in this area.

#### 4.6.II.4 Fire Detection and Suppression

Fire Area II consists of various rooms and/or plant areas. The following areas have detection:

1. Condensate Pump Pit, Room 253, (partial coverage)
2. Hydrogen Seal Oil Room 333
3. Hydrogen Seal Oil Area, Partial Room 334
4. Non-Rad Supply Air and Exhaust Equipment Room 516,

The following rooms are provided with automatic wet-pipe sprinklers:

1. Condensate Pit Room 246 (partial coverage)\*

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA II

2. Heater Drains Valve Room 247\*
3. Lube Oil Storage Tank Room 249
4. Feedwater Pump Room 252 (partial coverage)\*
5. Condensate Pump Pit, Room 253\*
6. Storage Area, Room 254
7. Heater Bay Area, Room 326\*
8. Turbine Pedestal Area, Room 334\*
9. Demin Backwash Tank Area, Room 334A\*
10. Weld Area, Room 335\*
11. Main Workshop, Room 336\*
12. Tool Crib Room 336A\*
13. Supply Storage Room 336B\*
14. Storekeeper Room 340\*
15. Storage, Room 340A\*
16. Main Warehouse, Room 341\*
17. Lube Oil Filter Room 347
18. Heater Bay Area Room 430\*
19. Turbine Area, Room 431\*
20. Condensate Demineralizer Area, Room 431A\*
21. Turbine Lube Oil Tank Room 432\*
22. Turbine Operations Floor Room 517 (Partial Train Bay Only)
23. Fire Brigade Locker Room 518A
24. Office Area 518B
25. Auxiliary Boiler Room 331\*
26. Heater Bay Area Room 604\*



## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA II

27. Heater Bay Area Room 707\*
28. Supply Storage Room 336B\*
29. Oil Drum Storage Room 337
30. Heater Bay Area Room 514\*
31. Janitor's Closet Room 346

\*Provides protection of structural steel

Hydrogen Seal Oil Room 333 is provided with an automatic deluge sprinkler system.

Manual fire suppression equipment is provided for this fire area. Fire extinguishers and Hose Stations (HS) are shown on Drawings A-222F through A-225F.

In the event of a fire, isolation and smoke venting will be accomplished in accordance with the Pre-Fire Plans.

#### 4.6.II.5 Fire Area Safe Shutdown Summary

Train 2 will be used for Safe Shutdown in Fire Area II. Safe Shutdown will be accomplished using the Makeup and Purification System (MUPS) for Reactor Coolant System Inventory Control, MUPS for a Letdown path and MUPS Seal Injection for RCP Seal Cooling.

Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : II

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	NONE			OP-02501 (CLOSE MS106/106A)	14
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE			OP-02501 (CLOSE AF608)	14
	AF3872	AFWP 2 DISCH TO SG2	MOV	F	2	O	O	AS IS		H	NONE			N/A	
	AF599	AFW TO SG2 ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	AF608	AFW TO SG1 ISO VLV	MOV	AB	1	O	O	AS IS		H	NONE		OP-02501 (CLOSE AF608)	OP-02501 (CLOSE AF608)	14
	AF6451	AFWP 2 FLOW CTRL VLV	SOV	F	2	O	O/C	FO		H	NONE			N/A	
	E183	MDFP SEAL WTR COOLERS	CLR	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	N/A			NOT REQUIRED FOR S/D	7
	E184-1	MDFP SEAL WTR COOLERS	CLR	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	N/A			NOT REQUIRED FOR S/D	7
	E184-2	MDFP SEAL WTR COOLERS	CLR	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	N/A			NOT REQUIRED FOR S/D	7
	FW6460	MDFP FLOW CTRL VLV	SOV	II	2	O	O/C	FO	AFWS TRAIN 1&2	H	2CLC6460G 2LLC6460C 2LLC6460D 2LLC6460E 2LLC6460F FV6460 ZC6460			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7 7 7 7
	ICS038A	AFPT 2 GOV CTRL VLV	MOV	F	2	O	O/C	AS IS		H	NONE			N/A	
	MS106	AFPT 1 MS IN ISO VLV	MOV	EE	1	C	O	AS IS		H	NONE			N/A	
	MS106A	AFPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	NONE		OP-02501 (CLOSE MS106A)	OP-02501 (CLOSE MS106A)	14
	MS107	AFPT 2 MS IN ISO VLV	MOV	EE	2	C	O	AS IS		H	2CBF1124B 2PBF1124A			EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1*
	MS107A	AFPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (CLOSE MS106/MS106A)	14
	MS5889B	AFPT 2 STEAM ADMISS VLV	SOV	F	2	C	O	FO		H	NONE			N/A	
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE			N/A	
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	BCAD210F BCAD210G BPAD210H C2405 FPSHL5882 MP2410 R2408		OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD)	OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD)	28 28 28 28 28 28 28 28
	P242-1	MDFP AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	BCBF7114B BCBF7114C BF7114 BPBF7114A C2405 FPSHL5883 MP2421			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7 7 7 7
	P242-2	MDFP SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			N/A	7
	T31-1	COND STO TANK 1-1	TANK	II	1/2	FUNC	FUNC	N/A		H	NONE			WILL NOT BE DAMAGED BY FIRE	27
	T31-2	COND STO TANK 1-2	TANK	II	1/2	FUNC	FUNC	N/A		H	NONE			WILL NOT BE DAMAGED BY FIRE	27
CACS	C1-2	CAC FAN 2	FAN	D	2	O/F	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : II

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CACS	C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	NONE			N/A	
CCWS	CC1407A	CCW OUT ISO VLV FROM CIMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	OP-02501 (OPEN CC1407A)	13
	CC1407B	CCW OUT ISO VLV FROM CIMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407B)	OP-02501 (OPEN CC1407B)	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE			N/A	
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1410)	OP-02501 (OPEN CC1410)	16
	CC1411A	CCW INLET ISO VLV TO CIMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411A)	OP-02501 (OPEN CC1411A)	13
	CC1411B	CCW INLET ISO VLV TO CIMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	OP-02501 (OPEN CC1411B)	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	N/A	24
	CC1469	DHR CLR 2 OUT ISO VLV	SOV	AB	2	C	O	FO		C	NONE		OP-02501 (OPERATE CC1469)	OP-02501 (OPERATE CC1469)	26
	CC1474	DG JKT CW HK 2 OUT VLV	MAN	J	2	O	O	AS IS		H	NONE			N/A	
	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B	H	NONE		OP-02501 (OPERATE CC43)	12,26
	CC2649	CC RETURN HDR 2 VLV	MOV	G	2	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	2CCCW002B 2CCCW002C			EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1*
	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	
	CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501 (OPERATE CC43)	OP-02501 (OPERATE CC43)	12,26
	CC5096	CC HDR 2 IN ISO VLV	MOV	T	2	O/C	O	AS IS		H	2CCCW002B 2CCCW002C			EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1*
	CC5098	CCW LINE 2 RET ISO VLV	MOV	T	2	O/C	O/C	AS IS		H	2CCCW002B 2CCCW002C			EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1*
	FIS1422D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1427D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1432D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	P43-2	CCW PUMP 2	PUMP	T	2	O/F	ON	OFF		H	2CAD113D 2CAD113H 2CAD113I 2PAD113A			EMBEDDED CONDUIT EMBEDDED CONDUIT EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1* 1* 1*
	P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	2CAD108E 2CAD108F 2CAD108G 2CAD108K 3PACD1A			EMBEDDED CONDUIT EMBEDDED CONDUIT EMBEDDED CONDUIT EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1* 1* 1* 1*
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B	C	NONE		N/A	
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B	C	NONE	OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	22
CREVS	C21-2	CTRM EVS FAN 2	FAN	HH	2	OFF	ON	OFF		H	NONE			N/A	
	S33-2	CTRM EMERG A/C UNIT 2	A/C	HH	2	OFF	ON	OFF		H	NONE			N/A	
	SV4827A	CREVS CONDENSER UNIT 2 (S33-2) IN VLV	SOV	HH	2	C	O	CLOSED		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS  
FIRE AREA : II  
TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B H	NONE			OP-02501 (TRIP P56-1)	13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	NONE			OP-02501 (TRIP P56-2)	13
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	NONE		OP-02501 (TRIP P56-1)	OP-02501 (TRIP P56-1)	13
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE		OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2)	13
DHRS	DH01A	LPI LINE 2 VLV	MOV	A	2	O	O	AS IS		C	NONE			N/A	
	DH07A	BWST ISO VLV A	MOV	AC	2	O	O	AS IS		H	NONE			N/A	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH13A	DH CLR 2 BYPASS VLV	SOV	AB	2	C	C	FC		C	NONE			N/A	
	DH14A	DH CLR 2 OUT VLV	SOV	AB	2	O	O	FO		C	NONE			N/A	
	DH1518	DH NORM SUCT LINE 2 VLV	MOV	A	2	C	O/C	AS IS		C	NONE			N/A	
	DH2734	DH PUMP 2 BWST SUCT VLV	MOV	AB	2	O	O/C	AS IS		C	NONE			N/A	
	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	
	DH63	LPI/HPI CROSS-TIE VLV	MOV	A	2	C	C	AS IS		C	NONE			N/A	
	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF			C	1CAC112B 1CAC112C 1CAC112F		OP-02501 (TRIP P42-1) OP-02501 (TRIP P42-1) OP-02501 (TRIP P42-1)	OP-02501 (TRIP P42-1) OP-02501 (TRIP P42-1) OP-02501 (TRIP P42-1)
DHR/LPI PUMP 2		PUMP	A	2	OFF	O/F	OFF			C	NONE		OP-02501 (TRIP P42-2)	OP-02501 (TRIP P42-2)	13
EDG	DA1148A/B	EDG 2 AIR START VLV	SOV	J	2	C	O	FC		H	NONE			N/A	
	DA2989	AIR START RCVR 1-2-1 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA2994	AIR START RCVR 1-2-2 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA62	AIR START RCVR 1-2-1 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA63	AIR START RCVR 1-2-2 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	K5-2	EMERG DIESEL GENERATOR 2	EDG	J	2	O/F	ON	OFF		H	NONE			N/A	
	P148-2A	EDG JACKET WATER PUMP (RIGHT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P148-2B	EDG JACKET WATER PUMP (LEFT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P195-2	EDG FUEL OIL TRANSFER PUMP 2	PUMP	BN	2	OFF	ON	OFF		C	NONE			N/A	
	P201-2	EDG 1-2 M/D FUEL OIL PUMP	PUMP	J	1	O/F	ON	OFF	P205-2	H	NONE			N/A	
P205-2	EDG 1-2 E/D FUEL OIL PUMP	PUMP	J	2	O/F	ON	OFF	P201-2	H	NONE			N/A		

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : II

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
EDG	S207-01	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-02	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-03	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-04	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
ESSPWR	2N	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	2P	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	NONE			N/A	
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1,-2,-3	H	ACAACC2C ACAACC2H ACAC2031A ACAC2032A			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7
	C3616	EDG1-2 PANEL LIGHTS (ALT PWR)	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	C3629	CONT POWER ESS METER HPI FLOW Y	PNL	R	2	ON	ON	OFF		H	NONE			N/A	
	C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C4602	NEUTRON FLUX MON. CABINET (CH.2)	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	C4625	CONT POWER TO AUX FW CONTROL PANEL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5755C	SFAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5755E	CONTROL ROOM REACT PROT. SYS PNL(CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755G	POST ACCIDENT MON. RACK (CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5756D	SFAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5759C	INST POWER MNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO MNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762A	CONTROL POWER TO SFRCS CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762C	SFAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			SFAS INITIATED	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	3CY307A			SFAS INITIATED	13
	C5792	CONTROL ROOM SFRCS CABINET (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			SFAS INITIATED	13
	C5792A	CH 2 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : II

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPN INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	C5798	POST ACCIDENT MON. IND. PNL (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C6709	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	C6715	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	CDF-11A-1	CONTROL DISCONNECT TRANSFER SWITCH	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	CDF-12A-1	D2P CONT POWER TO AFWP GOV (ICS038B)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	D1	4.16KV AC SWGR	SWGR	Q	2	ON	ON	OFF		H	NONE			N/A	
	D2	4.16KV SWGR	SWGR	Q	2	ON	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	D2N	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	D2P	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBC2N	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2P	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2PN	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF	DBC2P,DBC2N	H	NONE			N/A	7
	DBN	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBP	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DC MCC 2	250/125V DC MCC	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	F1	480 V AC MCC F1	SWGR	X	2	ON	ON	OFF		H	NONE			N/A	
	F11A	480VAC MCC	MCC	DF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11B	480VAC MCC	MCC	V	2	ON	ON	OFF		H	NONE			N/A	
	F11C	480VAC MCC	MCC	A	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11D	480VAC MCC	MCC	G	2	ON	ON	OFF		H	NONE			N/A	
	F11E	480VAC MCC	MCC	B	2	ON	ON	OFF		C	NONE			N/A	
	F12A	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12B	480VAC MCC	MCC	J	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12C	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12D	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE			N/A	
	F14	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F15	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
F16A	480V AC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**	
F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	BCAD2DF7E BCBDF7A BCBDF7B BCBF7A BDF7 BF7 BF702			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7 7 7 7	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : II

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	BPAD2DF7A BPDBN11A BPDBP11A F7 XDF7			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7 7
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	BF707 BPBF707A F71			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	NONE			N/A	
	RC3602	DC CONTROL POWER RCP MONITOR	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3608	CONTROL POWER (TO CCCW002)	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3702	DC CONTROL POWER TO CAC 2 OUT VLV	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3705	CONT POWER RC3705 (LR3758)	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3706	CONTROL POWER (LOADS NON-SSD)	PNL	V	1	ON	OFF	ON		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	ACDAF28A			POWER SUPPLY NOT REQUIRED	5C
	RC3716										NONE			N/A	
	RC4606	DC CONT PWR (MU6406,RC4610A,PORV)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	NONE			N/A	7
	XY2	CONSTANT VOLT TRANSFORMER (CVT CH 2)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	XY4	CONSTANT VOLT TRANSFORMER (CVT CH 4)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	XYA										APBE2314A			NOT REQUIRED FOR S/D	7
	Y2	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y2A	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y3602	CONTROL POWER (MU19 & MU32)	PNL	II	2	ON	ON	OFF		H	BPYU05A			NOT REQUIRED FOR S/D	7
	Y4	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YBU	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
YF1	120VAC MCC	PNL	J	2	ON	ON	OFF		H	NONE			N/A		
YF2	240/120VAC MCC	PNL	DF	2	ON	ON	OFF		H	NONE			LOST DUE TO BKR COORDINATION	21	
YV2	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A		
YV4	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A		
YVB	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A		
ZC6451	AFP #2 CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A		
ZC6460	MDFP CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	2CD2P10C			NOT REQUIRED FOR S/D	7	
HPIS	HP02A	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02B	H	NONE			N/A	
	HP02B	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02A	H	NONE			N/A	

LEGEND

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Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : II

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPN INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
HPIS	HP31	HPI PMP 2 RECIRC VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A		
	P198-1	HPI PMP 2 AC LO PMP	PUMP	A	2	OFF	ON	OFF		H	2PBF1231A			NOT REQUIRED FOR S/D	7	
	P198-2	HPI PMP 2 DC LO PUMP	PUMP	A	2	OFF	ON	OFF	P198-1	H	2PD206A			NOT REQUIRED FOR S/D	7	
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	SFAS INITIATED	13	
	P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-2)	SFAS INITIATED	13	
HVAC	C133	LV SWGR RM VENT FAN 2	FAN	EE	2	O/F	ON	OFF		H	NONE			N/A		
	C25-3	EDG RM 2 VENT FAN 3	FAN	J	2	O/F	ON	OFF		H	NONE			N/A		
	C25-4	EDG RM 2 VENT FAN 4	FAN	J	2	O/F	ON	OFF		H	NONE			N/A		
	C73-2	AFP RM VENT FAN 2	FAN	F	2	O/F	ON	OFF		H	NONE			N/A		
	C78-2	BATT RM VENT FAN 2	FAN	X	2	O/F	ON	OFF		H	NONE			N/A		
	C99-3	SW PMP RM EXH FAN 3	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A		
	C99-4	SW PMP RM EXH FAN 4	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A		
	HV5314	LV SWGR RM 428 DAMPER	DMPR	EE	2	O/C	O	AS IS		H	NONE			N/A		
	HV5314A	LV SWGR RM 428 DAMPER	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A		
	HV5336A	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A		
	HV5336B	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FO		H	NONE			N/A		
MSS	ICS11A	MSL 2 ATM VENT VLV	SOV	DH	2	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11A)	LOSS OF AIR	12	
	MS100	MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	2CFV100B 2CFV100BG			EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1*	
	MS100-1	MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A		
	PSV-SP17A1	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
	PSV-SP17A2	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
	PSV-SP17A3	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
	PSV-SP17A4	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
	PSV-SP17A5	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
	PSV-SP17A6	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
	PSV-SP17A7	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
	PSV-SP17A8	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
	PSV-SP17A9	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
	MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP1556)	OP-02501 (OPEN HP1556)	16

LEGEND

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Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : II

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	HP27	HPI TO RCP SEALS	MAN	A	2	C	O	AS IS		H	NONE			N/A	
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP29)	OP-02501 (OPEN HP29)	16
	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B,2A,MU03	H	NONE			N/A	
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B,2A,MU03	H	NONE		OP-02501 (OPEN MU01B)	OP-02501 (OPEN MU01B)	16
	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	NONE		OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03)	13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	NONE			N/A	
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	NONE		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	NONE		OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT)	16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	BCY36218A Y3602		OP-02501 (OPERATE MU214 & MU216)	OP-02501 (OPERATE MU214 & MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU203	Recirc to Seal Return Stop Valve	MAN	AB	2	O	O/C	AS IS		H	NONE		OP-02501 (CLOSE MU203)	OP-02501 (CLOSE MU203)	16
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU32	RC MU ISO VLV	FCV	AB	2	O/C	O	FO	HPIS TRAIN 1&2	H	BCY36217A Y3602		NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D		7 7
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B H	NONE		OP-02501 (OPEN MU38)	OP-02501 (OPEN MU38)	13
	MU3971	RC MU PUMP SUCT VLV	MOV	AB	2	C	O/C	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59A)	OP-02501 (OPEN MU59A)	13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59B)	OP-02501 (OPEN MU59B)	13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C)	13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59D)	OP-02501 (OPEN MU59D)	13
	MU6406	MU RECIRC ISO VLV	AOV	AB	2	O	O/C	FO	HPIS TRAIN 2	H	NONE			N/A	
	MU6408	MU CROSS CONNECT ISO VLV	MOV	AB	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU6420	MU32 BYPASS VLV	MOV	AB	2	C	O	AS IS	HPIS,MU32	H	NONE			N/A	
	MU6422	MU CIMT ISO VLV	MOV	A	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A)	13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B)	13

LEGEND

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## Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

## FIRE AREA : II

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C)	13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D)	13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-372B	MUP 2 MAIN LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P-372C	MUP 2 AUX LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS, P-372B	H	NONE			N/A	
	P-372D	MUP 2 AUX GEAR LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P37-2	MU PUMP 2	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1743)	LOSS OF AIR	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1747)	LOSS OF AIR	12
	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	NONE			N/A	
NI	NI-5875A	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	NI-NI1	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
NNI	FI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A1	HPI FLOW IND. (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B1	HPI FLOW IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-2	PRZR LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-4	PRZR LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A1	SG1-2 START-UP LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A3	SG1-2 START-UP LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A8	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A8A	SG1-2 START-UP LEVEL IND (C5710)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A9	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LRS-RC14	PRZR LEVEL RECORDER	REC	FF	2	ON	ON	OFF	LI-RC14-1-4	H	NONE			N/A	
	PI-6365A	RCS LOOP 2 EXTENDED RANGE PRESS	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
PI-6365A1	RCS LOOP2 EXTENDED RANGE PRESS (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A		

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## Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : II

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
NNI	PI-RC2A3	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A4	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1	SG1-2 OUTLET PRESS IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1-A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF	PI-SP12A	H	NONE			N/A	
	RC2A3										NONE			N/A	
	TE-RC3A6	RCS LOOP 2 HOT LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TE-RC4A2	RCS LOOP 2 COLD LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A4	RCS LOOP 2 HOT LEG TEMP (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A5	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A6	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A2	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A4	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A
RC13A		RCS CODE SAFETY VALVE	SV	D	2	C	C	CLOSED		H	NONE			N/A	
RC147		PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
RC200		PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A	
RC239A		PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A	
RC239B		PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A	
RC2A		PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			N/A	
RC4608A		SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	NONE			N/A	
RC4608B		SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A	
RC4610A		SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A	
RC4610B		SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A	
RC4632		COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	NONE			N/A	
SFAS	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS MAY ACTUATE	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	3CY307A			SFAS MAY ACTUATE	13
	C5765D	SFAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13

## LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

## Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : II

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFAS	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
SFRCS	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101B	LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101C	LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS3871B	BLOCK CIRCUIT AF3871 (AFP-2 TO SG-1)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS3872B	BLOCK CIRCUIT AF3872 (AFP-2 TO SG-2)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14

## LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : II

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	HIS603B	BLOCK CIRCUIT MS603 (SG-2 DRAIN STOP)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS6402	CH 2/4 MANUAL START AFPT-2 C5707	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	HIS6404	CH 2/4 MAN STRT AFPT-2 & ISOL SG-2 C57	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	2CRCPD21B			SFRCS ACTUATES	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	2CRCPD41B			SFRCS ACTUATES	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	1CRCPD11C			SFRCS ACTUATES	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	1CRCPD31C			SFRCS ACTUATES	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

## Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : II

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	ACAC201B ACAC201C			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7
	P3-2	SW PUMP 2	PUMP	BF	2	O/F	ON	OFF		H	NONE			N/A	
	P3-3	SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1,P3-2	H	NONE			N/A	
	SW1357	CAC 2 OUT ISO VLV	SOV	A	2	O/C	O	FO		H	NONE			N/A	
	SW1358	CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	NONE			N/A	
	SW1367	CAC 2 IN ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	SW1368	CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	NONE			N/A	
	SW1383	AFP 2 SUCT VLV FROM SW	MOV	A	2	C	O/C	AS IS		H	NONE			N/A	
	SW1395	TPCW HX IN HEADER ISO VLV	MOV	BG	2	O/C	C	AS IS		H	NONE			N/A	
	SW1429	SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	NONE			N/A	
	SW1434	SW FROM CC HX 2 ISO VLV	SOV	T	2	O/C	O	FO		H	NONE			N/A	
	SW2928	CTRM EVS COND UNIT IN VLV	MOV	HH	2	C	O	AS IS		H	NONE			N/A	
	SW2930	SW TO INT FOREBAY VLV	MOV	BG	2	O/C	O	AS IS	SW2929,31,32	H	NONE			N/A	
	SW2932	SW TO COLLECT BASIN VLV	MOV	BG	2	O/C	O	AS IS	SW2929,30,31	H	NONE			N/A	
	SW54	TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B	H			N/A	
	SW55	TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B	H			N/A	
	SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B	H			N/A	
ASSCKT	HV5444A	CCWP RM FAN 2 BYPASS DMPR									2PYF209A			LOST DUE TO BREAKER COORDINATION	21
ASSCKT	HV5444B	CCWP RM FAN 2 IN DMPR									2PYF210A			LOST DUE TO BREAKER COORDINATION	21

## LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA II TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent up-stream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA II TABLE 1 NOTES

- 9. NOT USED
- 10. NOT USED
- 11. NOT USED
- 12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:
 

ICS11A	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

- 13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level setpoint is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components:

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531 P42-2	CS Iso Vlv LPI Pump 2	Open On	Stop P56-1, -2 Stop P42-2 from the CR after blocking SFAS
P42-1 P56-2	LPI Pump 1 CS Pump 2	On On	Trip Bkr AC112 at C1 Stop P56-2 from the CR after blocking SFAS
P56-1 P58-2	CS Pump 1 HPI Pump 2	On On	Trip Bkr BE111 at E1 Stop P58-2 from the CR after blocking SFAS
P58-1 CC1407A, B	HPI Pump 1 CCW Out Iso Vlv	On Closed	Trip Bkr AC111 at C1 Open CC1407A, B and Trip Bkr BE1173 at E11B & BF1158 at F11B
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip Bkr BE1176 at E11B & BF1159 at F11B
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03 MU38	RC Lt Dn Cooler Out RCP Seal Rtn Isol	Closed Closed	Open MU03 Open MU38



Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA II TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

Trip the following breakers before operating the following valves:

<u>Valve</u>	<u>Breaker</u>
MS106	D135 at D1NA
MS106A	BE1271 at E12B

15. NOT USED
16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or by performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injections and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.

FIRE AREA II TABLE 1 NOTES

RCP Seal Return Flow

The following manual valves will need to be operated:

MU97	Open	MU216	Throttle
MU182	Close	WC119	Open
MU214	Close	WC120	Open

Additionally, the following valves may need to be manually operated:

CC1410	Open	MU10A	Open
MU01B	Open	MU11	Direct flow to CWRT
MU02B	Open		

RCS Inventory Control

After transferring the Makeup suction to the BWST, MU203 will be manually closed after opening MU208, HP29, and HP1556 to route MUPS Recirc to the BWST rather than the Makeup Tank.

17. NOT USED
18. To prevent spurious operation, Valves DH09A and DH09B have been deenergized.
19. NOT USED
20. NOT USED
21. YE2/YF2 associated circuits are not coordinated. This results in loss of YE2/YF2. The loss of this panel will cause a reactor trip via ARTS which is acceptable.
22. The Core Flood Isolation Valves CF01A, B are normally open and are required to be closed when cooling down before going below 700 psig. Breakers BF1120 at F11A and BE1162 at E11B are normally open; manual action may be required to close CF01B before going below 700 psig.
23. NOT USED
24. Essential CCW has been provided to the Makeup Pump Cooler, bypassing CC1460.
25. Valves DH11 and DH12 are depowered. Bypass Valves DH21 and DH23 can be manually operated to place the DHR System in service.
26. The DHR Cooler 1-2 Isolation Valve CC1469 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return coolers and opened for DHRs Cooldown.

The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA II TABLE 1 NOTES

(NOTE: Verify CC1467(CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467(CC1469).

27. The Condensate Tanks T31-1 and T31-2 are located in Room 345. Based on the low combustible loading in this room and the fact that the Turbine Area outside this room is protected with an automatic sprinkler system, these tanks will not be damaged by a fire in this area or adjacent Rooms in this fire area.
28. Spurious operation of the Motor Driven Feed Pump (MDFP) P241 is possible due to hot shorts on control cables in this fire area. Manual Operator Action to close locked valve FW6398 shall be taken to preclude overflow of the credited Steam Generator.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: J

TRAIN ACCREDITED FOR SHUTDOWN: 1

4.6.J.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
319	DIESEL GEN 1-2 ROOM	88,051	Y	AUTO
319A	DIESEL GEN 1-2 ROOM	884	Y	MAN
320A	DAY TANK 1-2 ROOM	3,740,659	Y	AUTO

4.6.J.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA J

The following components are located in fire area J.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
CCWS	2	CC1474	MAN	DG JKT CW HX 2 OUT VLV
EDG	2	DA1148A/B	SOV	EDG 2 AIR START VLV
	2	DA2989	AOV	AIR START RCVR 1-2-1 DISCH VLV
	2	DA2994	AOV	AIR START RCVR 1-2-2 DISCH VLV
	2	DA62	AOV	AIR START RCVR 1-2-1 RELAY VLV
	2	DA63	AOV	AIR START RCVR 1-2-2 RELAY VLV
	2	E10-2	H/EX	EDG 2 JACKET WATER HEAT EXCH
	2	K5-2	EDG	EMERG DIESEL GENERATOR 2
	2	P148-2A	PUMP	EDG JACKET WATER PUMP (RIGHT)
	2	P148-2B	PUMP	EDG JACKET WATER PUMP (LEFT)
	2	P150-2	PUMP	EDG 2 PRESS PUMP
	1	P201-2	PUMP	EDG 1-2 M/D FUEL OIL PUMP
	2	P205-2	PUMP	EDG 1-2 E/D FUEL OIL PUMP
	2	P264-2	PUMP	EDG 2 SCAVGR PUMP
	2	P265-2	PUMP	EDG 2 PISTON CLG PUMP
	2	S207-01	MTR	EDG 2 AIR START MOTOR
	2	S207-02	MTR	EDG 2 AIR START MOTOR
	2	S207-03	MTR	EDG 2 AIR START MOTOR
	2	S207-04	MTR	EDG 2 AIR START MOTOR
	2	T46-2	TANK	EDG DAY TANK 1-2
	2	T86-3	TANK	EDG STARTING AIR RECEIVER 1-2-1
	2	T86-4	TANK	EDG STARTING AIR RECEIVER 1-2-2

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

4.6.J.2 Cont.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
ESSPWR	2	C3616	PNL	EDG1-2 PANEL LIGHTS (ALT PWR)
	2	F12B	MCC	480VAC MCC
	2	YF1	PNL	120VAC MCC
HVAC	2	C25-3	FAN	EDG RM 2 VENT FAN 3
	2	C25-4	FAN	EDG RM 2 VENT FAN 4
	2	HV5336A	DMPR	EDG RM 2 DAMPER
	2	HV5336B	DMPR	EDG RM 2 DAMPER
	2	HV5336C	DMPR	EDG ROOM 2 DAMPER

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## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA J

#### 4.6.J.3 Fire Propagation Control

Fire Area J is located in the Diesel Building and consists primarily of the northern half of the Diesel Building as shown on A-223F.

A fire that originates in this fire area will be contained in this fire area.

This fire area is enclosed by 3-hour walls except the west wall which is an exterior wall with no fire exposure. Room 320A (Day Tank Room) is provided with a 3-hour barrier to separate it from the rest of this fire area due to the combustible liquid stored in the tank.

#### 4.6.J.4 Fire Detection and Suppression

Fire Area J consists of various rooms. The following areas have detection.

1. Diesel Generator 1-2 Rooms 319 and 319A, Fire Detection Zone FDZ 319
2. Day Tank Room 320A, Fire Detection Zone FDZ 320A

The Diesel Generator Room 319 is provided with a pre-action sprinkler system.

The Day Tank Room 320A is provided with an automatic wet-pipe sprinkler system.

Manual fire suppression equipment is provided for this fire area. Fire extinguishers and Hose Stations (HS) are shown on Drawing A-223F.

In the event of a fire, isolation and smoke venting will be accomplished in accordance with the Pre-Fire Plans.

The floor drains in this room are tied together with the floor drains in the adjacent diesel generator room and the drainage rate is limited due to the oil interceptor that these drains connect to. Fire suppression activities in excess of that may require that one of the outside doors to one of the rooms be opened or suppression activities minimized to prevent flooding in both rooms.

#### 4.6.J.5 Fire Area Safe Shutdown Summary

Train 1 will be used for Safe Shutdown in Fire Area J. Safe Shutdown will be accomplished using the Makeup and Purification System (MUPS) for Reactor Coolant System Inventory Control, MUPS for a Letdown path and MUPS Seal Injection for RCP Seal Cooling.

SAFE SHUTDOWN ANALYSIS

FIRE AREA : J

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3869)	OP-02501 (CLOSE AF3869)	14
	AF3870	AFWP 1 DISCH TO SG1	MOV	E	1	O	O	AS IS		H	NONE			N/A	
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE			OP-02501 (TRIP P14-2)	14
	AF608	AFW TO SG1 ISO VLV	MOV	AB	1	O	O	AS IS		H	NONE			N/A	
	AF6452	AFWP 1 FLOW CTRL VLV	SOV	E	1	O	O/C	FO		H	NONE			N/A	
	FW6459	MDFF FLOW CTRL VALVE	SOV	II	1	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			N/A	
	ICS038B	AFPT 1 GOV CTRL VLV	MOV	E	1	O	O/C	AS IS		H	NONE			N/A	
	MS106	AFPT 1 MS IN ISO VLV	MOV	EE	1	C	O	AS IS		H	NONE			N/A	
	MS106A	AFPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	1PBEL271A			OP-02501 (TRIP P14-2)	27
	MS107A	AFPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-2)	14
	MS5889A	AFPT 1 STEAM ADMISS VLV	SOV	E	1	C	O	FO		H	NONE			N/A	
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H	NONE			N/A	
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-2)	OP-02501 (TRIP P14-2)	14
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	P242-1	MDFF AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	P242-2	MDFF SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			N/A	7
CACS	C1-1	CAC FAN 1	FAN	D	1	O/F	ON	OFF		H	NONE			N/A	
	C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	NONE			N/A	
CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	SFAS INITIATED	13
	CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407B)	SFAS INITIATED	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1409)	OP-02501 (OPEN CC1409)	16
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE			N/A	
	CC1411A	CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411A)	SFAS INITIATED	13
	CC1411B	CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	SFAS INITIATED	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	N/A	24
	CC1467	DHR CLR 1 OUT ISO VLV	SOV	AB	1	C	O	FO		C	NONE		OP-02501 (OPERATE CC1467)	OP-02501 (OPERATE CC1467)	26
	CC1471	DG JKT CW HX 1 OUT VLV	MAN	K	1	O	O	AS IS		H	NONE			N/A	
	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B H	NONE			OP-02501 (OPERATE CC43)	12,26
	CC2645	CC RETURN HDR 1 VLV	MOV	G	1	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	NONE			N/A	
	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	
	CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501(OPERATE CC43)	OP-02501(OPERATE CC43)	12,26

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : J

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC5095	CC HDR 1 IN ISO VLV	MOV	T	1	O/C	O	AS IS		H	NONE			N/A	
	CC5097	CCW LINE 1 RET ISO VLV	MOV	T	1	O/C	O/C	AS IS		H	NONE			N/A	
	FIS1422C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A	
	FIS1427C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A	
	FIS1432C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A	
	P43-1	CCW PUMP 1	PUMP	T	1	O/F	ON	OFF		H	NONE			N/A	
	P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	NONE			N/A	
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B C	NONE		OP-02501 (CLOSE CF01A)	OP-02501 (CLOSE CF01A)	22
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B C	NONE			N/A	
CREVS	C21-1	CTRM EVS FAN 1	FAN	HH	1	OFF	ON	OFF		H	NONE			N/A	
	S33-1	CTRM EMERG A/C UNIT 1	A/C	HH	1	OFF	ON	OFF		H	NONE			N/A	
	SV4823A	CREVS CONDENSER UNIT 1 (S33-1) IN VLV	SOV	HH	1	C	O	CLOSED		H	NONE			N/A	
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B H	NONE			OP-02501 (TRIP P56-1)	13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	NONE			OP-02501 (TRIP P56-2)	13
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	NONE		OP-02501 (TRIP P56-1)	OP-02501 (TRIP P56-1)	13
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE		OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2)	13
DHRS	DH01B	LPI LINE 1 VLV	MOV	AB	1	O	O	AS IS		C	NONE			N/A	
	DH07B	BWST ISO VLV B	MOV	AC	1	O	O	AS IS		H	NONE			N/A	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH13B	DH CLR 1 BYPASS VLV	SOV	AB	1	C	C	FC		C	NONE			N/A	
	DH14B	DH CLR 1 OUT VLV	SOV	AB	1	O	O	FO		C	NONE			N/A	
	DH1517	DH NORM SUCT LINE 1 VLV	MOV	A	1	C	O/C	AS IS		C	NONE			N/A	
	DH2733	DH PUMP 1 BWST SUCT VLV	MOV	AB	1	O	O/C	AS IS		C	NONE			N/A	
	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	
	DH64	LPI/HPI CROSS-TIE VLV	MOV	AB	1	C	C	AS IS		C	NONE			N/A	
	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-1)	SFAS INITIATED	13

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



SAFE SHUTDOWN ANALYSIS

FIRE AREA : J

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
DHRS	P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	SPAS INITIATED	13
EDG	DA1147A/B	EDG 1 AIR START VLV	SOV	K	1	C	O	FC		H	NONE			N/A	
	DA2987	AIR START RCVR 1-1-1 DISCH VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA2988	AIR START RCVR 1-1-2 DISCH VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA60	AIR START RCVR 1-1-1 RELAY VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA61	AIR START RCVR 1-1-2 RELAY VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	K5-1	EMERG DIESEL GENERATOR 1	EDG	K	1	O/F	ON	OFF		H	NONE			N/A	
	P148-1A	EDG JACKET WATER PUMP (RIGHT)	PUMP	K	1	O/F	O	OFF		H	NONE			N/A	
	P148-1B	EDG JACKET WATER PUMP (LEFT)	PUMP	K	1	O/F	O	OFF		H	NONE			N/A	
	P150-1	EDG 1 PRESS PUMP	PUMP	K	1	OFF	ON	OFF		H	NONE			N/A	
	P195-1	EDG FUEL OIL TRANSFER PUMP 1	PUMP	BN	1	OFF	ON	OFF		C	NONE			N/A	
	P201-1	EDG 1-1 M/D FUEL OIL PUMP	PUMP	K	1	O/F	ON	OFF	P205-1	H	NONE			N/A	
	P205-1	EDG 1-1 E/D FUEL OIL PUMP	PUMP	K	2	O/F	ON	OFF	P201-1	H	NONE			N/A	
	P264-1	EDG 1 SCAVGR PUMP	PUMP	K	1	OFF	ON	OFF		H	NONE			N/A	
	P265-1	EDG 1 PISTON CLG PUMP	PUMP	K	1	OFF	ON	OFF		H	NONE			N/A	
	P8-1	DO XFER PUMP 1	PUMP	BM	1	O/F	O	OFF	P195-1	H	NONE			N/A	
	S206-01	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-02	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-03	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-04	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
ESSPWR	1N	125VDC STATION BATTERY	BATT	Y	1	ON	ON	OFF		H	NONE			N/A	
	1P	125VDC STATION BATTERY	BATT	Y	1	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	NONE			N/A	
	C1	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF		H	NONE			N/A	
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1,-2,-3	H	NONE			N/A	7
	C3615	EDG1-1 ELECT CONTROL & RELAY PANEL	PNL	K	1	ON	ON	OFF		H	NONE			N/A	
	C3628	CONT POWER ESS METER HPI FLOW X	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C3645	CONT POWER TO AUX FW CONTROL PNL	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	C4808	NEUTRON FLUX MON. CABINET (CH.1)	PNL	DG	1	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : J

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5755C	SFAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	NONE			SFAS ACTUATES	13
	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5756D	SFAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			SFAS ACTUATES	13
	C5759C	INST POWER NNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5762A	CONTROL POWER TO SFRCS CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5762C	SFAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5762E	CONTROL ROOM REACT PROT. SYS PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5763A	POST ACCIDENT MON. SYS PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5792A	CH 2 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			LOSS SFRCS CH 2/4 INITIATES AFW	14
	C5799	POST ACCIDENT MON. IND. PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C6708	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	1	ON	ON	OFF		H	NONE			N/A	
	C6714	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	1	ON	ON	OFF		H	NONE			N/A	
	CDE-11B-1	CONTROL POWER (LOADS NON-SSD)	PNL	V	1	ON	OFF	ON		H	NONE			N/A	
	CDE-11B-2	CONT POWER TO DH12 INTLK	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	CDE-12A-1	D1P CONT POWER TO AFWP GOV (ICS038A)	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1N	125VDC DIST PNL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1NA	125VDC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1P	125VDC DIST PNL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1PA	125VDC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DAN	125VDC DIST PANEL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DAP	125VDC DIST PANEL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DBC1N	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC1P	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC1PN	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF	DBC1P, DBC1N	H	NONE			N/A	
	DC MCC 1	250/125V DC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	E1	480 VAC MCC E1	SWGR	Y	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : J

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	E11A	480VAC MCC	MCC	G	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E11B	480VAC MCC	MCC	V	1	ON	ON	OFF		H	NONE			N/A	
	E11C	480VAC MCC	MCC	V	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E11D	480VAC MCC	MCC	G	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E11E	480VAC MCC	MCC	DG	1	ON	ON	OFF		H	NONE			N/A	
	E12A	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E12B	480VAC MCC	MCC	K	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E12C	480VAC MCC	MCC	BE	1	ON	ON	OFF		H	NONE			N/A	
	E12D	480V AC MCC	MCC	BE	1	ON	ON	OFF		H	NONE			N/A	
	E12E	480VAC MCC	MCC	B	1	ON	ON	OFF		H	NONE			N/A	
	E12F	480VAC MCC	MCC	K	1	ON	ON	OFF		H	NONE			N/A	
	E14	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E15	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E16A	480V AC MCC	MCC	EE	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E16B	480VAC MCC	MCC	DG	1	ON	ON	OFF		H	NONE			N/A	
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	NONE			N/A	
	RC3601	DC CONT POWER RCP MONITOR	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	RC3607	CONTROL POWER (TO CCCW001)	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	RC3701	DC CONTROL POWER TO CAC 1 OUT VLV	PNL	A	1	ON	ON	OFF		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	NONE			N/A	
	RC4801	DC CONT PWR TO RC4801 (MU6405, MU6407)	PNL	DG	1	ON	ON	OFF		H	NONE			N/A	
	RC4802	CONT PWR (TO MUTK, SG DRN RLY)	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	NONE			N/A	7
	XY1	CONSTANT VOLT TRANSFORMER (CVT CH 1)	XFMR	Y	1	ON	ON	OFF		H	NONE			N/A	
	XY3	CONSTANT VOLT TRANSFORMER (CVT CH 3)	XFMR	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y1	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y1A	120 VAC ESS INSTR DISTR PANEL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y3	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	YAU	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	YE1	120VAC MCC	PNL	K	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

4.6.J .6 TABLE1  
Detailed Analysis

FIRE HAZARDS ANALYSIS

DAVIS BESSE

SAFE SHUTDOWN ANALYSIS

FIRE AREA : J

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	YE2	240/120VAC MCC	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	YV1	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	YV3	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	YVA	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	ZC6452	AFP #1 CTRL VLV POSITION CONTROLLER	PNL	E	1	ON	ON	OFF		H	NONE			N/A	
	ZC6459	MDFF CONTROL VLV POSITION CONTROLLER	PNL	II	1	ON	ON	OFF		H	NONE			N/A	
HPIS	HP02C	HPI 1 DISCH ISO VLV	MOV	AB	1	C	O	AS IS	HP02D	H	NONE			N/A	
	HP02D	HPI 1 DISCH ISO VLV	MOV	AB	1	C	O	AS IS	HP02C	H	NONE			N/A	
	HP32	HPI PMP 1 RECIRC VLV	MOV	AB	1	O	O	AS IS		H	NONE			N/A	
	P197-1	HPI PMP 1 AC LO PUMP	PUMP	AB	1	OFF	ON	OFF		H	NONE			N/A	
	P197-2	HPI PMP 1 DC LO PMP	PUMP	AB	1	OFF	ON	OFF	P197-1	H	NONE			N/A	
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	SPAS INITIATED	13
P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-2)	SPAS INITIATED	13	
HVAC	C100	TRAV SCR AREA EXH FAN (B/U SW PUMP)	FAN	BD	1	O/F	O/F	OFF		H	NONE NONE			N/A N/A	
	C25-1	EDG RM 1 VENT FAN 1	FAN	K	1	O/F	ON	OFF		H	NONE			N/A	
	C25-2	EDG RM 1 VENT FAN 2	FAN	K	1	O/F	ON	OFF		H	NONE			N/A	
	C71-1	LV SWGR RM VENT FAN 1	FAN	Y	1	O/F	ON	OFF		H	NONE			N/A	
	C73-1	AFP RM VENT FAN 1	FAN	E	1	O/F	ON	OFF		H	NONE			N/A	
	C78-1	BATT RM VENT FAN 1	FAN	Y	1	O/F	ON	OFF		H	NONE			N/A	
	C99-1	SW PMP RM EXH FAN 1	FAN	BF	1	O/F	ON	OFF		H	NONE			N/A	
	C99-2	SW PMP RM EXH FAN 2	FAN	BF	1	O/F	ON	OFF		H	NONE			N/A	
	HV0531A	AIR IN LVR FOR B/U SW PUMP	DMPR	BD	1	O/C	O/C	OPEN		H	NONE			N/A	
	HV0532A	AIR IN LVR FOR B/U SW PUMP	DMPR	BD	1	O/C	O/C	OPEN		H	NONE			N/A	
	HV5305	LV SWGR RM FAN 1 DAMPER	DMPR	Y	1	O/C	O	AS IS		H	NONE			N/A	
	HV5305A	LV SWGR RM 429 DAMPER	DMPR	Y	1	O/C	O	AS IS	HV5305B	H	NONE			N/A	
	HV5305B	LV SWGR RM 429 DAMPER	DMPR	Y	1	O/C	O	AS IS	HV5305A	H	NONE			N/A	
	HV5329A	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FC		H	NONE			N/A	
HV5329B	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FO		H	NONE			N/A		
HV5329C	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FC		H	NONE			N/A		
HV5597	BATT RM 429B ATM DMPR	DMPR	Y	1	O/C	O	AS IS		H	NONE			N/A		
MSS	ICS11B	MSL 1 ATM VENT VLV	SOV	DH	1	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11B)	LOSS OF AIR	12

LEGEND

H - required for hot standby

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : J

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MSS	MS100	MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A	
	MS100-1	MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A	
	MS101	MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A	
	MS101-1	MS1V 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	NONE			N/A	
	PSV-SP17B1	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B2	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B3	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B4	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B5	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B6	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B7	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B8	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B9	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP1556)	OP-02501 (OPEN HP1556)	16
	HP26	HPI TO RCP SEALS	MAN	AB	1	C	O	AS IS		H	NONE			N/A	
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP29)	OP-02501 (OPEN HP29)	16
	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE		OP-02501 (OPEN MU01A)	OP-02501 (OPEN MU01A)	16
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE			N/A	
	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	NONE		OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03)	13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	NONE			N/A	
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	NONE		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	NONE		OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT)	16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	NONE			OP-02501 (OPERATE MU214 & MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU206	Recirc to Seal Return Stop Valve	MAN	AB	1	O	O/C	AS IS		H	NONE		OP-02501(CLOSE MU206)	OP-02501(CLOSE MU206)	16
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16

LEGEND

H - required for hot standby

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H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS  
FIRE AREA : J

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B H	NONE		OP-02501 (OPEN MU38)	SFAS INITIATED	13
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59A)	SFAS INITIATED	13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59B)	SFAS INITIATED	13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59C)	SFAS INITIATED	13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59D)	SFAS INITIATED	13
	MU6405	RC MU PUMP SUCT VLV	MOV	AB	1	C	O/C	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6407	MU RECIRC ISO VLV	AOV	AB	1	O	O/C	FO	HPIS TRAIN 1	H	NONE			N/A	
	MU6409	MU CROSS CONNECT ISO VLV	MOV	AB	1	O	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6419	MU DISCH VLV	MOV	AB	1	C	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6421	MU CTMT ISO VLV	MOV	AB	1	C	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A)	13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B)	13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C)	13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D)	13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-371B	MUP 1 MAIN LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P-371C	MUP 1 AUX LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS,P-371B	H	NONE			N/A	
	P-371D	MUP 1 AUX GEAR LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P37-1	MU PUMP 1	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P371A	MU PMP 1 MAIN GEAR LO PMP	PUMP	AB	1	O/F	O	OFF	P371D	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1743)	LOSS OF AIR	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1747)	LOSS OF AIR	12
	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	NONE			N/A	
NI	NI-5874A	SOURCE RANGE IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	NI-5874C	LOCAL SOURCE RANGE IND	IND	DG	1	ON	ON	OFF	NI-5874A	H	NONE			N/A	
	NI-NI2	SOURCE RANGE IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
NNI	FI6425	RC MU FLOW-HI RANGE	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FI6435	RC MU FLOW-LOW RANGE	IND	FF	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : J

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
NNI	FYI-HP03C	HPI FLOW INDICATION	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03C1	HPI FLOW IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03D	HPI FLOW INDICATION	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03D1	HPI FLOW IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-1	PRZR LEVEL IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-3	PRZR LEVEL IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	LI-SP09B1	SG1-1 START-UP LEVEL IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	LI-SP09B3	SG1-1 START-UP LEVEL IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-SP09B8	SG1-1 START-UP LEVEL IND (C5761A)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	LI-SP09B8A	SG1-1 START-UP LEVEL IND (C5708)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	LI-SP09B9	SG1-1 START-UP LEVEL IND (C5761A)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	PI-6365B	RCS LOOP 1 EXTENDED RANGE PRESS	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-6365B1	RCS LOOP 1 EXTENDED RANGE PRESS (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	PI-RC2B3	RCS LOOP 1 PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-RC2B4	RCS LOOP 1 PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12B	SG1-1 OUTLET PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12B1	SG1-1 OUTLET PRESS IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12B2	SG1-1 OUTLET PRESS IND	IND	FF	1	ON	ON	OFF	PI-SP12B-1	H	NONE			N/A	
	TE-RC3B5	RCS LOOP 1 HOT LEG TEMP (RM 303)	TE	D	1	ON	ON	OFF		H	NONE			N/A	
	TE-RC4B3	RCS LOOP 1 COLD LEG TEMP (RM 303)	TE	D	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC3B2	RCS LOOP 1 HOT LEG TEMP (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC3B5	RCS LOOP 1 HOT LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC3B6	RCS LOOP 1 HOT LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC4B2	RCS LOOP 1 COLD LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC4B4	RCS LOOP 1 COLD LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A	
	RC13B	RCS CODE SAFETY VALVE	SV	D	1	C	C	CLOSED		H	NONE			N/A	
	RC147	PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
	RC200	PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A	
	RC239A	PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A	
	RC239B	PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A	
	RC2A	PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			N/A	

LEGEND

H - required for hot standby

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H/L - High/Low interface

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : J

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
RCS	RC4608A	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	NONE			N/A	
	RC4608B	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A	
	RC4610A	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A	
	RC4610B	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A	
	RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	NONE			N/A	
SFAS	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5765D	SFAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



SAFE SHUTDOWN ANALYSIS

FIRE AREA : J

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFAS	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
SFRCS	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101B	LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101C	LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS3869B	BLOCK CIRCUIT AF3869 (APP-1 TO SG-2)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS3870B	BLOCK CIRCUIT AF3870 (APP-1 TO SG-1)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS611B	BLOCK CIRCUIT MS611 (SG-1 DRAIN STOP)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS6401	CH 1/3 MANUAL START APPT-1 C5707	HIS	FF	1	OFF	ON	OFF		H	NONE			N/A	14
	HIS6403	CH 1/3 MAN STRT APPT-1 & ISOL SG-1 C57	HIS	FF	1	OFF	ON	OFF		H	NONE			N/A	14
	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : J

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
SFRCS	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D		1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D		1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14
RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D		1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14	
RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D		1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14	
SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	NONE			N/A	7	
	P3-1	SW PUMP 1	PUMP	BF	1	O/F	ON	OFF		H	NONE			N/A		
	P3-3	SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1, P3-2	H	NONE			N/A		
	SW1356	CAC 1 OUT ISO VLV	SOV	A	1	O/C	O	FO		H	NONE			N/A		
	SW1358	CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	NONE			N/A		
	SW1366	CAC 1 IN ISO VLV	MOV	A	1	O	O	AS IS		H	NONE			N/A		
	SW1368	CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	NONE			N/A		
	SW1382	AFP 1 SUCT VLV FROM SW	MOV	E	1	C	O/C	AS IS		C	NONE			N/A		
	SW1399	TPCW HX IN HEADER ISO VLV	MOV	BG	1	O/C	C	AS IS		H	NONE			N/A		
	SW1424	SW FROM CC HX 1 ISO VLV	SOV	T	1	O/C	O	FO		H	NONE			N/A		
	SW1429	SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	NONE			N/A		
	SW2927	CTRM EVS COND UNIT IN VLV	MOV	HH	1	C	O	AS IS		H	NONE			N/A		
	SW2929	SW TO INT STRU VLV	MOV	BG	1	O/C	O	AS IS	SW2930, 31, 32	H	NONE			N/A		
SW2931	SW TO CLG TOWER MU VLV	MOV	BG	1	O/C	O	AS IS	SW2929, 30, 32	H	NONE			N/A			

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

4.6.J .6 TABLE1  
Detailed Analysis

FIRE HAZARDS ANALYSIS

DAVIS BESS

SAFE SHUTDOWN ANALYSIS

FIRE AREA : J

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SWS	SW54	TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B H	NONE				N/A
	SW55	TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B H	NONE				N/A
	SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B H	NONE				N/A

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA J TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent upstream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA J TABLE 1 NOTES

- 9. NOT USED
- 10. NOT USED
- 11. NOT USED
- 12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:

ICS11B	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

- 13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level setpoint is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components.

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531 P42-1	CS Iso Vlv LPI Pump 1	Open On	Stop P56-1, -2 Stop P42-1 from the CR after blocking SFAS
P42-2 P56-1	LPI Pump 2 CS Pump 1	On On	Trip Bkr AD112 at D1 Stop P56-1 from the CR after blocking SFAS
P56-2 P58-1	CS Pump 2 HPI Pump 1	On On	Trip Bkr BF111 at F1 Stop P58-1 from the CR after blocking SFAS
P58-2 CC1407A, B	HPI Pump 2 CCW Out Iso Vlv	On Closed	Trip Bkr AD111 at D1 Open CC1407A, B and Trip BE1173 at E11B & BF1158 at F11B
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip BE1176 at E11B & BF1159 at F11B
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03 MU38	RC Lt Dn Cooler Out RCP Seal Rtn Isol	Closed Closed	Open MU03 Open MU38

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA J TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

If AF3869 is manually closed, first trip Breaker BE1146 at E11E.

15. NOT USED

16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or by performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injection and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.

RCP Seal Return, Seal Injection and Letdown Flow

The following manual valves will need to be operated:

MU97	Open	MU216	Throttle
MU182	Close	WC119	Open
MU214	Close	WC120	Open

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA J TABLE 1 NOTES

The following valves may need to be manually operated:

CC1409	Open	MU10A	Open
MU01A	Open	MU11	Align to CWRT
MU02B	Open		

RCS Inventory Control

After transferring Makeup suction to the BWST, MU206 will be manually closed after opening MU208, HP29, and HP1556 to route MUPS Recirc to the BWST rather than the Makeup Tank.

17. NOT USED
18. To prevent spurious operation, Valves DH09A and DH09B have been deenergized.
19. NOT USED
20. NOT USED
21. NOT USED
22. The Core Flood Isolation Valves CF01A, B are normally open and are required to be closed when cooling down before going below 700 psig. Breakers BF1120 at F11A and BE1162 at E11B are normally open; manual action may be required to close CF01A before going below 700 psig.
23. NOT USED
24. Essential CCW has been provided to the Makeup Pump Cooler, bypassing CC1460.
25. Valves DH11 and DH12 are depowered. Bypass Valves DH21 and DH23 can be manually operated to place the DHR System in service.
26. The DHR Cooler 1-1 Isolation Valve CC1467 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRS cooldown.

The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467 (CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467 (CC1469).

27. A hot short of Circuit 1PBE1271A is not considered credible since it is power to a three-phase motor. For an open circuit, MS106A need not be operated (See Note 14).

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: K

TRAIN ACCREDITED FOR SHUTDOWN: 2

4.6.K.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
318	DIESEL GEN 1-1 ROOM	80,823	Y	AUTO
318UL	DIESEL GEN 1-1 ROOM	1,051	Y	MAN
321A	DAY TANK 1-1 ROOM	4,075,871	Y	AUTO

4.6.K.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA K

The following components are located in fire area K.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
CCWS	1	CC1471	MAN	DG JKT CW HX 1 OUT VLV
EDG	1	DA1147A/B	SOV	EDG 1 AIR START VLV
	1	DA2987	AOV	AIR START RCVR 1-1-1 DISCH VLV
	1	DA2988	AOV	AIR START RCVR 1-1-2 DISCH VLV
	1	DA60	AOV	AIR START RCVR 1-1-1 RELAY VLV
	1	DA61	AOV	AIR START RCVR 1-1-2 RELAY VLV
	1	E10-1	H/EX	EDG 1 JACKET WATER HEAT EXCH
	1	K5-1	EDG	EMERG DIESEL GENERATOR 1
	1	P148-1A	PUMP	EDG JACKET WATER PUMP (RIGHT)
	1	P148-1B	PUMP	EDG JACKET WATER PUMP (LEFT)
	1	P150-1	PUMP	EDG 1 PRESS PUMP
	1	P201-1	PUMP	EDG 1-1 M/D FUEL OIL PUMP
	2	P205-1	PUMP	EDG 1-1 E/D FUEL OIL PUMP
	1	P264-1	PUMP	EDG 1 SCAVGR PUMP
	1	P265-1	PUMP	EDG 1 PISTON CLG PUMP
	1	S206-01	MTR	EDG 1 AIR START MOTOR
	1	S206-02	MTR	EDG 1 AIR START MOTOR
	1	S206-03	MTR	EDG 1 AIR START MOTOR
	1	S206-04	MTR	EDG 1 AIR START MOTOR
	1	T46-1	TANK	EDG DAY TANK 1-1
	1	T86-1	TANK	EDG STARTING AIR RECEIVER 1-1-1
	1	T86-2	TANK	EDG STARTING AIR RECEIVER 1-1-2



Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

4.6.K.2 Cont.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
ESSPWR	1	C3615	PNL	EDG1-1 PANEL LIGHTS (NORM PWR)
	1	E12B	MCC	480VAC MCC
	1	E12F	MCC	480VAC MCC
	1	YE1	PNL	120VAC MCC
HVAC	1	C25-1	FAN	EDG RM 1 VENT FAN 1
	1	C25-2	FAN	EDG RM 1 VENT FAN 2
	1	HV5329A	DMPR	EDG RM 1 DAMPER
	1	HV5329B	DMPR	EDG RM 1 DAMPER
	1	HV5329C	DMPR	EDG RM 1 DAMPER

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## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA K

#### 4.6.K.3 Fire Propagation Control

Fire Area K is located in the Diesel Building and consists primarily of the southern half of the diesel Building as shown on A-223F.

A fire that originates in this fire area will be contained in this fire area.

This fire area is enclosed by 3-hour walls, except the west wall, which is an exterior wall with no fire exposure.

Room 321A (Day Tank Room) is provided with a 3-hour barrier to separate it from the rest of this fire area due to the combustible liquid stored in the tank.

#### 4.6.K.4 Fire Detection and Suppression

Fire Area K consists of various rooms. The following areas have detection.

1. Diesel Generator 1-1 Room 318, Fire Detection Zone FDZ 318
2. Diesel Generator 1-1 Upper Level Room 318UL, Fire Detection Zone FDZ 318
3. Day Tank Room 321A, Fire Detection Zone FDZ 321A

The Diesel Generator Room 318 is provided with a pre-action sprinkler system.

The Day Tank Room 321A is provided with an automatic wet-pipe sprinkler system.

Manual fire suppression equipment is provided for this fire area. Fire extinguishers and Hose Stations (HS) are shown on Drawing A-223F.

In the event of a fire, isolation and smoke venting will be accomplished in accordance with the Prefer Plans.

The floor drains in this room are tied together with the floor drains in the adjacent diesel generator room and the drainage rate is limited due to the oil interceptor that these drains connect to. Fire suppression activities in excess of that may require that one of the outside doors to one of the rooms be opened or suppression activities minimized to prevent flooding in both rooms.

#### 4.6.K.5 Fire Area Safe Shutdown Summary

Train 2 will be used for Safe Shutdown in Fire Area K. Safe Shutdown will be accomplished using the Makeup and Purification System (MUPS) for Reactor Coolant System Inventory Control, a Letdown path and Seal Injection for RCP Seal Cooling.

SAFE SHUTDOWN ANALYSIS

FIRE AREA : K

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	NONE			OP-02501 (TRIP P14-1)	14
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3871)	OP-02501 (CLOSE AF3871)	14
	AF3872	AFWP 2 DISCH TO SG2	MOV	F	2	O	O	AS IS		H	NONE			N/A	
	AF599	AFW TO SG2 ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	AF6451	AFWP 2 FLOW CTRL VLV	SOV	F	2	O	O/C	FO		H	NONE			N/A	
	FW6460	MDFP FLOW CTRL VLV	SOV	II	2	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	ICS038A	APPT 2 GOV CTRL VLV	MOV	F	2	O	O/C	AS IS		H	NONE			N/A	
	MS106A	APPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	1CBE1271B 1CBE1271F 1CBE1271G 1CBE1271H 1CBE1271J 1CBE1271L 1PBE1271A BE1271 CDE-12B			OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1)	14 14 14 14 14 14 14 14 14 14
	MS107	APPT 2 MS IN ISO VLV	MOV	EE	2	C	O	AS IS		H	NONE			N/A	
	MS107A	APPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-1)	14
	MS5889B	APPT 2 STEAM ADMISS VLV	SOV	F	2	C	O	FO		H	NONE			N/A	
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H			OP-02501 (TRIP P14-1)	OP-02501 (TRIP P14-1)	14
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE			N/A	
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	
	P242-1	MDFP AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	P242-2	MDFP SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			N/A	7
CACS	C1-2	CAC FAN 2	FAN	D	2	O/F	ON	OFF		H	NONE			N/A	
	C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	NONE			N/A	
CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	OP-02501 (OPEN CC1407A)	13
	CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407B)	OP-02501 (OPEN CC1407B)	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE			N/A	
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1410)	OP-02501 (OPEN CC1410)	16
	CC1411A	CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411A)	OP-02501 (OPEN CC1411A)	13
	CC1411B	CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	OP-02501 (OPEN CC1411B)	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	BYPASSING CC1460	24
	CC1469	DHR CLR 2 OUT ISO VLV	SOV	AB	2	C	O	FO		C	NONE		OP-02501 (OPERATE CC1469)	OP-02501 (OPERATE CC1469)	26
	CC1474	DG JKT CW HX 2 OUT VLV	MAN	J	2	O	O	AS IS		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : K

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B H	NONE			OP-02501 (OPERATE CC43)	12,26
	CC2649	CC RETURN HDR 2 VLV	MOV	G	2	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	NONE			N/A	
	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	
	CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501(OPERATE CC43)	OP-02501(OPERATE CC43)	12,26
	CC5096	CC HDR 2 IN ISO VLV	MOV	T	2	O/C	O	AS IS		H	NONE			N/A	
	CC5098	CCW LINE 2 RET ISO VLV	MOV	T	2	O/C	O/C	AS IS		H	NONE			N/A	
	FIS1422D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1427D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1432D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	P43-2	CCW PUMP 2	PUMP	T	2	O/F	ON	OFF		H	NONE			N/A	
P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	NONE			N/A		
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B C	NONE			N/A	
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B C	NONE		OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	22
CREVS	C21-2	CTRM EVS FAN 2	FAN	HH	2	OFF	ON	OFF		H	NONE			N/A	
	S33-2	CTRM EMERG A/C UNIT 2	A/C	HH	2	OFF	ON	OFF		H	NONE			N/A	
	SV4827A	CREVS CONDENSER UNIT 2 (S33-2) IN VLV	SOV	HH	2	C	O	CLOSED		H	NONE			N/A	
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B H	NONE			OP-02501 (TRIP P56-1)	13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	NONE			OP-02501 (TRIP P56-2)	13
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	NONE		OP-02501 (TRIP P56-1)	OP-02501 (TRIP P56-1)	13
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE		OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2)	13
DHRS	DH01A	LPI LINE 2 VLV	MOV	A	2	O	O	AS IS		C	NONE			N/A	
	DH07A	BWST ISO VLV A	MOV	AC	2	O	O	AS IS		H	NONE			N/A	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH13A	DH CLR 2 BYPASS VLV	SOV	AB	2	C	C	FC		C	NONE			N/A	
	DH14A	DH CLR 2 OUT VLV	SOV	AB	2	O	O	FO		C	NONE			N/A	
	DH1518	DH NORM SUCT LINE 2 VLV	MOV	A	2	C	O/C	AS IS		C	NONE			N/A	
	DH2734	DH PUMP 2 BWST SUCT VLV	MOV	AB	2	O	O/C	AS IS		C	NONE			N/A	

LEGEND

H - required for hot standby

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : K

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
DHRS	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	
	DH63	LPI/HPI CROSS-TIE VLV	MOV	A	2	C	C	AS IS		C	NONE			N/A	
	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-1)	OP-02501 (TRIP P42-1)	13
	P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	OP-02501 (TRIP P42-2)	13
EDG	DA1148A/B	EDG 2 AIR START VLV	SOV	J	2	C	O	FC		H	NONE			N/A	
	DA2989	AIR START RCVR 1-2-1 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA2994	AIR START RCVR 1-2-2 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA62	AIR START RCVR 1-2-1 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA63	AIR START RCVR 1-2-2 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	KS-2	EMERG DIESEL GENERATOR 2	EDG	J	2	O/F	ON	OFF		H	NONE			N/A	
	P148-2A	EDG JACKET WATER PUMP (RIGHT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P148-2B	EDG JACKET WATER PUMP (LEFT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P150-2	EDG 2 PRESS PUMP	PUMP	J	2	OFF	ON	OFF		H	NONE			N/A	
	P195-2	EDG FUEL OIL TRANSPER PUMP 2	PUMP	BN	2	OFF	ON	OFF		C	NONE			N/A	
	P201-2	EDG 1-2 M/D FUEL OIL PUMP	PUMP	J	1	O/F	ON	OFF	P205-2	H	NONE			N/A	
	P205-2	EDG 1-2 E/D FUEL OIL PUMP	PUMP	J	2	O/F	ON	OFF	P201-2	H	NONE			N/A	
	P264-2	EDG 2 SCAVGR PUMP	PUMP	J	2	OFF	ON	OFF		H	NONE			N/A	
	P265-2	EDG 2 PISTON CLG PUMP	PUMP	J	2	OFF	ON	OFF		H	NONE			N/A	
	S207-01	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-02	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
S207-03	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A		
S207-04	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A		
ESSPWR	2N	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	2P	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	NONE			N/A	
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1, -2, -3	H	1CAC110D ACAACC2D ACAC2032C C3615			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7
	C3616	EDG1-2 PANEL LIGHTS (ALT PWR)	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	C3629	CONT POWER ESS METER HPI FLOW Y	PNL	R	2	ON	ON	OFF		H	NONE			N/A	
C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	NONE			N/A		

LEGEND

H - required for hot standby

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N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : K

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	C4602	NEUTRON FLUX MON. CABINET (CH.2)	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	C4625	CONT POWER TO AUX FW CONTROL PANEL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5755C	SFAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5755E	CONTROL ROOM REACT PROT. SYS PNL(CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755G	POST ACCIDENT MON. RACK (CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5756D	SFAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5759C	INST POWER NNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762A	CONTROL POWER TO SFRCS CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762C	SFAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			SFAS INITIATED	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
	C5792	CONTROL ROOM SFRCS CABINET (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5792A	CH 2 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5798	POST ACCIDENT MON. IND. PNL (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C6709	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	C6715	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	CDF-11A-1	CONTROL DISCONNECT TRANSFER SWITCH	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	CDF-12A-1	D2P CONT POWER TO AFWP GOV (ICS038B)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	D1	4.16KV AC SWGR	SWGR	Q	2	ON	ON	OFF		H	NONE			N/A	
	D2	4.16KV SWGR	SWGR	Q	2	ON	ON	OFF	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	D2N	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
D2P	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A		
DBC2N	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A		
DBC2P	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A		
DBC2PN	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF	DBC2P,DBC2N	H	NONE			NOT REQUIRED FOR S/D	7	
DBN	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A		

LEGEND

H - required for hot standby

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : K

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	DBP	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DC MCC 2	250/125V DC MCC	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	F1	480 V AC MCC F1	SWGR	X	2	ON	ON	OFF		H	NONE			N/A	
	F11A	480VAC MCC	MCC	DF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11B	480VAC MCC	MCC	V	2	ON	ON	OFF		H	NONE			N/A	
	F11C	480VAC MCC	MCC	A	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11D	480VAC MCC	MCC	G	2	ON	ON	OFF		H	NONE			N/A	
	F11E	480VAC MCC	MCC	B	2	ON	ON	OFF		C	NONE			N/A	
	F12A	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12B	480VAC MCC	MCC	J	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12C	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12D	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE			N/A	
	F14	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F15	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F16A	480V AC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	NONE			N/A	
	RC3602	DC CONTROL POWER RCP MONITOR	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3608	CONTROL POWER (TO CCCW002)	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3702	DC CONTROL POWER TO CAC 2 OUT VLV	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3705	CONT POWER RC3705 (LR3758)	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	NONE			N/A	
	RC3716										NONE			N/A	
	RC4606	DC CONT PWR (MU6406,RC4610A,PORV)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	NONE			NOT REQUIRED FOR S/D	7
	XY2	CONSTANT VOLT TRANSFORMER (CVT CH 2)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	XY4	CONSTANT VOLT TRANSFORMER (CVT CH 4)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
Y2	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A		
Y2A	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A		
Y3602	CONTROL POWER (MU19 & MU32)	PNL	II	2	ON	ON	OFF		H	NONE			N/A		
Y4	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A		

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : K

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

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ESSPWR	YBU	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YF1	120VAC MCC	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	YF2	240/120VAC MCC	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	YV2	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YV4	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YVB	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	ZC6451	APP #2 CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A	
	ZC6460	MDFP CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A	
HPIS	HP02A	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02B	H	NONE			N/A	
	HP02B	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02A	H	NONE			N/A	
	HP31	HPI PMP 2 RECIRC VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	P198-1	HPI PMP 2 AC LO PMP	PUMP	A	2	OFF	ON	OFF		H	NONE			N/A	
	P198-2	HPI PMP 2 DC LO PUMP	PUMP	A	2	OFF	ON	OFF	P198-1	H	NONE			N/A	
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	SPAS INITIATED	13
	P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-2)	SPAS INITIATED	13
HVAC	C133	LV SWGR RM VENT FAN 2	FAN	EE	2	O/F	ON	OFF		H	NONE			N/A	
	C25-3	EDG RM 2 VENT FAN 3	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C25-4	EDG RM 2 VENT FAN 4	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C73-2	AFP RM VENT FAN 2	FAN	F	2	O/F	ON	OFF		H	NONE			N/A	
	C78-2	BATT RM VENT FAN 2	FAN	X	2	O/F	ON	OFF		H	NONE			N/A	
	C99-3	SW PMP RM EXH FAN 3	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	C99-4	SW PMP RM EXH FAN 4	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	HV5314	LV SWGR RM 428 DAMPER	DMPR	EE	2	O/C	O	AS IS		H	2PYF104A			SC NOT CREDIBLE	27
	HV5314A	LV SWGR RM 428 DAMPER	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
	HV5336A	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5336B	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FO		H	NONE			N/A	
	HV5336C	EDG ROOM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5598	BATT RM 428A ATM DMPR	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
	MSS	ICS11A	MSL 2 ATM VENT VLV	SOV	DH	2	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11A)	LOSS OF AIR
MS100		MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A	
MS100-1		MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : K

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MSS	MS101	MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A	
	MS101-1	MS1V 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	NONE			N/A	
	PSV-SP17A1	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A2	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A3	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A4	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A5	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A6	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A7	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A8	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A9	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP1556)	OP-02501 (OPEN HP1556)	16
	HP27	HPI TO RCP SEALS	MAN	A	2	C	O	AS IS		H	NONE			N/A	
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP29)	OP-02501 (OPEN HP29)	16
	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE			N/A	
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE		OP-02501 (OPEN MU01B)	OP-02501 (OPEN MU01B)	16
	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	NONE		OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03)	13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	NONE			N/A	
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	NONE		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	NONE		OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT)	16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	NONE			OP-02501 (OPERATE MU214 & MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU203	Recirc to Seal Return Stop Valve	MAN	AB	2	O	O/C	AS IS		H	NONE		OP-02501(CLOSE MU203)	OP-02501(CLOSE MU203)	16
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU32	RC MU ISO VLV	FCV	AB	2	O/C	O	FO	HPIS TRAIN 1&2	H	NONE			N/A	
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B H	NONE		OP-02501 (OPEN MU38)	OP-02501 (OPEN MU38)	13

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : K

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU3971	RC MU PUMP SUCT VLV	MOV	AB	2	C	O/C	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59A)	OP-02501 (OPEN MU59A)	13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59B)	OP-02501 (OPEN MU59B)	13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C)	13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59D)	OP-02501 (OPEN MU59D)	13
	MU6406	MU RECIRC ISO VLV	AOV	AB	2	O	O/C	FO	HPIS TRAIN 2	H	NONE			N/A	
	MU6408	MU CROSS CONNECT ISO VLV	MOV	AB	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU6420	MU32 BYPASS VLV	MOV	AB	2	C	O	AS IS	HPIS,MU32	H	NONE			N/A	
	MU6422	MU CTMT ISO VLV	MOV	A	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A)	13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B)	13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C)	13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D)	13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-372B	MUP 2 MAIN LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P-372C	MUP 2 AUX LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS,P-372B	H	NONE			N/A	
	P-372D	MUP 2 AUX GEAR LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P37-2	MU PUMP 2	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P372A	MU PMP 2 MAIN GEAR LO PMP	PUMP	AB	2	O/F	O	OFF	P372D	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1743)	LOSS OF AIR	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1747)	LOSS OF AIR	12
	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	NONE			N/A	
NI	NI-5875A	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	NI-NI1	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
NNI	FI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A1	HPI FLOW IND. (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : K

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
NNI	FYI-HP03B	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B1	HPI FLOW IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-2	PRZR LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-4	PRZR LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A1	SG1-2 START-UP LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A3	SG1-2 START-UP LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A8	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A8A	SG1-2 START-UP LEVEL IND (C5710)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A9	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LRS-RC14	PRZR LEVEL RECORDER	REC	FF	2	ON	ON	OFF	LI-RC14-1-4	H	NONE			N/A	
	PI-6365A	RCS LOOP 2 EXTENDED RANGE PRESS	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-6365A1	RCS LOOP2 EXTENDED RANGE PRESS (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A3	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A4	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1	SG1-2 OUTLET PRESS IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1-A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF	PI-SP12A	H	NONE			N/A	
	TE-RC3A6	RCS LOOP 2 HOT LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TE-RC4A2	RCS LOOP 2 COLD LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A4	RCS LOOP 2 HOT LEG TEMP (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A5	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A6	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A2	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A4	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A	
	RC13A	RCS CODE SAFETY VALVE	SV	D	2	C	C	CLOSED		H	NONE			N/A	
	RC147	PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
	RC200	PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A	
	RC239A	PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A	
	RC239B	PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A	
	RC2A	PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			N/A	
	RC4608A	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : K

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
RCS	RC4608B	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A	
	RC4610A	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A	
	RC4610B	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A	
	RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	NONE			N/A	
SFAS	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS MAY ACTUATE	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS MAY ACTUATE	13
	C5765D	SFAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : K

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	D E S C R I P T I O N	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SPAS	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
SFRCS	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101B	LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101C	LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS3871B	BLOCK CIRCUIT AF3871 (APP-2 TO SG-1)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS3872B	BLOCK CIRCUIT AF3872 (APP-2 TO SG-2)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS603B	BLOCK CIRCUIT MS603 (SG-2 DRAIN STOP)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS6402	CH 2/4 MANUAL START AFPT-2 C5707	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	HIS6404	CH 2/4 MAN STRT AFPT-2 & ISOL SG-2 C57	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : K

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	NONE			N/A	7
	P3-2	SW PUMP 2	PUMP	BF	2	O/F	ON	OFF		H	NONE			N/A	
	P3-3	SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1, P3-2	H	NONE			N/A	
	SW1357	CAC 2 OUT ISO VLV	SOV	A	2	O/C	O	FO		H	NONE			N/A	
	SW1358	CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	NONE			N/A	
	SW1367	CAC 2 IN ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	SW1368	CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	NONE			N/A	
	SW1383	APP 2 SUCT VLV FROM SW	MOV	A	2	C	O/C	AS IS		H	NONE			N/A	
	SW1395	TPCW HX IN HEADER ISO VLV	MOV	BG	2	O/C	C	AS IS		H	NONE			N/A	
	SW1429	SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	NONE			N/A	
	SW1434	SW FROM CC HX 2 ISO VLV	SOV	T	2	O/C	O	FO		H	NONE			N/A	
	SW2928	CTRM EVS COND UNIT IN VLV	MOV	BH	2	C	O	AS IS		H	NONE			N/A	
	SW2930	SW TO INT FOREBAY VLV	MOV	BG	2	O/C	O	AS IS	SW2929, 31, 32	H	NONE			N/A	
	SW2932	SW TO COLLECT BASIN VLV	MOV	BG	2	O/C	O	AS IS	SW2929, 30, 31	H	NONE			N/A	
SW54	TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A		

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

4.6.K .6 TABLE1  
Detailed Analysis

FIRE HAZARDS ANALYSIS

DAVIS BESSE

SAFE SHUTDOWN ANALYSIS

FIRE AREA : K

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SWS	SW55	TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B H	NONE				N/A
	SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B H	NONE				N/A

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA K TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent upstream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED



Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA K TABLE 1 NOTES

- 9. NOT USED
- 10. NOT USED
- 11. NOT USED
- 12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:
 

ICS11A	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

- 13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level setpoint is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components.

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531 P42-2	CS Iso Vlv LPI Pump 2	Open On	Stop P56-1, -2 Stop P42-2 from the CR after blocking SFAS
P42-1 P56-2	LPI Pump 1 CS Pump 2	On On	Trip Bkr AC112 at C1 Stop P56-2 from the CR after blocking SFAS
P56-1 P58-2	CS Pump 1 HPI Pump 2	On On	Trip Bkr BE111 at E1 Stop P58-2 from the CR after blocking SFAS
P58-1 CC1407A, B	HPI Pump 1 CCW Out Iso Vlv	On Closed	Trip Bkr AC111 at C1 Open CC1407A, B and Trip Bkr BE1173 at E11B & BF1158 at F11B
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip Bkr BE1176 at E11B & BF1159 at F11B
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03 MU38	RC Lt Dn Cooler Out RCP Seal Rtn Isol	Closed Closed	Open MU03 Open MU38

FIRE AREA K TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

If AF3871 is manually closed, first trip Breaker BF1201 at F12A.

15. NOT USED

16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or by performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injection and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.

RCP Seal Return Flow

The following manual valves will need to be operated:

MU97	Open	MU216	Throttle
MU182	Close	WC119	Open
MU214	Close	WC120	Open

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA K TABLE 1 NOTES

Additionally, the following valves may need to be manually operated:

CC1410	Open	MU10A	Open
MU01B	Open	MU11	Direct Flow to CWRT
MU02B	Open		

RCS Inventory Control

After transferring the Makeup suction to the BWST, MU203 will be manually closed after opening MU208, HP29, and HP1556 to route MUPS Recirc to the BWST rather than the Makeup Tank.

17. NOT USED
18. To prevent spurious operation, Valves DH09A and DH09B have been deenergized.
19. NOT USED
20. NOT USED
21. NOT USED
22. The Core Flood Isolation Valves CF01A, B are normally open and are required to be closed when cooling down before going below 700 psig. Breakers BF1120 at F11A and BE1162 at E11B are normally open; manual action may be required to close CF01B before going below 700 psig.
23. NOT USED
24. Essential CCW is provided to the Makeup Pump Cooler, bypassing CC1460.
25. Valves DH11 and DH12 are depowered. Bypass Valves DH21 and DH23 can be manually operated to place the DHR System in service.
26. The DHR Cooler 1-2 Isolation Valve CC1469 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRS Cooldown.  
  
The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467 (CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467 (CC1469).
27. A hot short in Circuit 2PYF104A and resultant closure of HV5314 is not considered to be credible. 2PYF104A is the only circuit in this conduit; therefore, a hot short internal to the conduit is not credible. A hot short from an external source is not credible because all the conduits and cable trays are grounded.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: MA

TRAIN ACCREDITED FOR SHUTDOWN: 1/2

4.6.MA.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
MH3001	MANHOLE MH3001	400	N	MAN

.....

4.6.MA.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA MA

The following components are located in fire area MA.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
NONE				

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## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA MA

#### 4.6.MA.3 Fire Propagation Control

Fire Area MA is a cable manhole located in the yard immediately adjacent to the northernmost part of the east wall of the Turbine Building. This fire area is a reinforced concrete structure, most of which is located below grade. Only the reinforced concrete cap and steel checkplate hatches are exposed to the Yard area. This manhole is physically divided into two spaces by a 1 ft. thick concrete wall. A fire that originates in this fire area will be contained in the fire area.

#### 4.6.MA.4 Fire Detection and Suppression

There is no automatic fire detection located in this fire area.

Manual fire suppression is provided for this area by Yard hydrants and Hose House (HH) 16.

In the event of a fire, smoke venting will be accomplished with portable ventilation.

#### 4.6.MA.5 Fire Area Safe Shutdown Summary

Trains 1 and 2 are accredited for Safe Shutdown in Fire Area MA due to the fact that cables for all three Service Water Pumps and the Backup Service Water Pump pass through this area. Safe Shutdown will be accomplished using the Makeup and Purification System (MUPS) for Reactor Coolant System Inventory Control, a Letdown path and Seal Injection for RCP Seal Cooling.

An exemption from the separation requirements for the Train 1 and 2 Service Water Pump circuits has been requested.

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MA

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3869)	OP-02501 (CLOSE AF3869)	14
	AF3870	AFWP 1 DISCH TO SG1	MOV	E	1	O	O	AS IS		H	NONE			OP-02501 (TRIP P14-1)	14
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3871)	OP-02501 (CLOSE AF3871)	14
	AF3872	AFWP 2 DISCH TO SG2	MOV	F	2	O	O	AS IS		H	NONE			OP-02501 (TRIP P14-2)	14
	AF599	AFW TO SG2 ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	AF608	AFW TO SG1 ISO VLV	MOV	AB	1	O	O	AS IS		H	NONE			N/A	
	AF6451	AFWP 2 FLOW CTRL VLV	SOV	F	2	O	O/C	FO		H	NONE			N/A	14
	AF6452	AFWP 1 FLOW CTRL VLV	SOV	E	1	O	O/C	FO		H	NONE			N/A	14
	FW6459	MDFP FLOW CTRL VALVE	SOV	II	1	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			N/A	
	FW6460	MDFP FLOW CTRL VLV	SOV	II	2	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			N/A	
	ICS038A	AFPT 2 GOV CTRL VLV	MOV	F	2	O	O/C	AS IS		H	NONE			N/A	
	ICS038B	AFPT 1 GOV CTRL VLV	MOV	E	1	O	O/C	AS IS		H	NONE			N/A	
	MS106	AFPT 1 MS IN ISO VLV	MOV	EE	1	C	O	AS IS		H	NONE			NA	
	MS106A	AFPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	NONE			OP-02501 (TRIP P14-1)	14
	MS107	AFPT 2 MS IN ISO VLV	MOV	EE	2	C	O	AS IS		H	NONE			N/A	14
	MS107A	AFPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-2)	14
	MSS889A	AFPT 1 STEAM ADMISS VLV	SOV	E	1	C	O	FO		H	NONE			N/A	14
	MSS889B	AFPT 2 STEAM ADMISS VLV	SOV	F	2	C	O	FO		H	NONE			N/A	14
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-1)	OP-02501 (TRIP P14-1)	14
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-2)	OP-02501 (TRIP P14-2)	14
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	P242-1	MDFP AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	P242-2	MDFP SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
CACS	C1-1	CAC FAN 1	FAN	D	1	O/F	ON	OFF		H	NONE			NA	
	C1-2	CAC FAN 2	FAN	D	2	O/F	ON	OFF		H	NONE			NA	
	C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	NONE			NA	
CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	OP-02501 (OPEN CC1407A)	13
	CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407B)	OP-02501 (OPEN CC1407B)	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE			N/A	
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1410)	OP-02501 (OPEN CC1410)	16
	CC1411A	CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411A)	OP-02501 (OPEN CC1411A)	13

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MA

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC1411B	CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	OP-02501 (OPEN CC1411B)	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	N/A	25
	CC1467	DHR CLR 1 OUT ISO VLV	SOV	AB	1	C	O	FO		C	NONE		OP-02501 (OPERATE CC1467)	OP-02501 (OPERATE CC1467)	29
	CC1469	DHR CLR 2 OUT ISO VLV	SOV	AB	2	C	O	FO		C	NONE		OP-02501 (OPERATE CC1469)	OP-02501 (OPERATE CC1469)	29
	CC1471	DG JKT CW HX 1 OUT VLV	MAN	K	1	O	O	AS IS		H	NONE			N/A	
	CC1474	DG JKT CW HX 2 OUT VLV	MAN	J	2	O	O	AS IS		H	NONE			N/A	
	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B	H	NONE		OP-02501 (OPERATE CC43)	12,29
	CC2645	CC RETURN HDR 1 VLV	MOV	G	1	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	NONE			N/A	
	CC2649	CC RETURN HDR 2 VLV	MOV	G	2	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	NONE			N/A	
	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	
	CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501(OPERATE CC43)	OP-02501(OPERATE CC43)	12,29
	CC5095	CC HDR 1 IN ISO VLV	MOV	T	1	O/C	O	AS IS		H	NONE			N/A	
	CC5096	CC HDR 2 IN ISO VLV	MOV	T	2	O/C	O	AS IS		H	NONE			N/A	
	CC5097	CCW LINE 1 RET ISO VLV	MOV	T	1	O/C	O/C	AS IS		H	NONE			N/A	
	CC5098	CCW LINE 2 RET ISO VLV	MOV	T	2	O/C	O/C	AS IS		H	NONE			N/A	
	FIS1422C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A	
	FIS1422D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1427C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A	
	FIS1427D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1432C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A	
	FIS1432D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	P43-1	CCW PUMP 1	PUMP	T	1	O/F	ON	OFF		H	NONE			N/A	
	P43-2	CCW PUMP 2	PUMP	T	2	O/F	ON	OFF		H	NONE			N/A	
P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	NONE			N/A		
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B	C	NONE	OP-02501 (CLOSE CF01A)	OP-02501 (CLOSE CF01A)	22
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B	C	NONE	OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	22
CREVS	C21-1	CTRM EVS FAN 1	FAN	HH	1	OFF	ON	OFF		H	NONE			N/A	
	C21-2	CTRM EVS FAN 2	FAN	HH	2	OFF	ON	OFF		H	NONE			N/A	
	S33-1	CTRM EMERG A/C UNIT 1	A/C	HH	1	OFF	ON	OFF		H	NONE			N/A	
	S33-2	CTRM EMERG A/C UNIT 2	A/C	HH	2	OFF	ON	OFF		H	NONE			N/A	
	SV4823A	CREVS CONDENSER UNIT 1 (S33-1) IN VLV	SOV	HH	1	C	O	CLOSED		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

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B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MA

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CREVS	SV4827A	CREVS CONDENSER UNIT 2 (S33-2) IN VLV	SOV	HH	2	C	O	CLOSED		H	NONE			N/A	
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B H	NONE			OP-02501 (TRIP P56-1)	13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	NONE			OP-02501 (TRIP P56-2)	13
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	NONE		OP-02501 (TRIP P56-1)	OP-02501 (TRIP P56-1)	13
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE		OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2)	13
DHRS	DH01A	LPI LINE 2 VLV	MOV	A	2	O	O	AS IS		C	NONE			N/A	
	DH01B	LPI LINE 1 VLV	MOV	AB	1	O	O	AS IS		C	NONE			N/A	
	DH07A	BWST ISO VLV A	MOV	AC	2	O	O	AS IS		H	NONE			N/A	
	DH07B	BWST ISO VLV B	MOV	AC	1	O	O	AS IS		H	NONE			N/A	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	23
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	23
	DH13A	DH CLR 2 BYPASS VLV	SOV	AB	2	C	C	FC		C	NONE			N/A	
	DH13B	DH CLR 1 BYPASS VLV	SOV	AB	1	C	C	FC		C	NONE			N/A	
	DH14A	DH CLR 2 OUT VLV	SOV	AB	2	O	O	FO		C	NONE			N/A	
	DH14B	DH CLR 1 OUT VLV	SOV	AB	1	O	O	FO		C	NONE			N/A	
	DH1517	DH NORM SUCT LINE 1 VLV	MOV	A	1	C	O/C	AS IS		C	NONE			N/A	
	DH1518	DH NORM SUCT LINE 2 VLV	MOV	A	2	C	O/C	AS IS		C	NONE			N/A	
	DH2733	DH PUMP 1 BWST SUCT VLV	MOV	AB	1	O	O/C	AS IS		C	NONE			N/A	
	DH2734	DH PUMP 2 BWST SUCT VLV	MOV	AB	2	O	O/C	AS IS		C	NONE			N/A	
	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	
	DH63	LPI/HPI CROSS-TIE VLV	MOV	A	2	C	C	AS IS		C	NONE			N/A	
	DH64	LPI/HPI CROSS-TIE VLV	MOV	AB	1	C	C	AS IS		C	NONE			N/A	
P42	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-1)	OP-02501 (TRIP P42-1)	13
	P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	OP-02501 (TRIP P42-2)	13
EDG	DA1147A/B	EDG 1 AIR START VLV	SOV	K	1	C	O	FC		H	NONE			N/A	
	DA1148A/B	EDG 2 AIR START VLV	SOV	J	2	C	O	FC		H	NONE			N/A	
	DA2987	AIR START RCVR 1-1-1 DISCH VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA2988	AIR START RCVR 1-1-2 DISCH VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	

LEGEND

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B - valve maintains boundary isolation

N/A - not affected



SAFE SHUTDOWN ANALYSIS

FIRE AREA : MA

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
EDG	DA2989	AIR START RCVR 1-2-1 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA2994	AIR START RCVR 1-2-2 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA60	AIR START RCVR 1-1-1 RELAY VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA61	AIR START RCVR 1-1-2 RELAY VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA62	AIR START RCVR 1-2-1 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA63	AIR START RCVR 1-2-2 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	KS-1	EMERG DIESEL GENERATOR 1	EDG	K	1	O/F	ON	OFF		H	NONE			N/A	
	KS-2	EMERG DIESEL GENERATOR 2	EDG	J	2	O/F	ON	OFF		H	NONE			N/A	
	P148-1A	EDG JACKET WATER PUMP (RIGHT)	PUMP	K	1	O/F	O	OFF		H	NONE			N/A	
	P148-1B	EDG JACKET WATER PUMP (LEFT)	PUMP	K	1	O/F	O	OFF		H	NONE			N/A	
	P148-2A	EDG JACKET WATER PUMP (RIGHT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P148-2B	EDG JACKET WATER PUMP (LEFT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P195-1	EDG FUEL OIL TRANSPER PUMP 1	PUMP	BN	1	OFF	ON	OFF		C	NONE			N/A	
	P195-2	EDG FUEL OIL TRANSPER PUMP 2	PUMP	BN	2	OFF	ON	OFF		C	NONE			N/A	
	P201-1	EDG 1-1 M/D FUEL OIL PUMP	PUMP	K	1	O/F	ON	OFF	P205-1	H	NONE			N/A	
	P201-2	EDG 1-2 M/D FUEL OIL PUMP	PUMP	J	1	O/F	ON	OFF	P205-2	H	NONE			N/A	
	P205-1	EDG 1-1 E/D FUEL OIL PUMP	PUMP	K	2	O/F	ON	OFF	P201-1	H	NONE			N/A	
	P205-2	EDG 1-2 E/D FUEL OIL PUMP	PUMP	J	2	O/F	ON	OFF	P201-2	H	NONE			N/A	
	P8-1	DO XFER PUMP 1	PUMP	BM	1	O/F	O	OFF	P195-1	H	NONE			N/A	
	S206-01	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-02	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-03	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-04	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S207-01	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-02	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-03	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-04	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
BSSPWR	1N	125VDC STATION BATTERY	BATT	Y	1	ON	ON	OFF		H	NONE			N/A	
	1P	125VDC STATION BATTERY	BATT	Y	1	ON	ON	OFF		H	NONE			N/A	
	2N	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	2P	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBB)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MA

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
BSSPWR	C1	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF		H	NONE			N/A	
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1,-2,-3	H	NONE			N/A	
	C3615	EDG1-1 ELECT CONTROL & RELAY PANEL	PNL	K	1	ON	ON	OFF		H	NONE			N/A	
	C3616	EDG1-2 PANEL LIGHTS (ALT PWR)	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	C3628	CONT POWER ESS METER HPI FLOW X	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C3629	CONT POWER ESS METER HPI FLOW Y	PNL	R	2	ON	ON	OFF		H	NONE			N/A	
	C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C3645	CONT POWER TO AUX FW CONTROL PNL	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	C4602	NEUTRON FLUX MON. CABINET (CH.2)	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	C4625	CONT POWER TO AUX FW CONTROL PANEL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	C4808	NEUTRON FLUX MON. CABINET (CH.1)	PNL	DG	1	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5755C	SFAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	NONE			SFAS INITIATED	13
	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
	C5755E	CONTROL ROOM REACT PROT. SYS PNL(CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755G	POST ACCIDENT MON. RACK (CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5756D	SFAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			SFAS INITIATED	13
	C5759C	INST POWER NNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			SFRCS INITIATED	14
	C5762A	CONTROL POWER TO SFRCS CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	NONE			SFRCS INITIATED	14
	C5762C	SFAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			SFAS INITIATED	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
	C5762E	CONTROL ROOM REACT PROT. SYS PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5763A	POST ACCIDENT MON. SYS PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
	C5792	CONTROL ROOM SFRCS CABINET (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5792A	CH 2 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			SFRCS INITIATED	14
	C5798	POST ACCIDENT MON. IND. PNL (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5799	POST ACCIDENT MON. IND. PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MA

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
BSSPWR	C6708	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	1	ON	ON	OFF		H	NONE			N/A	
	C6709	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	C6714	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	1	ON	ON	OFF		H	NONE			N/A	
	C6715	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	CDE-11B-1	CONTROL POWER (LOADS NON-SSD)	PNL	V	1	ON	OFF	ON		H	NONE			N/A	
	CDE-11B-2	CONT POWER TO DH12 INTLK	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	CDE-12A-1	D1P CONT POWER TO AFWP GOV (ICS038A)	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	CDF-11A-1	CONTROL DISCONNECT TRANSFER SWITCH	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	CDF-12A-1	D2P CONT POWER TO AFWP GOV (ICS038B)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	D1	4.16KV AC SWGR	SWGR	Q	2	ON	ON	OFF		H	NONE			N/A	
	D1N	125VDC DIST PNL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1NA	125VDC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1P	125VDC DIST PNL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1PA	125VDC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D2	4.16KV SWGR	SWGR	Q	2	ON	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	
	D2N	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	D2P	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DAN	125VDC DIST PANEL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DAP	125VDC DIST PANEL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DBC1N	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC1P	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC1PN	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF	DBC1P,DBC1N	H	NONE			N/A	
	DBC2N	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2P	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2PN	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF	DBC2P,DBC2N	H	NONE			N/A	
	DBN	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBP	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DC MCC 1	250/125V DC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DC MCC 2	250/125V DC MCC	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	E1	480 VAC MCC E1	SWGR	Y	1	ON	ON	OFF		H	NONE			N/A	
	E11A	480VAC MCC	MCC	G	1	ON	ON	OFF		H	NONE	MOD 85-0063		N/A	6**
	E11B	480VAC MCC	MCC	V	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MA

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	E11C	480VAC MCC	MCC	V	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E11D	480VAC MCC	MCC	G	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E11E	480VAC MCC	MCC	DG	1	ON	ON	OFF		H	NONE			N/A	
	E12A	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E12B	480VAC MCC	MCC	K	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E12C	480VAC MCC	MCC	BE	1	ON	ON	OFF		H	1PBEL202A			EXEMPTION REQUEST (SEPARATION)	10
	E12D	480V AC MCC	MCC	BE	1	ON	ON	OFF		H	NONE			N/A	
	E12E	480VAC MCC	MCC	B	1	ON	ON	OFF		H	NONE			N/A	
	E12F	480VAC MCC	MCC	K	1	ON	ON	OFF		H	NONE			N/A	
	E14	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E15	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E16A	480V AC MCC	MCC	EE	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E16B	480VAC MCC	MCC	DG	1	ON	ON	OFF		H	NONE			N/A	
	F1	480 V AC MCC F1	SWGR	X	2	ON	ON	OFF		H	NONE			N/A	
	F11A	480VAC MCC	MCC	DF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11B	480VAC MCC	MCC	V	2	ON	ON	OFF		H	NONE			N/A	
	F11C	480VAC MCC	MCC	A	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11D	480VAC MCC	MCC	G	2	ON	ON	OFF		H	NONE			N/A	
	F11E	480VAC MCC	MCC	B	2	ON	ON	OFF		C	NONE			N/A	
	F12A	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12B	480VAC MCC	MCC	J	2	ON	ON	OFF		H	NONE			N/A	
	F12C	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	2PBF1202A		MOD 85-0063	EXEMPTION REQUEST (SEPARATION)	6**10
	F12D	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE			N/A	
	F14	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F15	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F16A	480V AC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	NONE			N/A	
	RC3601	DC CONT POWER RCP MONITOR	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	RC3602	DC CONTROL POWER RCP MONITOR	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3607	CONTROL POWER (TO CCCW001)	PNL	S	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MA

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	RC3608	CONTROL POWER (TO CCCW002)	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3701	DC CONTROL POWER TO CAC 1 OUT VLV	PNL	A	1	ON	ON	OFF		H	NONE			N/A	
	RC3702	DC CONTROL POWER TO CAC 2 OUT VLV	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3705	CONT POWER RC3705 (LR3758)	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3706	CONTROL POWER (LOADS NON-SSD)	PNL	V	1	ON	OFF	ON		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	NONE			N/A	
	RC3716										NONE			N/A	
	RC4606	DC CONT PWR (MU6406,RC4610A,PORV)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	RC4801	DC CONT PWR TO RC4801 (MU6405, MU6407)	PNL	DG	1	ON	ON	OFF		H	NONE			N/A	
	RC4802	CONT PWR (TO MUTK, SG DRN RLY)	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	NONE			NOT REQUIRED FOR S/D	7
	XY1	CONSTANT VOLT TRANSFORMER (CVT CH 1)	XFMR	Y	1	ON	ON	OFF		H	NONE			N/A	
	XY2	CONSTANT VOLT TRANSFORMER (CVT CH 2)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	XY3	CONSTANT VOLT TRANSFORMER (CVT CH 3)	XFMR	Y	1	ON	ON	OFF		H	NONE			N/A	
	XY4	CONSTANT VOLT TRANSFORMER (CVT CH 4)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	Y1	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y1A	120 VAC ESS INSTR DISTR PANEL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y2	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y2A	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y3	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y3602	CONTROL POWER (MU19 & MU32)	PNL	II	2	ON	ON	OFF		H	NONE			N/A	
	Y4	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YAU	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	YBU	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YE1	120VAC MCC	PNL	K	1	ON	ON	OFF		H	NONE			N/A	
	YE2	240/120VAC MCC	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	YF1	120VAC MCC	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	YF2	240/120VAC MCC	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	YV1	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	YV2	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YV3	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	YV4	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			NA	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MA

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
ESSPWR	YVA	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A		
	YVB	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A		
	ZC6451	AFP #2 CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A		
	ZC6452	AFP #1 CTRL VLV POSITION CONTROLLER	PNL	E	1	ON	ON	OFF		H	NONE			N/A		
	ZC6459	MDFP CONTROL VLV POSITION CONTROLLER	PNL	II	1	ON	ON	OFF		H	NONE			N/A		
	ZC6460	MDFP CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A		
HPIS	HP02A	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02B	H	NONE			N/A		
	HP02B	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02A	H	NONE			N/A		
	HP02C	HPI 1 DISCH ISO VLV	MOV	AB	1	C	O	AS IS	HP02D	H	NONE			N/A		
	HP02D	HPI 1 DISCH ISO VLV	MOV	AB	1	C	O	AS IS	HP02C	H	NONE			N/A		
	HP31	HPI PMP 2 RECIRC VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A		
	HP32	HPI PMP 1 RECIRC VLV	MOV	AB	1	O	O	AS IS		H	NONE			N/A		
	P197-1	HPI PMP 1 AC LO PUMP	PUMP	AB	1	OFF	ON	OFF		H	NONE			N/A		
	P197-2	HPI PMP 1 DC LO PMP	PUMP	AB	1	OFF	ON	OFF	P197-1	H	NONE			N/A		
	P198-1	HPI PMP 2 AC LO PMP	PUMP	A	2	OFF	ON	OFF		H	NONE			N/A		
	P198-2	HPI PMP 2 DC LO PUMP	PUMP	A	2	OFF	ON	OFF	P198-1	H	NONE			N/A		
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	OP-02501 (TRIP P58-1)	13	
	P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-2)	OP-02501 (TRIP P58-2)	13	
	HVAC	C100	TRAV SCR AREA EXH FAN (B/U SW PUMP)	FAN	BD	1	O/F	O/F	OFF		H	NONE			N/A	
		C133	LV SWGR RM VENT FAN 2	FAN	EE	2	O/F	ON	OFF		H	NONE			N/A	
C25-1		EDG RM 1 VENT FAN 1	FAN	K	1	O/F	ON	OFF		H	NONE			N/A		
C25-2		EDG RM 1 VENT FAN 2	FAN	K	1	O/F	ON	OFF		H	NONE			N/A		
C25-3		EDG RM 2 VENT FAN 3	FAN	J	2	O/F	ON	OFF		H	NONE			N/A		
C25-4		EDG RM 2 VENT FAN 4	FAN	J	2	O/F	ON	OFF		H	NONE			N/A		
C71-1		LV SWGR RM VENT FAN 1	FAN	Y	1	O/F	ON	OFF		H	NONE			N/A		
C73-1		AFP RM VENT FAN 1	FAN	E	1	O/F	ON	OFF		H	NONE			N/A		
C73-2		AFP RM VENT FAN 2	FAN	F	2	O/F	ON	OFF		H	NONE			N/A		
C78-1		BATT RM VENT FAN 1	FAN	Y	1	O/F	ON	OFF		H	NONE			N/A		
C78-2		BATT RM VENT FAN 2	FAN	X	2	O/F	ON	OFF		H	NONE			N/A		
C99-1		SW PMP RM EXH FAN 1	FAN	BF	1	O/F	ON	OFF		H	NONE			N/A		
C99-2		SW PMP RM EXH FAN 2	FAN	BF	1	O/F	ON	OFF		H	NONE			N/A		

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MA

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
HVAC	C99-3	SW PMP RM EXH FAN 3	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	C99-4	SW PMP RM EXH FAN 4	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	HV0531A	AIR IN LVR FOR B/U SW PUMP	DMPR	BD	1	O/C	O/C	OPEN		H	NONE			N/A	
	HV0532A	AIR IN LVR FOR B/U SW PUMP	DMPR	BD	1	O/C	O/C	OPEN		H	NONE			N/A	
	HV5305	LV SWGR RM FAN 1 DAMPER	DMPR	Y	1	O/C	O	AS IS		H	NONE			N/A	
	HV5305A	LV SWGR RM 429 DAMPER	DMPR	Y	1	O/C	O	AS IS	HV5305B	H	NONE			N/A	
	HV5305B	LV SWGR RM 429 DAMPER	DMPR	Y	1	O/C	O	AS IS	HV5305A	H	NONE			N/A	
	HV5314	LV SWGR RM 428 DAMPER	DMPR	EE	2	O/C	O	AS IS		H	NONE			N/A	
	HV5314A	LV SWGR RM 428 DAMPER	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
	HV5329A	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FC		H	NONE			N/A	
	HV5329B	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FO		H	NONE			N/A	
	HV5329C	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FC		H	NONE			N/A	
	HV5336A	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5336B	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FO		H	NONE			N/A	
	HV5336C	EDG ROOM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5597	BAIT RM 429B ATM DMPR	DMPR	Y	1	O/C	O	AS IS		H	NONE			N/A	
	HV5598	BAIT RM 428A ATM DMPR	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
	MSS	ICS11A	MSL 2 ATM VENT VLV	SOV	DH	2	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11A)	OP-02501 (THROTTLE ICS11A)
ICS11B		MSL 1 ATM VENT VLV	SOV	DH	1	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11B)	OP-02501 (THROTTLE ICS11B)	12
MS100		MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A	
MS100-1		MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A	
MS101		MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A	
MS101-1		MS1V 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	NONE			N/A	
PSV-SP17A1		MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
PSV-SP17A2		MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
PSV-SP17A3		MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
PSV-SP17A4		MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
PSV-SP17A5		MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
PSV-SP17A6		MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
PSV-SP17A7		MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
PSV-SP17A8		MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
PSV-SP17A9		MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MA

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MSS	PSV-SP17B1	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B2	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B3	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B4	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B5	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B6	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B7	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B8	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B9	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP1556)	OP-02501 (OPEN HP1556)	16
	HP26	HPI TO RCP SEALS	MAN	AB	1	C	O	AS IS		H	NONE			N/A	
	HP27	HPI TO RCP SEALS	MAN	A	2	C	O	AS IS		H	NONE			N/A	
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP29)	OP-02501 (OPEN HP29)	16
	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE			N/A	
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE		OP-02501 (OPEN MU01B)	OP-02501 (OPEN MU01B)	16
	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	NONE		OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03)	13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	NONE			N/A	
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	NONE		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	NONE		OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT)	16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	NONE			OP-02501 (OPERATE MU214 & MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU203	Recirc to Seal Return Stop Valve	MAN	AB	2	O	O/C	AS IS		H	NONE		OP-02501 (CLOSE MU203/206)	OP-02501 (CLOSE MU203/206)	16
	MU206	Recirc to Seal Return Stop Valve	MAN	AB	1	O	O/C	AS IS		H	NONE		OP-02501 (CLOSE MU203/206)	OP-02501 (CLOSE MU203/206)	16
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU32	RC MU ISO VLV	FCV	AB	2	O/C	O	FO	HPIS TRAIN 1&2	H	NONE			N/A	
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B H	NONE		OP-02501 (OPEN MU38)	OP-02501 (OPEN MU38)	12,13

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



SAFE SHUTDOWN ANALYSIS

FIRE AREA : MA

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU3971	RC MU PUMP SUCT VLV	MOV	AB	2	C	O/C	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59A)	OP-02501 (OPEN MU59A)	13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59B)	OP-02501 (OPEN MU59B)	13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C)	13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59D)	OP-02501 (OPEN MU59D)	13
	MU6405	RC MU PUMP SUCT VLV	MOV	AB	1	C	O/C	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6406	MU RECIRC ISO VLV	AOV	AB	2	O	O/C	FO	HPIS TRAIN 2	H	NONE			N/A	
	MU6407	MU RECIRC ISO VLV	AOV	AB	1	O	O/C	FO	HPIS TRAIN 1	H	NONE			N/A	
	MU6408	MU CROSS CONNECT ISO VLV	MOV	AB	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU6409	MU CROSS CONNECT ISO VLV	MOV	AB	1	O	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6419	MU DISCH VLV	MOV	AB	1	C	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6420	MU32 BYPASS VLV	MOV	AB	2	C	O	AS IS	HPIS,MU32	H	NONE			NA	
	MU6421	MU CTMT ISO VLV	MOV	AB	1	C	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6422	MU CTMT ISO VLV	MOV	A	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A)	13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B)	13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C)	13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D)	13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-371B	MUP 1 MAIN LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P-371C	MUP 1 AUX LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS,P-371B	H	NONE			N/A	
	P-371D	MUP 1 AUX GEAR LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P-372B	MUP 2 MAIN LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P-372C	MUP 2 AUX LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS,P-372B	H	NONE			N/A	
	P-372D	MUP 2 AUX GEAR LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P37-1	MU PUMP 1	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P37-2	MU PUMP 2	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P371A	MU PMP 1 MAIN GEAR LO PMP	PUMP	AB	1	O/F	O	OFF	P371D	H	NONE			N/A	
	P372A	MU PMP 2 MAIN GEAR LO PMP	PUMP	AB	2	O/F	O	OFF	P372D	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MA

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1743)	OP-02501 (OPEN WC1743)	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1747)	OP-02501 (OPEN WC1747)	12
	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	NONE			N/A	
NI	NI-5874A	SOURCE RANGE IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	NI-5874C	LOCAL SOURCE RANGE IND	IND	DG	1	ON	ON	OFF	NI-5874A	H	NONE			N/A	
	NI-5875A	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	NI-NI1	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	NI-NI2	SOURCE RANGE IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
NNI	FI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI6425	RC MU FLOW-HI RANGE	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FI6435	RC MU FLOW-LOW RANGE	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A1	HPI FLOW IND. (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B1	HPI FLOW IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03C	HPI FLOW INDICATION	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03C1	HPI FLOW IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03D	HPI FLOW INDICATION	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03D1	HPI FLOW IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-1	PRZR LEVEL IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-2	PRZR LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-3	PRZR LEVEL IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-4	PRZR LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A1	SG1-2 START-UP LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A3	SG1-2 START-UP LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A8	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A8A	SG1-2 START-UP LEVEL IND (C5710)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
LI-SP09A9	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A		
LI-SP09B1	SG1-1 START-UP LEVEL IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A		
LI-SP09B3	SG1-1 START-UP LEVEL IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A		

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MA

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
NNI	LI-SP09B8	SG1-1 START-UP LEVEL IND (C5761A)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	LI-SP09B8A	SG1-1 START-UP LEVEL IND (C5708)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	LI-SP09B9	SG1-1 START-UP LEVEL IND (C5761A)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	LRS-RC14	PRZR LEVEL RECORDER	REC	FF	2	ON	ON	OFF	LI-RC14-1-4	H	NONE			N/A	
	PI-6365A	RCS LOOP 2 EXTENDED RANGE PRESS	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-6365A1	RCS LOOP2 EXTENDED RANGE PRESS (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-6365B	RCS LOOP 1 EXTENDED RANGE PRESS	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-6365B1	RCS LOOP 1 EXTENDED RANGE PRESS (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A3	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A4	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2B3	RCS LOOP 1 PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-RC2B4	RCS LOOP 1 PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1	SG1-2 OUTLET PRESS IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1-A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF	PI-SP12A	H	NONE			N/A	
	PI-SP12B	SG1-1 OUTLET PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12B1	SG1-1 OUTLET PRESS IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12B2	SG1-1 OUTLET PRESS IND	IND	FF	1	ON	ON	OFF	PI-SP12B-1	H	NONE			N/A	
	TE-RC3A6	RCS LOOP 2 HOT LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TE-RC3B5	RCS LOOP 1 HOT LEG TEMP (RM 303)	TE	D	1	ON	ON	OFF		H	NONE			N/A	
	TE-RC4A2	RCS LOOP 2 COLD LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TE-RC4B3	RCS LOOP 1 COLD LEG TEMP (RM 303)	TE	D	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A4	RCS LOOP 2 HOT LEG TEMP (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A5	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A6	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3B2	RCS LOOP 1 HOT LEG TEMP (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC3B5	RCS LOOP 1 HOT LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC3B6	RCS LOOP 1 HOT LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A2	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A4	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4B2	RCS LOOP 1 COLD LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC4B4	RCS LOOP 1 COLD LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MA

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A	
	RC13A	RCS CODE SAFETY VALVE	SV	D	2	C	C	CLOSED		H	NONE			N/A	
	RC13B	RCS CODE SAFETY VALVE	SV	D	1	C	C	CLOSED		H	NONE			N/A	
	RC147	PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
	RC200	PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A	
	RC239A	PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A	
	RC239B	PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A	
	RC2A	PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			NA	
	RC4608A	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	NONE			N/A	
	RC4608B	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A	
	RC4610A	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A	
	RC4610B	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A	
	RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	NONE			N/A	
	SFAS	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A
C5762D		SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
C5763D		SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
C5765D		SFAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
HIS6453		SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
HIS6454		SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LI1525A		BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LI1525B		BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LI1525C		BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LI1525D		BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LSL1525A1		BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LSL1525B1		BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LT1525A		BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LT1525B		BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LT1525C		BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LT1525D		BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
PI2000		CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
PI2001		CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
PI2002		CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MA

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
SFAS	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	SFRCS	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
		HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
HIS101B		LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14	
HIS101C		LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14	
HIS3869B		BLOCK CIRCUIT AF3869 (AFP-1 TO SG-2)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14	
HIS3870B		BLOCK CIRCUIT AF3870 (AFP-1 TO SG-1)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14	
HIS3871B		BLOCK CIRCUIT AF3871 (AFP-2 TO SG-1)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14	
HIS3872B		BLOCK CIRCUIT AF3872 (AFP-2 TO SG-2)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14	
HIS603B		BLOCK CIRCUIT MS603 (SG-2 DRAIN STOP)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14	
HIS611B		BLOCK CIRCUIT MS611 (SG-1 DRAIN STOP)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14	
HIS6401		CH 1/3 MANUAL START AFPT-1 C5707	HIS	FF	1	OFF	ON	OFF		H	NONE			N/A	14	
HIS6402		CH 2/4 MANUAL START AFPT-2 C5707	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14	
HIS6403		CH 1/3 MAN STRT AFPT-1 & ISOL SG-1 C57	HIS	FF	1	OFF	ON	OFF		H	NONE			N/A	14	
HIS6404		CH 2/4 MAN STRT AFPT-2 & ISOL SG-2 C57	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14	
LLTSP9A6		SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14	
LLTSP9A7		SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14	
LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14		
LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14		
LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14		

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS  
FIRE AREA : MA

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	APAC201A			NOT REQUIRED FOR S/D	7

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MA

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SWS	P3-1	SW PUMP 1	PUMP	BF	1	O/F	ON	OFF		H	1CAC107E 1PAC107A			EXEMPTION REQUEST (SEPARATION) EXEMPTION REQUEST (SEPARATION)	17 17
	P3-2	SW PUMP 2	PUMP	BF	2	O/F	ON	OFF		H	2CAD107E 2PAD107A			EXEMPTION REQUEST (SEPARATION) EXEMPTION REQUEST (SEPARATION)	17 17
	P3-3	SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1, P3-2	H	1CAC109F 2CAD109F 3PACD06A			EXEMPTION REQUEST (SEPARATION) EXEMPTION REQUEST (SEPARATION) EXEMPTION REQUEST (SEPARATION)	17 17 17
	SW1356	CAC 1 OUT ISO VLV	SOV	A	1	O/C	O	FO		H	NONE			N/A	
	SW1357	CAC 2 OUT ISO VLV	SOV	A	2	O/C	O	FO		H	NONE			N/A	
	SW1358	CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	NONE			N/A	
	SW1366	CAC 1 IN ISO VLV	MOV	A	1	O	O	AS IS		H	NONE			N/A	
	SW1367	CAC 2 IN ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	SW1368	CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	NONE			N/A	
	SW1382	APP 1 SUCT VLV FROM SW	MOV	E	1	C	O/C	AS IS		C	NONE			N/A	
	SW1383	APP 2 SUCT VLV FROM SW	MOV	A	2	C	O/C	AS IS		H	NONE			N/A	
	SW1395	TPCW HX IN HEADER ISO VLV	MOV	BG	2	O/C	C	AS IS		H	2CBF1277E 2CBF1277G			EXEMPTION REQUEST (SEPARATION) EXEMPTION REQUEST (SEPARATION)	26 26
	SW1399	TPCW HX IN HEADER ISO VLV	MOV	BG	1	O/C	C	AS IS		H	1CBE1277E 1CBE1277G			EXEMPTION REQUEST (SEPARATION) EXEMPTION REQUEST (SEPARATION)	26 26
	SW1424	SW FROM CC HX 1 ISO VLV	SOV	T	1	O/C	O	FO		H	NONE			N/A	
	SW1429	SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	NONE			N/A	
	SW1434	SW FROM CC HX 2 ISO VLV	SOV	T	2	O/C	O	FO		H	NONE			N/A	
	SW2927	CTRM EVS COND UNIT IN VLV	MOV	HH	1	C	O	AS IS		H	NONE			N/A	
	SW2928	CTRM EVS COND UNIT IN VLV	MOV	HH	2	C	O	AS IS		H	NONE			N/A	
	SW2929	SW TO INT STRU VLV	MOV	BG	1	O/C	O	AS IS	SW2930, 31, 32	H	1CBE1281F			ONE VLV OPEN AND DEPOWERED	27
	SW2930	SW TO INT FOREBAY VLV	MOV	BG	2	O/C	O	AS IS	SW2929, 31, 32	H	2CBF1281F			ONE VLV OPEN AND DEPOWERED	27
	SW2931	SW TO CLG TOWER MU VLV	MOV	BG	1	O/C	O	AS IS	SW2929, 30, 32	H	1CBE1282F			ONE VLV OPEN AND DEPOWERED	27
	SW2932	SW TO COLLECT BASIN VLV	MOV	BG	2	O/C	O	AS IS	SW2929, 30, 31	H	2CBF1282F			ONE VLV OPEN AND DEPOWERED	27
	SW54	TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
	SW55	TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
	SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA MA TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent up-stream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED



Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA MA TABLE 1 NOTES

9. NOT USED

10. The 480V AC Essential MCC E12C is required to remain energized to supply Service Water Vent Fans C99-1 & C99-2, the TPCW Heat Exchanger Inlet Header Isolation Valve SW1399, and the Service Water to the Intake Structure Valve SW2929 and to the Cooling Tower Valve SW2931. The Circuit 1PBE1202A is separated from the other circuits routed in the manhole via the Wireway 1PAM01. If the circuit is damaged by fire the Train 2 circuits/components remain available.

The 480V AC Essential MCC F12C is required to remain energized to supply Service Water Vent Fans C99-3 & C99-4, the TPCW Heat Exchanger Inlet Header Isolation Valve SW1395, and the Service Water to the Intake Forebay Valve SW2930 and to the Collect Basin Valve SW2932. The Circuit 2PBF1202A is separated from the other circuits routed in the manhole via the Wireway 2PAM02. If the circuit is damaged by fire the Train 1 circuits/components remain available.

The separation of redundant Shutdown circuits in Manhole MH3001 does not meet the requirements of Appendix R. An exemption from these requirements has been submitted based on the low combustible loading in the manhole, the administrative controls to limit the introduction of any additional combustibles, the circuit separation provided by the wireways and the circuit fault protection that will limit any over-current condition from perpetuating.

11. NOT USED

12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:

ICS11A/B	Throttle	WC1743	Open
MU38	Open	WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level setpoint is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA MA TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531	CS Iso Vlv	Open	Stop P56-1,-2
P42-1	LPI Pump 1	On	Trip Bkr AC112 at C1
P42-2	LPI Pump 2	On	Trip Bkr AD112 at D1
P56-1	CS Pump 1	On	Trip Bkr BE111 at E1
P56-2	CS Pump 2	On	Trip Bkr BF111 at F1
P58-1	HPI Pump 1	On	Trip Bkr AC111 at C1
P58-2	HPI Pump 2	On	Trip Bkr Ad111 at D1
CC1407A, B	CCW Out Iso Vlv	Closed	Open CC1407A, B and Trip Bkr BE1173 at E11B & BF1158 at F11B
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip Bkr BE1176 at E11B & BF1159 at F11B
MU02A	RC LtDn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03	RC LtDn Cooler Out	Closed	Open MU03
MU38	RCP Seal Rtn Isol	Closed	Open MU38
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Either Train may be used for Shutdown. Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the train not used for Shutdown while maintaining AFW flow to the steam generator being used for Shut-down may be required.

If AF3869 is manually closed, first trip Breaker BE1146 at E11.

If AF3871 is manually closed, first trip Breaker FB1201 at F12A.

FIRE AREA MA TABLE 1 NOTES

- 15. NOT USED
- 16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or by performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injection and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.

RCP Seal Return, Seal Injection and Letdown Flow

The following manual valves will need to be operated:

MU97	Open	MU216	Throttle
MU182	Open	WC119	Open
MU214	Close	WC120	Open

Additionally, the following may need to be manually operated:

CC1410	Open	MU10A	Open
MU01B	Open	MU11	Direct Flow to CWRT
MU02B	Open		

RCS Inventory Control

After transferring Makeup Suction to the BWST, MU203 (Train 2) or MU206 (Train 1) will be manually closed after opening MU208, HP29, and HP1556 to route MUPS Recirc to the BWST rather than the Makeup Tank.

- 17. Two of the 3 Service Water System pumps are required to operate during normal plant operation. Only 1 of the Service Water pumps is required operable to achieve Safe Shutdown.

The Backup Service Water Pump P180 is to be operated in the case when all the Service Water Pumps are unavailable. The Backup Service Water capability has been provided as an alternate shutdown method, in accordance with Section III.G.3 of Appendix R (Reference 2.5.A). The pump is normally off and is run at high speed when it is used in place of the normal Service Water Pumps. Damage to the APAC201A circuit could result in the pump being disabled. The circuit is not enclosed in a wireway.

The Train 1 Service Water System Pump P3-1 has its power circuit enclosed in a separate Wireway, 1PAM. The Train 1 pump's control circuit is also enclosed in a Wireway, 1CAM. A fire induced failure of the above-mentioned circuits would disable the operability of the pump, but the Train 2 pump remains available.

The Train 2 Service Water System Pump P3-2 does not have its power circuit enclosed in a separate wireway. The Train 2 pump's control circuit is enclosed in Wireway 2CAM. A fire induced failure of the above-mentioned circuits would disable the operability of the pump, but the Train 1 pump remains available.

FIRE AREA MA TABLE 1 NOTES

The swing Service Water System Pump P3-3 has its power circuit enclosed in a separate Wireway, 3PAM. The Train 1 control circuit for Pump P3-3 is enclosed in Wireway 1CAM. The Train 2 control circuit for Pump P3-3 is enclosed in Wireway 2CAM. A fire induced failure of the above-mentioned circuits would disable the operability of the pump, but the Train 1 or 2 pump remains available.

The concern exists of the possibility of disabling all Train 1 or Train 2 Essential Power by impacting the operability of Load Breakers AC107 or AC109 and AD107 or AD109. If a fire induced fault should disable either train's control power, the opposite train and its control power will remain available. The circuits for the swing pump will not fail in such a manner as to cause the loss of both trains of control circuits.

The separation of redundant Shutdown circuits in Manhole MH3001 does not meet the requirements of Appendix R. An exemption from these requirements has been submitted based on the low combustible loading in the manhole, the administrative controls to limit the introduction of any additional combustibles, the circuit separation provided by the wireways and the circuit fault protection that will limit any overcurrent condition from perpetuating.

18. To prevent spurious operation, Valves DH09A and DH09B have been deenergized.
19. NOT USED
20. NOT USED
21. NOT USED
22. The Core Flood Isolation Valves CF01A, B are normally open and are required to be closed when cooling down before going below 700 psig. Breakers BF1120 at F11A and BE1162 at E11B are normally open; manual action may be required to close CF01A and CF01B before going below 700 psig.
23. Decay Heat Suction Valves DH11 & 12 are normally closed and depowered at all times. Manual Bypass Valves DH21 & 23 are opened for Cold Shutdown.
24. NOT USED
25. Essential CCW is provided to the Makeup Pumps, thereby bypassing CC1460.
26. TPCW Heat Exchanger Inlet Header Isolation Valves SW1395 (Train 2) and SW1399 (Train 1) provide Service Water to the Turbine Plant Cooling Water System. The valves may either be normally open or closed depending on which Train of SW is being utilized at the time of the fire.

The portion of the Service Water System supplied by these valves is not required for Safe Shutdown. fire-induced failure of the above-mentioned circuits could disable the valves open. If either valve is disabled by a fire the opposite Train valve and pump will be available to minimize the SWS Flow Diversion to nonessential loads.

FIRE AREA MA TABLE 1 NOTES

The separation of redundant Shutdown circuits in Manhole MH3001 does not meet the requirements of Appendix R. An exemption from these requirements is being submitted based on the low combustible loading in the manhole, the administrative controls to limit the introduction of any additional combustibles, the circuit separation provided by the wireways and the circuit fault protection that will limit any overcurrent condition from perpetuating.

27. The circuits for the SW Discharge Valves to the Intake Structure (SW2929), to the Intake Forebay (SW2930), to the Cooling Tower Makeup Valve (SW2929, SW2930, or SW2932) are normally open and depowered (controlled administratively) to ensure SWS discharge at all times. The sole concern is that at least one of these valves remain open, thereby assuring Service Water Outlet Flow. Since one of the valves is normally open and depowered, there is no concern associated with the possibility of spurious closure of these valves.
28. NOT USED
29. The DHR Cooler 1-1(1-2) Isolation Valve CC1467(CC1469) is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRS cooldown.

The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467(CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467(CC1469).

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: MB

TRAIN ACCREDITED FOR SHUTDOWN: 2

4.6.MB.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
MH3004	MANHOLE MH3004	400	N	MAN

.....

4.6.MB.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA MB

The following components are located in fire area MB.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
NONE				

.....

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA MB

#### 4.6.MB.3 Fire Propagation Control

Fire Area MB is a cable manhole located in the Yard approximately 10 ft. northwest of the Containment Building. This fire area is a reinforced concrete structure, most of which is located below grade. Only the reinforced concrete cap and steel checkplate hatch are exposed to the Yard area. This manhole is physically divided into two spaces by a 1 ft. thick concrete wall.

A fire that originates in this fire area will be contained in the fire area.

#### 4.6.MB.4 Fire Detection and Suppression

There is not automatic fire detection located in this fire area.

Manual fire suppression is provided for this area by Yard hydrants and Hose House (HH) 15.

In the event of a fire, smoke venting will be accomplished with portable ventilation.

#### 4.6.MB.5 Fire Area Safe Shutdown Summary

Train 2 will be used for Safe Shutdown in Fire Area MB. Safe Shutdown will be accomplished using the Makeup and Purification System (MUPS) for Reactor Coolant System Inventory Control, a Letdown path and Seal Injection for RCP Seal Cooling.

SAFE SHUTDOWN ANALYSIS  
FIRE AREA : MB

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	NONE			OP-02501 (TRIP P14-1)	14
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3871)	OP-02501 (CLOSE AF3871)	14
	AF3872	AFWP 2 DISCH TO SG2	MOV	F	2	O	O	AS IS		H	NONE			N/A	
	AF599	AFW TO SG2 ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	AF6451	AFWP 2 FLOW CTRL VLV	SOV	F	2	O	O/C	FO		H	NONE			N/A	
	FW6460	MDFP FLOW CTRL VLV	SOV	II	2	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			N/A	7
	ICS038A	APPT 2 GOV CTRL VLV	MOV	F	2	O	O/C	AS IS		H	NONE			N/A	
	MS106A	APPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	1CBE1271B 1CBE1271G 1CBE1271H 1CBE1271J 1CBE1271L			OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1)	14 14 14 14 14
	MS107	APPT 2 MS IN ISO VLV	MOV	EE	2	C	O	AS IS		H	NONE			N/A	
	MS107A	APPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-1)	14
	MS5889B	APPT 2 STEAM ADMISS VLV	SOV	F	2	C	O	FO		H	NONE			N/A	
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H			OP-02501 (TRIP P14-1)	OP-02501 (TRIP P14-1)	14
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE			N/A	
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	P242-1	MDFP AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	P242-2	MDFP SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			N/A	7
CACS	C1-2	CAC FAN 2	FAN	D	2	O/F	ON	OFF		H	NONE			N/A	
	C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	NONE			N/A	
CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	OP-02501 (OPEN CC1407A)	13
	CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407B)	OP-02501 (OPEN CC1407B)	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE			N/A	
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1410)	OP-02501 (OPEN CC1410)	16
	CC1411A	CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411A)	OP-02501 (OPEN CC1411A)	13
	CC1411B	CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	OP-02501 (OPEN CC1411B)	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	N/A	24
	CC1469	DHR CLR 2 OUT ISO VLV	SOV	AB	2	C	O	FO		C	NONE		OP-02501 (OPERATE CC1469)	OP-02501 (OPERATE CC1469)	26
	CC1474	DG JKT CW HX 2 OUT VLV	MAN	J	2	O	O	AS IS		H	NONE			N/A	
	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B H	NONE			OP-02501 (OPERATE CC43)	12,26
	CC2649	CC RETURN HDR 2 VLV	MOV	G	2	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



SAFE SHUTDOWN ANALYSIS

FIRE AREA : MB

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	
	CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501(OPERATE CC43)	OP-02501(OPERATE CC43)	12,26
	CC5096	CC HDR 2 IN ISO VLV	MOV	T	2	O/C	O	AS IS		H	NONE			N/A	
	CC5098	CCW LINE 2 RET ISO VLV	MOV	T	2	O/C	O/C	AS IS		H	NONE			N/A	
	FIS1422D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1427D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1432D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	P43-2	CCW PUMP 2	PUMP	T	2	O/F	ON	OFF		H	NONE			N/A	
	P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	NONE			N/A	
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B C	NONE			N/A	
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B C	NONE		OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	22
CREVS	C21-2	CTRM EVS FAN 2	FAN	HH	2	OFF	ON	OFF		H	NONE			N/A	
	S33-2	CTRM EMERG A/C UNIT 2	A/C	HH	2	OFF	ON	OFF		H	NONE			N/A	
	SV4827A	CREVS CONDENSER UNIT 2 (S33-2) IN VLV	SOV	HH	2	C	O	CLOSED		H	NONE			N/A	
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B H	NONE			OP-02501 (TRIP P56-1)	13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	NONE			OP-02501 (TRIP P56-2)	13
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	NONE		OP-02501 (TRIP P56-1)	OP-02501 (TRIP 56-1)	13
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE		OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2)	13
DHRS	DH01A	LPI LINE 2 VLV	MOV	A	2	O	O	AS IS		C	NONE			N/A	
	DH07A	BWST ISO VLV A	MOV	AC	2	O	O	AS IS		H	NONE			N/A	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH13A	DH CLR 2 BYPASS VLV	SOV	AB	2	C	C	FC		C	NONE			N/A	
	DH14A	DH CLR 2 OUT VLV	SOV	AB	2	O	O	FO		C	NONE			N/A	
	DH1518	DH NORM SUCT LINE 2 VLV	MOV	A	2	C	O/C	AS IS		C	NONE			N/A	
	DH2734	DH PUMP 2 BWST SUCT VLV	MOV	AB	2	O	O/C	AS IS		C	NONE			N/A	
	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MB

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
DHRS	DH63	LPI/HPI CROSS-TIE VLV	MOV	A	2	C	C	AS IS		C	NONE			N/A	
	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-1)	OP-02501 (TRIP P42-1)	13
	P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	OP-02501 (TRIP P42-2)	13
EDG	DA1148A/B	EDG 2 AIR START VLV	SOV	J	2	C	O	FC		H	NONE			N/A	
	DA2989	AIR START RCVR 1-2-1 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA2994	AIR START RCVR 1-2-2 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA62	AIR START RCVR 1-2-1 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA63	AIR START RCVR 1-2-2 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	KS-2	EMERG DIESEL GENERATOR 2	EDG	J	2	O/F	ON	OFF		H	NONE			N/A	
	P148-2A	EDG JACKET WATER PUMP (RIGHT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P148-2B	EDG JACKET WATER PUMP (LEFT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P195-2	EDG FUEL OIL TRANSFER PUMP 2	PUMP	BN	2	OFF	ON	OFF		C	NONE			N/A	
	P201-2	EDG 1-2 M/D FUEL OIL PUMP	PUMP	J	1	O/F	ON	OFF	P205-2	H	NONE			N/A	
	P205-2	EDG 1-2 E/D FUEL OIL PUMP	PUMP	J	2	O/F	ON	OFF	P201-2	H	NONE			N/A	
	S207-01	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-02	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-03	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-04	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
ESSPWR	2N	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	2P	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	NONE			N/A	
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1, -2, -3	H	NONE			N/A	
	C3616	EDG1-2 PANEL LIGHTS (ALT PWR)	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	C3629	CONT POWER ESS METER HPI FLOW Y	PNL	R	2	ON	ON	OFF		H	NONE			N/A	
	C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C4602	NEUTRON FLUX MON. CABINET (CH.2)	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	C4625	CONT POWER TO AUX FW CONTROL PANEL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5755C	SPAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MB

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
BSSPWR	C5755D	SPAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5755E	CONTROL ROOM REACT PROT. SYS PNL(CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755G	POST ACCIDENT MON. RACK (CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5756D	SPAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5759C	INST POWER NNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762A	CONTROL POWER TO SFRCS CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762C	SPAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			SPAS INITIATED	13
	C5762D	SPAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SPAS INITIATED	13
	C5763D	SPAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SPAS INITIATED	13
	C5792	CONTROL ROOM SFRCS CABINET (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5792A	CH 2 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5798	POST ACCIDENT MON. IND. PNL (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C6709	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	C6715	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	CDF-11A-1	CONTROL DISCONNECT TRANSFER SWITCH	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	CDF-12A-1	D2P CONT POWER TO AFWP GOV (ICS038B)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	D1	4.16KV AC SWGR	SWGR	Q	2	ON	ON	OFF		H	NONE			N/A	
	D2	4.16KV SWGR	SWGR	Q	2	ON	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	D2N	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	D2P	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBC2N	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2P	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2PN	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF	DBC2P,DBC2N	H	NONE			NOT REQUIRED FOR S/D	7
	DBN	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBP	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DC MCC 2	250/125V DC MCC	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	F1	480 V AC MCC F1	SWGR	X	2	ON	ON	OFF		H	NONE			N/A	
	F11A	480VAC MCC	MCC	DF	2	ON	ON	OFF		H	NONE	MOD 85-0063		N/A	6**
	F11B	480VAC MCC	MCC	V	2	ON	ON	OFF		H	NONE			N/A	
	F11C	480VAC MCC	MCC	A	2	ON	ON	OFF		H	NONE	MOD 85-0063		N/A	6**

LEGEND

H - required for hot standby

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H/L - High/Low interface

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N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MB

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	F11D	480VAC MCC	MCC	G	2	ON	ON	OFF		H	NONE			N/A	
	F11E	480VAC MCC	MCC	B	2	ON	ON	OFF		C	NONE			N/A	
	F12A	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12B	480VAC MCC	MCC	J	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12C	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12D	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE			N/A	
	F14	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F15	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F16A	480V AC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	NONE			N/A	
	RC3602	DC CONTROL POWER RCP MONITOR	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3608	CONTROL POWER (TO CCCW002)	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3702	DC CONTROL POWER TO CAC 2 OUT VLV	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3705	CONT POWER RC3705 (LR3758)	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	NONE			N/A	
	RC3716										NONE			N/A	
	RC4606	DC CONT PWR (MU6406,RC4610A,PORV)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	NONE			N/A	7
	XY2	CONSTANT VOLT TRANSFORMER (CVT CH 2)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	XY4	CONSTANT VOLT TRANSFORMER (CVT CH 4)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	Y2	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y2A	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y3602	CONTROL POWER (MU19 & MU32)	PNL	II	2	ON	ON	OFF		H	NONE			N/A	
	Y4	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YBU	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YF1	120VAC MCC	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	YF2	240/120VAC MCC	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	YV2	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
YV4	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A		
YVB	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A		

LEGEND

H - required for hot standby

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MB

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	ZC6451	APP #2 CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A	
	ZC6460	MDFP CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A	
HPIS	HP02A	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02B	H	NONE			N/A	
	HP02B	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02A	H	NONE			N/A	
	HP31	HPI PMP 2 RECIRC VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	P198-1	HPI PMP 2 AC LO PMP	PUMP	A	2	OFF	ON	OFF		H	NONE			N/A	
	P198-2	HPI PMP 2 DC LO PUMP	PUMP	A	2	OFF	ON	OFF	P198-1	H	NONE			N/A	
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	SFAS INITIATED	13
	P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-2)	SFAS INITIATED	13
HVAC	C133	LV SWGR RM VENT FAN 2	FAN	EE	2	O/F	ON	OFF		H	NONE			N/A	
	C25-3	EDG RM 2 VENT FAN 3	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C25-4	EDG RM 2 VENT FAN 4	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C73-2	APP RM VENT FAN 2	FAN	F	2	O/F	ON	OFF		H	NONE			N/A	
	C78-2	BAIT RM VENT FAN 2	FAN	X	2	O/F	ON	OFF		H	NONE			N/A	
	C99-3	SW PMP RM EXH FAN 3	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	C99-4	SW PMP RM EXH FAN 4	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	HV5314	LV SWGR RM 428 DAMPER	DMPR	EE	2	O/C	O	AS IS		H	NONE			N/A	
	HV5314A	LV SWGR RM 428 DAMPER	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
	HV5336A	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5336B	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FO		H	NONE			N/A	
	HV5336C	EDG ROOM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5598	BAIT RM 428A ATM DMPR	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
MSS	ICS11A	MSL 2 ATM VENT VLV	SOV	DH	2	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11A)	LOSS OF AIR	12
	MS100	MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A	
	MS100-1	MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A	
	MS101	MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A	
	MS101-1	MS1V 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	NONE			N/A	
	PSV-SP17A1	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A2	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A3	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A4	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MB

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

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MSS	PSV-SP17A5	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A6	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A7	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A8	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A9	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP1556)	OP-02501 (OPEN HP1556)	16
	HP27	HPI TO RCP SEALS	MAN	A	2	C	O	AS IS		H	NONE			N/A	
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP29)	OP-02501 (OPEN HP29)	16
	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE			N/A	
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE		OP-02501 (OPEN MU01B)	OP-02501 (OPEN MU01B)	16
	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	NONE		OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03)	13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	NONE			N/A	
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	NONE		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	NONE		OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT)	16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	NONE			OP-02501 (OPERATE MU214 & MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU203	Recirc to Seal Return Stop Valve	MAN	AB	2	O	O/C	AS IS		H	NONE		OP-02501(CLOSE MU203)	OP-02501(CLOSE MU203)	16
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU32	RC MU ISO VLV	FCV	AB	2	O/C	O	FO	HPIS TRAIN 1&2	H	NONE			N/A	
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B H	NONE		OP-02501 (OPEN MU38)	OP-02501 (OPEN MU38)	13
	MU3971	RC MU PUMP SUCT VLV	MOV	AB	2	C	O/C	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59A)	OP-02501 (OPEN MU59A)	13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59B)	OP-02501 (OPEN MU59B)	13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C)	13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59D)	OP-02501 (OPEN MU59D)	13
	MU6406	MU RECIRC ISO VLV	AOV	AB	2	O	O/C	FO	HPIS TRAIN 2	H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MB

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU6408	MU CROSS CONNECT ISO VLV	MOV	AB	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU6420	MU32 BYPASS VLV	MOV	AB	2	C	O	AS IS	HPIS,MU32	H	NONE			N/A	
	MU6422	MU CTMT ISO VLV	MOV	A	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A)	13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B)	13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C)	13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D)	13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-372B	MUP 2 MAIN LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P-372C	MUP 2 AUX LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS,P-372B	H	NONE			N/A	
	P-372D	MUP 2 AUX GEAR LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P37-2	MU PUMP 2	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P372A	MU PMP 2 MAIN GEAR LO PMP	PUMP	AB	2	O/F	O	OFF	P372D	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1743)	LOSS OF AIR	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1747)	LOSS OF AIR	12
	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	NONE			N/A	
NI	NI-5875A	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	NI-NI1	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
NNI	FI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A1	HPI FLOW IND. (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B1	HPI FLOW IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-2	PRZR LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-4	PRZR LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A1	SG1-2 START-UP LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A3	SG1-2 START-UP LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MB

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
NNI	LI-SP09A8	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A		
	LI-SP09A8A	SG1-2 START-UP LEVEL IND (C5710)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A		
	LI-SP09A9	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A		
	LRS-RC14	PRZR LEVEL RECORDER	REC	FF	2	ON	ON	OFF	LI-RC14-1-4	H	NONE			N/A		
	PI-6365A	RCS LOOP 2 EXTENDED RANGE PRESS	IND	FF	2	ON	ON	OFF		H	NONE			N/A		
	PI-6365A1	RCS LOOP2 EXTENDED RANGE PRESS (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A		
	PI-RC2A3	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A		
	PI-RC2A4	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A		
	PI-SP12A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A		
	PI-SP12A1	SG1-2 OUTLET PRESS IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A		
	PI-SP12A1-A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF	PI-SP12A	H	NONE			N/A		
	TE-RC3A6	RCS LOOP 2 HOT LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A		
	TE-RC4A2	RCS LOOP 2 COLD LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A		
	TI-RC3A4	RCS LOOP 2 HOT LEG TEMP (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A		
	TI-RC3A5	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A		
	TI-RC3A6	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A		
	TI-RC4A2	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A		
	TI-RC4A4	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A		
	RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A	
		RC13A	RCS CODE SAFETY VALVE	SV	D	2	C	C	CLOSED		H	NONE			N/A	
RC147		PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A		
RC200		PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A		
RC239A		PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A		
RC239B		PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A		
RC2A		PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			N/A		
RC4608A		SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	NONE			N/A		
RC4608B		SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A		
RC4610A		SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A		
RC4610B		SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A		
RC4632		COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	NONE			N/A		
SPAS	C5755D	SPAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MB

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFAS	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS MAY ACTUATE	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS MAY ACTUATE	13
	C5765D	SFAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
SFPCS	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MB

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

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SFRCS	HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101B	LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101C	LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS3871B	BLOCK CIRCUIT AF3871 (AFP-2 TO SG-1)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS3872B	BLOCK CIRCUIT AF3872 (AFP-2 TO SG-2)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS603B	BLOCK CIRCUIT MS603 (SG-2 DRAIN STOP)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS6402	CH 2/4 MANUAL START APPT-2 C5707	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	HIS6404	CH 2/4 MAN STRT APPT-2 & ISOL SG-2 C57	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MB

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

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SFRCS	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14
	RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14
	SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
		P3-2	SW PUMP 2	PUMP	BF	2	O/F	ON	OFF		H	NONE			N/A	
P3-3		SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1, P3-2	H	NONE			N/A		
SW1357		CAC 2 OUT ISO VLV	SOV	A	2	O/C	O	FO		H	NONE			N/A		
SW1358		CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	NONE			N/A		
SW1367		CAC 2 IN ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A		
SW1368		CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	NONE			N/A		
SW1383		AFP 2 SUCT VLV FROM SW	MOV	A	2	C	O/C	AS IS		H	NONE			N/A		
SW1395		TPCW HX IN HEADER ISO VLV	MOV	BG	2	O/C	C	AS IS		H	NONE			N/A		
SW1429		SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	NONE			N/A		
SW1434		SW FROM CC HX 2 ISO VLV	SOV	T	2	O/C	O	FO		H	NONE			N/A		
SW2928		CTRM EVS COND UNIT IN VLV	MOV	HH	2	C	O	AS IS		H	NONE			N/A		
SW2930		SW TO INT FOREBAY VLV	MOV	BG	2	O/C	O	AS IS	SW2929,31,32	H	NONE			N/A		
SW2932		SW TO COLLECT BASIN VLV	MOV	BG	2	O/C	O	AS IS	SW2929,30,31	H	NONE			N/A		
SW54		TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A		
SW55		TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A		
SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A			

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA MB TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent up-stream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA MB TABLE 1 NOTES

- 9. NOT USED
- 10. NOT USED
- 11. NOT USED
- 12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:

ICS11A	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

- 13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level set-point is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components.

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531 P42-2	CS Iso Vlv LPI Pump 2	Open On	Stop P56-1, -2 Stop P42-2 from the CR after blocking SFAS
P42-1 P56-2	LPI Pump 1 CS Pump 2	On On	Trip Bkr AC112 at C1 Stop P56-2 from the CR after blocking SFAS
P56-1 P58-2	CS Pump 1 HPI Pump 2	On On	Trip Bkr BE111 at E1 Stop P58-2 from the CR after blocking SFAS
P58-1 CC1407A, B	HPI Pump 1 CCW Out Iso Vlv	On Closed	Trip Bkr AC111 at C1 Open CC1407A, B and Trip Bkr BE1173 at E11B & BF1158 at F11B
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip Bkr BE1176 at E11B & BF1159 at F11B
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03 MU38	RC Lt Dn Cooler Out RCP Seal Rtn Isol	Closed Closed	Open MU03 Open MU38

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA MB TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

If AF3871 is manually closed, first trip Breaker BF1201 at F12A.

15. NOT USED

16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or by performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injection and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.

RCP Seal Return, Seal Injection and Letdown Return Flow

The following manual valves will need to be operated:

MU97	Open	MU216	Throttle
MU182	Close	WC119	Open
MU214	Close	WC120	Open

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA MB TABLE 1 NOTES

Additionally, the following valves may need to be manually operated:

CC1410	Open	MU10A	Open
MU01B	Open	MU11	Direct flow to CWRT
MU02B	Open		

After transferring the Makeup suction to the BWST, MU203 will be manually closed after opening MU208, HP29, and HP1556 to route MUPS Recirc to the BWST rather than the Makeup Tank.

17. NOT USED
18. To prevent spurious operation, Valves DH09A and DH09B are deenergized.
19. NOT USED
20. NOT USED
21. NOT USED
22. The Core Flood Isolation Valves CF01A, B are normally open and are required to be closed when cooling down before going below 700 psig. Breakers BF1120 at F11A and BE1162 at E11B are normally open; manual action may be required to close CF01B before going below 700 psig.
23. NOT USED
24. Essential CCW is provided to the Makeup Pump Cooler, bypassing CC1460.
25. Valves DH11 and DH12 are depowered. Bypass Valves DH21 and DH23 can be manually operated to place the DHR System in service.
26. The DHR Cooler 1-2 Isolation Valve CC1469 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRS cooldown.

The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467(CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467(CC1469).

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: MC

TRAIN ACCREDITED FOR SHUTDOWN: 2

4.6.MC.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
MH3005	MANHOLE MH3005	400	N	MAN

4.6.MC.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA MC

The following components are located in fire area MC.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
NONE				



## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA MC

#### 4.6.MC.3 Fire Propagation Control

Fire Area MC is a cable manhole located in the Yard approximately 10 ft. southwest of the BWST.

This fire area is a reinforced concrete structure, most of which is located below grade. Only the reinforced concrete cap and steel checkplate hatch are exposed to the Yard area. This manhole is physically divided into two spaces by a 6-inch thick wall.

A fire that originates in this fire area will be contained in the fire area.

#### 4.6.MC.4 Fire Detection and Suppression

There is no automatic fire detection located in this fire area.

Manual fire suppression is provided for this area by yard hydrants and Hose House (HH) 13.

In the event of a fire, smoke venting will be accomplished with portable ventilation.

#### 4.6.MC.5 Fire Area Safe Shutdown Summary

Train 2 will be used for Safe Shutdown in Fire Area MC. Safe Shutdown will be accomplished using the Makeup and Purification System (MUPS) for Reactor Coolant System Inventory Control, MUPS for a Letdown path and MUPS Seal Injection for RCP Seal Cooling.

SAFE SHUTDOWN ANALYSIS  
FIRE AREA : MC

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	NONE			OP-02501 (TRIP P14-1)	14
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3871)	OP-02501 (CLOSE AF3871)	14
	AF3872	AFWP 2 DISCH TO SG2	MOV	F	2	O	O	AS IS		H	NONE			N/A	
	AF599	AFW TO SG2 ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	AF6451	AFWP 2 FLOW CTRL VLV	SOV	F	2	O	O/C	FO		H	NONE			N/A	
	FW6460	MDFP FLOW CTRL VLV	SOV	II	2	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			N/A	7
	ICS038A	AFPT 2 GOV CTRL VLV	MOV	F	2	O	O/C	AS IS		H	NONE			N/A	
	MS106A	AFPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	1CBE1271B 1CBE1271G 1CBE1271H 1CBE1271J 1CBE1271L			OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1)	14 14 14 14 14
	MS107	AFPT 2 MS IN ISO VLV	MOV	EE	2	C	O	AS IS		H	NONE			N/A	
	MS107A	AFPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-1)	14
	MS5889B	AFPT 2 STEAM ADMISS VLV	SOV	F	2	C	O	FO		H	NONE			N/A	
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H			OP-02501 (TRIP P14-1)	OP-02501 (TRIP P14-1)	14
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE			N/A	
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	P242-1	MDFP AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	P242-2	MDFP SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
CACS	C1-2	CAC FAN 2	FAN	D	2	O/F	ON	OFF		H	NONE			N/A	
	C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	NONE			N/A	
CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	OP-02501 (OPEN CC1407A)	13
	CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407B)	OP-02501 (OPEN CC1407B)	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE			N/A	
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1410)	OP-02501 (OPEN CC1410)	16
	CC1411A	CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411A)	OP-02501 (OPEN CC1411A)	13
	CC1411B	CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	OP-02501 (OPEN CC1411B)	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	N/A	24
	CC1469	DHR CLR 2 OUT ISO VLV	SOV	AB	2	C	O	FO		C	NONE		OP-02501 (OPERATE CC1469)	OP-02501 (OPERATE CC1469)	26
	CC1474	DG JKT CW HX 2 OUT VLV	MAN	J	2	O	O	AS IS		H	NONE			N/A	
	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B H	NONE			OP-02501 (OPERATE CC43)	12,26
	CC2649	CC RETURN HDR 2 VLV	MOV	G	2	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MC

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	
	CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501(OPERATE CC43)	OP-02501(OPERATE CC43)	12, 26
	CC5096	CC HDR 2 IN ISO VLV	MOV	T	2	O/C	O	AS IS		H	NONE			N/A	
	CC5098	CCW LINE 2 RET ISO VLV	MOV	T	2	O/C	O/C	AS IS		H	NONE			N/A	
	FIS1422D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1427D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1432D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	P43-2	CCW PUMP 2	PUMP	T	2	O/F	ON	OFF		H	NONE			N/A	
	P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	NONE			N/A	
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B C	NONE			N/A	
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B C	NONE		OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	22
CREVS	C21-2	CTRM EVS FAN 2	FAN	HH	2	OFF	ON	OFF		H	NONE			N/A	
	S33-2	CTRM EMERG A/C UNIT 2	A/C	HH	2	OFF	ON	OFF		H	NONE			N/A	
	SV4827A	CREVS CONDENSER UNIT 2 (S33-2) IN VLV	SOV	HH	2	C	O	CLOSED		H	NONE			N/A	
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B H	NONE			OP-02501 (TRIP P56-1)	13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	NONE			OP-02501 (TRIP P56-2)	13
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	NONE		OP-02501 (TRIP P56-1)	OP-02501 (TRIP P56-1)	13
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE		OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2)	13
DHRS	DH01A	LPI LINE 2 VLV	MOV	A	2	O	O	AS IS		C	NONE			N/A	
	DH07A	BWST ISO VLV A	MOV	AC	2	O	O	AS IS		H	NONE			N/A	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH13A	DH CLR 2 BYPASS VLV	SOV	AB	2	C	C	FC		C	NONE			N/A	
	DH14A	DH CLR 2 OUT VLV	SOV	AB	2	O	O	FO		C	NONE			N/A	
	DH1518	DH NORM SUCT LINE 2 VLV	MOV	A	2	C	O/C	AS IS		C	NONE			N/A	
	DH2734	DH PUMP 2 BWST SUCT VLV	MOV	AB	2	O	O/C	AS IS		C	NONE			N/A	
	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MC

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
DHRS	DH63	LPI/HPI CROSS-TIE VLV	MOV	A	2	C	C	AS IS		C	NONE			N/A	
	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-1)	OP-02501 (TRIP P42-1)	13
	P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	OP-02501 (TRIP P42-2)	13
EDG	DA1148A/B	EDG 2 AIR START VLV	SOV	J	2	C	O	FC		H	NONE			N/A	
	DA2989	AIR START RCVR 1-2-1 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA2994	AIR START RCVR 1-2-2 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA62	AIR START RCVR 1-2-1 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA63	AIR START RCVR 1-2-2 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	K5-2	EMERG DIESEL GENERATOR 2	EDG	J	2	O/F	ON	OFF		H	NONE			N/A	
	P148-2A	EDG JACKET WATER PUMP (RIGHT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P148-2B	EDG JACKET WATER PUMP (LEFT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P195-2	EDG FUEL OIL TRANSFER PUMP 2	PUMP	BN	2	OFF	ON	OFF		C	NONE			N/A	
	P201-2	EDG 1-2 M/D FUEL OIL PUMP	PUMP	J	1	O/F	ON	OFF	P205-2	H	NONE			N/A	
	P205-2	EDG 1-2 E/D FUEL OIL PUMP	PUMP	J	2	O/F	ON	OFF	P201-2	H	NONE			N/A	
	S207-01	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-02	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-03	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-04	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
ESSPWR	2N	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	2P	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	NONE			N/A	
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1, -2, -3	H	NONE			N/A	
	C3616	EDG1-2 PANEL LIGHTS (ALT PWR)	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	C3629	CONT POWER ESS METER HPI FLOW Y	PNL	R	2	ON	ON	OFF		H	NONE			N/A	
	C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C4602	NEUTRON FLUX MON. CABINET (CH.2)	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	C4625	CONT POWER TO AUX FW CONTROL PANEL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5755C	SFAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MC

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPPWR	C5755D	SPAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5755E	CONTROL ROOM REACT PROT. SYS PNL(CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755G	POST ACCIDENT MON. RACK (CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5756D	SPAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5759C	INST POWER NNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762A	CONTROL POWER TO SFRCS CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762C	SPAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			SPAS INITIATED	13
	C5762D	SPAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SPAS INITIATED	13
	C5763D	SPAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SPAS INITIATED	13
	C5792	CONTROL ROOM SFRCS CABINET (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5792A	CH 2 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5798	POST ACCIDENT MON. IND. PNL (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C6709	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	C6715	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	CDF-11A-1	CONTROL DISCONNECT TRANSFER SWITCH	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	CDF-12A-1	D2P CONT POWER TO AFWP GOV (ICS038B)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	D1	4.16KV AC SWGR	SWGR	Q	2	ON	ON	OFF		H	NONE			N/A	
	D2	4.16KV SWGR	SWGR	Q	2	ON	ON	OFF	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	D2N	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	D2P	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBC2N	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2P	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2PN	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF	DBC2P,DBC2N	H	NONE			NOT REQUIRED FOR S/D	7
	DBN	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBP	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DC MCC 2	250/125V DC MCC	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	F1	480 V AC MCC F1	SWGR	X	2	ON	ON	OFF		H	NONE			N/A	
	F11A	480VAC MCC	MCC	DF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11B	480VAC MCC	MCC	V	2	ON	ON	OFF		H	NONE			N/A	
	F11C	480VAC MCC	MCC	A	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**

LEGEND

H - required for hot standby

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H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MC

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	F11D	480VAC MCC	MCC	G	2	ON	ON	OFF		H	NONE			N/A	
	F11E	480VAC MCC	MCC	B	2	ON	ON	OFF		C	NONE			N/A	
	F12A	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12B	480VAC MCC	MCC	J	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12C	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12D	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE			N/A	
	F14	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	F15	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F16A	480V AC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	NONE			N/A	
	RC3602	DC CONTROL POWER RCP MONITOR	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3608	CONTROL POWER (TO CCCW002)	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3702	DC CONTROL POWER TO CAC 2 OUT VLV	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3705	CONT POWER RC3705 (LR3758)	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	NONE			N/A	
	RC3716										NONE			N/A	
	RC4606	DC CONT PWR (MU6406,RC4610A,PORV)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	NONE			NOT REQUIRED FOR S/D	7
	XY2	CONSTANT VOLT TRANSFORMER (CVT CH 2)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	XY4	CONSTANT VOLT TRANSFORMER (CVT CH 4)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	Y2	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y2A	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y3602	CONTROL POWER (MU19 & MU32)	PNL	II	2	ON	ON	OFF		H	NONE			N/A	
	Y4	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YBU	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YF1	120VAC MCC	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	YF2	240/120VAC MCC	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	YV2	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YV4	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YVB	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MC

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	ZC6451	AFP #2 CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A	
	ZC6460	MDFP CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A	
HPIS	HP02A	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02B	H	NONE			N/A	
	HP02B	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02A	H	NONE			N/A	
	HP31	HPI PMP 2 RECIRC VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	P198-1	HPI PMP 2 AC LO PMP	PUMP	A	2	OFF	ON	OFF		H	NONE			N/A	
	P198-2	HPI PMP 2 DC LO PUMP	PUMP	A	2	OFF	ON	OFF	P198-1	H	NONE			N/A	
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	SFAS INITIATED	13
	P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-2)	SFAS INITIATED	13
HVAC	C133	LV SWGR RM VENT FAN 2	FAN	EE	2	O/F	ON	OFF		H	NONE			N/A	
	C25-3	EDG RM 2 VENT FAN 3	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C25-4	EDG RM 2 VENT FAN 4	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C73-2	AFP RM VENT FAN 2	FAN	F	2	O/F	ON	OFF		H	NONE			N/A	
	C78-2	BATT RM VENT FAN 2	FAN	X	2	O/F	ON	OFF		H	NONE			N/A	
	C99-3	SW PMP RM EXH FAN 3	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	C99-4	SW PMP RM EXH FAN 4	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	HV5314	LV SWGR RM 428 DAMPER	DMPR	EE	2	O/C	O	AS IS		H	NONE			N/A	
	HV5314A	LV SWGR RM 428 DAMPER	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
	HV5336A	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5336B	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FO		H	NONE			N/A	
	HV5336C	EDG ROOM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5598	BATT RM 428A ATM DMPR	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
MSS	ICS11A	MSL 2 ATM VENT VLV	SOV	DH	2	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11A)	LOSS OF AIR	12
	MS100	MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A	
	MS100-1	MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A	
	MS101	MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A	
	MS101-1	MSIV 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	NONE			N/A	
	PSV-SP17A1	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A2	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A3	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A4	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	

LEGEND

H - required for hot standby

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FIRE HAZARDS ANALYSIS  
SAFE SHUTDOWN ANALYSIS  
FIRE AREA : MC  
TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MSS	PSV-SP17A5	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A6	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A7	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A8	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A9	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP1556)	OP-02501 (OPEN HP1556)	16
	HP27	HPI TO RCP SEALS	MAN	A	2	C	O	AS IS		H	NONE			N/A	
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP29)	OP-02501 (OPEN HP29)	16
	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE			N/A	
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE		OP-02501 (OPEN MU01B)	OP-02501 (OPEN MU01B)	16
	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	NONE		OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03)	13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	NONE			N/A	
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	NONE		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	NONE		OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT)	16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	NONE			OP-02501 (OPERATE MU214 & MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU203	Recirc to Seal Return Stop Valve	MAN	AB	2	O	O/C	AS IS		H	NONE		OP-02501(CLOSE MU203)	OP-02501(CLOSE MU203)	16
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU32	RC MU ISO VLV	FCV	AB	2	O/C	O	FO	HPIS TRAIN 1&2	H	NONE			N/A	
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B	H	NONE	OP-02501 (OPEN MU38)	OP-02501 (OPEN MU38)	13
	MU3971	RC MU PUMP SUCT VLV	MOV	AB	2	C	O/C	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59A)	OP-02501 (OPEN MU59A)	13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59B)	OP-02501 (OPEN MU59B)	13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C)	13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59D)	OP-02501 (OPEN MU59D)	13
	MU6406	MU RECIRC ISO VLV	AOV	AB	2	O	O/C	FO	HPIS TRAIN 2	H	NONE			N/A	

LEGEND

H - required for hot standby

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N/A - not affected



SAFE SHUTDOWN ANALYSIS

FIRE AREA : MC

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU6408	MU CROSS CONNECT ISO VLV	MOV	AB	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU6420	MU32 BYPASS VLV	MOV	AB	2	C	O	AS IS	HPIS,MU32	H	NONE			N/A	
	MU6422	MU CTMT ISO VLV	MOV	A	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A)	13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B)	13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C)	13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D)	13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-372B	MUP 2 MAIN LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P-372C	MUP 2 AUX LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS,P-372B	H	NONE			N/A	
	P-372D	MUP 2 AUX GEAR LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P37-2	MU PUMP 2	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P372A	MU PMP 2 MAIN GEAR LO PMP	PUMP	AB	2	O/F	O	OFF	P372D	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1743)	LOSS OF AIR	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1747)	LOSS OF AIR	12
	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	NONE			N/A	
NI	NI-5875A	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	NI-NI1	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
NNI	FI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A1	HPI FLOW IND. (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B1	HPI FLOW IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-2	PRZR LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-4	PRZR LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A1	SG1-2 START-UP LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A3	SG1-2 START-UP LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

FIRE HAZARDS ANALYSIS  
SAFE SHUTDOWN ANALYSIS  
FIRE AREA : MC  
TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
NNI	LI-SP09A8	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A8A	SG1-2 START-UP LEVEL IND (C5710)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A9	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LRS-RC14	PRZR LEVEL RECORDER	REC	FF	2	ON	ON	OFF	LI-RC14-1-4	H	NONE			N/A	
	PI-6365A	RCS LOOP 2 EXTENDED RANGE PRESS	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-6365A1	RCS LOOP2 EXTENDED RANGE PRESS (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A3	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A4	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1	SG1-2 OUTLET PRESS IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1-A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF	PI-SP12A	H	NONE			N/A	
	TE-RC3A6	RCS LOOP 2 HOT LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TE-RC4A2	RCS LOOP 2 COLD LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A4	RCS LOOP 2 HOT LEG TEMP (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A5	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A6	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A2	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A4	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A	
	RC13A	RCS CODE SAFETY VALVE	SV	D	2	C	C	CLOSED		H	NONE			N/A	
	RC147	PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
	RC200	PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A	
	RC239A	PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A	
	RC239B	PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A	
	RC2A	PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			N/A	
	RC4608A	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	NONE			N/A	
	RC4608B	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A	
	RC4610A	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A	
RC4610B	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A		
RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	NONE			N/A		
SPAS	C5755D	SPAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13

LEGEND

H - required for hot standby

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N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MC

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFAS	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS MAY ACTUATE	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS MAY ACTUATE	13
	C5765D	SFAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
SFRCs	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14

LEGEND

H - required for hot standby

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H/L - High/Low interface

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N/A - not affected

## Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : MC

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101B	LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101C	LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS3871B	BLOCK CIRCUIT AF3871 (AFP-2 TO SG-1)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS3872B	BLOCK CIRCUIT AF3872 (AFP-2 TO SG-2)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS603B	BLOCK CIRCUIT MS603 (SG-2 DRAIN STOP)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS6402	CH 2/4 MANUAL START APPT-2 C5707	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	HIS6404	CH 2/4 MAN STRT APPT-2 & ISOL SG-2 C57	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14

## LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MC

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
SFRC5	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE				INITIATES SFRC5 ON LOOP	14
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE				INITIATES SFRC5 ON LOOP	14
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE				INITIATES SFRC5 ON LOOP	14
	RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE				INITIATES SFRC5 ON LOOP	14
	SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	NONE			N/A	7
P3-2		SW PUMP 2	PUMP	BF	2	O/F	ON	OFF		H	NONE			N/A		
P3-3		SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1,P3-2	H	NONE			N/A		
SW1357		CAC 2 OUT ISO VLV	SOV	A	2	O/C	O	FO		H	NONE			N/A		
SW1358		CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	NONE			N/A		
SW1367		CAC 2 IN ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A		
SW1368		CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	NONE			N/A		
SW1383		AFP 2 SUCT VLV FROM SW	MOV	A	2	C	O/C	AS IS		H	NONE			N/A		
SW1395		TPCW HX IN HEADER ISO VLV	MOV	BG	2	O/C	C	AS IS		H	NONE			N/A		
SW1429		SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	NONE			N/A		
SW1434		SW FROM CC HX 2 ISO VLV	SOV	T	2	O/C	O	FO		H	NONE			N/A		
SW2928		CTRM EVS COND UNIT IN VLV	MOV	HH	2	C	O	AS IS		H	NONE			N/A		
SW2930		SW TO INT FOREBAY VLV	MOV	BG	2	O/C	O	AS IS	SW2929,31,32	H	NONE			N/A		
SW2932		SW TO COLLECT BASIN VLV	MOV	BG	2	O/C	O	AS IS	SW2929,30,31	H	NONE			N/A		
SW54		TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A		
SW55	TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A			
SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A			

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA MC TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent up-stream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA MC TABLE 1 NOTES

- 9. NOT USED
- 10. NOT USED
- 11. NOT USED
- 12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:

ICS11A	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

- 13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level setpoint is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components.

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531 P42-2	CS Iso Vlv LPI Pump 2	Open On	Stop P56-1, -2 Stop P42-2 from the CR after blocking SFAS
P42-1 P56-2	LPI Pump 1 CS Pump 2	On On	Trip Bkr AC112 at C1 Stop P56-2 from the CR after blocking SFAS
P56-1 P58-2	CS Pump 1 HPI Pump 2	On On	Trip Bkr AC111 at E1 Stop P58-2 from the CR after blocking SFAS
P58-1 CC1407A, B	HPI Pump 1 CCW Out Iso Vlv	On Closed	Trip Bkr AC112 at C1 Open CC1407A, B and Trip Bkr BE1173 at E11B & BF1158 at F11B
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip Bkr BE1176 at E11B & BF1159 at F11B
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03 MU38	RC Lt Dn Cooler Out RCP Seal Rtn Isol	Closed Closed	Open MU03 Open MU38

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA MC TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

If AF3871 is manually closed, first trip Breaker BF1201 at F12A.

15. NOT USED

16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or by performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injection and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.

RCP Seal Return, Seal Injection and Letdown Flow

The following manual valves will need to be operated:

MU97	Open	MU216	Throttle
MU182	Close	WC119	Open
MU214	Close	WC120	Open



Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA MC TABLE 1 NOTES

Additionally, the following valves may need to be manually operated:

CC1410	Open	MU10A	Open
MU01B	Open	MU11	Direct Flow to CWRT
MU02B	Open		

RCS Inventory Control

After transferring the Makeup suction to the BWST, MU203 will be manually closed after opening MU208, HP29, and HP1556 to route MUPS Recirc to the BWST rather than the Makeup Tank.

17. NOT USED
18. To prevent spurious operation, Valves DH09A and DH09B are deenergized.
19. NOT USED
20. NOT USED
21. NOT USED
22. The Core Flood Isolation Valves CF01A, B are normally open and are required to be closed when cooling down before going below 700 psig. Breakers BF1120 at F11A and BE1162 at E11B are normally open; manual action may be required to close CF01B before going below 700 psig.
23. NOT USED
24. Essential CCW is provided to the Makeup Pump Cooler, bypassing CC1460.
25. Valves DH11 and DH12 are depowered. Bypass Valves DH21 and DH23 can be manually operated to place the DHR System in service.
26. The DHR Cooler 1-2 Isolation Valve CC1469 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRS cooldown.

The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467(CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467(CC1469).

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: ME

TRAIN ACCREDITED FOR SHUTDOWN: 1

4.6.ME.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
MH3041	MANHOLE MH3041	400	N	MAN

4.6.ME.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA ME

The following components are located in fire area ME.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
NONE				

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA ME

#### 4.6.ME.3 Fire Propagation Control

Fire Area ME is a cable manhole located in the Yard approximately 15 ft north of the Auxiliary Building. This fire area is a reinforced concrete structure, most of which is located below grade. Only the reinforced concrete cap and steel checkplate hatch are exposed to the Yard area. This manhole is physically divided into two spaces by a 6-inch thick concrete wall.

A fire that originates in this fire area will be contained in the fire area.

#### 4.6.ME.4 Fire Detection and Suppression

There is no automatic fire detection located in this fire area.

Manual fire suppression is provided for this area by yard hydrants and Hose House (HH) 15.

In the event of a fire, smoke venting will be accomplished with portable ventilation.

#### 4.6.ME.5 Fire Area Safe Shutdown Summary

Train 1 will be used for Safe Shutdown in Fire Area ME. Safe Shutdown will be accomplished using the Makeup and Purification System (MUPS) for Reactor Coolant System Inventory Control, a Letdown path and Seal Injection for RCP Seal Cooling.

SAFE SHUTDOWN ANALYSIS

FIRE AREA : ME

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3869)	OP-02501 (CLOSE AF3869)	14
	AF3870	AFWP 1 DISCH TO SG1	MOV	E	1	O	O	AS IS		H	NONE			N/A	
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE			OP-02501 (TRIP P14-2)	14
	AF608	AFW TO SG1 ISO VLV	MOV	AB	1	O	O	AS IS		H	NONE			N/A	
	AF6452	AFWP 1 FLOW CTRL VLV	SOV	E	1	O	O/C	FO		H	NONE			N/A	
	FW6459	MDFP FLOW CTRL VALVE	SOV	II	1	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			N/A	
	ICS038B	AFPT 1 GOV CTRL VLV	MOV	E	1	O	O/C	AS IS		H	NONE			N/A	
	MS106	AFPT 1 MS IN ISO VLV	MOV	EE	1	C	O	AS IS		H	NONE			N/A	
	MS106A	AFPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	NONE			N/A	
	MS107A	AFPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-2)	14
	MS5889A	AFPT 1 STEAM ADMISS VLV	SOV	E	1	C	O	FO		H	NONE			OP-02501 (TRIP P14-2)	14
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H	NONE			N/A	
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-2)	OP-02501 (TRIP P14-2)	14
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	P242-1	MDFP AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	P242-2	MDFP SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			N/A	7
CACS	C1-1	CAC FAN 1	FAN	D	1	O/F	ON	OFF		H	NONE			N/A	
	C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	NONE			N/A	
CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	SPAS INITIATED	13
	CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407B)	SPAS INITIATED	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1409)	OP-02501 (OPEN CC1409)	16
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE			N/A	
	CC1411A	CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411A)	SPAS INITIATED	13
	CC1411B	CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	SPAS INITIATED	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	N/A	24
	CC1467	DHR CLR 1 OUT ISO VLV	SOV	AB	1	C	O	FO		C	NONE		OP-02501 (OPERATE CC1467)	OP-02501 (OPERATE CC1467)	26
	CC1471	DG JKT CW HX 1 OUT VLV	MAN	K	1	O	O	AS IS		H	NONE			N/A	
	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B H	NONE			OP-02501 (OPERATE CC43)	12,26
	CC2645	CC RETURN HDR 1 VLV	MOV	G	1	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	NONE			N/A	
	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	
	CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501 (OPERATE CC43)	OP-02501 (OPERATE CC43)	12,26

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : ME

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC5095	CC HDR 1 IN ISO VLV	MOV	T	1	O/C	O	AS IS		H	NONE			N/A	
	CC5097	CCW LINE 1 RET ISO VLV	MOV	T	1	O/C	O/C	AS IS		H	NONE			N/A	
	FIS1422C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A	
	FIS1427C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A	
	FIS1432C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A	
	P43-1	CCW PUMP 1	PUMP	T	1	O/F	ON	OFF		H	NONE			N/A	
	P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	NONE			N/A	
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B C	NONE		OP-02501 (CLOSE CF01A)	OP-02501 (CLOSE CF01A)	22
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B C	NONE			N/A	
CREVS	C21-1	CTRM EVS FAN 1	FAN	HH	1	OFF	ON	OFF		H	NONE			N/A	
	S33-1	CTRM EMERG A/C UNIT 1	A/C	HH	1	OFF	ON	OFF		H	NONE			N/A	
	SV4823A	CREVS CONDENSER UNIT 1 (S33-1) IN VLV	SOV	HH	1	C	O	CLOSED		H	NONE			N/A	
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B H	NONE			OP-02501 (TRIP P56-1)	13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	NONE			OP-02501 (TRIP P56-2)	13
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	NONE		OP-02501 (TRIP P56-1)	OP-02501 (TRIP P56-1)	13
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE		OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2)	13
DHRS	DH01B	LPI LINE 1 VLV	MOV	AB	1	O	O	AS IS		C	NONE			N/A	
	DH07B	BWST ISO VLV B	MOV	AC	1	O	O	AS IS		H	NONE			N/A	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH13B	DH CLR 1 BYPASS VLV	SOV	AB	1	C	C	FC		C	NONE			N/A	
	DH14B	DH CLR 1 OUT VLV	SOV	AB	1	O	O	FO		C	NONE			N/A	
	DH1517	DH NORM SUCT LINE 1 VLV	MOV	A	1	C	O/C	AS IS		C	NONE			N/A	
	DH2733	DH PUMP 1 BWST SUCT VLV	MOV	AB	1	O	O/C	AS IS		C	NONE			N/A	
	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	
	DH64	LPI/HPI CROSS-TIE VLV	MOV	AB	1	C	C	AS IS		C	NONE			N/A	
	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-1)	OP-02501 (TRIP P42-1)	13

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : ME

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
DHRS	P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	OP-02501 (TRIP P42-2)	13
EDG	DA1147A/B	EDG 1 AIR START VLV	SOV	K	1	C	O	FC		H	NONE			N/A	
	DA2987	AIR START RCVR 1-1-1 DISCH VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA2988	AIR START RCVR 1-1-2 DISCH VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA60	AIR START RCVR 1-1-1 RELAY VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA61	AIR START RCVR 1-1-2 RELAY VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	K5-1	EMERG DIESEL GENERATOR 1	EDG	K	1	O/F	ON	OFF		H	NONE			N/A	
	P148-1A	EDG JACKET WATER PUMP (RIGHT)	PUMP	K	1	O/F	O	OFF		H	NONE			N/A	
	P148-1B	EDG JACKET WATER PUMP (LEFT)	PUMP	K	1	O/F	O	OFF		H	NONE			N/A	
	P195-1	EDG FUEL OIL TRANSFER PUMP 1	PUMP	BN	1	OFF	ON	OFF		C	1CBE1298B 1PBE1298A		MOD 88-0203/OP-02501 MOD 88-0203/OP-02501	OP-02501 PROV ALT F O SUPPLY) OP-02501 (PROV ALT F O SUPPLY)	27 27
	P201-1	EDG 1-1 M/D FUEL OIL PUMP	PUMP	K	1	O/F	ON	OFF	P205-1	H	NONE			N/A	
	P205-1	EDG 1-1 E/D FUEL OIL PUMP	PUMP	K	2	O/F	ON	OFF	P201-1	H	NONE			N/A	
	P8-1	DO XFER PUMP 1	PUMP	BM	1	O/F	O	OFF	P195-1	H	NONE		MOD 88-0203/OP-02501	OP-02501 (PROV ALT F O SUPPLY)	27
	S206-01	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-02	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-03	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-04	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
ESSPWR	1N	125VDC STATION BATTERY	BATT	Y	1	ON	ON	OFF		H	NONE			N/A	
	1P	125VDC STATION BATTERY	BATT	Y	1	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	NONE			N/A	
	C1	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF		H	NONE			N/A	
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1, -2, -3	H	NONE			N/A	7
	C3615	EDG1-1 ELECT CONTROL & RELAY PANEL	PNL	K	1	ON	ON	OFF		H	NONE			N/A	
	C3628	CONT POWER ESS METER HPI FLOW X	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C3645	CONT POWER TO AUX FW CONTROL PNL	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	C4808	NEUTRON FLUX MON. CABINET (CH.1)	PNL	DG	1	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5755D	SPAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : ME

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
BSSPWR	C5756D	SFAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCs XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5762A	CONTROL POWER TO SFRCs CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5762C	SFAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5762E	CONTROL ROOM REACT PROT. SYS PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5763A	POST ACCIDENT MON. SYS PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5792A	CH 2 SFRCs XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5799	POST ACCIDENT MON. IND. PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C6708	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	1	ON	ON	OFF		H	NONE			N/A	
	C6714	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	1	ON	ON	OFF		H	NONE			N/A	
	CDE-11B-1	CONTROL POWER (LOADS NON-SSD)	PNL	V	1	ON	OFF	ON		H	NONE			N/A	
	CDE-11B-2	CONT POWER TO DH12 INTLK	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	CDE-12A-1	D1P CONT POWER TO AFWP GOV (ICS038A)	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1N	125VDC DIST PNL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1NA	125VDC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1P	125VDC DIST PNL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1PA	125VDC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DAN	125VDC DIST PANEL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DAP	125VDC DIST PANEL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DBC1N	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC1P	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC1PN	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF	DBC1P,DBC1N	H	NONE			N/A	
	DC MCC 1	250/125V DC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	E1	480 VAC MCC E1	SWGR	Y	1	ON	ON	OFF		H	NONE			N/A	
	E11A	480VAC MCC	MCC	G	1	ON	ON	OFF		H	NONE	MOD 85-0063		N/A	6**
	E11B	480VAC MCC	MCC	V	1	ON	ON	OFF		H	NONE			N/A	
	E11C	480VAC MCC	MCC	V	1	ON	ON	OFF		H	NONE	MOD 85-0063		N/A	6**
	E11D	480VAC MCC	MCC	G	1	ON	ON	OFF		H	NONE	MOD 85-0063		N/A	6**
	E11E	480VAC MCC	MCC	DG	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

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N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : ME

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	E12A	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E12B	480VAC MCC	MCC	K	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E12C	480VAC MCC	MCC	BE	1	ON	ON	OFF		H	NONE			N/A	
	E12D	480V AC MCC	MCC	BE	1	ON	ON	OFF		H	NONE			N/A	
	E12E	480VAC MCC	MCC	B	1	ON	ON	OFF		H	NONE			N/A	
	E12F	480VAC MCC	MCC	K	1	ON	ON	OFF		H	NONE			N/A	
	E14	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E15	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E16A	480V AC MCC	MCC	EE	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E16B	480VAC MCC	MCC	DG	1	ON	ON	OFF		H	NONE			N/A	
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	NONE			N/A	
	RC3601	DC CONT POWER RCP MONITOR	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	RC3607	CONTROL POWER (TO CCCW001)	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	RC3701	DC CONTROL POWER TO CAC 1 OUT VLV	PNL	A	1	ON	ON	OFF		H	NONE			N/A	
	RC3706	CONTROL POWER (LOADS NON-SSD)	PNL	V	1	ON	OFF	ON		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	NONE			N/A	
	RC3716										NONE			N/A	
	RC4801	DC CONT PWR TO RC4801 (MU6405, MU6407)	PNL	DG	1	ON	ON	OFF		H	NONE			N/A	
	RC4802	CONT PWR (TO MUTK, SG DRN RLY)	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	NONE			N/A	7
	XY1	CONSTANT VOLT TRANSFORMER (CVT CH 1)	XFMR	Y	1	ON	ON	OFF		H	NONE			N/A	
	XY3	CONSTANT VOLT TRANSFORMER (CVT CH 3)	XFMR	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y1	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y1A	120 VAC ESS INSTR DISTR PANEL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y3	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	YAU	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	YE1	120VAC MCC	PNL	K	1	ON	ON	OFF		H	NONE			N/A	
	YE2	240/120VAC MCC	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	YV1	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	YV3	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : ME

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	YVA	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	ZC6452	AFP #1 CTRL VLV POSITION CONTROLLER	PNL	E	1	ON	ON	OFF		H	NONE			N/A	
	ZC6459	MDFP CONTROL VLV POSITION CONTROLLER	PNL	II	1	ON	ON	OFF		H	NONE			N/A	
HPIS	HP02C	HPI 1 DISCH ISO VLV	MOV	AB	1	C	O	AS IS	HP02D	H	NONE			N/A	
	HP02D	HPI 1 DISCH ISO VLV	MOV	AB	1	C	O	AS IS	HP02C	H	NONE			N/A	
	HP32	HPI PMP 1 RECIRC VLV	MOV	AB	1	O	O	AS IS		H	NONE			N/A	
	P197-1	HPI PMP 1 AC LO PUMP	PUMP	AB	1	OFF	ON	OFF		H	NONE			N/A	
	P197-2	HPI PMP 1 DC LO PMP	PUMP	AB	1	OFF	ON	OFF	P197-1	H	NONE			N/A	
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	SFAS INITIATED	13
	P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-2)	SFAS INITIATED	13
HVAC	C100	TRAV SCR AREA EXH FAN (B/U SW PUMP)	FAN	BD	1	O/F	O/F	OFF		H	NONE			N/A	
	C25-1	EDG RM 1 VENT FAN 1	FAN	K	1	O/F	ON	OFF		H	NONE			N/A	
	C25-2	EDG RM 1 VENT FAN 2	FAN	K	1	O/F	ON	OFF		H	NONE			N/A	
	C71-1	LV SWGR RM VENT FAN 1	FAN	Y	1	O/F	ON	OFF		H	NONE			N/A	
	C73-1	AFP RM VENT FAN 1	FAN	E	1	O/F	ON	OFF		H	NONE			N/A	
	C78-1	BATT RM VENT FAN 1	FAN	Y	1	O/F	ON	OFF		H	NONE			N/A	
	C99-1	SW PMP RM EXH FAN 1	FAN	BF	1	O/F	ON	OFF		H	NONE			N/A	
	C99-2	SW PMP RM EXH FAN 2	FAN	BF	1	O/F	ON	OFF		H	NONE			N/A	
	HV0531A	AIR IN LVR FOR B/U SW PUMP	DMPR	BD	1	O/C	O/C	OPEN		H	NONE			N/A	
	HV0532A	AIR IN LVR FOR B/U SW PUMP	DMPR	BD	1	O/C	O/C	OPEN		H	NONE			N/A	
	HV5305	LV SWGR RM FAN 1 DAMPER	DMPR	Y	1	O/C	O	AS IS		H	NONE			N/A	
	HV5305A	LV SWGR RM 429 DAMPER	DMPR	Y	1	O/C	O	AS IS	HV5305B	H	NONE			N/A	
	HV5305B	LV SWGR RM 429 DAMPER	DMPR	Y	1	O/C	O	AS IS	HV5305A	H	NONE			N/A	
	HV5329A	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FC		H	NONE			N/A	
	HV5329B	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FO		H	NONE			N/A	
HV5329C	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FC		H	NONE			N/A		
HV5597	BATT RM 429B ATM DMPR	DMPR	Y	1	O/C	O	AS IS		H	NONE			N/A		
MSS	ICS11B	MSL 1 ATM VENT VLV	SOV	DH	1	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11B)	LOSS OF AIR	12
	MS100	MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A	
	MS100-1	MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A	
	MS101	MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : ME

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MSS	MS101-1	MS1V 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	NONE			N/A	
	PSV-SP17B1	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B2	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B3	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B4	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B5	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B6	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B7	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B8	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B9	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP1556)	OP-02501 (OPEN HP1556)	16
	HP26	HPI TO RCP SEALS	MAN	AB	1	C	O	AS IS		H	NONE			N/A	
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP29)	OP-02501 (OPEN HP29)	16
	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE		OP-02501 (OPEN MU01A)	OP-02501 (OPEN MU01A)	16
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE			N/A	
	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	NONE		OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03)	13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	NONE			N/A	
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	NONE		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	NONE		OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT)	16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	NONE			OP-02501 (OPERATE MU214 & MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU206	Recirc to Seal Return Stop Valve	MAN	AB	1	O	O/C	AS IS		H	NONE		OP-02501(CLOSE MU206)	OP-02501(CLOSE MU206)	16
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B H	NONE		OP-02501 (OPEN MU38)	SPFAS INITIATED	13
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59A)	SPFAS INITIATED	13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59B)	SPFAS INITIATED	13

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : ME

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59C)	SFAS INITIATED	13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59D)	SFAS INITIATED	13
	MU6405	RC MU PUMP SUCT VLV	MOV	AB	1	C	O/C	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6407	MU RECIRC ISO VLV	AOV	AB	1	O	O/C	FO	HPIS TRAIN 1	H	NONE			N/A	
	MU6409	MU CROSS CONNECT ISO VLV	MOV	AB	1	O	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6419	MU DISCH VLV	MOV	AB	1	C	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6421	MU CTMT ISO VLV	MOV	AB	1	C	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A)	13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B)	13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C)	13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D)	13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-371B	MUP 1 MAIN LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P-371C	MUP 1 AUX LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS,P-371B	H	NONE			N/A	
	P-371D	MUP 1 AUX GEAR LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P37-1	MU PUMP 1	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P371A	MU PMP 1 MAIN GEAR LO PMP	PUMP	AB	1	O/F	O	OFF	P371D	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1743)	LOSS OF AIR	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1747)	LOSS OF AIR	12
	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	NONE			N/A	
NI	NI-5874A	SOURCE RANGE IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	NI-5874C	LOCAL SOURCE RANGE IND	IND	DG	1	ON	ON	OFF	NI-5874A	H	NONE			N/A	
	NI-NI2	SOURCE RANGE IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
NNI	FI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI6425	RC MU FLOW-HI RANGE	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FI6435	RC MU FLOW-LOW RANGE	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03C	HPI FLOW INDICATION	IND	FF	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : ME

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
NNI	FYI-HP03C1	HPI FLOW IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03D	HPI FLOW INDICATION	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03D1	HPI FLOW IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-1	PRZR LEVEL IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-3	PRZR LEVEL IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	LI-SP09B1	SG1-1 START-UP LEVEL IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	LI-SP09B3	SG1-1 START-UP LEVEL IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-SP09B8	SG1-1 START-UP LEVEL IND (C5761A)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	LI-SP09B8A	SG1-1 START-UP LEVEL IND (C5708)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	LI-SP09B9	SG1-1 START-UP LEVEL IND (C5761A)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	PI-6365B	RCS LOOP 1 EXTENDED RANGE PRESS	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-6365B1	RCS LOOP 1 EXTENDED RANGE PRESS (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	PI-RC2B3	RCS LOOP 1 PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-RC2B4	RCS LOOP 1 PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12B	SG1-1 OUTLET PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12B1	SG1-1 OUTLET PRESS IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12B2	SG1-1 OUTLET PRESS IND	IND	FF	1	ON	ON	OFF	PI-SP12B-1	H	NONE			N/A	
	TE-RC3B5	RCS LOOP 1 HOT LEG TEMP (RM 303)	TE	D	1	ON	ON	OFF		H	NONE			N/A	
	TE-RC4B3	RCS LOOP 1 COLD LEG TEMP (RM 303)	TE	D	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC3B2	RCS LOOP 1 HOT LEG TEMP (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC3B5	RCS LOOP 1 HOT LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC3B6	RCS LOOP 1 HOT LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC4B2	RCS LOOP 1 COLD LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC4B4	RCS LOOP 1 COLD LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A	
	RC13B	RCS CODE SAFETY VALVE	SV	D	1	C	C	CLOSED		H	NONE			N/A	
	RC147	PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
	RC200	PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A	
	RC239A	PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A	
	RC239B	PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A	
	RC2A	PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			N/A	
	RC4608A	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : ME

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
RCS	RC4608B	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A	
	RC4610A	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A	
	RC4610B	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A	
	RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	NONE			N/A	
SFAS	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5765D	SFAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS  
FIRE AREA : ME

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFAS	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
SFRCS	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101B	LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101C	LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS3869B	BLOCK CIRCUIT AF3869 (APP-1 TO SG-2)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS3870B	BLOCK CIRCUIT AF3870 (APP-1 TO SG-1)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS611B	BLOCK CIRCUIT MS611 (SG-1 DRAIN STOP)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS6401	CH 1/3 MANUAL START APPT-1 C5707	HIS	FF	1	OFF	ON	OFF		H	NONE			N/A	14
	HIS6403	CH 1/3 MAN STRT APPT-1 & ISOL SG-1 C57	HIS	FF	1	OFF	ON	OFF		H	NONE			N/A	14
	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : ME

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
SFRCS	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D		1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D		1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D		1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14
RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D		1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14	
SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	NONE			N/A	7	
	P3-1	SW PUMP 1	PUMP	BF	1	O/F	ON	OFF		H	NONE			N/A		
	P3-3	SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1, P3-2	H	NONE			N/A		
	SW1356	CAC 1 OUT ISO VLV	SOV	A	1	O/C	O	FO		H	NONE			N/A		
	SW1358	CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	NONE			N/A		
	SW1366	CAC 1 IN ISO VLV	MOV	A	1	O	O	AS IS		H	NONE			N/A		
	SW1368	CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	NONE			N/A		
	SW1382	AFP 1 SUCT VLV FROM SW	MOV	E	1	C	O/C	AS IS		C	NONE			N/A		
	SW1399	TPCW HX IN HEADER ISO VLV	MOV	BG	1	O/C	C	AS IS		H	NONE			N/A		
	SW1424	SW FROM CC HX 1 ISO VLV	SOV	T	1	O/C	O	FO		H	NONE			N/A		
	SW1429	SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	NONE			N/A		
	SW2927	CTRM EVS COND UNIT IN VLV	MOV	HH	1	C	O	AS IS		H	NONE			N/A		
	SW2929	SW TO INT STRU VLV	MOV	BG	1	O/C	O	AS IS	SW2930, 31, 32	H	NONE			N/A		
	SW2931	SW TO CLG TOWER MU VLV	MOV	BG	1	O/C	O	AS IS	SW2929, 30, 32	H	NONE			N/A		
SW54	TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A			

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : ME

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SWS	SW55	TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
	SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA ME TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent up-stream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA ME TABLE 1 NOTES

- 9. NOT USED
- 10. NOT USED
- 11. NOT USED
- 12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:

ICS11B	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

- 13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level setpoint is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components.

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531 P42-1	CS Iso Vlv LPI Pump 1	Open On	Stop P56-1, -2 Stop P42-1 from the CR after blocking SFAS
P42-2 P56-1	LPI Pump 2 CS Pump 1	On On	Trip Bkr AD112 at D1 Stop P56-1 from the CR after blocking SFAS
P56-2 P58-1	CS Pump 2 HPI Pump 1	On On	Trip Bkr BF111 at F1 Stop P58-1 from the CR after blocking SFAS
P58-2 CC1407A, B	HPI Pump 2 CCW Out Iso Vlv	On Closed	Trip Bkr AD111 at D1 Open CC1407A, B and Trip Bkr BE1173 at E11B & BF1158 at F11B
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip BE1176 at E11B & BF1159 at F11B
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03 MU38	RC Lt Dn Cooler Out RCP Seal Rtn Isol	Closed Closed	Open MU03 Open MU38

FIRE AREA ME TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

If AF3869 is manually closed, first trip Breaker BE1146 at E11E.

15. NOT USED

16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or by performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injection and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.

RCP Seal Return Flow

The following manual valves will need to be operated:

MU97	Open	MU216	Throttle
MU182	Close	WC119	Open
MU214	Close	WC120	Open

FIRE AREA ME TABLE 1 NOTES

RCS Inventory Control

After transferring Makeup suction to the BWST, MU206 will be manually closed after opening MU208, HP29, and HP1556 to route MUPS Recirc to the BWST rather than the Makeup Tank.

Additionally, the following valves may need to be manually operated:

CC1409	Open	MU10A	Open
MU01A	Open	MU11	Align to CWRT
MU02B	Open		

17. NOT USED
18. To prevent spurious operation, Valves DH09A and DH09B are deenergized.
19. NOT USED
20. NOT USED
21. NOT USED
22. The Core Flood Isolation Valves CF01A, B are normally open and are required to be closed when cooling down before going below 700 psig. Breakers BF1120 at F11A and BE1162 at E11B are normally open; manual action may be required to close CF01A before going below 700 psig.
23. NOT USED
24. Essential CCW is provided to the Makeup Pump Cooler, bypassing CC1460.
25. Valves DH11 and DH12 are depowered. Bypass Valves DH21 and DH23 can be manually operated to place the DHR System in service.
26. The DHR Cooler 1-1 Isolation Valve CC1467 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRS cooldown.  
  
The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467(CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467(CC1469).
27. EDG Fuel Oil System can transfer oil from the Oil Storage Tank (T45) using the Oil Transfer Pump (P8-1) after connecting the flexible hose. EDG Fuel Oil Transfer Pump 1 (P195-1) would then not be used.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: MF

TRAIN ACCREDITED FOR SHUTDOWN: 1

4.6.MF.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
MH3042	MANHOLE MH3042	400	N	MAN

.....

4.6.MF.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA MF

The following components are located in fire area MF.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
NONE				

.....

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA MF

#### 4.6.MF.3 Fire Propagation Control

Fire Area MF is a cable manhole located in the Yard approximately 230 ft. north of the Auxiliary Building.

This fire area is a reinforced concrete structure, most of which is located below grade. Only the reinforced concrete cap and steel checkplate hatch are exposed to the Yard area. This manhole is physically divided into two spaces by a 6-inch thick concrete wall.

A fire that originates in this fire area will be contained in the fire area.

#### 4.6.MF.4 Fire Detection and Suppression

There is not automatic fire detection located in this fire area.

Manual fire suppression is provided for this area by Yard Hydrants and Hose House (HH) 15.

In the event of a fire, smoke venting will be accomplished with portable ventilation.

#### 4.6.MF.5 Fire Area Safe Shutdown Summary

Train 1 will be used for Safe Shutdown in Fire Area MF. Safe Shutdown will be accomplished using the Makeup and Purification System (MUPS) for Reactor Coolant System Inventory Control, a Letdown path and Seal Injection for RCP Seal Cooling.

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MF

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3869)	OP-02501 (CLOSE AF3869)	14
	AF3870	AFWP 1 DISCH TO SG1	MOV	E	1	O	O	AS IS		H	NONE			N/A	
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE			OP-02501 (TRIP P14-2)	14
	AF608	AFW TO SG1 ISO VLV	MOV	AB	1	O	O	AS IS		H	NONE			N/A	
	AF6452	AFWP 1 FLOW CTRL VLV	SOV	E	1	O	O/C	FO		H	NONE			N/A	
	FW6459	MDFP FLOW CTRL VALVE	SOV	II	1	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			N/A	
	ICS038B	AFPT 1 GOV CTRL VLV	MOV	E	1	O	O/C	AS IS		H	NONE			N/A	
	MS106	AFPT 1 MS IN ISO VLV	MOV	EE	1	C	O	AS IS		H	NONE			N/A	
	MS106A	AFPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	NONE			OP-02501(TRIP P14-2)	14
	MS107A	AFPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-2)	14
	MS5889A	AFPT 1 STEAM ADMISS VLV	SOV	E	1	C	O	FO		H	NONE			N/A	
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H	NONE			N/A	
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-2)	OP-02501 (TRIP P14-2)	14
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	P242-1	MDFP AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	P242-2	MDFP SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			N/A	7
	CACs	C1-1	CAC FAN 1	FAN	D	1	O/F	ON	OFF		H	NONE			N/A
C1-3		CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	NONE			N/A	
CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	SFAS INITIATED	13
	CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	SFAS INITIATED	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1409)	OP-02501 (OPEN CC1409)	16
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE			N/A	
	CC1411A	CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411A)	SFAS INITATED	13
	CC1411B	CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	SFAS INITIATED	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	N/A	24
	CC1467	DHR CLR 1 OUT ISO VLV	SOV	AB	1	C	O	FO		C	NONE		OP-02501 (OPERATE CC1467)	OP-02501 (OPERATE CC1467)	26
	CC1471	DG JKT CW HX 1 OUT VLV	MAN	K	1	O	O	AS IS		H	NONE			N/A	
	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B H	NONE			OP-02501(OPERATE CC43)	12,26
	CC2645	CC RETURN HDR 1 VLV	MOV	G	1	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	NONE			N/A	
	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	
CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501(OPERATE CC43)	OP-02501(OPERATE CC43)	12,26	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MF

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC5095	CC HDR 1 IN ISO VLV	MOV	T	1	O/C	O	AS IS		H	NONE			N/A	
	CC5097	CCW LINE 1 RET ISO VLV	MOV	T	1	O/C	O/C	AS IS		H	NONE			N/A	
	FIS1422C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A	
	FIS1427C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A	
	FIS1432C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A	
	P43-1	CCW PUMP 1	PUMP	T	1	O/F	ON	OFF		H	NONE			N/A	
	P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	NONE			N/A	
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B C	NONE		OP-02501 (CLOSE CF01A)	OP-02501 (CLOSE CF01A)	22
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B C	NONE			N/A	
CREVS	C21-1	CTRM EVS FAN 1	FAN	HH	1	OFF	ON	OFF		H	NONE			N/A	
	S33-1	CTRM EMERG A/C UNIT 1	A/C	HH	1	OFF	ON	OFF		H	NONE			N/A	
	SV4823A	CREVS CONDENSER UNIT 1 (S33-1) IN VLV	SOV	HH	1	C	O	CLOSED		H	NONE			N/A	
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B H	NONE			OP-02501 (TRIP P56-1)	13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	NONE			OP-02501 (TRIP P56-2)	13
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	NONE		OP-02501 (TRIP P56-1)	OP-02501 (TRIP P56-1)	13
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE		OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2)	13
DHRS	DH01B	LPI LINE 1 VLV	MOV	AB	1	O	O	AS IS		C	NONE			N/A	
	DH07B	BWST ISO VLV B	MOV	AC	1	O	O	AS IS		H	NONE			N/A	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH13B	DH CLR 1 BYPASS VLV	SOV	AB	1	C	C	FC		C	NONE			N/A	
	DH14B	DH CLR 1 OUT VLV	SOV	AB	1	O	O	FO		C	NONE			N/A	
	DH1517	DH NORM SUCT LINE 1 VLV	MOV	A	1	C	O/C	AS IS		C	NONE			N/A	
	DH2733	DH PUMP 1 BWST SUCT VLV	MOV	AB	1	O	O/C	AS IS		C	NONE			N/A	
	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	
	DH64	LPI/HPI CROSS-TIE VLV	MOV	AB	1	C	C	AS IS		C	NONE			N/A	
	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-1)	SFAS INITIATED	13

LEGEND

H - required for hot standby

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H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



SAFE SHUTDOWN ANALYSIS  
FIRE AREA : MF

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
DHRS	P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	SPAS INITIATED	13
EDG	DA1147A/B	EDG 1 AIR START VLV	SOV	K	1	C	O	FC		H	NONE			N/A	
	DA2987	AIR START RCVR 1-1-1 DISCH VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA2988	AIR START RCVR 1-1-2 DISCH VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA60	AIR START RCVR 1-1-1 RELAY VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA61	AIR START RCVR 1-1-2 RELAY VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	K5-1	EMERG DIESEL GENERATOR 1	EDG	K	1	O/F	ON	OFF		H	NONE			N/A	
	P148-1A	EDG JACKET WATER PUMP (RIGHT)	PUMP	K	1	O/F	O	OFF		H	NONE			N/A	
	P148-1B	EDG JACKET WATER PUMP (LEFT)	PUMP	K	1	O/F	O	OFF		H	NONE			N/A	
	P195-1	EDG FUEL OIL TRANSFER PUMP 1	PUMP	BN	1	OFF	ON	OFF		C	1CBE1298B 1PB1298A		MOD 88-0203/OP-02501 MOD 88-0203/OP-02501	OP-02501 (PROV ALT F O SUPPLY) OP-02501 (PROV ALT F O SUPPLY)	27 27
	P201-1	EDG 1-1 M/D FUEL OIL PUMP	PUMP	K	1	O/F	ON	OFF	P205-1	H	NONE			N/A	
	P205-1	EDG 1-1 E/D FUEL OIL PUMP	PUMP	K	2	O/F	ON	OFF	P201-1	H	NONE			N/A	
	P8-1	DO XFER PUMP 1	PUMP	BM	1	O/F	O	OFF	P195-1	H	NONE		MOD 88-0203/OP-02501	OP-02501 (PROV ALT F O SUPPLY)	27
	S206-01	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-02	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-03	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-04	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
BSSPWR	1N	125VDC STATION BATTERY	BATT	Y	1	ON	ON	OFF		H	NONE			N/A	
	1P	125VDC STATION BATTERY	BATT	Y	1	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	NONE			N/A	
	C1	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF		H	NONE			N/A	
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1,-2,-3	H	NONE			N/A	7
	C3615	EDG1-1 ELECT CONTROL & RELAY PANEL	PNL	K	1	ON	ON	OFF		H	NONE			N/A	
	C3628	CONT POWER ESS METER HPI FLOW X	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C3645	CONT POWER TO AUX FW CONTROL PNL	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	C4808	NEUTRON FLUX MON. CABINET (CH.1)	PNL	DG	1	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5755D	SPAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

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H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MF

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPW	C5756D	SPAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5759C	INST POWER NNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5762A	CONTROL POWER TO SFRCS CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5762C	SPAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5762D	SPAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5762E	CONTROL ROOM REACT PROT. SYS PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5763A	POST ACCIDENT MON. SYS PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5763D	SPAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5792A	CH 2 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			LOSS SFRCS CH 2/4 INITIATES AFW	14
	C5799	POST ACCIDENT MON. IND. PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C6708	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	1	ON	ON	OFF		H	NONE			N/A	
	C6714	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	1	ON	ON	OFF		H	NONE			N/A	
	CDE-11B-1	CONTROL POWER (LOADS NON-SSD)	PNL	V	1	ON	OFF	ON		H	NONE			N/A	
	CDE-11B-2	CONT POWER TO DH12 INTLK	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	CDE-12A-1	D1P CONT POWER TO AFWP GOV (ICS038A)	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1N	125VDC DIST PNL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1NA	125VDC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1P	125VDC DIST PNL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1PA	125VDC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DAN	125VDC DIST PANEL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DAP	125VDC DIST PANEL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DBC1N	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC1P	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC1PN	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF	DBC1P,DBC1N	H	NONE			N/A	
	DC MCC 1	250/125V DC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	E1	480 VAC MCC E1	SWGR	Y	1	ON	ON	OFF		H	NONE			N/A	
	E11A	480VAC MCC	MCC	G	1	ON	ON	OFF		H	NONE	MOD 85-0063		N/A	6**
	E11B	480VAC MCC	MCC	V	1	ON	ON	OFF		H	NONE			N/A	
	E11C	480VAC MCC	MCC	V	1	ON	ON	OFF		H	NONE	MOD 85-0063		N/A	6**
	E11D	480VAC MCC	MCC	G	1	ON	ON	OFF		H	NONE	MOD 85-0063		N/A	6**

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MF

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	E11E	480VAC MCC	MCC	DG	1	ON	ON	OFF		H	NONE			N/A	
	E12A	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E12B	480VAC MCC	MCC	K	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E12C	480VAC MCC	MCC	BE	1	ON	ON	OFF		H	NONE			N/A	
	E12D	480V AC MCC	MCC	BE	1	ON	ON	OFF		H	NONE			N/A	
	E12E	480VAC MCC	MCC	B	1	ON	ON	OFF		H	NONE			N/A	
	E12F	480VAC MCC	MCC	K	1	ON	ON	OFF		H	NONE			N/A	
	E14	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E15	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E16A	480V AC MCC	MCC	EE	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E16B	480VAC MCC	MCC	DG	1	ON	ON	OFF		H	NONE			N/A	
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	NONE			N/A	
	RC3601	DC CONT POWER RCP MONITOR	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	RC3607	CONTROL POWER (TO CCCW001)	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	RC3701	DC CONTROL POWER TO CAC 1 OUT VLV	PNL	A	1	ON	ON	OFF		H	NONE			N/A	
	RC3706	CONTROL POWER (LOADS NON-SSD)	PNL	V	1	ON	OFF	ON		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	NONE			N/A	
	RC3716										NONE			N/A	
	RC4801	DC CONT PWR TO RC4801 (MU6405, MU6407)	PNL	DG	1	ON	ON	OFF		H	NONE			N/A	
	RC4802	CONT PWR (TO MUTK, SG DRN RLY)	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	NONE			N/A	7
	XY1	CONSTANT VOLT TRANSFORMER (CVT CH 1)	XFMR	Y	1	ON	ON	OFF		H	NONE			N/A	
	XY3	CONSTANT VOLT TRANSFORMER (CVT CH 3)	XFMR	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y1	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y1A	120 VAC BSS INSTR DISTR PANEL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y3	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	YAU	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	YE1	120VAC MCC	PNL	K	1	ON	ON	OFF		H	NONE			N/A	
	YE2	240/120VAC MCC	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	YV1	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

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N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MF

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	YV3	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	YVA	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	ZC6452	APP #1 CTRL VLV POSITION CONTROLLER	PNL	E	1	ON	ON	OFF		H	NONE			N/A	
	ZC6459	MDFP CONTROL VLV POSITION CONTROLLER	PNL	II	1	ON	ON	OFF		H	NONE			N/A	
HPIS	HP02C	HPI 1 DISCH ISO VLV	MOV	AB	1	C	O	AS IS	HP02D	H	NONE			N/A	
	HP02D	HPI 1 DISCH ISO VLV	MOV	AB	1	C	O	AS IS	HP02C	H	NONE			N/A	
	HP32	HPI PMP 1 RECIRC VLV	MOV	AB	1	O	O	AS IS		H	NONE			N/A	
	P197-1	HPI PMP 1 AC LO PUMP	PUMP	AB	1	OFF	ON	OFF		H	NONE			N/A	
	P197-2	HPI PMP 1 DC LO PMP	PUMP	AB	1	OFF	ON	OFF	P197-1	H	NONE			N/A	
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	SPAS INITIATED	13
	P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-2)	SPAS INITIATED	13
HVAC	C100	TRAV SCR AREA EXH FAN (B/U SW PUMP)	FAN	BD	1	O/F	O/F	OFF		H	NONE			N/A	
	C25-1	EDG RM 1 VENT FAN 1	FAN	K	1	O/F	ON	OFF		H	NONE			N/A	
	C25-2	EDG RM 1 VENT FAN 2	FAN	K	1	O/F	ON	OFF		H	NONE			N/A	
	C71-1	LV SWGR RM VENT FAN 1	FAN	Y	1	O/F	ON	OFF		H	NONE			N/A	
	C73-1	APP RM VENT FAN 1	FAN	E	1	O/F	ON	OFF		H	NONE			N/A	
	C78-1	BATT RM VENT FAN 1	FAN	Y	1	O/F	ON	OFF		H	NONE			N/A	
	C99-1	SW PMP RM EXH FAN 1	FAN	BF	1	O/F	ON	OFF		H	NONE			N/A	
	C99-2	SW PMP RM EXH FAN 2	FAN	BF	1	O/F	ON	OFF		H	NONE			N/A	
	HV0531A	AIR IN LVR FOR B/U SW PUMP	DMPR	BD	1	O/C	O/C	OPEN		H	NONE			N/A	
	HV0532A	AIR IN LVR FOR B/U SW PUMP	DMPR	BD	1	O/C	O/C	OPEN		H	NONE			N/A	
	HV5305	LV SWGR RM FAN 1 DAMPER	DMPR	Y	1	O/C	O	AS IS		H	NONE			N/A	
	HV5305A	LV SWGR RM 429 DAMPER	DMPR	Y	1	O/C	O	AS IS	HV5305B	H	NONE			N/A	
	HV5305B	LV SWGR RM 429 DAMPER	DMPR	Y	1	O/C	O	AS IS	HV5305A	H	NONE			N/A	
	HV5329A	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FC		H	NONE			N/A	
	HV5329B	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FO		H	NONE			N/A	
	HV5329C	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FC		H	NONE			N/A	
	HV5597	BATT RM 429B ATM DMPR	DMPR	Y	1	O/C	O	AS IS		H	NONE			N/A	
MSS	ICS11B	MSL 1 ATM VENT VLV	SOV	DH	1	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11B)	LOSS OF AIR	12
	MS100	MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A	
	MS100-1	MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS  
FIRE AREA : MF

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MSS	MS101	MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A	
	MS101-1	MS1V 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	NONE			N/A	
	PSV-SP17B1	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B2	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B3	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B4	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B5	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B6	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B7	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B8	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B9	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP1556)	OP-02501 (OPEN HP1556)	16
	HP26	HPI TO RCP SEALS	MAN	AB	1	C	O	AS IS		H	NONE			N/A	
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP29)	OP-02501 (OPEN HP29)	16
	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE		OP-02501 (OPEN MU01A)	OP-02501 (OPEN MU01A)	16
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE			N/A	
	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	NONE		OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03)	13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	NONE			N/A	
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	NONE		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	NONE		OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT)	16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	NONE			OP-02501 (OPERATE MU214 & MU216)	16
	MU206	Recirc to Seal Return Stop Valve	MAN	AB	1	O	O/C	AS IS		H	NONE		OP-02501(CLOSE MU206)	OP-02501(CLOSE MU206)	16
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02510 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B	H	NONE	OP-02501 (OPEN MU38)	SPAS INITIATED	13
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59A)	SPAS INITIATED	13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59B)	SPAS INITIATED	13

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MF

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59C)	SFAS INITIATED	13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59D)	SFAS INITIATED	13
	MU6405	RC MU PUMP SUCT VLV	MOV	AB	1	C	O/C	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6407	MU RECIRC ISO VLV	AOV	AB	1	O	O/C	FO	HPIS TRAIN 1	H	NONE			N/A	
	MU6409	MU CROSS CONNECT ISO VLV	MOV	AB	1	O	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6419	MU DISCH VLV	MOV	AB	1	C	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6421	MU CTMT ISO VLV	MOV	AB	1	C	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A)	13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B)	13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C)	13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D)	13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-371B	MUP 1 MAIN LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P-371C	MUP 1 AUX LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS,P-371B	H	NONE			N/A	
	P-371D	MUP 1 AUX GEAR LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P37-1	MU PUMP 1	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P371A	MU PMP 1 MAIN GEAR LO PMP	PUMP	AB	1	O/F	O	OFF	P371D	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1743)	LOSS OF AIR	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1747)	LOSS OF AIR	12
	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	NONE			N/A	
NI	NI-5874A	SOURCE RANGE IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	NI-5874C	LOCAL SOURCE RANGE IND	IND	DG	1	ON	ON	OFF	NI-5874A	H	NONE			N/A	
	NI-NI2	SOURCE RANGE IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
NNI	FI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI6425	RC MU FLOW-HI RANGE	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FI6435	RC MU FLOW-LOW RANGE	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03C	HPI FLOW INDICATION	IND	FF	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MF

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
NNI	FYI-HP03C1	HPI FLOW IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A		
	FYI-HP03D	HPI FLOW INDICATION	IND	FF	1	ON	ON	OFF		H	NONE			N/A		
	FYI-HP03D1	HPI FLOW IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A		
	LI-RC14-1	PRZR LEVEL IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A		
	LI-RC14-3	PRZR LEVEL IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A		
	LI-SP09B1	SG1-1 START-UP LEVEL IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A		
	LI-SP09B3	SG1-1 START-UP LEVEL IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A		
	LI-SP09B8	SG1-1 START-UP LEVEL IND (C5761A)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A		
	LI-SP09B8A	SG1-1 START-UP LEVEL IND (C5708)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A		
	LI-SP09B9	SG1-1 START-UP LEVEL IND (C5761A)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A		
	PI-6365B	RCS LOOP 1 EXTENDED RANGE PRESS	IND	FF	1	ON	ON	OFF		H	NONE			N/A		
	PI-6365B1	RCS LOOP 1 EXTENDED RANGE PRESS (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A		
	PI-RC2B3	RCS LOOP 1 PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A		
	PI-RC2B4	RCS LOOP 1 PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A		
	PI-SP12B	SG1-1 OUTLET PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A		
	PI-SP12B1	SG1-1 OUTLET PRESS IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A		
	PI-SP12B2	SG1-1 OUTLET PRESS IND	IND	FF	1	ON	ON	OFF	PI-SP12B-1	H	NONE			N/A		
	TE-RC3B5	RCS LOOP 1 HOT LEG TEMP (RM 303)	TE	D	1	ON	ON	OFF		H	NONE			N/A		
	TE-RC4B3	RCS LOOP 1 COLD LEG TEMP (RM 303)	TE	D	1	ON	ON	OFF		H	NONE			N/A		
	TI-RC3B2	RCS LOOP 1 HOT LEG TEMP (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A		
	TI-RC3B5	RCS LOOP 1 HOT LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A		
	TI-RC3B6	RCS LOOP 1 HOT LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A		
	TI-RC4B2	RCS LOOP 1 COLD LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A		
	TI-RC4B4	RCS LOOP 1 COLD LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A		
	RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A	
		RC13B	RCS CODE SAFETY VALVE	SV	D	1	C	C	CLOSED		H	NONE			N/A	
		RC147	PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
		RC200	PZR SMPL CMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A	
RC239A		PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A		
RC239B		PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A		
RC2A		PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			N/A		
RC4608A		SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	NONE			N/A		

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MF

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
RCS	RC4608B	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A	
	RC4610A	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A	
	RC4610B	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A	
	RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	NONE			N/A	
SFAS	CS755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	CS762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	CS763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	CS765D	SFAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	

LEGEND

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SAFE SHUTDOWN ANALYSIS  
FIRE AREA : MF

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SFAS	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
SFRCS	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101B	LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101C	LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS3869B	BLOCK CIRCUIT AF3869 (APP-1 TO SG-2)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS3870B	BLOCK CIRCUIT AF3870 (APP-1 TO SG-1)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS611B	BLOCK CIRCUIT MS611 (SG-1 DRAIN STOP)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS6401	CH 1/3 MANUAL START APPT-1 C5707	HIS	FF	1	OFF	ON	OFF		H	NONE			N/A	14
	HIS6403	CH 1/3 MAN STRT APPT-1 & ISOL SG-1 C57	HIS	FF	1	OFF	ON	OFF		H	NONE			N/A	14
	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MF

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14
RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14	
SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	NONE			N/A	7
	P3-1	SW PUMP 1	PUMP	BF	1	O/F	ON	OFF		H	NONE			N/A	
	P3-3	SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1, P3-2	H	NONE			N/A	
	SW1356	CAC 1 OUT ISO VLV	SOV	A	1	O/C	O	FO		H	NONE			N/A	
	SW1358	CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	NONE			N/A	
	SW1366	CAC 1 IN ISO VLV	MOV	A	1	O	O	AS IS		H	NONE			N/A	
	SW1368	CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	NONE			N/A	
	SW1382	AFP 1 SUCT VLV FROM SW	MOV	E	1	C	O/C	AS IS		C	NONE			N/A	
	SW1399	TPCW HX IN HEADER ISO VLV	MOV	BG	1	O/C	C	AS IS		H	NONE			N/A	
	SW1424	SW FROM CC HX 1 ISO VLV	SOV	T	1	O/C	O	FO		H	NONE			N/A	
	SW1429	SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	NONE			N/A	
	SW2927	CTRM EVS COND UNIT IN VLV	MOV	HH	1	C	O	AS IS		H	NONE			N/A	
	SW2929	SW TO INT STRU VLV	MOV	BG	1	O/C	O	AS IS	SW2930, 31, 32	H	NONE			N/A	
	SW2931	SW TO CLG TOWER MU VLV	MOV	BG	1	O/C	O	AS IS	SW2929, 30, 32	H	NONE			N/A	
SW54	TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A		

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

4.6.MF.6 TABLE1  
Detailed Analysis

FIRE HAZARDS ANALYSIS

DAVIS BESSE

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MF

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SWS	SW55	TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B H	NONE				N/A
	SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B H	NONE				N/A

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA MF TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent upstream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA MF TABLE 1 NOTES

- 9. NOT USED
- 10. NOT USED
- 11. NOT USED
- 12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:

ICS11B	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

- 13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level setpoint is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components.

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531 P42-1	CS Iso Vlv LPI Pump 1	Open On	Stop P56-1, -2 Stop P42-1 from the CR after blocking SFAS
P42-2 P56-1	LPI Pump 2 CS Pump 1	On On	Trip Bkr AD112 at D1 Stop P56-1 from the CR after blocking SFAS
P56-2 P58-1	CS Pump 2 HPI Pump 1	On On	Trip Bkr BF111 at F1 Stop P58-1 from the CR after blocking SFAS
P58-2 CC1407A, B	HPI Pump 2 CCW Out Iso Vlv	On Closed	Trip Bkr AD111 at D1 Open CC1407A, B and Trip BE1173 at E11B & BF1158 at F11B
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip BE1176 at E11B & BF1159 at F11B
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03 MU38	RC Lt Dn Cooler Out RCP Seal Rtn Isol	Closed Closed	Open MU03 Open MU38

FIRE AREA MF TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

If AF3869 is manually closed, first trip Breaker BE1146 at E11E.

15. NOT USED

16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or by performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injection and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.

RCP Seal Return, Seal Injection and Letdown Flow

The following manual valves may need to be operated:

MU97	Open	MU216	Throttle
MU182	Close	WC119	Open
MU214	Close	WC120	Open

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA MF TABLE 1 NOTES

Additionally, the following valves may need to be manually operated:

CC1409	Open	MU10A	Open
MU01A	Open	MU11	Align to CWRT
MU02B	Open		

RCS Inventory Control

After transferring the Makeup suction to the BWST, MU206 will be manually closed after opening MU208, HP29, and HP1556 to route MUPS Recirc to the BWST rather than the Makeup Tank.

17. NOT USED
18. To prevent spurious operation, Valves DH09A and DH09B are deenergized.
19. NOT USED
20. NOT USED
21. NOT USED
22. The Core Flood Isolation Valves CF01A, B are normally open and are required to be closed when cooling down before going below 700 psig. Breakers BF1120 at F11A and BE1162 at E11B are normally open; manual action may be required to close CF01A before going below 700 psig.
23. NOT USED
24. Essential CCW is provided to the Makeup Pump Cooler, bypassing CC1460.
25. Valves DH11 and DH12 are depowered. Bypass Valves DH21 and DH23 can be manually operated to place the DHR System in service.
26. The DHR Cooler 1-1 Isolation Valve CC1467 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRS cooldown.  
  
The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467 (CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467 (CC1469).
27. EDG fuel Oil System can transfer oil from the Oil Storage Tank (T45) using the Oil Transfer Pump (P8-1) after connecting the flexible hose. The EDG Fuel Oil Transfer Pump 1 (P195-1) would then not be used.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: MG

TRAIN ACCREDITED FOR SHUTDOWN: 2

4.6.MG.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
JB30D4	JUNCTION BOX JB30D4	0	N	MAN

.....

4.6.MG.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA MG

The following components are located in fire area MG.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
NONE				

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## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA MG

#### 4.6.MG.3 Fire Propagation Control

Fire Area MG is a Junction Box located outside, below grade along the south wall on the Intake Structure. This fire area was identified so that any changes to this Junction Box would be evaluated for Safe Shutdown.

#### 4.6.MG.4 Fire Detection and Suppression

There is no fire detection or suppression in this area. Based on the physical location, detection and suppression are not required.

#### 4.6.MG.5 Fire Area Safe Shutdown Summary

Train 2 will be used for Safe Shutdown in Fire Area MG. Safe Shutdown will be accomplished using the Makeup and Purification System (MUPS) for Reactor Coolant System Inventory Control, MUPS for a Letdown path and MUPS Seal Injection for RCP Seal Cooling.

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MG

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	NONE			OP-02501 (TRIP P14-1)	14
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3871)	OP-02501 (CLOSE AF3871)	14
	AF3872	AFWP 2 DISCH TO SG2	MOV	F	2	O	O	AS IS		H	NONE			N/A	
	AF599	AFW TO SG2 ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	AF6451	AFWP 2 FLOW CTRL VLV	SOV	F	2	O	O/C	FO		H	NONE			N/A	
	FW6460	MDFP FLOW CTRL VLV	SOV	II	2	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			N/A	7
	ICS038A	AFPT 2 GOV CTRL VLV	MOV	F	2	O	O/C	AS IS		H	NONE			N/A	7
	MS106A	AFPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	NONE			OP-02501 (TRIP P14-1)	14
	MS107	AFPT 2 MS IN ISO VLV	MOV	EE	2	C	O	AS IS		H	NONE			N/A	7
	MS107A	AFPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-1)	14
	MS5889B	AFPT 2 STEAM ADMISS VLV	SOV	F	2	C	O	FO		H	NONE			N/A	
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-1)	OP-02501 (TRIP P14-1)	14
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE			N/A	
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	
	P242-1	MDFP AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	P242-2	MDFP SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			N/A	7
CACS	C1-2	CAC FAN 2	FAN	D	2	O/F	ON	OFF		H	NONE			N/A	
	C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	NONE			N/A	
CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	OP-02501 (OPEN CC1407A)	13
	CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407B)	OP-02501 (OPEN CC1407B)	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE			N/A	
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1410)	OP-02501 (OPEN CC1410)	16
	CC1411A	CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411A)	OP-02501 (OPEN CC1411A)	13
	CC1411B	CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	OP-02501 (OPEN CC1411B)	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	N/A	24
	CC1469	DHR CLR 2 OUT ISO VLV	SOV	AB	2	C	O	FO		C	NONE		OP-02501 (OPERATE CC1469)	OP-02501 (OPERATE CC1469)	26
	CC1474	DG JKT CW HX 2 OUT VLV	MAN	J	2	O	O	AS IS		H	NONE			N/A	
	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B H	NONE			OP-02501 (OPERATE CC43)	12,26
	CC2649	CC RETURN HDR 2 VLV	MOV	G	2	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	NONE			N/A	
	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	
	CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501 (OPERATE CC43)	OP-02501 (OPERATE CC43)	12,26

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MG

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC5096	CC HDR 2 IN ISO VLV	MOV	T	2	O/C	O	AS IS		H	NONE			N/A	
	CC5098	CCW LINE 2 RET ISO VLV	MOV	T	2	O/C	O/C	AS IS		H	NONE			N/A	
	FIS1422D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1427D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1432D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	P43-2	CCW PUMP 2	PUMP	T	2	O/F	ON	OFF		H	NONE			N/A	
	P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	NONE			N/A	
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B C	NONE			N/A	
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B C	NONE	OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	22	
CREVS	C21-2	CTRM EVS FAN 2	FAN	HH	2	OFF	ON	OFF		H	NONE			N/A	
	S33-2	CTRM EMERG A/C UNIT 2	A/C	HH	2	OFF	ON	OFF		H	NONE			N/A	
	SV4827A	CREVS CONDENSER UNIT 2 (S33-2) IN VLV	SOV	HH	2	C	O	CLOSED		H	NONE			N/A	
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B H	NONE			OP-02501 (TRIP P56-1)	13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	NONE			OP-02501 (TRIP P56-2)	13
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	NONE	OP-02501 (TRIP P56-1)	OP-02501 (TRIP P56-1)	13	
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE	OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2)	13	
DHRS	DH01A	LPI LINE 2 VLV	MOV	A	2	O	O	AS IS		C	NONE			N/A	
	DH07A	BWST ISO VLV A	MOV	AC	2	O	O	AS IS		H	NONE			N/A	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE	MOD 89-0089	VALVE DE-ENERGIZED	18	
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	NONE	MOD 89-0089	VALVE DE-ENERGIZED	18	
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE	OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25	
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	NONE	OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25	
	DH13A	DH CLR 2 BYPASS VLV	SOV	AB	2	C	C	FC		C	NONE			N/A	
	DH14A	DH CLR 2 OUT VLV	SOV	AB	2	O	O	FO		C	NONE			N/A	
	DH1518	DH NORM SUCT LINE 2 VLV	MOV	A	2	C	O/C	AS IS		C	NONE			N/A	
	DH2734	DH PUMP 2 BWST SUCT VLV	MOV	AB	2	O	O/C	AS IS		C	NONE			N/A	
	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	
	DH63	LPI/HPI CROSS-TIE VLV	MOV	A	2	C	C	AS IS		C	NONE			N/A	
	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	NONE	OP-02501 (TRIP P42-1)	OP-02501 (TRIP P42-1)	13	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS  
FIRE AREA : MG

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
DHRS	P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	OP-02501 (TRIP P42-2)	13
EDG	DA1148A/B	EDG 2 AIR START VLV	SOV	J	2	C	O	FC		H	NONE			N/A	
	DA2989	AIR START RCVR 1-2-1 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA2994	AIR START RCVR 1-2-2 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA62	AIR START RCVR 1-2-1 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA63	AIR START RCVR 1-2-2 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	K5-2	EMERG DIESEL GENERATOR 2	EDG	J	2	O/F	ON	OFF		H	NONE			N/A	
	P148-2A	EDG JACKET WATER PUMP (RIGHT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P148-2B	EDG JACKET WATER PUMP (LEFT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P195-2	EDG FUEL OIL TRANSFER PUMP 2	PUMP	BN	2	OFF	ON	OFF		C	NONE			N/A	
	P201-2	EDG 1-2 M/D FUEL OIL PUMP	PUMP	J	1	O/F	ON	OFF	P205-2	H	NONE			N/A	
	P205-2	EDG 1-2 E/D FUEL OIL PUMP	PUMP	J	2	O/F	ON	OFF	P201-2	H	NONE			N/A	
	S207-01	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-02	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-03	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-04	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
ESSPWR	2N	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	2P	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	NONE			N/A	
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1, -2, -3	H	NONE			N/A	
	C3616	EDG1-2 PANEL LIGHTS (ALT PWR)	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	C3629	CONT POWER ESS METER HPI FLOW Y	PNL	R	2	ON	ON	OFF		H	NONE			N/A	
	C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C4602	NEUTRON FLUX MON. CABINET (CH.2)	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	C4625	CONT POWER TO AUX FW CONTROL PANEL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5755C	SFAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5755E	CONTROL ROOM REACT PROT. SYS PNL(CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

FIRE HAZARDS ANALYSIS  
SAFE SHUTDOWN ANALYSIS  
FIRE AREA : MG  
TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	C5755G	POST ACCIDENT MON. RACK (CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5756D	SFAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5759C	INST POWER NNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762A	CONTROL POWER TO SFRCS CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762C	SFAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			SFAS INITIATED	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
	C5792	CONTROL ROOM SFRCS CABINET (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5792A	CH 2 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5798	POST ACCIDENT MON. IND. PNL (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C6709	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	C6715	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	CDP-11A-1	CONTROL DISCONNECT TRANSFER SWITCH	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	CDP-12A-1	D2P CONT POWER TO AFWP GOV (ICS038B)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	D1	4.16KV AC SWGR	SWGR	Q	2	ON	ON	OFF		H	NONE			N/A	
	D2	4.16KV SWGR	SWGR	Q	2	ON	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	D2N	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	D2P	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBC2N	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2P	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2PN	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF	DBC2P, DBC2N	H	NONE			N/A	7
	DBN	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBP	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DC MCC 2	250/125V DC MCC	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	F1	480 V AC MCC F1	SWGR	X	2	ON	ON	OFF		H	NONE			N/A	
	F11A	480VAC MCC	MCC	DF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11B	480VAC MCC	MCC	V	2	ON	ON	OFF		H	NONE			N/A	
	F11C	480VAC MCC	MCC	A	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11D	480VAC MCC	MCC	G	2	ON	ON	OFF		H	NONE			N/A	
	F11E	480VAC MCC	MCC	B	2	ON	ON	OFF		C	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : MG

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	F12A	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12B	480VAC MCC	MCC	J	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12C	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12D	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE			N/A	
	F14	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F15	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F16A	480V AC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	NONE			N/A	
	RC3602	DC CONTROL POWER RCP MONITOR	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3608	CONTROL POWER (TO CCCW002)	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3702	DC CONTROL POWER TO CAC 2 OUT VLV	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3705	CONT POWER RC3705 (LR3758)	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	NONE			N/A	
	RC3716										NONE			N/A	
	RC4606	DC CONT PWR (MU6406,RC4610A,PORV)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	NONE			N/A	7
	XY2	CONSTANT VOLT TRANSFORMER (CVT CH 2)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	XY4	CONSTANT VOLT TRANSFORMER (CVT CH 4)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	XYA										NONE			N/A	7
	Y2	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	20
	Y2A	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y3602	CONTROL POWER (MU19 & MU32)	PNL	II	2	ON	ON	OFF		H	NONE			N/A	
	Y4	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YAR										NONE			N/A	7
	YBR										NONE			N/A	7
	YBU	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YF1	120VAC MCC	PNL	J	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	YF2	240/120VAC MCC	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	YV2	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YV4	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MG

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
BSSPWR	YVB	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	ZC6451	AFP #2 CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A	
	ZC6460	MDFP CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A	
HPIS	HP02A	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02B	H	NONE			N/A	
	HP02B	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02A	H	NONE			N/A	
	HP31	HPI PMP 2 RECIRC VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	P198-1	HPI PMP 2 AC LO PMP	PUMP	A	2	OFF	ON	OFF		H	NONE			N/A	
	P198-2	HPI PMP 2 DC LO PUMP	PUMP	A	2	OFF	ON	OFF	P198-1	H	NONE			N/A	
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	SFAS INITIATED	13
	P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-2)	SFAS INITIATED	13
HVAC	C133	LV SWGR RM VENT FAN 2	FAN	EE	2	O/F	ON	OFF		H	NONE			N/A	
	C25-3	EDG RM 2 VENT FAN 3	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C25-4	EDG RM 2 VENT FAN 4	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C73-2	AFP RM VENT FAN 2	FAN	F	2	O/F	ON	OFF		H	NONE			N/A	
	C78-2	BATT RM VENT FAN 2	FAN	X	2	O/F	ON	OFF		H	NONE			N/A	
	C99-3	SW PMP RM EXH FAN 3	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	C99-4	SW PMP RM EXH FAN 4	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	HV5314	LV SWGR RM 428 DAMPER	DMPR	EE	2	O/C	O	AS IS		H	NONE			N/A	
	HV5314A	LV SWGR RM 428 DAMPER	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
	HV5336A	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5336B	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FO		H	NONE			N/A	
	HV5336C	EDG ROOM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5598	BATT RM 428A ATM DMPR	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
MSS	ICS11A	MSL 2 ATM VENT VLV	SOV	DH	2	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11A)	LOSS OF AIR	12
	MS100	MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A	
	MS100-1	MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A	
	MS101	MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A	
	MS101-1	MSIV 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	NONE			N/A	
	PSV-SP17A1	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A2	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A3	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	

LEGEND

H - required for hot standby

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N/A - not affected

SAFE SHUTDOWN ANALYSIS  
FIRE AREA : MG  
TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MSS	PSV-SP17A4	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A5	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A6	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A7	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A8	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A9	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP1556)	OP-02501 (OPEN HP1556)	16
	HP27	HPI TO RCP SEALS	MAN	A	2	C	O	AS IS		H	NONE			N/A	
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP29)	OP-02501 (OPEN HP29)	16
	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE			N/A	
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE		OP-02501 (OPEN MU01B)	OP-02501 (OPEN MU01B)	16
	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	NONE		OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03)	13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	NONE			N/A	
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	NONE		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	NONE		OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT)	16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	NONE		OP-02501 (OPERATE MU214 & MU216)	OP-02501 (OPERATE MU214 & MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU203	Recirc to Seal Return Stop Valve	MAN	AB	2	O	O/C	AS IS		H	NONE		OP-02501(CLOSE MU203)	OP-02501(CLOSE MU203)	16
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU32	RC MU ISO VLV	FCV	AB	2	O/C	O	FO	HPIS TRAIN 1&2	H	NONE			N/A	
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B H	NONE		OP-02501 (OPEN MU38)	OP-02501 (OPEN MU38)	13
	MU3971	RC MU PUMP SUCT VLV	MOV	AB	2	C	O/C	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59A)	OP-02501 (OPEN MU59A)	13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59B)	OP-02501 (OPEN MU59B)	13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C)	13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59D)	OP-02501 (OPEN MU59D)	13

LEGEND

H - required for hot standby

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H/L - High/Low interface

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N/A - not affected



SAFE SHUTDOWN ANALYSIS  
FIRE AREA : MG

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU6406	MU RECIRC ISO VLV	AOV	AB	2	O	O/C	FO	HPIS TRAIN 2	H	NONE			N/A	
	MU6408	MU CROSS CONNECT ISO VLV	MOV	AB	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU6420	MU32 BYPASS VLV	MOV	AB	2	C	O	AS IS	HPIS,MU32	H	NONE			N/A	
	MU6422	MU CTMT ISO VLV	MOV	A	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A)	13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B)	13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C)	13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D)	13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-372B	MUP 2 MAIN LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P-372C	MUP 2 AUX LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS,P-372B	H	NONE			N/A	
	P-372D	MUP 2 AUX GEAR LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P37-2	MU PUMP 2	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P372A	MU PMP 2 MAIN GEAR LO PMP	PUMP	AB	2	O/F	O	OFF	P372D	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1743)	LOSS OF AIR	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1747)	LOSS OF AIR	12
	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	NONE			N/A	
NI	NI-5875A	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	NI-NI1	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
NNI	FI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A1	HPI FLOW IND. (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B1	HPI FLOW IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-2	PRZR LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-4	PRZR LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A1	SG1-2 START-UP LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MG

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
NNI	LI-SP09A3	SG1-2 START-UP LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A8	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A8A	SG1-2 START-UP LEVEL IND (C5710)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A9	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LRS-RC14	PRZR LEVEL RECORDER	RBC	FF	2	ON	ON	OFF	LI-RC14-1-4	H	NONE			N/A	
	PI-6365A	RCS LOOP 2 EXTENDED RANGE PRESS	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-6365A1	RCS LOOP2 EXTENDED RANGE PRESS (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A3	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A4	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1	SG1-2 OUTLET PRESS IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1-A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF	PI-SP12A	H	NONE			N/A	
	TE-RC3A6	RCS LOOP 2 HOT LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TE-RC4A2	RCS LOOP 2 COLD LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A4	RCS LOOP 2 HOT LEG TEMP (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A5	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A6	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A2	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A4	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A
RC13A		RCS CODE SAFETY VALVE	SV	D	2	C	C	CLOSED		H	NONE			N/A	
RC147		PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
RC200		PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A	
RC239A		PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A	
RC239B		PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A	
RC2A		PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			N/A	
RC4608A		SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	NONE			N/A	
RC4608B		SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A	
RC4610A		SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A	
RC4610B	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A		
RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	NONE			N/A		
SFAS	CS755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MG

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFAS	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS MAY ACTUATE	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS MAY ACTUATE	13
	C5765D	SFAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
SFRCS	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MG

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SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101B	LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101C	LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS3871B	BLOCK CIRCUIT AP3871 (APP-2 TO SG-1)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS3872B	BLOCK CIRCUIT AP3872 (APP-2 TO SG-2)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS603B	BLOCK CIRCUIT MS603 (SG-2 DRAIN STOP)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS6402	CH 2/4 MANUAL START APPT-2 C5707	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	HIS6404	CH 2/4 MAN STRT APPT-2 & ISOL SG-2 C57	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : MG

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

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SFRCS	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE				SFRCS INITIATES ON LOOP	14
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE				SFRCS INITIATES ON LOOP	14
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE				SFRCS INITIATES ON LOOP	14
	RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE				SFRCS INITIATES ON LOOP	14
	SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	APAC201A			NOT REQUIRED FOR S/D	7
		P3-2	SW PUMP 2	PUMP	BF	2	O/F	ON	OFF		H	NONE			N/A	
P3-3		SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1, P3-2	H	NONE			N/A		
SW1357		CAC 2 OUT ISO VLV	SOV	A	2	O/C	O	FO		H	NONE			N/A		
SW1358		CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	NONE			N/A		
SW1367		CAC 2 IN ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A		
SW1368		CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	NONE			N/A		
SW1383		APP 2 SUCT VLV FROM SW	MOV	A	2	C	O/C	AS IS		H	NONE			N/A		
SW1395		TPCW HX IN HEADER ISO VLV	MOV	BG	2	O/C	C	AS IS		H	NONE			N/A		
SW1429		SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	NONE			N/A		
SW1434		SW FROM CC HX 2 ISO VLV	SOV	T	2	O/C	O	FO		H	NONE			N/A		
SW2928		CTRM EVS COND UNIT IN VLV	MOV	HH	2	C	O	AS IS		H	NONE			N/A		
SW2930		SW TO INT FOREBAY VLV	MOV	BG	2	O/C	O	AS IS	SW2929,31,32	H	NONE			N/A		
SW2932		SW TO COLLECT BASIN VLV	MOV	BG	2	O/C	O	AS IS	SW2929,30,31	H	NONE			N/A		
SW54		TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A		
SW55		TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A		
SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A			

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA MG TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent upstream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA MG TABLE 1 NOTES

- 9. NOT USED
- 10. NOT USED
- 11. NOT USED
- 12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:

ICS11A	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

- 13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level set-point is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components.

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531 P42-2	CS Iso Vlv LPI Pump 2	Open On	Stop P56-1, -2 Stop P42-2 from the CR after blocking SFAS
P42-1 P56-2	LPI Pump 1 CS Pump 2	On On	Trip Bkr AC112 at C1 Stop P56-2 from the CR after blocking SFAS
P56-1 P58-2	CS Pump 1 HPI Pump 2	On On	Trip Bkr BE111 at E1 Stop P58-2 from the CR after blocking SFAS
P58-1 CC1407A, B	HPI Pump 1 CCW Out Iso Vlv	On Closed	Trip Bkr AC111 at C1 Open CC1407A, B and Trip Bkr BE1173 at E11B & BF1158 at F11B
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip Bkr BE1176 at E11B & BF1159 at F11B
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03 MU38	RC Lt Dn Cooler Out RCP Seal Rtn Isol	Closed Closed	Open MU03 Open MU38

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA MG TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B)

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

If AF3871 is manually closed, first trip Breaker BF1201 at F12A.

15. NOT USED

16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or by performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injection and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.

RCP Seal Return, Seal Injection and Letdown Flow

The following manual valves will need to be operated:

MU97	Open	MU216	Throttle
MU182	Close	WC119	Open
MU214	Close	WC120	Open



Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA MG TABLE 1 NOTES

Additionally, the following valves may need to be manually operated:

CC1410	Open	MU10A	Open
MU01B	Open	MU11	Direct Flow to CWRT
MU02B	Open		

RCS Inventory Control

After transferring the Makeup suction to the BWST, MU203 will be manually closed after opening MU208, HP29, and HP1556 to route MUPS Recirc to the BWST rather than the Makeup Tank.

17. NOT USED
18. To prevent spurious operation, Valves DH09A and DH09B are deenergized.
19. NOT USED
20. NOT USED
21. NOT USED
22. Trip Breaker BE1162 at E11B and close CF01B.
23. NOT USED
24. Essential CCW is provided to the Makeup Pump Cooler, bypassing CC1460.
25. Valves DH11 and DH12 are depowered. Bypass Valves DH21 and DH23 can be manually operated to place the DHR System in service.
26. The DHR Cooler 1-2 Isolation Valve CC1469 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRS cooldown.

The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467 (CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467 (CC1469).

29. Not Used

# Davis-Besse Unit 1 Fire Hazard Analysis Report

## FIRE AREA MH

### 4.6.MH.1 Fire Area Description

Room number and fire features for this area are as follows:

<u>Room No.</u>	<u>Description</u>	<u>Combustible Loading</u>	<u>Detection</u>	<u>Suppression</u>
MH3009	Manhole MH3009	17,900 Btu/ft <sup>2</sup>	N	Man

### 4.6.MH.2 Safe Shutdown Systems in Fire Area MH

There are no Safe Shutdown components or cables located in this fire area.

### 4.6.MH.3 Fire Propagation Control

Fire Area MH is a manhole located in the Yard approximately 10 ft. north of the Auxiliary Building beside the Startup Transformer.

This fire area is a reinforced concrete structure, most of which is located below grade. Only the reinforced concrete cap and steel checkplate hatch are exposed to the Yard area.

A fire that originates in this fire area will be contained in the fire area.

### 4.6.MH.4 Fire Detection and Suppression

There is no automatic fire detection located in this fire area.

Manual fire suppression is provided for this area by Yard hydrants and Hose House (HH) 15.

In the event of a fire, smoke venting will be accomplished with portable ventilation.

### 4.6.MH.5 Fire Area MH Safe Shutdown Summary

There are no Safe Shutdown components or cables in this fire area. Therefore, Safe Shutdown is not affected by a fire in this area.

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA OF

#### 4.6.OF.1 FIRE AREA DESCRIPTION

Fire Area OF is located in the old Office Building and consists of the entire building less the Condensate Storage Tank Room and Tool Crib (both in Fire Area II).

#### 4.6.OF.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA OF

There are no safe shutdown components or cables located in fire area OF.

#### 4.6.OF.3 Fire Propagation Control

This fire area is separated from Safe Shutdown fire areas by 3-hour walls and floors. Each floor of Fire Area OF is separated from the rest of OF by 2-hour rated barriers. Deviations, if any, are evaluated.

A fire that originates in this fire area will be contained in the fire area.

#### 4.6.OF.4 Fire Detection and Suppression

Fire Area OF consists of several rooms or areas. Many of the rooms have fire detection.

Manual fire suppression equipment is provided for this fire area. Fire extinguishers and Hose Stations (HS) are shown on Drawings A-223F through A-227F.

The 5<sup>th</sup> floor of the old Office Building is provided with automatic wet-pipe sprinkler system throughout. The two exhaust hoods located in the kitchen on the 5<sup>th</sup> floor are provided with automatic wet chemical suppression.

#### 4.6.OF.5 Fire Area Safe Shutdown Summary

There are no Safe Shutdown components or cables in this fire area. Therefore, Safe Shutdown is not affected by a fire in this area.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: OS

TRAIN ACCREDITED FOR SHUTDOWN: 1

4.6.OS.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
030	MISC DIESEL ROOM	5,669	N	MAN
031	OIL TANK ROOM	888,400	N	MAN
330	VESTIBULE	400	N	MAN
703	PASSAGE ELEVATOR NO.2	400	N	MAN
A5	H2 TRAILER AREA	20,476	N	MAN
A6	PERMANENT H2 AREA	460,800	N	MAN
AFE	AUX FEEDWATER EXHAUST	0	N	MAN
OS	OUTSIDE	0	N	MAN

4.6.OS.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA OS

The following components are located in fire area OS.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
DHRS	1/2	T-10	TANK	BORATED WATER STORAGE TANK
ESSPWR	1/2	XAC01	XFMR	BUS TIE XFMR BACKFEED

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA OS

#### 4.6.OS.3 Fire Propagation Control

Fire Area OS is the Yard area and miscellaneous buildings within the protected area

The Yard was designated as a fire area to ensure Safe Shutdown with a fire outside or in miscellaneous buildings such as the Miscellaneous Diesel Building which contain cables that might affect Safe Shutdown such as the cable Bus to the 13.8 to 4.16kV transformers.

External walls of the Power Block are fire-rated walls in the vicinity of significant hazards such as the Main and Startup transformers with the exception of the west wall of Room 331 and 517. These are non-rated barriers.

A fire in the Yard will not propagate into another Safe Shutdown fire area. Based on the protection provided, were required (as noted in Section 4.6.OS.4), minimal combustible loadings or physical separation.

The Main, Auxiliary, Bustie and Startup transformers are large oil-filled transformers. These transformers are provided with stone-filled catch basins and deluge spray systems. Furthermore, 3-hour barriers are provided between the Main and Auxiliary transformers, between the Bustie transformers, and between the Bustie and Startup transformer.

#### 4.6.OS.4 Fire Detection and Suppression

The Main, Auxiliary, Bustie and Startup transformers are provided with heat detectors which actuate the deluge spray systems (one system for each transformer).

Manual suppression is provided by the yard hydrants and Hose Houses (HH) located throughout the protected area.

Smoke venting is not required for this area.

#### 4.6.OS.5 Fire Area Safe Shutdown Summary

Train 1 will be used for Safe Shutdown in Fire Area OS. Safe Shutdown will be accomplished using the Makeup and Purification System (MUPS) for Reactor Coolant System Inventory Control, a Letdown path and Seal Injection for RCP Seal Cooling.

SAFE SHUTDOWN ANALYSIS

FIRE AREA : OS

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3869)	OP-02501 (CLOSE AF3869)	14
	AF3870	AFWP 1 DISCH TO SG1	MOV	E	1	O	O	AS IS		H	NONE			N/A	
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE			OP-02501 (TRIP P14-2)	14
	AF608	AFW TO SG1 ISO VLV	MOV	AB	1	O	O	AS IS		H	NONE			N/A	
	AF6452	AFWP 1 FLOW CTRL VLV	SOV	E	1	O	O/C	FO		H	NONE			N/A	
	FW6459	MDFP FLOW CTRL VALVE	SOV	II	1	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			N/A	
	ICS038B	AFPT 1 GOV CTRL VLV	MOV	E	1	O	O/C	AS IS		H	NONE			N/A	
	MS106	AFPT 1 MS IN ISO VLV	MOV	EE	1	C	O	AS IS		H	NONE			N/A	
	MS106A	AFPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	NONE			OP-02501 (TRIP P14-2)	14
	MS107A	AFPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-2)	14
	MS5889A	AFPT 1 STEAM ADMISS VLV	SOV	E	1	C	O	FO		H	NONE			N/A	
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H	NONE			N/A	
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-2)	OP-02501 (TRIP P14-2)	14
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	P242-1	MDFP AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	P242-2	MDFP SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			N/A	7
CACS	C1-1	CAC FAN 1	FAN	D	1	O/F	ON	OFF		H	NONE			N/A	
	C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	NONE			N/A	
CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	SPAS INITIATED	13
	CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407B)	SPAS INITIATED	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1409)	OP-02501 (OPEN CC1409)	16
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE			N/A	
	CC1411A	CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411A)	SPAS INITIATED	13
	CC1411B	CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	SPAS INITIATED	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	N/A	24
	CC1467	DHR CLR 1 OUT ISO VLV	SOV	AB	1	C	O	FO		C	NONE		OP-02501 (OPERATE CC1467)	OP-02501 (OPERATE CC1467)	26
	CC1471	DG JKT CW HX 1 OUT VLV	MAN	K	1	O	O	AS IS		H	NONE			N/A	
	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B H	NONE			OP-02501 (OPERATE CC43)	12, 26
	CC2645	CC RETURN HDR 1 VLV	MOV	G	1	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	NONE			N/A	
	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	
	CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501 (OPERATE CC43)	OP-02501 (OPERATE CC43)	12, 26

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : OS

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC5095	CC HDR 1 IN ISO VLV	MOV	T	1	O/C	O	AS IS		H	NONE			N/A	
	CC5097	CCW LINE 1 RET ISO VLV	MOV	T	1	O/C	O/C	AS IS		H	NONE			N/A	
	FIS1422C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A	
	FIS1427C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A	
	FIS1432C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A	
	P43-1	CCW PUMP 1	PUMP	T	1	O/F	ON	OFF		H	NONE			N/A	
	P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	NONE			N/A	
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B C	NONE		OP-02501 (CLOSE CF01A)	OP-02501 (CLOSE CF01A)	22
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B C	NONE			N/A	
CREVS	C21-1	CTRM EVS FAN 1	FAN	HH	1	OFF	ON	OFF		H	NONE			N/A	
	S33-1	CTRM EMERG A/C UNIT 1	A/C	HH	1	OFF	ON	OFF		H	NONE			N/A	
	SV4823A	CREVS CONDENSER UNIT 1 (S33-1) IN VLV	SOV	HH	1	C	O	CLOSED		H	NONE			N/A	
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B H	NONE			OP-02501 (TRIP P56-1)	13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	NONE			OP-02501 (TRIP P56-2)	13
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	NONE		OP-02501 (TRIP P56-1)	OP-02501 (TRIP P56-1)	13
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE		OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2)	13
DHRS	DH01B	LPI LINE 1 VLV	MOV	AB	1	O	O	AS IS		C	NONE			N/A	
	DH07B	BWST ISO VLV B	MOV	AC	1	O	O	AS IS		H	NONE			N/A	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH13B	DH CLR 1 BYPASS VLV	SOV	AB	1	C	C	FC		C	NONE			N/A	
	DH14B	DH CLR 1 OUT VLV	SOV	AB	1	O	O	FO		C	NONE			N/A	
	DH1517	DH NORM SUCT LINE 1 VLV	MOV	A	1	C	O/C	AS IS		C	NONE			N/A	
	DH2733	DH PUMP 1 BWST SUCT VLV	MOV	AB	1	O	O/C	AS IS		C	NONE			N/A	
	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	
	DH64	LPI/HPI CROSS-TIE VLV	MOV	AB	1	C	C	AS IS		C	NONE			N/A	
	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-1)	SFAS INITIATED	13

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS  
FIRE AREA : OS

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
DHRS	P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	SFAS INITIATED	13
	T-10	BORATED WATER STORAGE TANK	TANK	OS	1/2	FUNC	FUNC	N/A		H	N/A			LOW COMBUSTIBLE AREA	27
EDG	DA1147A/B	EDG 1 AIR START VLV	SOV	K	1	C	O	FC		H	NONE			N/A	
	DA2987	AIR START RCVR 1-1-1 DISCH VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA2988	AIR START RCVR 1-1-2 DISCH VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA60	AIR START RCVR 1-1-1 RELAY VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA61	AIR START RCVR 1-1-2 RELAY VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	K5-1	EMERG DIESEL GENERATOR 1	EDG	K	1	O/F	ON	OFF		H	NONE			N/A	
	P148-1A	EDG JACKET WATER PUMP (RIGHT)	PUMP	K	1	O/F	O	OFF		H	NONE			N/A	
	P148-1B	EDG JACKET WATER PUMP (LEFT)	PUMP	K	1	O/F	O	OFF		H	NONE			N/A	
	P195-1	EDG FUEL OIL TRANSFER PUMP 1	PUMP	BN	1	OFF	ON	OFF		C	NONE			N/A	
	P201-1	EDG 1-1 M/D FUEL OIL PUMP	PUMP	K	1	O/F	ON	OFF	P205-1	H	NONE			N/A	
	P205-1	EDG 1-1 E/D FUEL OIL PUMP	PUMP	K	2	O/F	ON	OFF	P201-1	H	NONE			N/A	
	P8-1	DO XFER PUMP 1	PUMP	BM	1	O/F	O	OFF	P195-1	H	ACBE1257P SV4500			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7
	S206-01	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-02	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-03	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-04	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
ESSPWR	1N	125VDC STATION BATTERY	BATT	Y	1	ON	ON	OFF		H	NONE			N/A	
	1P	125VDC STATION BATTERY	BATT	Y	1	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	BPXBD01A			NOT REQUIRED FOR S/D	7
	C1	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF		H	NONE			N/A	7
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1, -2, -3	H	NONE			N/A	7
	C3615	EDG1-1 ELECT CONTROL & RELAY PANEL	PNL	K	1	ON	ON	OFF		H	NONE			N/A	7
	C3628	CONT POWER ESS METER HPI FLOW X	PNL	R	1	ON	ON	OFF		H	NONE			N/A	7
	C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	NONE			N/A	7
	C3645	CONT POWER TO AUX FW CONTROL PNL	PNL	S	1	ON	ON	OFF		H	NONE			N/A	7
	C4808	NEUTRON FLUX MON. CABINET (CH.1)	PNL	DG	1	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : OS

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	C5755C	SPAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	NONE			SPAS ACTUATED	13
	C5755D	SPAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SPAS ACTUATED	13
	C5756D	SPAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			SPAS ACTUATED	13
	C5759C	INST POWER NNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5762A	CONTROL POWER TO SFRCS CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5762C	SPAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5762D	SPAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5762E	CONTROL ROOM REACT PROT. SYS PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5763A	POST ACCIDENT MON. SYS PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5763D	SPAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5792A	CH 2 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			LOSS SFRCS CH 2/4 INITIATES AFW	14
	C5799	POST ACCIDENT MON. IND. PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C6708	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	1	ON	ON	OFF		H	NONE			N/A	
	C6714	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	1	ON	ON	OFF		H	NONE			N/A	
	CDE-11B-1	CONTROL POWER (LOADS NON-SSD)	PNL	V	1	ON	OFF	ON		H	NONE			N/A	
	CDE-11B-2	CONT POWER TO DH12 INTLK	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	CDE-12A-1	D1P CONT POWER TO AFWP GOV (ICS038A)	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1N	125VDC DIST PNL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1NA	125VDC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1P	125VDC DIST PNL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1PA	125VDC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DAN	125VDC DIST PANEL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DAP	125VDC DIST PANEL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DBC1N	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC1P	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC1PN	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF	DBC1P, DBC1N	H	NONE			N/A	
	DC MCC 1	250/125V DC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	E1	480 VAC MCC E1	SWGR	Y	1	ON	ON	OFF		H	NONE			N/A	
	E11A	480VAC MCC	MCC	G	1	ON	ON	OFF		H	NONE	MOD 85-0063		N/A	6**
	E11B	480VAC MCC	MCC	V	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : OS

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
BSSPWR	E11C	480VAC MCC	MCC	V	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E11D	480VAC MCC	MCC	G	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E11E	480VAC MCC	MCC	DG	1	ON	ON	OFF		H	NONE			N/A	
	E12A	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E12B	480VAC MCC	MCC	K	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E12C	480VAC MCC	MCC	BE	1	ON	ON	OFF		H	NONE			N/A	
	E12D	480V AC MCC	MCC	BE	1	ON	ON	OFF		H	NONE			N/A	
	E12E	480VAC MCC	MCC	B	1	ON	ON	OFF		H	NONE			N/A	
	E12F	480VAC MCC	MCC	K	1	ON	ON	OFF		H	NONE			N/A	
	E14	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E15	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E16A	480V AC MCC	MCC	EE	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E16B	480VAC MCC	MCC	DG	1	ON	ON	OFF		H	NONE			N/A	
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	NONE			N/A	
	RC3601	DC CONT POWER RCP MONITOR	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	RC3607	CONTROL POWER (TO CCCW001)	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	RC3701	DC CONTROL POWER TO CAC 1 OUT VLV	PNL	A	1	ON	ON	OFF		H	NONE			N/A	
	RC3706	CONTROL POWER (LOADS NON-SSD)	PNL	V	1	ON	OFF	ON		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	NONE			N/A	
	RC3716										NONE				
	RC4801	DC CONT PWR TO RC4801 (MU6405, MU6407)	PNL	DG	1	ON	ON	OFF		H	NONE			N/A	
	RC4802	CONT PWR (TO MUTK, SG DRN RLY)	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	CABLEBUS XAC01			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7
	XY1	CONSTANT VOLT TRANSFORMER (CVT CH 1)	XFMR	Y	1	ON	ON	OFF		H	NONE			N/A	
	XY3	CONSTANT VOLT TRANSFORMER (CVT CH 3)	XFMR	Y	1	ON	ON	OFF		H	NONE			N/A	
	XYA										NONE			N/A	7
	Y1	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y1A	120 VAC ESS INSTR DISTR PANEL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y3	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	YAU	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : OS

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	YE1	120VAC MCC	PNL	K	1	ON	ON	OFF		H	NONE			N/A	
	YE2	240/120VAC MCC	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	YV1	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	YV3	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	YVA	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	ZC6452	AFP #1 CTRL VLV POSITION CONTROLLER	PNL	E	1	ON	ON	OFF		H	NONE			N/A	
	ZC6459	MDFP CONTROL VLV POSITION CONTROLLER	PNL	II	1	ON	ON	OFF		H	NONE			N/A	
HPIS	HP02C	HPI 1 DISCH ISO VLV	MOV	AB	1	C	O	AS IS	HP02D	H	NONE			N/A	
	HP02D	HPI 1 DISCH ISO VLV	MOV	AB	1	C	O	AS IS	HP02C	H	NONE			N/A	
	HP32	HPI PMP 1 RECIRC VLV	MOV	AB	1	O	O	AS IS		H	NONE			N/A	
	P197-1	HPI PMP 1 AC LO PUMP	PUMP	AB	1	OFF	ON	OFF		H	NONE			N/A	
	P197-2	HPI PMP 1 DC LO PMP	PUMP	AB	1	OFF	ON	OFF	P197-1	H	NONE			N/A	
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	SFAS INITIATED	13
	P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-2)	SFAS INITIATED	13
HVAC	C100	TRAV SCR AREA EXH FAN (B/U SW PUMP)	FAN	BD	1	O/F	O/F	OFF		H	NONE			N/A	
	C25-1	EDG RM 1 VENT FAN 1	FAN	K	1	O/F	ON	OFF		H	NONE			N/A	
	C25-2	EDG RM 1 VENT FAN 2	FAN	K	1	O/F	ON	OFF		H	NONE			N/A	
	C71-1	LV SWGR RM VENT FAN 1	FAN	Y	1	O/F	ON	OFF		H	NONE			N/A	
	C73-1	AFP RM VENT FAN 1	FAN	E	1	O/F	ON	OFF		H	NONE			N/A	
	C78-1	BATT RM VENT FAN 1	FAN	Y	1	O/F	ON	OFF		H	NONE			N/A	
	C99-1	SW PMP RM EXH FAN 1	FAN	BF	1	O/F	ON	OFF		H	NONE			N/A	
	C99-2	SW PMP RM EXH FAN 2	FAN	BF	1	O/F	ON	OFF		H	NONE			N/A	
	HV0531A	AIR IN LVR FOR B/U SW PUMP	DMPR	BD	1	O/C	O/C	OPEN		H	NONE			N/A	
	HV0532A	AIR IN LVR FOR B/U SW PUMP	DMPR	BD	1	O/C	O/C	OPEN		H	NONE			N/A	
	HV5305	LV SWGR RM FAN 1 DAMPER	DMPR	Y	1	O/C	O	AS IS		H	NONE			N/A	
	HV5305A	LV SWGR RM 429 DAMPER	DMPR	Y	1	O/C	O	AS IS	HV5305B	H	NONE			N/A	
	HV5305B	LV SWGR RM 429 DAMPER	DMPR	Y	1	O/C	O	AS IS	HV5305A	H	NONE			N/A	
	HV5329A	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FC		H	NONE			N/A	
	HV5329B	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FO		H	NONE			N/A	
HV5329C	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FC		H	NONE			N/A		
HV5597	BATT RM 429B ATM DMPR	DMPR	Y	1	O/C	O	AS IS		H	NONE			N/A		

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : OS

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MSS	ICS11B	MSL 1 ATM VENT VLV	SOV	DH	1	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11B)	LOSS OF AIR	12
	MS100	MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A	
	MS100-1	MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A	
	MS101	MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A	
	MS101-1	MSIV 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	NONE			N/A	
	PSV-SP17B1	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B2	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B3	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B4	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B5	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B6	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B7	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B8	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B9	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP1556)	OP-02501 (OPEN HP1556)	16
	HP26	HPI TO RCP SEALS	MAN	AB	1	C	O	AS IS		H	NONE			N/A	
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP29)	OP-02501 (OPEN HP29)	16
	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE		OP-02501 (OPEN MU01A)	OP-02501 (OPEN MU01A)	16
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE			N/A	
	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	NONE		OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03)	13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	NONE			N/A	
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	NONE		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	NONE		OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT)	16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	NONE			OP-02501 (OPERATE MU214 & MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU206	Recirc to Seal Return Stop Valve	MAN	AB	1	O	O/C	AS IS		H	NONE		OP-02501(CLOSE MU206)	OP-02501(CLOSE MU206)	16
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : OS

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B	H		OP-02501 (OPEN MU38)	OP-02501 (OPEN MU38)	13
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59A)	OP-02501 (OPEN MU59A)	13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59B)	OP-02501 (OPEN MU59B)	13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C)	13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59D)	OP-02501 (OPEN MU59D)	13
	MU6405	RC MU PUMP SUCT VLV	MOV	AB	1	C	O/C	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6407	MU RECIRC ISO VLV	AOV	AB	1	O	O/C	FO	HPIS TRAIN 1	H	NONE			N/A	
	MU6409	MU CROSS CONNECT ISO VLV	MOV	AB	1	O	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6419	MU DISCH VLV	MOV	AB	1	C	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6421	MU CTMT ISO VLV	MOV	AB	1	C	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A)	13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B)	13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C)	13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D)	13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-371B	MUP 1 MAIN LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P-371C	MUP 1 AUX LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS,P-371B	H	NONE			N/A	
	P-371D	MUP 1 AUX GEAR LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P37-1	MU PUMP 1	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P371A	MU PMP 1 MAIN GEAR LO PMP	PUMP	AB	1	O/F	O	OFF	P371D	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1743)	LOSS OF AIR	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1747)	LOSS OF AIR	12
	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	NONE			N/A	
NI	NI-5874A	SOURCE RANGE IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	NI-5874C	LOCAL SOURCE RANGE IND	IND	DG	1	ON	ON	OFF	NI-5874A	H	NONE			N/A	
	NI-NI2	SOURCE RANGE IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
NNI	FI6425	RC MU FLOW-HI RANGE	IND	FF	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS  
FIRE AREA : OS

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
NNI	FI6435	RC MU FLOW-LOW RANGE	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03C	HPI FLOW INDICATION	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03C1	HPI FLOW IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03D	HPI FLOW INDICATION	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03D1	HPI FLOW IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-1	PRZR LEVEL IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-3	PRZR LEVEL IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	LI-SP09B1	SG1-1 START-UP LEVEL IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	LI-SP09B3	SG1-1 START-UP LEVEL IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-SP09B8	SG1-1 START-UP LEVEL IND (C5761A)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	LI-SP09B8A	SG1-1 START-UP LEVEL IND (C5708)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	LI-SP09B9	SG1-1 START-UP LEVEL IND (C5761A)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	PI-6365B	RCS LOOP 1 EXTENDED RANGE PRESS	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-6365B1	RCS LOOP 1 EXTENDED RANGE PRESS (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	PI-RC2B3	RCS LOOP 1 PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-RC2B4	RCS LOOP 1 PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12B	SG1-1 OUTLET PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12B1	SG1-1 OUTLET PRESS IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12B2	SG1-1 OUTLET PRESS IND	IND	FF	1	ON	ON	OFF	PI-SP12B-1	H	NONE			N/A	
	TE-RC3B5	RCS LOOP 1 HOT LEG TEMP (RM 303)	TE	D	1	ON	ON	OFF		H	NONE			N/A	
	TE-RC4B3	RCS LOOP 1 COLD LEG TEMP (RM 303)	TE	D	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC3B2	RCS LOOP 1 HOT LEG TEMP (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC3B5	RCS LOOP 1 HOT LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC3B6	RCS LOOP 1 HOT LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC4B2	RCS LOOP 1 COLD LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC4B4	RCS LOOP 1 COLD LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A	
	RC13B	RCS CODE SAFETY VALVE	SV	D	1	C	C	CLOSED		H	NONE			N/A	
	RC147	PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
	RC200	PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A	
	RC239A	PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A	
	RC239B	PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : OS

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
RCS	RC2A	PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			N/A	
	RC4608A	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	NONE			N/A	
	RC4608B	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A	
	RC4610A	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A	
	RC4610B	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A	
	RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	NONE			N/A	
SFAS	CS755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	CS762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	CS763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	CS765D	SFAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13
PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : OS

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFAS	RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
SFRC5	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101B	LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101C	LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS3869B	BLOCK CIRCUIT AF3869 (APP-1 TO SG-2)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS3870B	BLOCK CIRCUIT AF3870 (APP-1 TO SG-1)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS611B	BLOCK CIRCUIT MS611 (SG-1 DRAIN STOP)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS6401	CH 1/3 MANUAL START APPT-1 C5707	HIS	FF	1	OFF	ON	OFF		H	NONE			N/A	14
	HIS6403	CH 1/3 MAN STRT APPT-1 & ISOL SG-1 C57	HIS	FF	1	OFF	ON	OFF		H	NONE			N/A	14
	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



SAFE SHUTDOWN ANALYSIS

FIRE AREA : OS

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14
	RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14
SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	NONE			N/A	7
	P3-1	SW PUMP 1	PUMP	BF	1	O/F	ON	OFF		H	NONE			N/A	
	P3-3	SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1, P3-2	H	NONE			N/A	
	SW1356	CAC 1 OUT ISO VLV	SOV	A	1	O/C	O	FO		H	NONE			N/A	
	SW1358	CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	NONE			N/A	
	SW1366	CAC 1 IN ISO VLV	MOV	A	1	O	O	AS IS		H	NONE			N/A	
	SW1368	CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	NONE			N/A	
	SW1382	APP 1 SUCT VLV FROM SW	MOV	E	1	C	O/C	AS IS		C	NONE			N/A	
	SW1399	TPCW HX IN HEADER ISO VLV	MOV	BG	1	O/C	C	AS IS		H	NONE			N/A	
	SW1424	SW FROM CC HX 1 ISO VLV	SOV	T	1	O/C	O	FO		H	NONE			N/A	
	SW1429	SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	NONE			N/A	
	SW2927	CTRM EVS COND UNIT IN VLV	MOV	HH	1	C	O	AS IS		H	NONE			N/A	
	SW2929	SW TO INT STRU VLV	MOV	BG	1	O/C	O	AS IS	SW2930, 31, 32	H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

4.6.OS.6 TABLE1  
Detailed Analysis

FIRE HAZARDS ANALYSIS

DAVIS BESSE

SAFE SHUTDOWN ANALYSIS

FIRE AREA : OS

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SWS	SW2931	SW TO CLG TOWER MU VLV	MOV	BG	1	O/C	O	AS IS	SW2929,30,32	H	NONE			N/A	
	SW54	TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
	SW55	TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
	SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
ASSCKT	CFP05Q	BWST HEAT TRACING									3CY310A			LOST DUE TO BREAKER COORDINATION	23

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA OS TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent up-stream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA OS TABLE 1 NOTES

- 9. NOT USED
- 10. NOT USED
- 11. NOT USED
- 12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:

ICS11B	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

- 13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level set-point is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components.

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531 P42-1	CS Iso Vlv LPI Pump 1	Open On	Stop P56-1, -2 Stop P42-1 from the CR after blocking SFAS
P42-2 P56-1	LPI Pump 2 CS Pump 1	On On	Trip Bkr AD112 at D1 Stop P56-1 from the CR after blocking SFAS
P56-2 P58-1	CS Pump 2 HPI Pump 1	On On	Trip Bkr BF111 at F1 Stop P58-1 from the CR after blocking SFAS
P58-2 CC1407A, B	HPI Pump 2 CCW Out Iso Vlv	On Closed	Trip Bkr AD111 at D1 Open CC1407A, B and Trip Bkr BE1173 at E11B & BF1158 at F11B
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip Bkr BE1176 at E11B & BF1159 at F11B
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03 MU38	RC Lt Dn Cooler Out RCP Seal Rtn Isol	Closed Closed	Open MU03 Open MU38

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA OS TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

If AF3869 is manually closed, first trip Breaker BE1146 at E11E.

15. NOT USED

16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or by performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injection and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.

RCP Seal Return, Seal Injection and Letdown Flow

The following manual valves will need to be operated:

MU97	Open	MU216	Throttle
MU182	Close	WC119	Open
MU214	Close	WC120	Open

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA OS TABLE 1 NOTES

The following valves may also need to be manually operated:

CC1409	Open	MU10A	Open
MU01A	Open	MU11	Align to CWRT
MU02B	Open		

RCS Inventory Control

After transferring the Makeup suction to the BWST, MU206 will be manually closed after opening MU208, HP29, and HP1556 to route MUPS Recirc to the BWST rather than the Makeup Tank.

17. NOT USED
18. To prevent spurious operation, Valves DH09A and DH09B have been deenergized.
19. NOT USED
20. NOT USED
21. NOT USED
22. The Core Flood Isolation Valves CF01A, B are normally open and are required to be closed when cooling down before going below 700 psig. Breakers BF1120 at F11A and BE1162 at E11B are normally open; manual action may be required to close CF01A before going below 700 psig.
23. NOT USED
24. Essential CCW is provided to the Makeup Pump Cooler, bypassing CC1460.
25. Valves DH11 and DH12 are depowered. Bypass Valves DH21 and DH23 can be manually operated to place the DHR System in service
26. The DHR Cooler 1-1 Isolation Valve CC1467 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRS cooldown.

The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467(CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467(CC1469).

27. The Borated Water Storage Tank is a large metal tank with low combustible loading in the immediate vicinity.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: P

TRAIN ACCREDITED FOR SHUTDOWN: 2

4.6.P.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
320	MAINTENANCE ROOM	24,824	Y	MAN
321	CHARGE ROOM	2,108	Y	MAN
322	PASSAGE TO DG ROOMS	45,283	Y	MAN

4.6.P.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA P

The following components are located in fire area P.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM TRAIN COMPONENT TYPE DESCRIPTION

NONE

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA P

#### 4.6.P.3 Fire Propagation Control

Fire Area P is located in the Non-RCA portion of the Auxiliary Building (elevation 585') as shown on Drawing A-223F.

A fire that originates in this fire area will be contained in the fire area.

This fire area is enclosed by 3-hour rated concrete barriers (except as noted below).

The ceiling of Room 322 has an equipment hatch which opens up into Room 428 (Fire Area X). Based on the low combustible loading, and construction of the hatch, a fire will not propagate from one fire area to the other.

There are two penetrations which have small annular gaps which cannot be properly sealed. These non-rated openings have been evaluated and will not allow the propagation of a fire.

The Maintenance Room 320 is used as a storage room and the wall separating Room 320 from the rest of this fire area is a fire barrier.

#### 4.6.P.4 Fire Detection and Suppression

Fire Area P consists of three rooms; they all have fire detection as listed below.

1. Maintenance Room 320, Fire Detection Zone FDZ 320
2. Charge Room 321, Fire Detection Zone FDZ 321
3. Passage to DG's Room 322, Fire Detection Zone FDZ 322

Manual fire suppression equipment is provided for this fire area. Fire extinguishers and Hose Stations (HS) are shown on Drawing A-223F.

In the event of a fire, isolation and smoke venting will be accomplished in accordance with the Pre-Fire Plans.

#### 4.6.P.5 Fire Area Safe Shutdown Summary

Train 2 will be used for Safe Shutdown in Fire Area P. Safe Shutdown will be accomplished using the High Pressure Injection System (HPIS) along with the Power-Operated Relief Valve (RC2A) for Reactor Coolant System Inventory Control, the Makeup and Purification system (MUPS) for a Letdown path and HPIS Seal Injection for RCP Seal Cooling.



Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : P

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	NONE			OP-02501 (TRIP P14-1)	14
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3871)	OP-02501 (CLOSE AF3871)	14
	AF3872	AFWP 2 DISCH TO SG2	MOV	F	2	O	O	AS IS		H	NONE			N/A	
	AF599	AFW TO SG2 ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	AF6451	AFWP 2 FLOW CTRL VLV	SOV	F	2	O	O/C	FO		H	NONE		OP-02501 (USE AFWP SPEED CONTROL)	LOSE CONTROL POWER (RC3702)	30
	FW6460	MDFP FLOW CTRL VLV	SOV	II	2	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			N/A	7
	ICS038A	AFPT 2 GOV CTRL VLV	MOV	F	2	O	O/C	AS IS		H	NONE		OP-02501 (ICS-038A SPEED CONTROL)	OP-02501 (ICS-038A SPEED CONTROL)	30
	MS106A	AFPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	NONE			OP-02501 (TRIP P14-1)	14
	MS107	AFPT 2 MS IN ISO VLV	MOV	EE	2	C	O	AS IS		H	NONE			N/A	
	MS107A	AFPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-1)	14
	MS5889B	AFPT 2 STEAM ADMISS VLV	SOV	F	2	C	O	FO		H	NONE			N/A	
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-1)	OP-02501 (TRIP P14-1)	14
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE			N/A	
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	BCAD210D BCAD210E		OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD)	OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD)	37 37
	P242-1	MDFP AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	BCBF7114B			NOT REQUIRED FOR S/D	7
	P242-2	MDFP SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
CACS	C1-2	CAC FAN 2	FAN	D	2	O/F	ON	OFF		H	NONE			N/A	
	C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	3PBEP15A 3PBEP15B			EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1*
CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	OP-02501 (OPEN CC1407A)	13
	CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407B)	OP-02501 (OPEN CC1407B)	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE			N/A	
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1410)	OP-02501 (OPEN CC1410)	16
	CC1411A	CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411A)	OP-02501 (OPEN CC1411A)	13
	CC1411B	CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	OP-02501 (OPEN CC1411B)	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	N/A	24
	CC1469	DHR CLR 2 OUT ISO VLV	SOV	AB	2	C	O	FO		C	NONE		OP-02501 (OPERATE CC1469)	OP-02501 (OPERATE CC1469)	26
	CC1474	DG JKT CW HX 2 OUT VLV	MAN	J	2	O	O	AS IS		H	NONE			N/A	
	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B H	NONE			OP-02501 (OPERATE CC43)	12,26
	CC2649	CC RETURN HDR 2 VLV	MOV	G	2	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	NONE		OP-02501 (OPEN CC2649)	FL1D MAY BE LOST	21
	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : P

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501 (OPERATE CC43)	OP-02501 (OPERATE CC43)	12,26
	CC5096	CC HDR 2 IN ISO VLV	MOV	T	2	O/C	O	AS IS		H	NONE			N/A	
	CC5098	CCW LINE 2 RET ISO VLV	MOV	T	2	O/C	O/C	AS IS		H	NONE			N/A	
	FIS1422D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1427D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1432D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	P43-2	CCW PUMP 2	PUMP	T	2	O/F	ON	OFF		H	NONE			LOSE CONTROL POWER (RC3608)	29
P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	NONE			N/A		
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B C	NONE			N/A	
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B C	NONE		OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	22
CREVS	C21-2	CTRM EVS FAN 2	FAN	HH	2	OFF	ON	OFF		H	NONE			N/A	
	S33-2	CTRM EMERG A/C UNIT 2	A/C	HH	2	OFF	ON	OFF		H	NONE			N/A	
	SV4827A	CREVS CONDENSER UNIT 2 (S33-2) IN VLV	SOV	HH	2	C	O	CLOSED		H	NONE			N/A	
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B H	NONE			OP-02501 (TRIP P56-1)	13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	NONE			OP-02501 (TRIP P56-2)	13
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	NONE		OP-02501 (TRIP P56-1)	OP-02501 (TRIP P56-1)	13
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE		OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2)	13
DHRS	DH01A	LPI LINE 2 VLV	MOV	A	2	O	O	AS IS		C	NONE			N/A	
	DH07A	BWST ISO VLV A	MOV	AC	2	O	O	AS IS		H	NONE			N/A	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH13A	DH CLR 2 BYPASS VLV	SOV	AB	2	C	C	FC		C	NONE			N/A	
	DH14A	DH CLR 2 OUT VLV	SOV	AB	2	O	O	FO		C	NONE			N/A	
	DH1518	DH NORM SUCT LINE 2 VLV	MOV	A	2	C	O/C	AS IS		C	NONE			N/A	
	DH2734	DH PUMP 2 BWST SUCT VLV	MOV	AB	2	O	O/C	AS IS		C	NONE			N/A	
	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	
	DH63	LPI/HPI CROSS-TIE VLV	MOV	A	2	C	C	AS IS		C	NONE			N/A	

## LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : P

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
DHRS	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-1)	OP-02501 (TRIP P42-1)	13
	P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	OP-02501 (TRIP P42-2)	13
EDG	DA1148A/B	EDG 2 AIR START VLV	SOV	J	2	C	O	FC		H	NONE			N/A	
	DA2989	AIR START RCVR 1-2-1 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA2994	AIR START RCVR 1-2-2 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA62	AIR START RCVR 1-2-1 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA63	AIR START RCVR 1-2-2 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	K5-2	EMERG DIESEL GENERATOR 2	EDG	J	2	O/F	ON	OFF		H	NONE			N/A	
	P148-2A	EDG JACKET WATER PUMP (RIGHT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P148-2B	EDG JACKET WATER PUMP (LEFT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P195-2	EDG FUEL OIL TRANSFER PUMP 2	PUMP	BN	2	OFF	ON	OFF		C	NONE			N/A	
	P201-2	EDG 1-2 M/D FUEL OIL PUMP	PUMP	J	1	O/F	ON	OFF	P205-2	H	NONE			N/A	
	P205-2	EDG 1-2 E/D FUEL OIL PUMP	PUMP	J	2	O/F	ON	OFF	P201-2	H	NONE			N/A	
	S207-01	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-02	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-03	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
S207-04	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A		
ESSPWR	2N	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	2P	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	BCHBDDA			NOT REQUIRED FOR S/D	7
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1,-2,-3	H	NONE			N/A	
	C3616	EDG1-2 PANEL LIGHTS (ALT PWR)	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	C3629	CONT POWER ESS METER HPI FLOW Y	PNL	R	2	ON	ON	OFF		H	NONE			N/A	
	C4602	NEUTRON FLUX MON. CABINET (CH.2)	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	C4625	CONT POWER TO AUX FW CONTROL PANEL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5755C	SFAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
C5755E	CONTROL ROOM REACT PROT. SYS PNL(CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A		

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : P

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	C5755G	POST ACCIDENT MON. RACK (CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5756D	SFAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5759C	INST POWER NNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCs XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762A	CONTROL POWER TO SFRCs CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762C	SFAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			SFAS INITIATED	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
	C5792	CONTROL ROOM SFRCs CABINET (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5792A	CH 2 SFRCs XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5798	POST ACCIDENT MON. IND. PNL (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C6709	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	C6715	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	CDF-11A-1	CONTROL DISCONNECT TRANSFER SWITCH	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	CDF-12A-1	D2P CONT POWER TO AFWP GOV (ICS038B)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	D1	4.16KV AC SWGR	SWGR	Q	2	ON	ON	OFF		H	4PD2N05A			CIRCUIT 2PD2P05A AVAILABLE	28
	D2	4.16KV SWGR	SWGR	Q	2	ON	ON	OFF	AFWS TRAIN 1&2	H	BCABDD2C BCABDD2H BCAD2032A			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7
	D2N	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	D2P	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBC2N	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2P	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2PN	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF	DBC2P,DBC2N	H	2PBF1187A			MAY RESULT IN LOSS OF F11D	21
	DBN	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBP	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DC MCC 2	250/125V DC MCC	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	F1	480 V AC MCC F1	SWGR	X	2	ON	ON	OFF		H	NONE			N/A	
	F11A	480VAC MCC	MCC	DF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11B	480VAC MCC	MCC	V	2	ON	ON	OFF		H	NONE			N/A	
	F11C	480VAC MCC	MCC	A	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11D	480VAC MCC	MCC	G	2	ON	ON	OFF		H	NONE			MAY BE LOST	21

## LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

## Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : P

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	F11E	480VAC MCC	MCC	B	2	ON	ON	OFF		C	NONE			N/A	
	F12A	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12B	480VAC MCC	MCC	J	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12C	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12D	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE			N/A	
	F14	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F15	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F16A	480V AC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	BCAD2DF7D BCAD2DF7E BCAD2DF7F BCBDF7A			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	NONE			N/A	
	RC3602	DC CONTROL POWER RCP MONITOR	PNL	Q	2	ON	ON	OFF		H	2CD2P21B			SFRCS ACTUATES	14
	RC3608	CONTROL POWER (TO CCCW002)	PNL	Q	2	ON	ON	OFF		H	2CD2P21B			USE CCW PUMP 3 (P43-3)	29
	RC3702	DC CONTROL POWER TO CAC 2 OUT VLV	PNL	A	2	ON	ON	OFF		H	2CD2P21B			OP-02501 (USE SPEED CONTROL)	30
	RC3705	CONT POWER RC3705 (LR3758)	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	ACDAP28A			POWER SUPPLY NOT REQUIRED	5D
	RC3716		PNL	U	1	ON	ON	OFF		H	BCYBU43A			POWER SUPPLY NOT REQUIRED	5D
	RC4606	DC CONT PWR (MU6406,RC4610A,PORV)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	NONE			NOT REQUIRED FOR S/D	7
	XY2	CONSTANT VOLT TRANSFORMER (CVT CH 2)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	XY4	CONSTANT VOLT TRANSFORMER (CVT CH 4)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	Y2	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y2A	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y3602	CONTROL POWER (MU19 & MU32)	PNL	II	2	ON	ON	OFF		H	NONE			N/A	
	Y4	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YBU	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YF1	120VAC MCC	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	YF2	240/120VAC MCC	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	YV2	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YV4	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YVB	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	

## LEGEND

H - required for hot standby

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N/A - not affected

## Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : P

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	ZC6451	AFP #2 CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A	
	ZC6460	MDFP CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A	
HPIS	HP02A	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02B	H	NONE		OP-02501 (OVERRIDE SFAS)	SFAS INITIATED	13
	HP02B	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02A	H	NONE		OP-02501 (OVERRIDE SFAS)	SFAS INITIATED	13
	HP31	HPI PMP 2 RECIRC VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	P198-1	HPI PMP 2 AC LO PMP	PUMP	A	2	OFF	ON	OFF		H	NONE			N/A	
	P198-2	HPI PMP 2 DC LO PUMP	PUMP	A	2	OFF	ON	OFF	P198-1	H	NONE			N/A	
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	SFAS INITIATED	13
	P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE			SFAS INITIATED	13
HVAC	C133	LV SWGR RM VENT FAN 2	FAN	EE	2	O/F	ON	OFF		H	NONE			N/A	
	C25-3	EDG RM 2 VENT FAN 3	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C25-4	EDG RM 2 VENT FAN 4	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C73-2	AFP RM VENT FAN 2	FAN	F	2	O/F	ON	OFF		H	NONE			N/A	
	C78-2	BATT RM VENT FAN 2	FAN	X	2	O/F	ON	OFF		H	NONE			N/A	
	C99-3	SW PMP RM EXH FAN 3	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	C99-4	SW PMP RM EXH FAN 4	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	HV5314	LV SWGR RM 428 DAMPER	DMPR	EE	2	O/C	O	AS IS		H	2PYF104A			SC NOT CREDIBLE	34
	HV5314A	LV SWGR RM 428 DAMPER	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
	HV5336A	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5336B	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FO		H	NONE			N/A	
	HV5336C	EDG ROOM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5598	BATT RM 428A ATM DMPR	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
MSS	ICS11A	MSL 2 ATM VENT VLV	SOV	DH	2	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11A)	LOSS OF AIR	12
	MS100	MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A	
	MS100-1	MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A	
	MS101	MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A	
	MS101-1	MS1V 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	NONE			N/A	
	PSV-SP17A1	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A2	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A3	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A4	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	

## LEGEND

H - required for hot standby

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : P

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MSS	PSV-SP17A5	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A6	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A7	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A8	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A9	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE			N/A	
	HP27	HPI TO RCP SEALS	MAN	A	2	C	O	AS IS		H	NONE	OP-02501 (OPEN HP27)	OP-02501 (OPEN HP27)		16
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE			N/A	
	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B,2A,MU03	H	NONE			N/A	
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B,2A,MU03	H	NONE	OP-02501 (OPEN MU01B)	OP-02501 (OPEN MU01B)		16
	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE	OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)		13
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE	OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)		16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	NONE	OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03)		13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	NONE			N/A	
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	NONE	OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)		16
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	NONE	OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT)		16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE	OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)		16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	BCY36218A			OP-02501 (OPERATE MU214 & MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU203	Recirc to Seal Return Stop Valve	MAN	AB	2	O	O/C	AS IS		H	NONE			N/A	
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE	OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)		16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE	OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)		16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE	OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)		16
	MU32	RC MU ISO VLV	FCV	AB	2	O/C	O	FO	HPIS TRAIN 1&2	H	BCY36217A			USE HPI	32
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B	H	OP-02501 (OPEN MU38)	OP-02501 (OPEN MU38)		13
	MU3971	RC MU PUMP SUCT VLV	MOV	AB	2	C	O/C	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE	OP-02501 (OPEN MU59A)	OP-02501 (OPEN MU59A)		13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE	OP-02501 (OPEN MU59B)	OP-02501 (OPEN MU59B)		13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE	OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C)		13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE	OP-02501 (OPEN MU59D)	OP-02501 (OPEN MU59D)		13
	MU6406	MU RECIRC ISO VLV	AOV	AB	2	O	O/C	FO	HPIS TRAIN 2	H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : P

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU6408	MU CROSS CONNECT ISO VLV	MOV	AB	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU6420	MU32 BYPASS VLV	MOV	AB	2	C	O	AS IS	HPIS,MU32	H	NONE			N/A	
	MU6422	MU CTMT ISO VLV	MOV	A	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A)	13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B)	13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C)	13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D)	13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-372B	MUP 2 MAIN LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P-372C	MUP 2 AUX LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS,P-372B	H	BCD217G	AD105		USE HPI	32
	P-372D	MUP 2 AUX GEAR LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	BCBF1168I	AD105		USE HPI	32
	P37-2	MU PUMP 2	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	BCAD105B BCAD105C BCAD105G BCAD105H			PWR CABLE OUTSIDE FIRE AREA USE HPI USE HPI USE HPI	32,36 32 32 32
	P372A	MU PMP 2 MAIN GEAR LO PMP	PUMP	AB	2	O/F	O	OFF	P372D	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1743)	OP-02501 (OPEN WC1743)	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1747)	OP-02501 (OPEN WC1747)	12
	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	NONE			N/A	
NI	NI-5875A	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	NI-NI1	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
NNI	FI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	FI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	FYI-HP03A	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	2LHP03AB			USE FYI-HP03A1	27
	FYI-HP03A1	HPI FLOW IND. (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	2LHP03BB			USE FYI-HP03B1	27
	FYI-HP03B1	HPI FLOW IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-2	PRZR LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	2LRC141B			USE LRS-RC14	27
	LI-RC14-4	PRZR LEVEL IND	IND	FF	2	ON	ON	OFF		H	2LRC141B 2LRC141C			USE LRS-RC14 USE LRS-RC14	27 27

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : P

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
NNI	LI-SP09A1	SG1-2 START-UP LEVEL IND	IND	FF	2	ON	ON	OFF		H	2LSP09A3B 2LSP09A3C			USE LI-SP09A9 USE LI-SP09A9	27 27
	LI-SP09A3	SG1-2 START-UP LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	2LSP09A3B			USE LI-SP09A9	27
	LI-SP09A8	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A8A	SG1-2 START-UP LEVEL IND (C5710)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A9	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LRS-RC14	PRZR LEVEL RECORDER	REC	FF	2	ON	ON	OFF	LI-RC14-1-4	H	NONE			N/A	
	PI-6365A	RCS LOOP 2 EXTENDED RANGE PRESS	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-6365A1	RCS LOOP2 EXTENDED RANGE PRESS (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A3	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A4	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF		H	2LSP12A2A 2LSP12A2B			USE PI-SP12A1-A USE PI-SP12A1-A	27 27
	PI-SP12A1	SG1-2 OUTLET PRESS IND (ASP)	IND	R	2	ON	ON	OFF		H	2LSP12A2A			USE PI-SP12A1-A	27
	PI-SP12A1-A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF	PI-SP12A	H	NONE			N/A	
	TE-RC3A6	RCS LOOP 2 HOT LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TE-RC4A2	RCS LOOP 2 COLD LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A4	RCS LOOP 2 HOT LEG TEMP (ASP)	IND	R	2	ON	ON	OFF		H	2LRPSA07B			USE TI-TC3A5	27
	TI-RC3A5	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A6	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A2	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A4	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A	
	RC13A	RCS CODE SAFETY VALVE	SV	D	2	C	C	CLOSED		H	NONE			N/A	
	RC147	PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
	RC200	PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A	
	RC239A	PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A	
	RC239B	PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A	
	RC2A	PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			N/A	
	RC4608A	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	1CV4608AC			RC4608B AVAILABLE	33
	RC4608B	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A	
	RC4610A	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A	
RC4610B	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A		

## LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : P

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPN INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
RCS	RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	NONE			N/A	
SFAS	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS MAY ACTUATE	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS MAY ACTUATE	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5765D	SFAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13

## LEGEND

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## Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : P

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFAS	RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
SFRCS	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101B	LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101C	LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS3871B	BLOCK CIRCUIT AF3871 (AFP-2 TO SG-1)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS3872B	BLOCK CIRCUIT AF3872 (AFP-2 TO SG-2)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS603B	BLOCK CIRCUIT MS603 (SG-2 DRAIN STOP)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS6402	CH 2/4 MANUAL START AFPT-2 C5707	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	HIS6404	CH 2/4 MAN STRT AFPT-2 & ISOL SG-2 C57	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	2CRCPD21B			SFRCS ACTUATES	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	2CRCPD41B			SFRCS ACTUATES	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	1CRCPD11C			SFRCS ACTUATES	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	1CRCPD31C			SFRCS ACTUATES	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14

## LEGEND

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N/A - not affected

SAFE SHUTDOWN ANALYSIS  
FIRE AREA : P  
TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14
	RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	2CRCPM41B			INITIATES SFRCS ON LOOP	14
SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	NONE			N/A	7
	P3-2	SW PUMP 2	PUMP	BF	2	O/F	ON	OFF		H	NONE			N/A	
	P3-3	SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1,P3-2	H	NONE			N/A	
	SW1357	CAC 2 OUT ISO VLV	SOV	A	2	O/C	O	FO		H	NONE			N/A	
	SW1358	CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	2CV1358BH 2CV1358BJ			EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1*
	SW1367	CAC 2 IN ISO VLV	MOV	A	2	O	O	AS IS		H	2PBF1223A			SPURIOUS CLOSURE NOT POSSIBLE	5B
	SW1368	CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	2CBF1224B			EMBEDDED CONDUIT	1*
	SW1383	AFP 2 SUCT VLV FROM SW	MOV	A	2	C	O/C	AS IS		H	NONE			N/A	
	SW1395	TPCW HX IN HEADER ISO VLV	MOV	BG	2	O/C	C	AS IS		H	NONE			N/A	
	SW1429	SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	NONE			N/A	
	SW1434	SW FROM CC HX 2 ISO VLV	SOV	T	2	O/C	O	FO		H	NONE			N/A	
	SW2928	CTRM EVS COND UNIT IN VLV	MOV	HH	2	C	O	AS IS		H	NONE			N/A	
	SW2930	SW TO INT FOREBAY VLV	MOV	BG	2	O/C	O	AS IS	SW2929,31,32	H	NONE			N/A	
	SW2932	SW TO COLLECT BASIN VLV	MOV	BG	2	O/C	O	AS IS	SW2929,30,31	H	NONE			N/A	
	SW54	TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A	
	SW55	TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A	
SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A		

LEGEND

H - required for hot standby

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H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : P

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ASSCKT	MV0601	MN FW 2 ISOLATION VALVE									2PBF1117A	F11D		ASSCKT - MOV	6*

LEGEND

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Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA P TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent up-stream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA P TABLE 1 NOTES

- 9. NOT USED
- 10. NOT USED
- 11. NOT USED
- 12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:

ICS11A	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

- 13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level set-point is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components.

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531 HP02A, B	CS Iso Vlv HPI 2 Disch Iso Vlv	Open Open	Stop P56-1, -2 Operate from the CR after blocking SFAS
P42-1 P42-2	LPI Pump 1 LPI Pump 2	On On	Trip Bkr AC112 At C1 Stop P42-2 from CR after blocking SFAS
P56-1 P56-2	CS Pump 1 CS Pump 2	On On	Trip Bkr BE111 at E1 Stop P56-2 from CR after blocking SFAS
P58-1 P58-2 CC1407A, B	HPI Pump 1 HPI Pump 2 CCW Out Iso Vlv	On On Closed	Trip Bkr AC111 at C1 Req'd for RCS Inventory Open CC1407A, B and Trip Bkr BE1173 at E11B & BF1158 at F11B Control
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip Bkr BE1176 at E11B & BF1159 at F11B
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03 MU38	RC Lt Dn Cooler Out RCP Seal Rtn Isol	Closed Closed	Open MU03 Open MU38

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA P TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

If AF3871 is manually closed, first trip Breaker BF1201 at F12A.

15. NOT USED

16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or by performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injection and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.

RCP Seal Return, Seal Injection and Letdown Flow

The following manual valves will need to be operated:

HP27	Open	MU214	Close
MU97	Open	MU216	Throttle
MU182	Close	WC119	Open
MU208	Open	WC120	Open



Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA P TABLE 1 NOTES

Additionally, the following valves may need to be manually operated:

CC1410	Open	MU10A	Open
MU01B	Open	MU11	Direct flow to CWRT
MU02B	Open		

17. NOT USED
18. To prevent spurious operation, Valves DH09A and DH09B are deenergized.
19. NOT USED
20. NOT USED
21. MCC F11D may trip due to a lack of coordination. The only Safe Shutdown equipment affected by loss of MCC F11D are the Backup Battery Charger (DBC2PN) and CCW Return Header 2 Valve (CC2649). DBC2PN is not required for Shutdown. CC2649 can be manually opened.
22. The Core Flood Isolation Valves CF01A, B are normally open and are required to be closed when cooling down before going below 700 psig. Breakers BF1120 at F11A and BE1162 at E11B are normally open; manual action may be required to close CF01B before going below 700 psig.
23. NOT USED
24. Essential CCW is provided to the Makeup Pump Cooler, bypassing CC1460.
25. Valves DH11 and DH12 are depowered. Bypass Valves DH21 and DH23 can be manually operated to place the DHR System in service.
26. The DHR Cooler 1-2 Isolation Valve CC1469 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRS cooldown.  
  
The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467(CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467(CC1469).
27. PI-SP12A and PI-SP12A-1 are not required because PI-SP12A1-A remains available to monitor SG1-2 pressure. TI-RC3A4 is not required because TI-RC3A5 and TI-RC3A6 remain available to monitor RCS Hot Leg Temperature. FYI-HP03A & FYI-HP03B are not required because FYI-HP03A1 and FYI-HP03B1 remain available to monitor HPI flow. LI-RC14-2 & LI-RC14-4 are not required because LRS-RC14 remains available to monitor Pressurizer level. LI-SP09A1 & LI-SP09A3 are not required because LI-SP09A9 remains available to monitor Steam Generator 2 level.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA P TABLE 1 NOTES

- 28. Loss of Circuit 4PD2N05A for DC control power to Switchgear D1 is of no concern because the switchgear contains a redundant set of controls powered via Circuit 2PD2P05A. Circuit 2PD2P05A is not affected by a fire in this area.
- 29. Loss of Relay Cabinet RC3608 results in loss of control power for CCW Pump 2 (CCW002). CCW Pump 3 (CCW003) remains available.
- 30. Loss of Relay Cabinet RC3702 results in loss of control power for the AFWP 2 Flow Control Valve (AF6451). AF6451 fails open on a loss of power. AFWP 2 will be operated using ICS038A for speed control.
- 31. NOT USED
- 32. The HPI System/PORV will be used for RCS Inventory Control.
- 33. RC4608A is in series with Valve RC4608B. Valve RC4608B is not affected by a fire in this area and is available as the High/Low Pressure Interface.
- 34. A hot short in Circuit 2PYF104A and resultant closure of HV5314 is not considered to be credible. 2PYF104A is the only circuit in this conduit; therefore, a hot short internal the conduit is not credible. A hot short from an external source is not credible because all the conduits and cable trays are grounded.
- 35. NOT USED
- 36. For components that are relied upon for Safe Shutdown, the ammeter/overcurrent protection cables and the power cables are free of fire damage. This ensures that a fire cannot cause a loss of an entire Safe Shutdown Train (e.g. Essential Switchgear Bus C1 or D1) due to a power cable fault and a simultaneous loss of overcurrent protection on the same scheme. These circuits do not impact Safe Shutdown for the following reasons:

<u>System</u>	<u>Component</u>	<u>Power Cable</u>	<u>AM &amp; 50/51 Cable Justification</u>
AFWS	P241	BPAD210A Outside Fire Area	BCAD210E Not Req'd, Use P14-2
MUPS	P37-2	2PAD105A Outside Fire Area	BCAD105B Not Req'd, Use HPI

- 37. Spurious operation of the Motor Driven Feed Pump (MDFP) P241 is possible due to hot shorts on control cables in this fire area. Manual Operator Action to close locked valve FW6398 shall be taken to preclude overfill of the credited Steam Generator.

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA PS

#### 4.6.PS.1 Fire Area Description

Fire Area PS consists of the Personnel Shop Facility which is a multi-purpose high-rise building.

#### 4.6.PS.2 Safe Shutdown Equipment In Fire Area PS.

There are no Safe Shutdown components or cable in this fire area.

#### 4.6.PS.3 Fire Propagation Control

Fire Area PS is located adjacent to the south wall of the Turbine Building and adjacent to the south wall of the Auxiliary Building.

The fire area is separated from the Turbine Building and Auxiliary Building by 3-hour fire-rated walls. These walls contain doors that are not all fully rated and labeled fire doors, but are adequate in construction to prevent the spread of fire. The wall to the Auxiliary Building contains an HVAC duct without a fire damper, that is adequate to prevent the spread of fire based on the duct construction, the low combustible loading on both sides of the fire barrier near the duct, and the presence of the automatic sprinkler system in the Auxiliary Building, Rooms 310/313 of Fire Area U.

#### 4.6.PS.4 Fire Detection and Suppression

Fire Detection is provided in the elevator lobbies only. The Personnel Shop Facility is provided with automatic wet-pipe sprinkler systems throughout the building.

#### 4.6.PS.5 Fire Area PS Safe Shutdown Summary

There are no Safe Shutdown components or cables in this fire area. Therefore, Safe Shutdown is not affected by a fire in this area.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: Q

TRAIN ACCREDITED FOR SHUTDOWN: 1

4.6.Q.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
323	HIGH VOLTAGE SWGR ROOM B	25,879	Y	MAN

4.6.Q.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA Q

The following components are located in fire area Q.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
ESSPWR	1/2	BUS B	SWGR	13.8 kV SWITCHGEAR (BREAKER HBBD)
	2	D1	SWGR	4.16KV AC SWGR
	2	D2	SWGR	4.16KV SWGR
	2	RC3602	PNL	DC CONTROL POWER RCP MONITOR
	2	RC3608	PNL	CONTROL POWER (TO CCCW002)

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA Q

#### 4.6.Q.3 Fire Propagation Control

Fire Area Q is located in the Non-RCA portion of the Auxiliary Building (elevation 585') as shown on Drawing A-223F.

A fire that originates in this fire area will be contained in the fire area.

This fire area is enclosed by 3-hour rated concrete barriers.

#### 4.6.Q.4 Fire Detection and Suppression

Fire Area Q consists of Room 323 which is covered by fire detection (Fire Detection Zone FDZ 323).

Manual fire suppression equipment is provided for this fire area. Fire extinguishers and Hose Stations (HS) are shown on Drawing A-223F.

In the event of a fire, isolation and smoke venting is accomplished in accordance with the Pre-Fire Plans.

#### 4.6.Q.5 Fire Area Safe Shutdown Summary

Train 1 will be used for Safe Shutdown in Fire Area Q. Safe Shutdown will be accomplished using the High Pressure Injection System (HPIS) along with the Power-Operated Relief Valve (RC2A) for Reactor Coolant System Inventory Control, Makeup and Purification System for a Letdown path and HPI Seal Injection for RCP Seal Cooling.

## Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : Q

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3869)	OP-02501 (CLOSE AF3869)	14
	AF3870	AFWP 1 DISCH TO SG1	MOV	E	1	O	O	AS IS		H	1PD107A			3-PHASE MOV	5B
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	2CBF1201B 2CBF1201H 2PBF1201A			OP-02501 (TRIP P14-2) OP-02501 (TRIP P14-2) OP-02501 (TRIP P14-2)	14 14 14
	AF608	AFW TO SG1 ISO VLV	MOV	AB	1	O	O	AS IS		H	NONE			N/A	
	AF6452	AFWP 1 FLOW CTRL VLV	SOV	E	1	O	O/C	FO		H	NONE			N/A	
	FW6459	MDFP FLOW CTRL VALVE	SOV	II	1	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			N/A	
	ICS038B	AFPT 1 GOV CTRL VLV	MOV	E	1	O	O/C	AS IS		H	NONE			N/A	
	MS106	AFPT 1 MS IN ISO VLV	MOV	EE	1	C	O	AS IS		H	NONE			N/A	
	MS106A	AFPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	1PBEL271A			OP-02501 (TRIP P14-2)	14
	MS107A	AFPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-2)	14
	MS5889A	AFPT 1 STEAM ADMISS VLV	SOV	E	1	C	O	FO		H	NONE			N/A	
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H	NONE			N/A	
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-2)	OP-02501 (TRIP P14-2)	14
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	AD210 BCAD210D BCAD210E BCAD210F BPAD210H		OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD)	OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD) OP-2501 (ENSURE DISCH VLV CLSD)	33 33 33 33 33
	P242-1	MDFP AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	AD210 BCBF7114B			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7
	P242-2	MDFP SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			N/A	7
CACS	C1-1	CAC FAN 1	FAN	D	1	O/F	ON	OFF		H	1PBE1401A 1PBE1401B			EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1*
	C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	3PBEF15A 3PBEF15B			EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1*
CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	SPAS INITIATED	13
	CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407B)	SPAS INITIATED	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1409)	OP-02501 (OPEN CC1409)	16
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE			N/A	
	CC1411A	CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411A)	SPAS INITIATED	13
	CC1411B	CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	SPAS INITIATED	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	BYPASSING CC1460	24
	CC1467	DHR CLR 1 OUT ISO VLV	SOV	AB	1	C	O	FO		C	NONE		OP-02501 (OPERATE CC1467)	OP-02501 (OPERATE CC1467)	26
	CC1471	DG JKT CW HX 1 OUT VLV	MAN	K	1	O	O	AS IS		H	NONE			N/A	

## LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : Q

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B H	NONE			OP-02501 (OPERATE CC43)	12, 26
	CC2645	CC RETURN HDR 1 VLV	MOV	G	1	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	NONE			N/A	
	CC42	Nonesessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	
	CC43	Nonesessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501 (OPERATE CC43)	OP-02501 (OPERATE CC43)	12, 26
	CC5095	CC HDR 1 IN ISO VLV	MOV	T	1	O/C	O	AS IS		H	NONE			N/A	
	CC5097	CCW LINE 1 RET ISO VLV	MOV	T	1	O/C	O/C	AS IS		H	NONE			N/A	
	FIS1422C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A	
	FIS1427C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A	
	FIS1432C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A	
	P43-1	CCW PUMP 1	PUMP	T	1	O/F	ON	OFF		H	NONE			N/A	
P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	NONE			N/A		
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B C	NONE		OP-02501 (CLOSE CF01A)	OP-02501 (CLOSE CF01A)	22
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B C	NONE			N/A	
CREVS	C21-1	CTRM EVS FAN 1	FAN	HH	1	OFF	ON	OFF		H	NONE			N/A	
	S33-1	CTRM EMERG A/C UNIT 1	A/C	HH	1	OFF	ON	OFF		H	NONE			N/A	
	SV4823A	CREVS CONDENSER UNIT 1 (S33-1) IN VLV	SOV	HH	1	C	O	CLOSED		H	NONE			N/A	
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B H	NONE			OP-02501 (TRIP P56-1)	13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	NONE			OP-02501 (TRIP P56-2)	13
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	NONE		OP-02501 (TRIP P56-1)	OP-02501 (TRIP P56-1)	13
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE		OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2)	13
DHRS	DH01B	LPI LINE 1 VLV	MOV	AB	1	O	O	AS IS		C	NONE			N/A	
	DH07B	BWST ISO VLV B	MOV	AC	1	O	O	AS IS		H	NONE			N/A	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH13B	DH CLR 1 BYPASS VLV	SOV	AB	1	C	C	FC		C	NONE			N/A	
	DH14B	DH CLR 1 OUT VLV	SOV	AB	1	O	O	FO		C	NONE			N/A	
	DH1517	DH NORM SUCT LINE 1 VLV	MOV	A	1	C	O/C	AS IS		C	NONE			N/A	
	DH2733	DH PUMP 1 BWST SUCT VLV	MOV	AB	1	O	O/C	AS IS		C	NONE			N/A	

## LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : Q

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
DHRS	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	
	DH64	LPI/HPI CROSS-TIE VLV	MOV	AB	1	C	C	AS IS		C	NONE			N/A	
	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-1)	SFAS INITIATED	13
	P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	2CAD112B 2CAD112C 2CAD112E 2CAD112F 2PAD112A AD112		OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC)	SFAS INITIATED SFAS INITIATED SFAS INITIATED SFAS INITIATED SFAS INITIATED SFAS INITIATED	13 13 13 13 13 13
EDG	DA1147A/B	EDG 1 AIR START VLV	SOV	K	1	C	O	FC		H	NONE			N/A	
	DA2987	AIR START RCVR 1-1-1 DISCH VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA2988	AIR START RCVR 1-1-2 DISCH VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA60	AIR START RCVR 1-1-1 RELAY VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA61	AIR START RCVR 1-1-2 RELAY VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	K5-1	EMERG DIESEL GENERATOR 1	EDG	K	1	O/F	ON	OFF		H	NONE			N/A	
	P148-1A	EDG JACKET WATER PUMP (RIGHT)	PUMP	K	1	O/F	O	OFF		H	NONE			N/A	
	P148-1B	EDG JACKET WATER PUMP (LEFT)	PUMP	K	1	O/F	O	OFF		H	NONE			N/A	
	P195-1	EDG FUEL OIL TRANSFER PUMP 1	PUMP	BN	1	OFF	ON	OFF		C	1CBE1298B 1PBE1298A		MOD 88-0203/OP-02501 MOD 88-0203/OP-02501	OP-02501 (PROV ALT F O SUPPLY) OP-02501 (PROV ALT F O SUPPLY)	27 27
	P201-1	EDG 1-1 M/D FUEL OIL PUMP	PUMP	K	1	O/F	ON	OFF	P205-1	H	NONE			N/A	
	P205-1	EDG 1-1 E/D FUEL OIL PUMP	PUMP	K	2	O/F	ON	OFF	P201-1	H	NONE			N/A	
	P8-1	DO XFER PUMP 1	PUMP	BM	1	O/F	O	OFF	P195-1	H	NONE		MOD 88-0203/OP-02501	OP-02501 (PROV ALT F.O. SUPPLY)	27
	S206-01	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-02	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
S206-03	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A		
S206-04	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A		
ESSPWR	1N	125VDC STATION BATTERY	BATT	Y	1	ON	ON	OFF		H	NONE			N/A	
	1P	125VDC STATION BATTERY	BATT	Y	1	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBB)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	2PD202A BCHBBDA BCHBBDB BCHBBDC BCHBBDD BPDBP02A BPXBD01A HBB			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7 7 7 7 7
	C1	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



SAFE SHUTDOWN ANALYSIS

FIRE AREA : Q

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1,-2,-3	H	NONE			N/A	7
	C3615	EDG1-1 ELECT CONTROL & RELAY PANEL	PNL	K	1	ON	ON	OFF		H	NONE			N/A	
	C3628	CONT POWER ESS METER HPI FLOW X	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C3645	CONT POWER TO AUX FW CONTROL PNL	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	C4808	NEUTRON FLUX MON. CABINET (CH.1)	PNL	DG	1	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5755C	SFAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5756D	SFAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5759C	INST POWER NNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCs XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5762A	CONTROL POWER TO SFRCs CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5762C	SFAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5762E	CONTROL ROOM REACT PROT. SYS PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5763A	POST ACCIDENT MON. SYS PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5792A	CH 2 SFRCs XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			LOSS SFRCs CH 2/4 INITIATES AFW	14
	C5799	POST ACCIDENT MON. IND. PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C6708	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	1	ON	ON	OFF		H	NONE			N/A	
	C6714	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	1	ON	ON	OFF		H	NONE			N/A	
	CDE-11B-1	CONTROL POWER (LOADS NON-SSD)	PNL	V	1	ON	OFF	ON		H	NONE			N/A	
	CDE-11B-2	CONT POWER TO DH12 INTLK	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	CDE-12A-1	D1P CONT POWER TO AFWP GOV (ICS038A)	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1N	125VDC DIST PNL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1NA	125VDC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1P	125VDC DIST PNL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1PA	125VDC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : Q

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	DAN	125VDC DIST PANEL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DAP	125VDC DIST PANEL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DBCLN	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF		H	NONE			N/A	
	DBCLP	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF		H	NONE			N/A	
	DBCLPN	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF	DBCLP, DBCLN	H	NONE			N/A	
	DC MCC 1	250/125V DC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	E1	480 VAC MCC E1	SWGR	Y	1	ON	ON	OFF		H	NONE			N/A	
	E11A	480VAC MCC	MCC	G	1	ON	ON	OFF		H	1PBE107B		MOD 84-0175/MOD 85-0063	3 HR WRAP (46008C)	3, 6**
	E11B	480VAC MCC	MCC	V	1	ON	ON	OFF		H	NONE			N/A	
	E11C	480VAC MCC	MCC	V	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E11D	480VAC MCC	MCC	G	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E11E	480VAC MCC	MCC	DG	1	ON	ON	OFF		H	NONE			N/A	
	E12A	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E12B	480VAC MCC	MCC	K	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E12C	480VAC MCC	MCC	BE	1	ON	ON	OFF		H	NONE			N/A	
	E12D	480V AC MCC	MCC	BE	1	ON	ON	OFF		H	NONE			N/A	
	E12E	480VAC MCC	MCC	B	1	ON	ON	OFF		H	1PBE1234A			EMBEDDED CONDUIT	1*
	E12F	480VAC MCC	MCC	K	1	ON	ON	OFF		H	NONE			N/A	
	E14	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E15	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E16A	480V AC MCC	MCC	EE	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E16B	480VAC MCC	MCC	DG	1	ON	ON	OFF		H	NONE			N/A	
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	AD2DF7 BCAD2DF7D BCAD2DF7E BCAD2DF7F BCBDF7A BPAD2DF7A			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7 7 7
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	NONE			N/A	
	RC3601	DC CONT POWER RCP MONITOR	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	RC3607	CONTROL POWER (TO CCCW001)	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	RC3701	DC CONTROL POWER TO CAC 1 OUT VLV	PNL	A	1	ON	ON	OFF		H	NONE			N/A	
	RC3706	CONTROL POWER (LOADS NON-SSD)	PNL	V	1	ON	OFF	ON		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

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Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : Q

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	RC3716										BCYBU43A			POWER SUPPLY NOT REQUIRED	5D
	RC4801	DC CONT PWR TO RC4801 (MU6405, MU6407)	PNL	DG	1	ON	ON	OFF		H	NONE			N/A	
	RC4802	CONT PWR (TO MUTK, SG DRN RLY)	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	AACD1 CABLEBUS			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7
	XY1	CONSTANT VOLT TRANSFORMER (CVT CH 1)	XFMR	Y	1	ON	ON	OFF		H	NONE			N/A	
	XY3	CONSTANT VOLT TRANSFORMER (CVT CH 3)	XFMR	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y1A	120 VAC ESS INSTR DISTR PANEL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y3	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	YAU	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	YE1	120VAC MCC	PNL	K	1	ON	ON	OFF		H	NONE			N/A	
	YE2	240/120VAC MCC	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	YV1	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	YV3	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	YVA	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
ZC6452	APP #1 CTRL VLV POSITION CONTROLLER	PNL	E	1	ON	ON	OFF		H	NONE			N/A		
ZC6459	MDFP CONTROL VLV POSITION CONTROLLER	PNL	II	1	ON	ON	OFF		H	NONE			N/A		
HPIS	HP02C	HPI 1 DISCH ISO VLV	MOV	AB	1	C	O	AS IS	HP02D	H	NONE		OP-02501 (OVERRIDE SFAS)	SFAS ACTUATES	13
	HP02D	HPI 1 DISCH ISO VLV	MOV	AB	1	C	O	AS IS	HP02C	H	NONE		OP-02501 (OVERRIDE SFAS)	SFAS ACTUATES	13
	HP32	HPI PMP 1 RECIRC VLV	MOV	AB	1	O	O	AS IS		H	NONE			N/A	
	P197-1	HPI PMP 1 AC LO PUMP	PUMP	AB	1	OFF	ON	OFF		H	NONE			N/A	
	P197-2	HPI PMP 1 DC LO PMP	PUMP	AB	1	OFF	ON	OFF	P197-1	H	NONE			N/A	
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE			SFAS INITIATED	13
	P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	2CAD111B 2CAD111C 2CAD111E 2CAD111F 2PAD111A AD111		OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC)	SFAS INITIATED SFAS INITIATED SFAS INITIATED SFAS INITIATED SFAS INITIATED SFAS INITIATED	13,31 13,31 13,31 13,31 13,31 13,31
	HVAC	C100	TRAV SCR AREA EXH FAN (B/U SW PUMP)	FAN	BD	1	O/F	O/F	OFF		H	NONE			N/A
C25-1		EDG RM 1 VENT FAN 1	FAN	K	1	O/F	ON	OFF		H	NONE			N/A	
C25-2		EDG RM 1 VENT FAN 2	FAN	K	1	O/F	ON	OFF		H	NONE			N/A	
C71-1		LV SWGR RM VENT FAN 1	FAN	Y	1	O/F	ON	OFF		H	NONE			OP-02501 (PORTABLE VENTILATION)	28
C73-1		APP RM VENT FAN 1	FAN	E	1	O/F	ON	OFF		H	NONE			N/A	

LEGEND

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Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : Q

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
HVAC	C78-1	BATT RM VENT FAN 1	FAN	Y	1	O/F	ON	OFF		H	NONE			N/A	
	C99-1	SW PMP RM EXH FAN 1	FAN	BF	1	O/F	ON	OFF		H	NONE			N/A	
	C99-2	SW PMP RM EXH FAN 2	FAN	BF	1	O/F	ON	OFF		H	NONE			N/A	
	HV0531A	AIR IN LVR FOR B/U SW PUMP	DMPR	BD	1	O/C	O/C	OPEN		H	NONE			N/A	
	HV0532A	AIR IN LVR FOR B/U SW PUMP	DMPR	BD	1	O/C	O/C	OPEN		H	NONE			N/A	
	HV5305	LV SWGR RM FAN 1 DAMPER	DMPR	Y	1	O/C	O	AS IS		H	1PYE104A		OP-02501 (PORTABLE VENTILLATION)	OP-02501 (PORTABLE VENTILLATION)	28
	HV5305A	LV SWGR RM 429 DAMPER	DMPR	Y	1	O/C	O	AS IS	HV5305B	H	NONE			N/A	
	HV5305B	LV SWGR RM 429 DAMPER	DMPR	Y	1	O/C	O	AS IS	HV5305A	H	NONE			N/A	
	HV5329A	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FC		H	NONE			N/A	
	HV5329B	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FO		H	NONE			N/A	
	HV5329C	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FC		H	NONE			N/A	
	HV5597	BATT RM 429B ATM DMPR	DMPR	Y	1	O/C	O	AS IS		H	1PBE1208H			NOT REQUIRED FOR 72 HOURS	29
MSS	ICS11B	MSL 1 ATM VENT VLV	SOV	DH	1	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11B)	LOSS OF AIR	12
	MS100	MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A	
	MS100-1	MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A	
	MS101	MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A	
	MS101-1	MS1V 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	NONE			N/A	
	PSV-SP17B1	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B2	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B3	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B4	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B5	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B6	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B7	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B8	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B9	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE			N/A	
	HP26	HPI TO RCP SEALS	MAN	AB	1	C	O	AS IS		H	NONE		OP-02501 (OPEN HP26)	OP-02501 (OPEN HP26)	16
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE			N/A	
	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B,2A,MU03	H	NONE		OP-02501 (OPEN MU01A)	OP-02501 (OPEN MU01A)	16
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B,2A,MU03	H	NONE			N/A	

LEGEND

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Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : Q

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	NONE		OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03)	13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	NONE			N/A	
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	NONE		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	NONE		OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT)	16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	NONE			OP-02501 (OPERATE MU214 & MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU206	Recirc to Seal Return Stop Valve	MAN	AB	1	O	O/C	AS IS		H	NONE			N/A	
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B H	NONE		OP-02501 (OPEN MU38)	OP-02501 (OPEN MU38)	13
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59A)	OP-02501 (OPEN MU59A)	13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59B)	OP-02501 (OPEN MU59B)	13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C)	13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59D)	OP-02501 (OPEN MU59D)	13
	MU6405	RC MU PUMP SUCT VLV	MOV	AB	1	C	O/C	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6407	MU RECIRC ISO VLV	AOV	AB	1	O	O/C	FO	HPIS TRAIN 1	H	NONE			N/A	
	MU6409	MU CROSS CONNECT ISO VLV	MOV	AB	1	O	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6419	MU DISCH VLV	MOV	AB	1	C	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6421	MU CTMT ISO VLV	MOV	AB	1	C	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A)	13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B)	13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C)	13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D)	13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-371B	MUP 1 MAIN LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P-371C	MUP 1 AUX LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS,P-371B	H	ACD117K			NOT REQUIRED FOR S/D	7
	P-371D	MUP 1 AUX GEAR LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	ACBE1192L			NOT REQUIRED FOR S/D	7

LEGEND

H - required for hot standby

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : Q

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	P-371D	MUP 1 AUX GEAR LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	ACBE1192M			NOT REQUIRED FOR S/D	7
	P37-1	MU PUMP 1	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P371A	MU PMP 1 MAIN GEAR LO PMP	PUMP	AB	1	O/F	O	OFF	P371D	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1743)	LOSS OF AIR	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1747)	LOSS OF AIR	12
	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	NONE			N/A	
NI	NI-5874A	SOURCE RANGE IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	NI-5874C	LOCAL SOURCE RANGE IND	IND	DG	1	ON	ON	OFF	NI-5874A	H	NONE			N/A	
	NI-NI2	SOURCE RANGE IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
NNI	FI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI6425	RC MU FLOW-HI RANGE	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FI6435	RC MU FLOW-LOW RANGE	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03C	HPI FLOW INDICATION	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03C1	HPI FLOW IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03D	HPI FLOW INDICATION	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03D1	HPI FLOW IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-1	PRZR LEVEL IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-3	PRZR LEVEL IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	LI-SP09B1	SG1-1 START-UP LEVEL IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	LI-SP09B3	SG1-1 START-UP LEVEL IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-SP09B8	SG1-1 START-UP LEVEL IND (C5761A)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	LI-SP09B8A	SG1-1 START-UP LEVEL IND (C5708)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	LI-SP09B9	SG1-1 START-UP LEVEL IND (C5761A)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	PI-6365B	RCS LOOP 1 EXTENDED RANGE PRESS	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-6365B1	RCS LOOP 1 EXTENDED RANGE PRESS (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	PI-RC2B3	RCS LOOP 1 PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-RC2B4	RCS LOOP 1 PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : Q

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
NNI	PI-SP12B	SG1-1 OUTLET PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12B1	SG1-1 OUTLET PRESS IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12B2	SG1-1 OUTLET PRESS IND	IND	FF	1	ON	ON	OFF	PI-SP12B-1	H	NONE			N/A	
	TE-RC3B5	RCS LOOP 1 HOT LEG TEMP (RM 303)	TE	D	1	ON	ON	OFF		H	NONE			N/A	
	TE-RC4B3	RCS LOOP 1 COLD LEG TEMP (RM 303)	TE	D	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC3B2	RCS LOOP 1 HOT LEG TEMP (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC3B5	RCS LOOP 1 HOT LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC3B6	RCS LOOP 1 HOT LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC4B2	RCS LOOP 1 COLD LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
TI-RC4B4	RCS LOOP 1 COLD LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A		
RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A	
	RC13B	RCS CODE SAFETY VALVE	SV	D	1	C	C	CLOSED		H	NONE			N/A	
	RC147	PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
	RC200	PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A	
	RC239A	PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A	
	RC239B	PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A	
	RC2A	PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			REDUCE PRESSURE IN 1 HR	32
	RC4608A	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	NONE			N/A	
	RC4608B	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A	
	RC4610A	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A	
	RC4610B	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A	
	RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	NONE			N/A	
SFAS	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5765D	SFAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : Q

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
SFAS	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE				N/A	13
	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE				N/A	13
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE				N/A	13
	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE				N/A	13
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE				N/A	13
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE				N/A	13
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE				N/A	13
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE				N/A	13
	PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE				N/A	13
	PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE				N/A	13
	RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE				N/A	13
	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE				N/A	13
	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE				N/A	13
RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE				N/A	13	
RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE				N/A	13	
RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE				N/A	13	
SFRCS	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14	
	HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14	
	HIS101B	LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14	
	HIS101C	LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14	
	HIS3869B	BLOCK CIRCUIT AF3869 (AFP-1 TO SG-2)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14	
	HIS3870B	BLOCK CIRCUIT AF3870 (AFP-1 TO SG-1)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14	
	HIS611B	BLOCK CIRCUIT MS611 (SG-1 DRAIN STOP)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14	
	HIS6401	CH 1/3 MANUAL START AFPT-1 C5707	HIS	FF	1	OFF	ON	OFF		H	NONE			N/A	14	
	HIS6403	CH 1/3 MAN STRT AFPT-1 & ISOL SG-1 C57	HIS	FF	1	OFF	ON	OFF		H	NONE			N/A	14	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



SAFE SHUTDOWN ANALYSIS

FIRE AREA : Q

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	2CRCPD21B			SFRCS ACTUATES	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

## Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : Q

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS DUE TO LOOP	14
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	2CRCPM21B			INITIATES SFRCS DUE TO LOOP	14
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS DUE TO LOOP	14
	RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	2CRCPM41B			INITIATES SFRCS DUE TO LOOP	14
SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	NONE			N/A	7
	P3-1	SW PUMP 1	PUMP	BF	1	O/F	ON	OFF		H	NONE			N/A	
	P3-3	SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1,P3-2	H	2PD2P08A			NOT REQUIRED FOR S/D	7
	SW1356	CAC 1 OUT ISO VLV	SOV	A	1	O/C	O	FO		H	NONE			N/A	
	SW1358	CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	NONE			N/A	
	SW1366	CAC 1 IN ISO VLV	MOV	A	1	O	O	AS IS		H	NONE			N/A	
	SW1368	CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	2CBF1224B 2PBF1224A			USE CAC 1 USE CAC 1	30 30
	SW1382	AFP 1 SUCT VLV FROM SW	MOV	E	1	C	O/C	AS IS		C	NONE			N/A	
	SW1399	TPCW HX IN HEADER ISO VLV	MOV	BG	1	O/C	C	AS IS		H	NONE			N/A	
	SW1424	SW FROM CC HX 1 ISO VLV	SOV	T	1	O/C	O	FO		H	NONE			N/A	
	SW1429	SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	NONE			N/A	
	SW2927	CTRM EVS COND UNIT IN VLV	MOV	HH	1	C	O	AS IS		H	NONE			N/A	
	SW2929	SW TO INT STRU VLV	MOV	BG	1	O/C	O	AS IS	SW2930,31,32	H	NONE			N/A	
	SW2931	SW TO CLG TOWER MU VLV	MOV	BG	1	O/C	O	AS IS	SW2929,30,32	H	NONE			N/A	
	SW54	TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
	SW55	TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
	SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
ASSCKT	MCS000A	EMER VNT SYS MOD DMPR 1									1PYE206A 1PYE206B			LOST DUE TO BREAKER COORDINATION LOST DUE TO BREAKER COORDINATION	21 21
ASSCKT	MCS000B	EMER VNT SYS MOD DMPR 2									1PYE207A 1PYE207B			LOST DUE TO BREAKER COORDINATION LOST DUE TO BREAKER COORDINATION	21 21

## LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA Q TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent up-stream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA Q TABLE 1 NOTES

- 9. NOT USED
- 10. NOT USED
- 11. NOT USED
- 12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:
 

ICS11B	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

- 13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level setpoint is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components.

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531 HP02C, D	CS Iso Vlv HPI 1 Disch Iso Vlv	Open Open	Stop P56-1, -2 Operate from the CR after blocking SFAS
P42-2 P42-1	LPI Pump 2 LPI Pump 1	On On	Trip AD112 at D1 Stop P42-1 from CR after blocking SFAS
P56-2 P56-1	CS Pump 2 CS Pump 1	On On	Trip Bkr BF111 at F1 Stop P56-1 from CR after blocking SFAS
P58-2 P58-1 CC1407A, B	HPI Pump 2 HPI Pump 1 CCW Out Iso Vlv	On On Closed	Trip AD111 at D1 Req'd for RCS Inventory Control Open CC1407A, B and Trip BE1173 at E11B & BF1158 at F11B
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip BE1176 at E11B & BF1159 at F11B
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03	RC Lt Dn Cooler Out	Closed	Open MU03

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA Q TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
MU38	RCP Seal Rtn Isol	Closed	Open MU38
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

If AF3869 is manually closed, first trip Breaker BE1146 at E11E.

15. NOT USED

16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or by performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injection and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.

FIRE AREA Q TABLE 1 NOTES

RCP Seal Return, Seal Injection and Letdown Flow

The following manual valves will need to be operated:

HP26	Open	MU214	Close
MU97	Open	MU216	Throttle
MU182	Close	WC119	Open
MU208	Open	WC120	Open

The following valves may need to be manually operated:

CC1409	Open	MU10A	Open
MU01A	Open	MU11	Align to CWRT
MU02B	Open		

17. NOT USED
18. To prevent spurious operation, Valves DH09A and DH09B have been deenergized.
19. NOT USED
20. NOT USED
21. YE2/YF2 associated circuits are not coordinated. This results in loss of YE2/YF2. The loss of this panel will cause a Reactor Trip via ARTS which is acceptable.
22. Trip Breaker BF1120 at F11A and close CF01A.
23. NOT USED
24. Essential CCW is provided to the Makeup Pump Cooler, bypassing CC1460.
25. Valves DH11 and DH12 are depowered. Bypass Valves DH21 and DH23 can be manually operated to place the DHR System in service.
26. The DHR Cooler 1-1 Isolation Valve CC1467 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRS cooldown.  
  
The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467 (CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467 (CC1469).
27. EDG Fuel Oil System can transfer oil from the Oil Storage Tank (T45) using the Oil Transfer Pump (P8-1) after connecting the flexible hose. EDG Fuel Oil Transfer Pump 1 (P195-1) would then not be used.

FIRE AREA Q TABLE 1 NOTES

- 28. Failure of Circuit 1PYE104A would disable the Low Voltage Switchgear Room Damper (HV5305); therefore, portable ventilation will be provided. Use of portable ventilation is considered a manual operator action and not alternate shutdown.
- 29. A calculation has been performed which demonstrates that ventilation Damper HV5597 is not required to be opened for at least 72-hours.
- 30. Normally closed manual Valve SW325 maintains isolation for CAC 3.
- 31. The components that are relied upon for Safe Shutdown, the ammeter/overcurrent protection cables and the power cables are free of fire damage. This ensures that a fire cannot cause a loss of an entire Safe Shutdown Train (e.g. Essential Switchgear Bus C1 or D1) due to a power cable fault and a simultaneous loss of overcurrent protection on the same scheme. These circuits do not impact Safe Shutdown for the following reasons:

<u>System</u>	<u>Component</u>	<u>Power Cable</u>	<u>AM &amp; 50/51 Cable Justification</u>
AFWS	P241	BPAD210H Not Req'd for Train 1 SSD	BCAD210E Not Req'd for Train 1 SSD
CCWS	P43-3	2PAD108A Not Req'd for Train 1 SSD	2CAD108B Not Req'd for Train 1 SSD
DHRS	P42-2	2PAD112A Not Req'd for Train 1 SSD	2CAD112B Not Req'd for Train 1 SSD
HPIS	P58-2	2PAD111A Not Req'd for Train 1 SSD	2CAD111B Not Req'd for Train 1 SSD
SWS	P3-3	2PAD109A Not Req'd for Train 1 SSD	2CAD109B Not Req'd for Train 1 SSD

- 32. The Pilot-operated Relief Valve (PORV) RC2A is normally closed and required to operate to reduce pressure when shutting down on Train 1 with HPIS. The PORV is powered from Essential Train 2. The power supply from the Train 2 batteries are not in this area. The Train 2 batteries are available for 1-hour when shutting down on Train 1 which is adequate time to reduce RCS pressure below 1600 psig, HPIS can be used for Inventory Control. Therefore, reduce RCS pressure below 1600 psig using the PORV before the end of 1-hour.
- 33. Spurious operation of the Motor Driven Feed Pump (MDFP) P241 is possible due to hot shorts on control cables in this fire area. Manual Operator Action to close locked valve FW6398 shall be taken to preclude overfill of the credited Steam Generator.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: R

TRAIN ACCREDITED FOR SHUTDOWN: 2

4.6.R.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
324	AUX SD PNL & TRANS SW RM	2,100	Y	MAN
324DC	DUCT CHASE	0	Y	MAN

4.6.R.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA R

The following components are located in fire area R.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
ESSPWR	1	C3628	PNL	CONT POWER ESS METER HPI FLOW X
	2	C3629	PNL	CONT POWER ESS METER HPI FLOW Y
	1	C3630	PNL	CONT POWER TO AUX SD PANEL INST
NNI	2	FYI-HP03A1	IND	HPI FLOW IND. (ASP)
	2	FYI-HP03B1	IND	HPI FLOW IND (ASP)
	1	FYI-HP03C1	IND	HPI FLOW IND (ASP)
	1	FYI-HP03D1	IND	HPI FLOW IND (ASP)
	1	LI-RC14-1	IND	PRZR LEVEL IND (ASP)
	2	LI-RC14-2	IND	PRZR LEVEL IND (ASP)
	2	LI-SP09A3	IND	SG1-2 START-UP LEVEL IND (ASP)
	1	LI-SP09B3	IND	SG1-1 START-UP LEVEL IND (ASP)
	2	PI-6365A1	IND	RCS LOOP2 EXTENDED RANGE PRESS (ASP)
	1	PI-6365B1	IND	RCS LOOP 1 EXTENDED RANGE PRESS (ASP)
	2	PI-SP12A1	IND	SG1-2 OUTLET PRESS IND (ASP)
	1	PI-SP12B1	IND	SG1-1 OUTLET PRESS IND (ASP)
	2	TI-RC3A4	IND	RCS LOOP 2 HOT LEG TEMP (ASP)
	1	TI-RC3B2	IND	RCS LOOP 1 HOT LEG TEMP (ASP)



## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA R

#### 4.6.R.3 Fire Propagation Control

Fire Area R is located in the non-RCA portion of the Auxiliary Building (elevation 585') as shown on Drawing A-223F.

A fire that originates in this fire area will be contained in the fire area. This fire area is enclosed by 3-hour rated concrete barriers (except as noted below).

Room 324 has structural steel fire-proofing which does not conform to a 3-hour listed fire rating. A detailed analysis shows that the steel will not fail based on the combustible loading in the room.

#### 4.6.R.4 Fire Detection and Suppression

Fire Area R consists of Room 324 and 324DC which are covered by fire detection (Fire Detection Zone FDZ 324).

Manual fire suppression equipment is provided for this fire area. Fire extinguishers and Hose Stations (HS) are shown on Drawing A-223F.

In the event of a fire, isolation and smoke venting is accomplished in accordance with the Pre-Fire Plans.

#### 4.6.R.5 Fire Area Safe Shutdown Summary

Train 2 will be used for Safe Shutdown in Fire Area R. Safe Shutdown will be accomplished using the Makeup and Purification System (MUPS) for Reactor Coolant System Inventory Control, MUPS for a Letdown path and MUPS Seal Injection for RCP Seal Cooling.

SAFE SHUTDOWN ANALYSIS

FIRE AREA : R

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	NONE			OP-02501 (TRIP P14-1)	14
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3871)	OP-02501 (CLOSE AF3871)	14
	AF3872	AFWP 2 DISCH TO SG2	MOV	F	2	O	O	AS IS		H	NONE			N/A	14
	AF599	AFW TO SG2 ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	AF6451	AFWP 2 FLOW CTRL VLV	SOV	F	2	O	O/C	FO		H	2CLC6451A 2CLC6451J 2CLC6451K C3630			MAN CNTRL AVAIL FROM CONTROL RM MAN CNTRL AVAIL FROM CONTROL RM MAN CNTRL AVAIL FROM CONTROL RM MAN CNTRL AVAIL FROM CONTROL RM	27 27 27 27
	FW6460	MDFP FLOW CTRL VLV	SOV	II	2	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	ICS038A	AFPT 2 GOV CTRL VLV	MOV	F	2	O	O/C	AS IS		H	2CAFPT02C 2CAFPT02M 2CSD08A C3630			VALVE FO HIGH SPEED STOP VALVE FO HIGH SPEED STOP VALVE FO HIGH SPEED STOP VALVE FO HIGH SPEED STOP	28 28 28 28
	MS106A	AFPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	NONE			OP-02501 (TRIP P14-1)	14
	MS107	AFPT 2 MS IN ISO VLV	MOV	EE	2	C	O	AS IS		H	NONE			N/A	14
	MS107A	AFPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-1)	14
	MS5889B	AFPT 2 STEAM ADMISS VLV	SOV	F	2	C	O	FO		H	NONE			N/A	14
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-1)	OP-02501 (TRIP P14-1)	14
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE			REMOTE SPEED CONTROL IS LOST	14
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	P242-1	MDFP AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	
	P242-2	MDFP SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	
CACS	C1-2	CAC FAN 2	FAN	D	2	O/F	ON	OFF		H	NONE			N/A	
	C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	3PBEF15A 3PBEF15B			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7
CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	OP-02501 (OPEN CC1407A)	13
	CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407B)	OP-02501 (OPEN CC1407B)	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE			N/A	
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1410)	OP-02501 (OPEN CC1410)	16
	CC1411A	CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411A)	OP-02501 (OPEN CC1411A)	13
	CC1411B	CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	OP-02501 (OPEN CC1411B)	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	N/A	25
	CC1469	DHR CLR 2 OUT ISO VLV	SOV	AB	2	C	O	FO		C	NONE		OP-02501 (OPERATE CC1469)	OP-02501 (OPERATE CC1469)	26
	CC1474	DG JKT CW HX 2 OUT VLV	MAN	J	2	O	O	AS IS		H	NONE			N/A	
	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B H	NONE			OP-02501 (OPERATE CC43)	12,26

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : R

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC2649	CC RETURN HDR 2 VLV	MOV	G	2	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	NONE		OP-02501 (OPEN CC2649)	F11D MAY BE LOST	21
	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	
	CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501 (OPERATE CC43)	OP-02501 (OPERATE CC43)	12,26
	CC5096	CC HDR 2 IN ISO VLV	MOV	T	2	O/C	O	AS IS		H	NONE			N/A	
	CC5098	CCW LINE 2 RET ISO VLV	MOV	T	2	O/C	O/C	AS IS		H	NONE			N/A	
	FIS1422D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1427D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1432D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	P43-2	CCW PUMP 2	PUMP	T	2	O/F	ON	OFF		H	NONE			N/A	
	P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	2CACD3B 2CACD3F 2CACD3E 2CACD3F 2CAD108E 2CAD108F 2CAD108G 2CAD108K 2PAD108A 2PD2P06A 3PACD1A ACD1 ACD2 ACD3		MOD 84-0177 COMPLETED	USE P43-2 USE P43-2 USE P43-2 USE P43-2 3 HR WRAP (36204A) 3 HR WRAP (36204A) 3 HR WRAP (36204A) 3 HR WRAP (36204A) 3 HR WRAP (36204A) USE P43-2 USE P43-2 USE P43-2 USE P43-2 USE P43-2 USE P43-2	10 10 10 10 3 3 3 3 3 10 10 10 10 10
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B C	NONE			N/A	
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B C	NONE		OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	22
CREVS	C21-2	CTRM EVS FAN 2	FAN	HH	2	OFF	ON	OFF		H	NONE			N/A	
	SV4827A	CREVS CONDENSER UNIT 2 (S33-2) IN VLV	SOV	HH	2	C	O	CLOSED		H	NONE			N/A	
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B H	NONE			OP-02501 (TRIP P56-1)	13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	NONE			OP-02501 (TRIP P56-2)	13
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	NONE		OP-02501 (TRIP P56-1)	OP-02501 (TRIP P56-1)	13
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE		OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2)	13
DHRS	DH01A	LPI LINE 2 VLV	MOV	A	2	O	O	AS IS		C	NONE			N/A	
	DH07A	BWST ISO VLV A	MOV	AC	2	O	O	AS IS		H	NONE			N/A	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	23
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	23

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : R

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
DHRS	DH13A	DH CLR 2 BYPASS VLV	SOV	AB	2	C	C	FC		C	NONE			N/A	
	DH14A	DH CLR 2 OUT VLV	SOV	AB	2	O	O	FO		C	NONE			N/A	
	DH1518	DH NORM SUCT LINE 2 VLV	MOV	A	2	C	O/C	AS IS		C	NONE			N/A	
	DH2734	DH PUMP 2 BWST SUCT VLV	MOV	AB	2	O	O/C	AS IS		C	NONE			N/A	
	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	
	DH63	LPI/HPI CROSS-TIE VLV	MOV	A	2	C	C	AS IS		C	NONE			N/A	
	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-1)	OP-02501 (TRIP P42-1)	13
	P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	OP-02501 (TRIP P42-2)	13
EDG	DA1148A/B	EDG 2 AIR START VLV	SOV	J	2	C	O	FC		H	NONE			N/A	
	DA2989	AIR START RCVR 1-2-1 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA2994	AIR START RCVR 1-2-2 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA62	AIR START RCVR 1-2-1 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA63	AIR START RCVR 1-2-2 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	K5-2	EMERG DIESEL GENERATOR 2	EDG	J	2	O/F	ON	OFF		H	NONE			N/A	
	P148-2A	EDG JACKET WATER PUMP (RIGHT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P148-2B	EDG JACKET WATER PUMP (LEFT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P195-2	EDG FUEL OIL TRANSFER PUMP 2	PUMP	BN	2	OFF	ON	OFF		C	NONE			N/A	
	P201-2	EDG 1-2 M/D FUEL OIL PUMP	PUMP	J	1	O/F	ON	OFF	P205-2	H	NONE			N/A	
	P205-2	EDG 1-2 E/D FUEL OIL PUMP	PUMP	J	2	O/F	ON	OFF	P201-2	H	NONE			N/A	
	S207-01	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-02	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-03	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
S207-04	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A		
ESSPWR	2N	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	2P	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	NONE			N/A	
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1,-2,-3	H	NONE			N/A	
	C3616	EDG1-2 PANEL LIGHTS (ALT PWR)	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	C3629	CONT POWER ESS METER HPI FLOW Y	PNL	R	2	ON	ON	OFF		H	2CY208A			NOT REQUIRED FOR S/D	7
C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	1CY108A			NOT REQUIRED FOR S/D	7	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : R

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	1CY108B 2CY208A 2CY208B			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7
	C4602	NEUTRON FLUX MON. CABINET (CH.2)	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	C4625	CONT POWER TO AUX FW CONTROL PANEL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5755C	SPAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755D	SPAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5755E	CONTROL ROOM REACT PROT. SYS PNL(CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755G	POST ACCIDENT MON. RACK (CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5756D	SPAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5759C	INST POWER NNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES APW	14
	C5762A	CONTROL POWER TO SFRCS CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES APW	14
	C5762C	SPAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			SPAS INITIATED	13
	C5762D	SPAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SPAS INITIATED	13
	C5763D	SPAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SPAS INITIATED	13
	C5792	CONTROL ROOM SFRCS CABINET (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5792A	CH 2 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5798	POST ACCIDENT MON. IND. PNL (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C6709	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	C6715	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	CDF-11A-1	CONTROL DISCONNECT TRANSFER SWITCH	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	CDF-12A-1	D2P CONT POWER TO AFWP GOV (ICS038B)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	D1	4.16KV AC SWGR	SWGR	Q	2	ON	ON	OFF		H	NONE			N/A	
	D2	4.16KV SWGR	SWGR	Q	2	ON	ON	OFF	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	D2N	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	D2P	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DAP	125VDC DIST PANEL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DBC2N	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : R

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	DBC2P	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2PN	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF	DBC2P,DBC2N	H	2PBF1187A			MAY RESULT IN LOSS OF F11D	21
	DBN	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBP	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DC MCC 2	250/125V DC MCC	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	F1	480 V AC MCC F1	SWGR	X	2	ON	ON	OFF		H	NONE			N/A	
	F11A	480VAC MCC	MCC	DF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11B	480VAC MCC	MCC	V	2	ON	ON	OFF		H	NONE			N/A	
	F11C	480VAC MCC	MCC	A	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11D	480VAC MCC	MCC	G	2	ON	ON	OFF		H	NONE			MAY BE LOST	21
	F11E	480VAC MCC	MCC	B	2	ON	ON	OFF		C	NONE			N/A	
	F12A	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12B	480VAC MCC	MCC	J	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12C	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12D	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE			N/A	
	F14	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F15	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F16A	480V AC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	NONE			N/A	
	RC3601	DC CONT POWER RCP MONITOR	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	RC3602	DC CONTROL POWER RCP MONITOR	PNL	Q	2	ON	ON	OFF		H	2CD2P21B			SFRCS ACTUATES	14
	RC3608	CONTROL POWER (TO CCCW002)	PNL	Q	2	ON	ON	OFF		H	2CD2P21B			OP-02501 (START P43-2)	30
	RC3702	DC CONTROL POWER TO CAC 2 OUT VLV	PNL	A	2	ON	ON	OFF		H	2CD2P21B			OP-02501 (MANUAL CNTRL AP6451)	27
	RC3705	CONT POWER RC3705 (LR3758)	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	NONE			POWER NOT REQUIRED FOR S/D	5D
	RC3716										NONE			N/A	
	RC4606	DC CONT PWR (MU6406,RC4610A,PORV)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	NONE			N/A	
	XY2	CONSTANT VOLT TRANSFORMER (CVT CH 2)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	XY4	CONSTANT VOLT TRANSFORMER (CVT CH 4)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

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H/L - High/Low interface

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N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : R

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	Y2	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y2A	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y3602	CONTROL POWER (MU19 & MU32)	PNL	II	2	ON	ON	OFF		H	NONE			N/A	
	Y4	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YBU	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YF1	120VAC MCC	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	YF2	240/120VAC MCC	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	YV2	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YV4	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YVB	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	ZC6451	APP #2 CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A	
ZC6460	MDFP CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A		
HPIS	HP02A	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02B	H	NONE			N/A	
	HP02B	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02A	H	NONE			N/A	
	HP31	HPI PMP 2 RECIRC VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	P198-1	HPI PMP 2 AC LO PMP	PUMP	A	2	OFF	ON	OFF		H	NONE			N/A	
	P198-2	HPI PMP 2 DC LO PUMP	PUMP	A	2	OFF	ON	OFF	P198-1	H	NONE			N/A	
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	OP-02501 (TRIP P58-1)	13
	P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-2)	OP-02501 (TRIP P58-2)	13
HVAC	C133	LV SWGR RM VENT FAN 2	FAN	EE	2	O/F	ON	OFF		H	NONE			N/A	
	C25-3	EDG RM 2 VENT FAN 3	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C25-4	EDG RM 2 VENT FAN 4	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C73-2	APP RM VENT FAN 2	FAN	F	2	O/F	ON	OFF		H	NONE			N/A	
	C78-2	BAIT RM VENT FAN 2	FAN	X	2	O/F	ON	OFF		H	NONE			N/A	
	C99-3	SW PMP RM EXH FAN 3	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	C99-4	SW PMP RM EXH FAN 4	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	HV5314	LV SWGR RM 428 DAMPER	DMPR	EE	2	O/C	O	AS IS		H	NONE			N/A	
	HV5314A	LV SWGR RM 428 DAMPER	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
	HV5336A	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
HV5336B	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FO		H	NONE			N/A		
HV5336C	EDG ROOM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A		

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : R

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
HVAC	HV5598	BATT RM 428A ATM DMPR	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
MSS	ICS11A	MSL 2 ATM VENT VLV	SOV	DH	2	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11A)	OP-02501 (THROTTLE ICS11A)	12
	MS100	MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A	
	MS100-1	MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A	
	MS101	MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A	
	MS101-1	MS1V 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	NONE			N/A	
	PSV-SP17A1	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A2	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A3	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A4	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A5	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A6	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A7	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A8	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A9	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP1556)	OP-02501 (OPEN HP1556)	16
	HP27	HPI TO RCP SEALS	MAN	A	2	C	O	AS IS		H	NONE			N/A	
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP29)	OP-02501 (OPEN HP29)	16
	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE			N/A	
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE		OP-02501 (OPEN MU01B)	OP-02501 (OPEN MU01B)	16
	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	NONE		OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03)	13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	NONE			N/A	
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	NONE		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	NONE		OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT)	16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	NONE			OP-02501 (OPERATE MU214/MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU203	Recirc to Seal Return Stop Valve	MAN	AB	2	O	O/C	AS IS		H	NONE		OP-02501(CLOSE MU203)	OP-02501(CLOSE MU203)	16

LEGEND

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N/A - not affected



SAFE SHUTDOWN ANALYSIS

FIRE AREA : R

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU32	RC MU ISO VLV	FCV	AB	2	O/C	O	FO	HPIS TRAIN 1&2	H	NONE			N/A	
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B	H	NONE	OP-02501 (OPEN MU38)	OP-02501 (OPEN MU38)	13
	MU3971	RC MU PUMP SUCT VLV	MOV	AB	2	C	O/C	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59A)	OP-02501 (OPEN MU59A)	13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59B)	OP-02501 (OPEN MU59B)	13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C)	13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59D)	OP-02501 (OPEN MU59D)	13
	MU6406	MU RECIRC ISO VLV	AOV	AB	2	O	O/C	FO	HPIS TRAIN 2	H	NONE			N/A	
	MU6408	MU CROSS CONNECT ISO VLV	MOV	AB	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU6420	MU32 BYPASS VLV	MOV	AB	2	C	O	AS IS	HPIS, MU32	H	NONE			N/A	
	MU6422	MU CTMT ISO VLV	MOV	A	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A)	13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B)	13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C)	13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D)	13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-372B	MUP 2 MAIN LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P-372C	MUP 2 AUX LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS, P-372B	H	NONE			N/A	
	P-372D	MUP 2 AUX GEAR LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P37-2	MU PUMP 2	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P372A	MU PMP 2 MAIN GEAR LO PMP	PUMP	AB	2	O/F	O	OFF	P372D	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1743)	OP-02501 (OPEN WC1743)	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1747)	OP-02501 (OPEN WC1747)	12
	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	NONE			N/A	
NI	NI-5875A	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	NI-NI1	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : R

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
NNI	FI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	2LHP03AA 2LHP03AB C3629			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7
	FYI-HP03A1	HPI FLOW IND. (ASP)	IND	R	2	ON	ON	OFF		H	2LHP03AA 2LHP03AC C3629 C3630 FYIHP03A1			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7 7
	FYI-HP03B	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	2LHP03BA 2LHP03BB C3629			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7
	FYI-HP03B1	HPI FLOW IND (ASP)	IND	R	2	ON	ON	OFF		H	2LHP03BA 2LHP03BC C3629 C3630 FYIHP03B1			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7 7
	LI-RC14-2	PRZR LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	2LRC141B C3630 LI-RC14-2			NOT REQUIRED, USE LRS-RC14 NOT REQUIRED, USE LRS-RC14 NOT REQUIRED, USE LRS-RC14	7 7 7
	LI-RC14-4	PRZR LEVEL IND	IND	FF	2	ON	ON	OFF		H	2LRC141B 2LRC141C C3630 LI-RC14-2			NOT REQUIRED, USE LRS-RC14 NOT REQUIRED, USE LRS-RC14 NOT REQUIRED, USE LRS-RC14 NOT REQUIRED, USE LRS-RC14	7 7 7 7
	LI-SP09A1	SG1-2 START-UP LEVEL IND	IND	FF	2	ON	ON	OFF		H	2LSP09A3B 2LSP09A3C C3630 LI-SP09A3			NOT REQUIRED, USE LI-SP09A8-A NOT REQUIRED, USE LI-SP09A8-A NOT REQUIRED, USE LI-SP09A8-A NOT REQUIRED, USE LI-SP09A8-A	7 7 7 7
	LI-SP09A3	SG1-2 START-UP LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	2LSP09A3B C3630 LI-SP09A3			NOT REQUIRED, USE LI-SP09A8-A NOT REQUIRED, USE LI-SP09A8-A NOT REQUIRED, USE LI-SP09A8-A	7 7 7
	LI-SP09A8	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	7
	LI-SP09A8A	SG1-2 START-UP LEVEL IND (C5710)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	7
	LI-SP09A9	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	7
	LRS-RC14	PRZR LEVEL RECORDER	REC	FF	2	ON	ON	OFF	LI-RC14-1-4	H	NONE			N/A	
	PI-6365A	RCS LOOP 2 EXTENDED RANGE PRESS	IND	FF	2	ON	ON	OFF		H	2LP6365AA 2LP6365AD C3629			USE PI-RC2A3 USE PI-RC2A3 USE PI-RC2A3	7 7 7
	PI-6365A1	RCS LOOP2 EXTENDED RANGE PRESS (ASP)	IND	R	2	ON	ON	OFF		H	2LP6365AA 2LP6365AC C3629 C3630 PI6365A1			USE PI-RC2A3 USE PI-RC2A3 USE PI-RC2A3 USE PI-RC2A3 USE PI-RC2A3	7 7 7 7 7
	PI-RC2A3	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A4	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : R

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
NNI	PI-SP12A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF		H	2LSP12A2A 2LSP12A2B C3630 PI-SP12A1			USE PI-SP12A1-A USE PI-SP12A1-A USE PI-SP12A1-A USE PI-SP12A1-A	7 7 7 7
	PI-SP12A1	SG1-2 OUTLET PRESS IND (ASP)	IND	R	2	ON	ON	OFF		H	2LSP12A2A C3630 PI-SP12A1			USE PI-SP12A1-A USE PI-SP12A1-A USE PI-SP12A1-A	7 7 7
	PI-SP12A1-A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF	PI-SP12A	H	NONE			N/A	
	TE-RC3A6	RCS LOOP 2 HOT LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TE-RC4A2	RCS LOOP 2 COLD LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A4	RCS LOOP 2 HOT LEG TEMP (ASP)	IND	R	2	ON	ON	OFF		H	2LRPSA07B C3630 TI-RC3A4			NOT REQUIRED, USE TI-RC3A5 & 6 NOT REQUIRED, USE TI-RC3A5 & 6 NOT REQUIRED, USE TI-RC3A5 & 6	7 7 7
	TI-RC3A5	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A6	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A2	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A4	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A	
	RC13A	RCS CODE SAFETY VALVE	SV	D	2	C	C	CLOSED		H	NONE			N/A	
	RC147	PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
	RC200	PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A	
	RC239A	PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A	
	RC239B	PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A	
	RC2A	PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			N/S	
	RC4608A	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	NONE			N/A	
	RC4608B	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A	
	RC4610A	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A	
RC4610B	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A		
RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	NONE			N/A		
SFAS	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATES	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATES	13
	C5765D	SFAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : R

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFAS	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
SPRCS	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101B	LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101C	LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS3871B	BLOCK CIRCUIT AF3871 (APP-2 TO SG-1)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS3872B	BLOCK CIRCUIT AF3872 (APP-2 TO SG-2)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14

LEGEND

H - required for hot standby

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H/L - High/Low interface

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : R

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	HIS603B	BLOCK CIRCUIT MS603 (SG-2 DRAIN STOP)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS6402	CH 2/4 MANUAL START APPT-2 C5707	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	HIS6404	CH 2/4 MAN STRT APPT-2 & ISOL SG-2 C57	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	2CRCPD41B			SFRCS ACTUATES	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	1CRCPD11C			SFRCS ACTUATES	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	1CRCPD31C			SFRCS ACTUATES	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14

LEGEND

H - required for hot standby

C - required for cold shutdown

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : R

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES		
SFRCS	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14		
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14		
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14		
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14		
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14		
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	1CRCPM31B			INITIATES SFRCS ON LOOP	14		
	RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			INITIATES SFRCS ON LOOP	14		
SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7		
	P3-2	SW PUMP 2	PUMP	BF	2	O/F	ON	OFF		H	NONE			N/A	17		
	P3-3	SW PUMP 3		PUMP	BF	1/2	O/F	ON	OFF	P3-1, P3-2	H	2CACD5D	AD109 ACD5	MOD 84-0177 COMPLETED	USE P3-2	17	
												2CACD5F		MOD 84-0177 COMPLETED	USE P3-2	17	
												2PAD109A		MOD 84-0177 COMPLETED	USE P3-2	17	
												2PD2P08A		MOD 84-0177 COMPLETED	USE P3-2	17	
												3PACD6A		MOD 84-0177 COMPLETED	USE P3-2	17	
												ACD4		MOD 84-0177 COMPLETED	USE P3-2	17	
	ACD5	MOD 84-0177 COMPLETED	USE P3-2	17													
	ACD6	MOD 84-0177 COMPLETED	USE P3-2	17													
	SW1357	CAC 2 OUT ISO VLV	SOV	A	2	O/C	O	FO		H	NONE			N/A			
	SW1358	CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	2CV1358BH 2CV1358BJ			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7		
	SW1367	CAC 2 IN ISO VLV	MOV	A	2	O	O	AS IS		H	2PBF1223A			SC NOT POSSIBLE	5B		
	SW1368	CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	2CBF1224B			NOT REQUIRED FOR S/D	7		
	SW1383	APP 2 SUCT VLV FROM SW	MOV	A	2	C	O/C	AS IS		H	2CBF1177G 2CSD04A C3630			OP-02501 (OPEN IF CST DEPLETED)	OP-02501 (OPEN IF CST DEPLETED)	31	
														OP-02501 (OPEN IF CST DEPLETED)	OP-02501 (OPEN IF CST DEPLETED)	31	
														OP-02501 (OPEN IF CST DEPLETED)	OP-02501 (OPEN IF CST DEPLETED)	31	
	SW1395	TPCW HX IN HEADER ISO VLV	MOV	BG	2	O/C	C	AS IS		H	NONE			N/A			
	SW1429	SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	2CV1429G					NOT REQUIRED FOR S/D	7
											3CV1429A					NOT REQUIRED FOR S/D	7
3CV1429B											NOT REQUIRED FOR S/D					7	
ACD2											NOT REQUIRED FOR S/D					7	
ACD3											NOT REQUIRED FOR S/D					7	
SW1434	SW FROM CC HX 2 ISO VLV	SOV	T	2	O/C	O	FO		H	NONE			N/A				
SW2928	CTRM EVS COND UNIT IN VLV	MOV	HH	2	C	O	AS IS		H	NONE			N/A				
SW2930	SW TO INT FOREBAY VLV	MOV	BG	2	O/C	O	AS IS	SW2929, 31, 32	H	NONE			N/A				
SW2932	SW TO COLLECT BASIN VLV	MOV	BG	2	O/C	O	AS IS	SW2929, 30, 31	H	NONE			N/A				
SW54	TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A				
SW55	TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A				
SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B	H	NONE		N/A				

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA R TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent upstream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED

FIRE AREA R TABLE 1 NOTES

9. NOT USED

10. The CCW Pump 3 (P43-3) is a backup for CCWS Pump 1 (normal mode) or Pump 2. A fire in this fire area could disable Transfer Switchgear CD, thus making P43-3 inoperable. P43-2 will be used for Safe Shutdown for a fire in this area.

Previously a fire-induced failure of the control Circuits 1CAC108D and 2CAD108D, E, F, and G for Pump P43-3 could have caused the loss of control power for the 4.16kV Breakers AC108 (P43-3 is normally powered off Train 1) or AD108 (if P43-3 is powered off Train 2). As a result, the automatic trip function provided by the phase time and instantaneous overcurrent relay and the instantaneous ground sensor relay would not have been available. Since CCW Pump 3 could be operating during a fire, the power circuit could have developed a fault concurrent with a loss of control power, and, as a result, the breaker would not have automatically tripped from a ground fault.

Circuits 2CAD108E, F and G are routed in conduit 36204A which is provided with a 3-hour barrier.

MOD 84-177 revised Circuits 1CAC108D (Train 1) and 2CAD108D (Train 2) to ensure the availability of control power to trip Breakers AC108 and AD108 on a fault condition by use of auxiliary relays and retagged the circuits as 1CACD2G (Train 1) and 2CACD3G (Train 2).

Circuits 1CACD2B, 1CACD2F, 1CACD2F, 1PD1P06A, 2PD2P06A, 2CACD3B and 2CACD3F provide control power and control to ACD2 and ACD3 which are the transfer breakers in CD for CCWS P43-3. Since CCWS P43-2 will be used for Safe Shutdown these circuits are not required.

11. NOT USED

12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:

ICS11A	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level setpoint is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components.



Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA R TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531 P42-2	CS Iso Vlv LPI Pump 2	Open On	Stop P56-1, -2 Stop P42-2 from the CR after blocking SFAS
P42-1 P56-2	LPI Pump 1 CS Pump 2	On On	Trip Bkr AC112 at C1 Stop P56-2 from the CR after blocking SFAS
P56-1 P58-2	CS Pump 1 HPI Pump 2	On On	Trip Bkr BE111 at E1 Stop P58-2 from the CR after blocking SFAS
P58-1 CC1407A, B	HPI Pump 1 CCW Out Iso Vlv	On Closed	Trip Bkr AC111 at C1 Open CC1407A, B and Trip Bkr BE1173 at E11B & BF1158 at F11B
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip BE1176 at E11B & BF1159 at F11B
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03 MU38 MU59A	RC Lt Dn Cooler Out RCP Seal Rtn Isol RCP 2-1 Seal Rtn Vlv	Closed Closed Closed	Open MU03 Open MU38 Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A MU66B MU66C MU66D	RCP 2-1 Seal Inj Vlv RCP 2-2 Seal Inj Vlv RCP 1-1 Seal Inj Vlv RCP 1-2 Seal Inj Vlv	Closed Closed Closed Closed	Open MU66A Open MU66B Open MU66C Open MU66D

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

FIRE AREA R TABLE 1 NOTES

If AF3871 is manually closed, first trip Breaker BF1201 at F12A.

- 15. NOT USED
- 16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or by performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injection and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.

RCP Seal Return

The following manual valves will need to be operated:

MU97	Open	MU216	Throttle
MU182	Close	WC119	Open
MU214	Close	WC120	Open

Additionally the following valves may need to be manually operated:

CC1410	Open	MU10A	Open
MU01B	Open	MU11	Direct flow to CWRT
MU02B	Open		

RCS Inventory Control

After transferring the Makeup Suction to the BWST, MU203 will be manually closed after opening MU208, HP29, and HP1556 to route MUPS Recirc to the BWST rather than the Makeup Tank.

- 17. Two of the 3 SWS Pumps are required to operate during normal plant operation. Only 1 of the SW Pumps is required operable to achieve Safe Shutdown.

SWS Pump P3-2 is normally operating and required to operate for a fire in this area. MOD 84-0177 disconnected Cable 2CAD107G from ACD5. Therefore, P3-2 will be available.

Previously, the fire-induced failure of Control Circuits 1CAC109E and 2CAD109E for SW Pump p3-3 could have resulted in the loss of control power for the 4.16kV Breakers AC109 and AD109. As a result, the automatic trip function provided by the phase time and instantaneous overcurrent relay and the instantaneous ground sensor relay would not have been available. Consequently, the upstream breaker supplying power to the 4.16kV Switchgear, C1 or D1 could have tripped prior to these load breakers and thereby caused a loss of all Train 1 or 2 Essential Power.

MOD 87-0177 revised circuits 1CAC109E and 2CAD109E by use of auxiliary relays to ensure the availability of control power to trip breakers AC109 and AD109. The MOD

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA R TABLE 1 NOTES

retagged them as 1CACD4F (Train 1) and 2CACD5F (Train 2). The MOD also added interlocks between AC107 and AC109 and between AD107 and AD109.

18. To prevent spurious operation, Valves DH09A and DH09B are deenergized.
19. NOT USED
20. NOT USED
21. MCC F11D may trip due to a lack of coordination. The only Safe Shutdown equipment affected by loss of MCC F11D are the Backup Battery Charger (DBC2PN) and CCW Return Header 2 Valve (CC2649). DBC2PN is not required for Shutdown. CC2649 can be manually opened.
22. The Core Flood Isolation Valves CF01A, B are normally open and are required to be closed when cooling down before going below 700 psig. Breakers BF1120 at F11A and BE1162 at E11B are normally open; manual action may be required to close CF01B before going below 700 psig.
23. Decay Heat Suction Valves DH11 and 12 are normally closed and depowered at all times. Manual Bypass Valves DH21 and 23 are opened for Cold Shutdown.
24. NOT USED
25. Essential CCW is provided to the Makeup Pumps thereby bypassing CC1460.
26. The DHR Cooler 1-2 Isolation Valve CC1469 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRS cooldown.  
  
The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467 (CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467 (CC1469).
27. AFWP 2 Flow Control Valve AF6451 is used to control Aux Feedwater flow during Safe Shutdown. A review of the circuits indicates that manual control of AF6451 is still available from the Control Room. Therefore, use manual control of AF6451 from the Control Room.
28. AFPT 2 Governor Control Valve ICS038A is normally open on the high speed stop and required to be operable for Safe Shutdown. A review of the circuits indicates the Governor will fail as-is open. The AFPT will operate at normal high speed and Auxiliary Feedwater will be controlled by using AFWP 2 Flow Control Valve AF6451.
29. NOT USED
30. Cable 2CD2P21B provides power to the relays for autostart of P43-2 on low flow. Therefore, P43-2 may not start automatically on loss of CCW flow. However, P43-2 can be started manually from the Control Room.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA R TABLE 1 NOTES

31. AFWP 2 Suction Valve from Service Water (SW1383) is normally closed and required to be opened on low water in CST's. A review of the circuits indicates loss of control of this valve. Trip Breaker BF1177 at F11C and manually open SW1383 when required to provide Service Water to the Auxiliary Feed Pump.

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA RW

#### 4.6.RW.1 Fire Area Description

Fire Area RW consists of the Low Level Radwaste Storage Building which is a single-story concrete building.

#### 4.6.RW.2 Safe Shutdown Equipment in Fire Area RW

There are no Safe Shutdown components or cables located in this area.

#### 4.6.RW.3 Fire Propagation Control

Fire Area RW is located adjacent to the south wall of the Fuel Handling Building and is separated from the Fuel Handling Building by a 3-hour wall.

#### 4.6.RW.4 Fire Detection and Suppression

The Control Room of the Low Level Radwaste Building is provided with an automatic detection system.

The Storage Areas, Passageways and Ventilation Rooms are provided with automatic wet-pipe sprinklers.

#### 4.6.RW.5 Fire Area RW Safe Shutdown Summary

There are no Safe Shutdown components or cables in this fire area. Therefore, Safe Shutdown is not affected by a fire in this area.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: S

TRAIN ACCREDITED FOR SHUTDOWN: 2

4.6.S.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
325	HIGH VOLTAGE SWGR ROOM A	25,431	Y	MAN

4.6.S.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA S

The following components are located in fire area S.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
ESSPWR	1	C1	SWGR	4.16KV AC SWGR
	1	C2	SWGR	4.16KV AC SWGR
	1	C3645	PNL	CONT POWER TO AUX FW CONTROL PNL
	1	RC3601	PNL	DC CONT POWER RCP MONITOR
	1	RC3607	PNL	CONTROL POWER (TO CCCW001)

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA S

#### 4.6.S.3 Fire Propagation Control

Fire Area S is located in the Non-RCA portion of the Auxiliary Building (elevation 585') as shown on Drawing A-223F.

A fire that originates in this fire area will be contained in the fire area.

This fire area is enclosed by 3-hour rated concrete barriers.

#### 4.6.S.4 Fire Detection and Suppression

Fire Area S consists of Room 325 which is covered by fire detection (Fire Detection Zone FDZ 325).

Manual fire suppression equipment is provided for this fire area. Fire extinguishers and Hose Stations (HS) are shown on Drawing A-223F.

In the event of a fire, isolation and smoke venting will be accomplished in accordance with the Pre-Fire Plans.

#### 4.6.S.5 Fire Area Safe Shutdown Summary

Train 2 will be used for Safe Shutdown in Fire Area S. Safe Shutdown will be accomplished using the Makeup and Purification System (MUPS) for Reactor Coolant System Inventory Control, a Letdown path and Seal Injection for RCP Seal Cooling.

Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : S

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	NONE			OP-02501 (TRIP P14-1)	14
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3871)	OP-02501 (CLOSE AF3871)	14
	AF3872	AFWP 2 DISCH TO SG2	MOV	F	2	O	O	AS IS		H	NONE			N/A	
	AF599	AFW TO SG2 ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	AF6451	AFWP 2 FLOW CTRL VLV	SOV	F	2	O	O/C	FO		H	NONE			N/A	
	FW6460	MDFP FLOW CTRL VLV	SOV	II	2	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			N/A	7
	ICS038A	AFPT 2 GOV CTRL VLV	MOV	F	2	O	O/C	AS IS		H	NONE			N/A	
	MS106A	AFPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	NONE			OP-02501 (TRIP P14-1)	14
	MS107	AFPT 2 MS IN ISO VLV	MOV	EE	2	C	O	AS IS		H	NONE			N/A	
	MS107A	AFPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-1)	14
	MS5889B	AFPT 2 STEAM ADMISS VLV	SOV	F	2	C	O	FO		H	NONE			N/A	
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-1)	OP-02501 (TRIP P14-1)	14
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE			N/A	
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	BCAD210F		OP-2501 (ENSURE DISCH VLV CLSD)	OP-2501 (ENSURE DISCH VLV CLSD)	27
	P242-1	MDFP AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	P242-2	MDFP SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			N/A	7
CACS	C1-2	CAC FAN 2	FAN	D	2	O/F	ON	OFF		H	NONE			N/A	
	C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	2PBF1501A 2PBF1501B 3PBEF15A 3PBEF15B			EMBEDDED CONDUIT EMBEDDED CONDUIT EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1* 1* 1*
CCWS	CC1407A	CCW OUT ISO VLV FROM CIMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	OP-02501 (OPEN CC1407A)	13
	CC1407B	CCW OUT ISO VLV FROM CIMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407B)	OP-02501 (OPEN CC1407B)	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE			N/A	
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1410)	OP-02501 (OPEN CC1410)	16
	CC1411A	CCW INLET ISO VLV TO CIMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411A)	OP-02501 (OPEN CC1411A)	13
	CC1411B	CCW INLET ISO VLV TO CIMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	OP-02501 (OPEN CC1411B)	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	N/A	24
	CC1469	DHR CLR 2 OUT ISO VLV	SOV	AB	2	C	O	FO		C	NONE		OP-02501 (OPERATE CC1469)	OP-02501 (OPERATE CC1469)	26
	CC1474	DG JKT CW HX 2 OUT VLV	MAN	J	2	O	O	AS IS		H	NONE			N/A	
	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B H	NONE			OP-02501 (OPERATE CC43)	12,26
	CC2649	CC RETURN HDR 2 VLV	MOV	G	2	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	NONE			N/A	
	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : S

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501 (OPERATE CC43)	OP-02501 (OPERATE CC43)	12,26
	CC5096	CC HDR 2 IN ISO VLV	MOV	T	2	O/C	O	AS IS		H	NONE			N/A	
	CC5098	CCW LINE 2 RET ISO VLV	MOV	T	2	O/C	O/C	AS IS		H	NONE			N/A	
	FIS1422D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1427D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1432D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	P43-2	CCW PUMP 2	PUMP	T	2	O/F	ON	OFF		H	NONE			N/A	
	P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	NONE			N/A	
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B C	NONE			N/A	
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B C	NONE		OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	22
CREVS	C21-2	CTRM EVS FAN 2	FAN	HH	2	OFF	ON	OFF		H	NONE			N/A	
	S33-2	CTRM EMERG A/C UNIT 2	A/C	HH	2	OFF	ON	OFF		H	NONE			N/A	
	SV4827A	CREVS CONDENSER UNIT 2 (S33-2) IN VLV	SOV	HH	2	C	O	CLOSED		H	NONE			N/A	
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B H	NONE			OP-02501 (TRIP P56-1)	13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	NONE			OP-02501 (TRIP P56-2)	13
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	NONE		OP-02501 (TRIP P56-1)	OP-02501 (TRIP P56-1)	13
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE		OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2)	13
DHRS	DH01A	LPI LINE 2 VLV	MOV	A	2	O	O	AS IS		C	NONE			N/A	
	DH07A	BWST ISO VLV A	MOV	AC	2	O	O	AS IS		H	NONE			N/A	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH13A	DH CLR 2 BYPASS VLV	SOV	AB	2	C	C	FC		C	NONE			N/A	
	DH14A	DH CLR 2 OUT VLV	SOV	AB	2	O	O	FO		C	NONE			N/A	
	DH1518	DH NORM SUCT LINE 2 VLV	MOV	A	2	C	O/C	AS IS		C	NONE			N/A	
	DH2734	DH PUMP 2 BWST SUCT VLV	MOV	AB	2	O	O/C	AS IS		C	NONE			N/A	
	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	
	DH63	LPI/HPI CROSS-TIE VLV	MOV	A	2	C	C	AS IS		C	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : S

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
DHRS	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	1CAC112B 1CAC112C 1CAC112E 1CAC112F 1PAC112A 1PAC112A AC112		OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC)	OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC)	13 13 13 13 13 13 13
	P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	OP-02501 (TRIP P42-2)	13
EDG	DA1148A/B	EDG 2 AIR START VLV	SOV	J	2	C	O	FC		H	NONE			N/A	
	DA2989	AIR START RCVR 1-2-1 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA2994	AIR START RCVR 1-2-2 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA62	AIR START RCVR 1-2-1 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA63	AIR START RCVR 1-2-2 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	K5-2	EMERG DIESEL GENERATOR 2	EDG	J	2	O/F	ON	OFF		H	NONE			N/A	
	P148-2A	EDG JACKET WATER PUMP (RIGHT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P148-2B	EDG JACKET WATER PUMP (LEFT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P195-2	EDG FUEL OIL TRANSFER PUMP 2	PUMP	BN	2	OFF	ON	OFF		C	NONE			N/A	
	P201-2	EDG 1-2 M/D FUEL OIL PUMP	PUMP	J	1	O/F	ON	OFF	P205-2	H	NONE			N/A	
P205-2	EDG 1-2 E/D FUEL OIL PUMP	PUMP	J	2	O/F	ON	OFF	P201-2	H	NONE			N/A		
S207-01	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A		
S207-02	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A		
S207-03	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A		
S207-04	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A		
ESSPWR	2N	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	2P	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	NONE			N/A	
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1,-2,-3	H	ACAACC2A ACAACC2B ACAACC2C ACAACC2D ACAACC2E ACAACC2F ACAACC2G ACAACC2H ACAACC2I ACAC2031A ACAC2032A ACAC2032B ACAC2032C ACAC2033B APDAN07A C2		NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : S

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1,-2,-3	H	C3630			NOT REQUIRED FOR S/D	7
	C3616	EDG1-2 PANEL LIGHTS (ALT PWR)	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	C3629	CONT POWER ESS METER HPI FLOW Y	PNL	R	2	ON	ON	OFF		H	NONE			N/A	
	C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	1CY108A			NOT REQUIRED FOR S/D	7
	C4602	NEUTRON FLUX MON. CABINET (CH.2)	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	C4625	CONT POWER TO AUX FW CONTROL PANEL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5755C	SFAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5755E	CONTROL ROOM REACT PROT. SYS PNL(CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755G	POST ACCIDENT MON. RACK (CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5756D	SFAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5759C	INST POWER NNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCs XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762A	CONTROL POWER TO SFRCs CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762C	SFAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			SFAS INITIATED	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
	C5792	CONTROL ROOM SFRCs CABINET (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5792A	CH 2 SFRCs XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5798	POST ACCIDENT MON. IND. PNL (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C6709	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	C6715	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	CDF-11A-1	CONTROL DISCONNECT TRANSFER SWITCH	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	CDF-12A-1	D2P CONT POWER TO AFWP GOV (ICS038B)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	D1	4.16KV AC SWGR	SWGR	Q	2	ON	ON	OFF		H	NONE			N/A	
	D2	4.16KV SWGR	SWGR	Q	2	ON	ON	OFF	AFWS TRAIN 1&2	H	BCABDD2A CABLEBUS HAAC			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7
	D2N	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

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N/A - not affected

Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : S

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSSPWR	D2P	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBC2N	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2P	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2PN	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF	DBC2P, DBC2N	H	NONE			N/A	7
	DBN	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBP	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DC MCC 2	250/125V DC MCC	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	F1	480 V AC MCC F1	SWGR	X	2	ON	ON	OFF		H	NONE			N/A	
	F11A	480VAC MCC	MCC	DF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11B	480VAC MCC	MCC	V	2	ON	ON	OFF		H	NONE			N/A	
	F11C	480VAC MCC	MCC	A	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11D	480VAC MCC	MCC	G	2	ON	ON	OFF		H	NONE			N/A	
	F11E	480VAC MCC	MCC	B	2	ON	ON	OFF		C	NONE			N/A	
	F12A	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12B	480VAC MCC	MCC	J	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12C	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12D	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE			N/A	
	F14	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F15	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F16A	480V AC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	BPAD2DF7A			NOT REQUIRED FOR S/D	7
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	NONE			N/A	
	RC3602	DC CONTROL POWER RCP MONITOR	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3608	CONTROL POWER (TO CCCW002)	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3702	DC CONTROL POWER TO CAC 2 OUT VLV	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3705	CONT POWER RC3705 (LR3758)	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	NONE			N/A	
	RC3716										NONE			N/A	
	RC4606	DC CONT PWR (MU6406, RC4610A, PORV)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	C2 CABLEBUS			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7
	XY2	CONSTANT VOLT TRANSFORMER (CVT CH 2)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	

## LEGEND

H - required for hot standby

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N/A - not affected

Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : S

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	XY4	CONSTANT VOLT TRANSFORMER (CVT CH 4)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	Y2	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y2A	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y3602	CONTROL POWER (MU19 & MU32)	PNL	II	2	ON	ON	OFF		H	BFYBU05A			NOT REQUIRED FOR S/D	7
	Y4	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YBU	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YF1	120VAC MCC	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	YF2	240/120VAC MCC	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	YV2	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YV4	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YVB	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	ZC6451	AFP #2 CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A	
ZC6460	MDFP CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A		
HPIS	HP02A	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02B	H	NONE			N/A	
	HP02B	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02A	H	NONE			N/A	
	HP31	HPI PMP 2 RECIRC VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	P198-1	HPI PMP 2 AC LO PMP	PUMP	A	2	OFF	ON	OFF		H	NONE			N/A	
	P198-2	HPI PMP 2 DC LO PUMP	PUMP	A	2	OFF	ON	OFF	P198-1	H	NONE			N/A	
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	1CAC111B 1CAC111C 1CAC111E 1CAC111F AC111		OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC) OP-02501 (RUN ON MIN RECIRC)	SFAS INITIATED SFAS INITIATED SFAS INITIATED SFAS INITIATED SFAS INITIATED	13 13 13 13 13
	P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE		OP-02501 (RUN ON MIN RECIRC)	SFAS INITIATED	13
HVAC	C133	LV SWGR RM VENT FAN 2	FAN	EE	2	O/F	ON	OFF		H	NONE			N/A	
	C25-3	EDG RM 2 VENT FAN 3	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C25-4	EDG RM 2 VENT FAN 4	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C73-2	APP RM VENT FAN 2	FAN	F	2	O/F	ON	OFF		H	NONE			N/A	
	C78-2	BATT RM VENT FAN 2	FAN	X	2	O/F	ON	OFF		H	NONE			N/A	
	C99-3	SW PMP RM EXH FAN 3	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	C99-4	SW PMP RM EXH FAN 4	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	HV5314	LV SWGR RM 428 DAMPER	DMPR	EE	2	O/C	O	AS IS		H	NONE			N/A	
	HV5314A	LV SWGR RM 428 DAMPER	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	

LEGEND

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Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : S

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
HVAC	HV5336A	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5336B	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FO		H	NONE			N/A	
	HV5336C	EDG ROOM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5598	BATT RM 428A ATM DMPR	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
MSS	ICS11A	MSL 2 ATM VENT VLV	SOV	DH	2	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11A)	LOSS OF AIR	12
	MS100	MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A	
	MS100-1	MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A	
	MS101	MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A	
	MS101-1	MS1V 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	NONE			N/A	
	PSV-SP17A1	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A2	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A3	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A4	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A5	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A6	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A7	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A8	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A9	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP1556)	OP-02501 (OPEN HP1556)
HP27		HPI TO RCP SEALS	MAN	A	2	C	O	AS IS		H	NONE			N/A	
HP29		MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP29)	OP-02501 (OPEN HP29)	16
MU01A		LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B,2A,MU03	H	NONE			N/A	
MU01B		LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B,2A,MU03	H	NONE		OP-02501 (OPEN MU01B)	OP-02501 (OPEN MU01B)	16
MU02A		LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13
MU02B		LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
MU03		RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	NONE		OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03)	13
MU04		LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	NONE			N/A	
MU10A		PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	NONE		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16
MU10B		PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
MU11		RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	NONE		OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT)	16
MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16	

## LEGEND

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N/A - not affected

Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : S

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPN INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	NONE			OP-02501 (OPERATE MU214/MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU203	Recirc to Seal Return Stop Valve	MAN	AB	2	O	O/C	AS IS		H	NONE		OP-02501 (CLOSE MU203)	OP-02501 (CLOSE MU203)	16
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU32	RC MU ISO VLV	FCV	AB	2	O/C	O	FO	HPIS TRAIN 1&2	H	NONE			N/A	
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B H	NONE		OP-02501 (OPEN MU38)	OP-02501 (OPEN MU38)	13
	MU3971	RC MU PUMP SUCT VLV	MOV	AB	2	C	O/C	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59A)	OP-02501 (OPEN MU59A)	13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59B)	OP-02501 (OPEN MU59B)	13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C)	13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59D)	OP-02501 (OPEN MU59D)	13
	MU6406	MU RECIRC ISO VLV	AOV	AB	2	O	O/C	FO	HPIS TRAIN 2	H	NONE			N/A	
	MU6408	MU CROSS CONNECT ISO VLV	MOV	AB	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU6420	MU32 BYPASS VLV	MOV	AB	2	C	O	AS IS	HPIS, MU32	H	NONE			N/A	
	MU6422	MU CTMT ISO VLV	MOV	A	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A)	13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B)	13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C)	13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D)	13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-372B	MUP 2 MAIN LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P-372C	MUP 2 AUX LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS, P-372B	H	NONE			N/A	
	P-372D	MUP 2 AUX GEAR LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P37-2	MU PUMP 2	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P372A	MU PMP 2 MAIN GEAR LO PMP	PUMP	AB	2	O/F	O	OFF	P372D	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1743)	LOSS OF AIR	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1747)	LOSS OF AIR	12

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : S

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	NONE			N/A	
NI	NI-5875A	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	NI-NI1	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
NNI	FI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A1	HPI FLOW IND. (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B1	HPI FLOW IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-2	PRZR LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-4	PRZR LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A1	SG1-2 START-UP LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A3	SG1-2 START-UP LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A8	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A8A	SG1-2 START-UP LEVEL IND (C5710)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A9	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LRS-RC14	PRZR LEVEL RECORDER	REC	FF	2	ON	ON	OFF	LI-RC14-1-4	H	NONE			N/A	
	PI-6365A	RCS LOOP 2 EXTENDED RANGE PRESS	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-6365A1	RCS LOOP2 EXTENDED RANGE PRESS (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A3	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A4	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1	SG1-2 OUTLET PRESS IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1-A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF	PI-SP12A	H	NONE			N/A	
	TE-RC3A6	RCS LOOP 2 HOT LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TE-RC4A2	RCS LOOP 2 COLD LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A4	RCS LOOP 2 HOT LEG TEMP (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A5	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A6	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A2	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A4	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

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H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : S

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A	
	RC13A	RCS CODE SAFETY VALVE	SV	D	2	C	C	CLOSED		H	NONE			N/A	
	RC147	PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
	RC200	PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A	
	RC239A	PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A	
	RC239B	PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A	
	RC2A	PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			N/A	
	RC4608A	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	NONE			N/A	
	RC4608B	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A	
	RC4610A	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A	
	RC4610B	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A	
	RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	NONE			N/A	
	SFAS	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A
C5762D		SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS MAY ACTUATE	13
C5763D		SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS MAY ACTUATE	13
C5765D		SFAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
HIS6453		SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
HIS6454		SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LI1525A		BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LI1525B		BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LI1525C		BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LI1525D		BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LSL1525A1		BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LSL1525B1		BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LT1525A		BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LT1525B		BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LT1525C		BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
LT1525D		BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
PI2000		CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	

## LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : S

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFAS	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
SFRCS	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101B	LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101C	LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS3871B	BLOCK CIRCUIT AF3871 (AFP-2 TO SG-1)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS3872B	BLOCK CIRCUIT AF3872 (AFP-2 TO SG-2)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS603B	BLOCK CIRCUIT MS603 (SG-2 DRAIN STOP)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS6402	CH 2/4 MANUAL START AFPT-2 C5707	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	HIS6404	CH 2/4 MAN STRT AFPT-2 & ISOL SG-2 C57	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	2CRCPD41B			SFRCS ACTUATES	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	1CRCPD11C			SFRCS ACTUATES	14

LEGEND

H - required for hot standby

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N/A - not affected

Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : S

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	1CRCPD31C			SFRCS ACTUATES	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	1CRCPM11B			SFRCS INITIATES ON LOOP	14
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	1CRCPM31B			SFRCS INITIATES ON LOOP	14
	RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	AC201 ACAC201B ACAC201C APAC201A			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7
	P3-2	SW PUMP 2	PUMP	BF	2	O/F	ON	OFF		H	NONE			N/A	
	P3-3	SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1, P3-2	H	AC109 DS1-CD9			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7
	SW1357	CAC 2 OUT ISO VLV	SOV	A	2	O/C	O	FO		H	NONE			N/A	
	SW1358	CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	2CV1358BH			NOT REQUIRED FOR S/D	7,1*

## LEGEND

H - required for hot standby

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N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : S

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SWS	SW1358	CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	2CV1358BJ			NOT REQUIRED FOR S/D	7,1*
	SW1367	CAC 2 IN ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	SW1368	CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	2CBF1224B 2PBF1224A			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7,1* 7,5B
	SW1383	AFP 2 SUCT VLV FROM SW	MOV	A	2	C	O/C	AS IS		H	NONE			N/A	
	SW1395	TPCW HX IN HEADER ISO VLV	MOV	BG	2	O/C	C	AS IS		H	NONE			N/A	
	SW1429	SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	NONE			N/A	
	SW1434	SW FROM CC HX 2 ISO VLV	SOV	T	2	O/C	O	FO		H	NONE			N/A	
	SW2928	CTRM EVS COND UNIT IN VLV	MOV	HH	2	C	O	AS IS		H	NONE			N/A	
	SW2930	SW TO INT FOREBAY VLV	MOV	BG	2	O/C	O	AS IS	SW2929,31,32	H	NONE			N/A	
	SW2932	SW TO COLLECT BASIN VLV	MOV	BG	2	O/C	O	AS IS	SW2929,30,31	H	NONE			N/A	
	SW54	TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
	SW55	TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
	SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	

LEGEND

H - required for hot standby

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Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA S TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent up-stream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED

FIRE AREA S TABLE 1 NOTES

- 9. NOT USED
- 10. NOT USED
- 11. NOT USED
- 12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:
 

ICS11A	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

- 13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level setpoint is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components:

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531 P42-2	CS Iso Vlv LPI Pump 2	Open On	Stop P56-1, -2 Stop P42-2 from the CR after blocking SFAS
P42-1	LPI Pump 1	On	Allow P42-1 to run on minimum recirc
P56-2	CS Pump 2	On	Stop P56-2 from the CR after blocking SFAS
P56-1	CS Pump 1	On	Trip Bkr BE111 at E1
P58-2	HPI Pump 2	On	Stop P58-2 from the CR after blocking SFAS
P58-1	HPI Pump 1	On	Allow P58-1 to run on minimum recirc. Ensure HP02A & B are closed prior to decreasing RC pressure below 1600 psi
CC1407A, B	CCW Out Iso Vlv	Closed	Open CC1407A, B and Trip Bkr BE1173 at E11B & BF1158 at F11B
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip BE1176 at E11B & BF1159 at F11B

FIRE AREA S TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03	RC Lt Dn Cooler Out	Closed	Open MU03
MU38	RCP Seal Rtn Isol	Closed	Open MU38
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

If AF3871 is manually closed, first trip Breaker BF1201 at F12A.

15. NOT USED
16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or by performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injection and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.

FIRE AREA S TABLE 1 NOTES

RCP Seal Return Flow

The following manual valves will need to be operated:

MU97	Open	MU216	Throttle
MU182	Close	WC119	Open
MU214	Close	WC120	Open

Additionally, the following valves may need to be manually operated:

CC1410	Open	MU10A	Open
MU01B	Open	MU11	Direct flow to CWRT
MU02B	Open		

RCS Inventory Control

After transferring the Makeup suction to the BWST, MU203 will be manually closed after opening MU208, HP29, and HP1556 to route MUPS Recirc to the BWST rather than the Makeup Tank.

17. NOT USED
18. To prevent spurious operation, Valves DH09A and DH09B are deenergized.
19. NOT USED
20. NOT USED
21. NOT USED
22. Trip Breaker BF1120 at F11A and close CF01A.
23. NOT USED
24. Essential CCW is provided to the Makeup Pump Cooler, bypassing CC1460.
25. Valves DH11 and DH12 are depowered. Bypass Valves DH21 and DH23 can be manually operated to place the DHR System in service.
26. The DHR Cooler 1-2 Isolation Valve CC1469 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRS cooldown.

The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467 (CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467 (CC1469).



Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA S TABLE 1 NOTES

27. Spurious operation of the Motor Driven Feed Pump (MDFP) P241 is possible due to hot shorts on control cables in this fire area. Manual Operator Action to close locked valve FW6398 shall be taken to preclude overfill of the credited Steam Generator.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: T

TRAIN ACCREDITED FOR SHUTDOWN: 1/2

4.6.T.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
328	CCW HEAT EXCHNGR & PMP RM	9,608	Y	AUTO

4.6.T.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA T

The following components are located in fire area T.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
CCWS	1/2	CC1460	SOV	CC TO MU PMP HDR IN VLV
	1	CC5095	MOV	CC HDR 1 IN ISO VLV
	2	CC5096	MOV	CC HDR 2 IN ISO VLV
	1	CC5097	MOV	CCW LINE 1 RET ISO VLV
	2	CC5098	MOV	CCW LINE 2 RET ISO VLV
	1	E22-1	H/EX	CCW HEAT EXCHANGER 1-1
	2	E22-2	H/EX	CCW HEAT EXCHANGER 1-2
	1/2	E22-3	H/EX	CCW HEAT EXCHANGER 1-3
	2	FIS1422D	FS	FLOW SWITCH CCWS PUMP
	1	FIS1427C	FS	FLOW SWITCH CCWS PUMP
	2	FIS1427D	FS	FLOW SWITCH CCWS PUMP
	1	FIS1432C	FS	FLOW SWITCH CCWS PUMP
	1	P43-1	PUMP	CCW PUMP 1
	2	P43-2	PUMP	CCW PUMP 2
1/2	P43-3	PUMP	CCW PUMP 3	
SWS	1	SW1424	SOV	SW FROM CC HX 1 ISO VLV
	1/2	SW1429	SOV	SW FROM CC HX 3 ISO VLV
	2	SW1434	SOV	SW FROM CC HX 2 ISO VLV

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA T

#### 4.6.T.3 Fire Propagation Control

Fire Area T is located in the Auxiliary Building consisting of the Component Cooling Water Pump Room (elev 585') as shown on Drawing A-223F.

A fire that originates in this fire area will be contained in the fire area. This fire area is enclosed by 3-hour rated barriers (except as noted below).

Some of the concrete block walls adjacent to the Stairwell AB-1 (Fire Area UU) are rated for 2-hours. Based on the construction, arrangement and low combustible loadings, a fire will not propagate from one fire area to the other. See Fire Area UU for more details.

The north wall of Room 328 contains three steel plates which are removable so that the CCW heat exchanger tube bundles can be removed. The plates are removed in room 326 (Fire Area II).

Based on the construction of these steel plates and the automatic wet-pipe sprinkler in both rooms, a fire will not propagate from one fire area to the other.

There are several penetrations which have penetration seals that do not meet the tested configuration or penetration with small annular gaps (too small to seal properly). These non-rated openings have been evaluated and will not allow the propagation of a fire.

Room 328 has structural steel fire-proofing which does not comply with a tested configuration for a 3-hour rating. Based on analysis of the combustible loading and automatic wet-pipe sprinklers in the room, the steel will not fail.

#### 4.6.T.4 Fire Detection and Suppression

Fire Area T consists of Room 328 which is covered by fire detection (Fire Detection Zone FDZ 328) and an automatic wet-pipe sprinkler system.

Manual fire suppression equipment is provided for this fire area. Fire extinguishers and Hose Stations (HS) are shown on Drawing A-223F.

In the event of a fire, isolation and smoke venting will be accomplished in accordance with the Pre-Fire Plans.

#### 4.6.T.5 Fire Area Safe Shutdown Summary

Train 1 and 2 are accredited for Safe Shutdown in Fire Area T due to the lack of separation for Train 1 and 2 Component Cooling Water cables. Safe Shutdown will be accomplished using the Makeup and Purification System (MUPS) for Reactor Coolant System Inventory Control, a Letdown path and for RCP Seal Cooling.

Train 1 & 2 CCWS equipment and cables are within 20 ft. horizontally throughout this area. An exemption has been requested and granted for the lack of separation between CCWS Pumps. Valves that are needed for Hot Shutdown are outside the area and either CCWS Pump P43-1 or P43-2 provide cooling to the respective diesel generator. The CCWS pumps have flow switch interlocks to automatically start a pump in the opposite Train or the Backup Pump P43-3 (if it is

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA T

aligned to the running Train). Automatic start is not required and manual start circuits are unaffected by failures in the corresponding flow switch circuit.

An exemption request has been granted for the lack of 20 ft. separation between Train 1 and Train 2 cables associated with the Component Cooling Water Pumps.

SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	NONE		OP-02501 (OPERATE AF3869)	OP-02501 (OPERATE AF3869)	14
	AF3870	AFWP 1 DISCH TO SG1	MOV	E	1	O	O	AS IS		H	NONE			OP-02501 (TRIP P14-1)	14
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE		OP-02501 (OPERATE AF3871)	OP-02501 (OPERATE AF3871)	14
	AF3872	AFWP 2 DISCH TO SG2	MOV	F	2	O	O	AS IS		H	NONE			OP-02501 (TRIP P14-2)	14
	AF599	AFW TO SG2 ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	AF608	AFW TO SG1 ISO VLV	MOV	AB	1	O	O	AS IS		H	NONE			N/A	
	AF6451	AFWP 2 FLOW CTRL VLV	SOV	F	2	O	O/C	FO		H	NONE			N/A	
	AF6452	AFWP 1 FLOW CTRL VLV	SOV	E	1	O	O/C	FO		H	NONE			N/A	
	FW6459	MDFF FLOW CTRL VALVE	SOV	II	1	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	FW6460	MDFF FLOW CTRL VLV	SOV	II	2	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	ICS038A	APPT 2 GOV CTRL VLV	MOV	F	2	O	O/C	AS IS		H	NONE			N/A	
	ICS038B	APPT 1 GOV CTRL VLV	MOV	E	1	O	O/C	AS IS		H	NONE			N/A	
	MS106	APPT 1 MS IN ISO VLV	MOV	EE	1	C	O	AS IS		H	NONE			N/A	
	MS106A	APPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	NONE			OP-02501 (TRIP P14-1)	14
	MS107	APPT 2 MS IN ISO VLV	MOV	EE	2	C	O	AS IS		H	NONE			N/A	
	MS107A	APPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-2)	14
	MS5889A	APPT 1 STEAM ADMISS VLV	SOV	E	1	C	O	FO		H	NONE			N/A	
	MS5889B	APPT 2 STEAM ADMISS VLV	SOV	F	2	C	O	FO		H	NONE			N/A	
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-1 S/D TRN 2)	OP-02501 (TRIP P14-1 S/D TRN 2)	14
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-2 S/D TRN 1)	OP-02501 (TRIP P14-2 S/D TRN 1)	14
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	P242-1	MDFF AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	P242-2	MDFF SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	CACs	C1-1	CAC FAN 1	FAN	D	1	O/F	ON	OFF		H	NONE			N/A
C1-2		CAC FAN 2	FAN	D	2	O/F	ON	OFF		H	NONE			N/A	
C1-3		CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	NONE			N/A	
CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	SFAS INITIATED	13
	CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	SFAS INITIATED	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE			N/A	
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1410)	OP-02501 (OPEN CC1410)	16
	CC1411A	CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411A)	SFAS INITIATED	13

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC1411B	CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	SFAS INITIATED	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	2CV1460A 2CV1460B 2CV1460C 2CV1460D 2CV1460E EV1460 NV1460 SV1460		MOD 88-0145 MOD 88-0145 MOD 88-0145 MOD 88-0145 MOD 88-0145 MOD 88-0145 MOD 88-0145 MOD 88-0145	CC1460 BYPASS CC1460 BYPASS CC1460 BYPASS CC1460 BYPASS CC1460 BYPASS CC1460 BYPASS CC1460 BYPASS	24 24 24 24 24 24 24
	CC1467	DHR CLR 1 OUT ISO VLV	SOV	AB	1	C	O	FO		C	NONE		OP-02501 (OPERATE CC1467)	OP-02501 (OPERATE CC1467)	26
	CC1469	DHR CLR 2 OUT ISO VLV	SOV	AB	2	C	O	FO		C	NONE		OP-02501 (OPERATE CC1469)	OP-02501 (OPERATE CC1469)	26
	CC1471	DG JKT CW HX 1 OUT VLV	MAN	K	1	O	O	AS IS		H	NONE			N/A	
	CC1474	DG JKT CW HX 2 OUT VLV	MAN	J	2	O	O	AS IS		H	NONE			N/A	
	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B	NONE			OP-02501 (OPERATE CC43)	12,26
	CC2645	CC RETURN HDR 1 VLV	MOV	G	1	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	1CCW001B 1CCW001C FFIS1427C FFIS1432C		OP-02501 (OPEN CC2645) OP-02501 (OPEN CC2645) OP-02501 (OPEN CC2645) OP-02501 (OPEN CC2645)	OP-02501 (OPEN CC2645) OP-02501 (OPEN CC2645) OP-02501 (OPEN CC2645) OP-02501 (OPEN CC2645)	16 16 16 16
	CC2649	CC RETURN HDR 2 VLV	MOV	G	2	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	2CCW002B 2CCW002C FFIS1422D FFIS1427D		OP-02501 (OPEN CC2649) OP-02501 (OPEN CC2649) OP-02501 (OPEN CC2649) OP-02501 (OPEN CC2649)	OP-02501 (OPEN CC2649) OP-02501 (OPEN CC2649) OP-02501 (OPEN CC2649) OP-02501 (OPEN CC2649)	16 16 16 16
	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE				N/A
	CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501(OPERATE CC43)	OP-02501(OPERATE CC43)	12,26
	CC5095	CC HDR 1 IN ISO VLV	MOV	T	1	O/C	O	AS IS		H	1CBE1226B 1CBE1226C 1CBE1226D 1CBE1226E 1CBE1226F 1CBE1226G 1CBE1226H 1CBE1226I 1CBE1226J 1CCW001B 1CCW001C 1PBE1226A EV5095 FFIS1427C FFIS1432C MV5095 NV5095	2/X2	OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095)	OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095)	16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16
	CC5096	CC HDR 2 IN ISO VLV	MOV	T	2	O/C	O	AS IS		H	2CBF1106B 2CBF1106C 2CBF1106D 2CBF1106E 2CBF1106F 2CBF1106G 2CBF1106H 2CCW002B 2CCW002C 2PBF1106A EV5096 FFIS1422D FFIS1427D MV5096 NV5096	2/X3 LSLL/X2	OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096)	OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096)	16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16
	CC5097	CCW LINE 1 RET ISO VLV	MOV	T	1	O/C	O/C	AS IS		H	1CBE1227B		OP-02501 (OPEN CC5097)	OP-02501 (OPEN CC5097)	16

LEGEND  
H - required for hot standby      C - required for cold shutdown      H/L - High/Low interface      B - valve maintains boundary isolation      N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES											
CCWS	CC5097	CCW LINE 1 RET ISO VLV	MOV	T	1	O/C	O/C	AS IS		H	1CBF1227C	2/X2	OP-02501 (OPEN CC5097)	OP-02501 (OPEN CC5097)	16											
											1CBF1227D		OP-02501 (OPEN CC5097)	OP-02501 (OPEN CC5097)	16											
											1CBF1227I		OP-02501 (OPEN CC5097)	OP-02501 (OPEN CC5097)	16											
											1CBF1227J		OP-02501 (OPEN CC5097)	OP-02501 (OPEN CC5097)	16											
											1CCW001B		OP-02501 (OPEN CC5097)	OP-02501 (OPEN CC5097)	16											
											1CCW001C		OP-02501 (OPEN CC5097)	OP-02501 (OPEN CC5097)	16											
											1PBF1227A		OP-02501 (OPEN CC5097)	OP-02501 (OPEN CC5097)	16											
											EV5095		OP-02501 (OPEN CC5097)	OP-02501 (OPEN CC5097)	16											
											FFIS1427C		OP-02501 (OPEN CC5097)	OP-02501 (OPEN CC5097)	16											
											FFIS1432C		OP-02501 (OPEN CC5097)	OP-02501 (OPEN CC5097)	16											
											MV5097		OP-02501 (OPEN CC5097)	OP-02501 (OPEN CC5097)	16											
											NV5097		OP-02501 (OPEN CC5097)	OP-02501 (OPEN CC5097)	16											
											CC5098		CCW LINE 2 RET ISO VLV	MOV	T	2	O/C	O/C	AS IS		H	2CBF1119B	LLSL/X2	OP-02501 (OPEN CC5098)	OP-02501 (OPEN CC5098)	16
																						2CBF1119C		OP-02501 (OPEN CC5098)	OP-02501 (OPEN CC5098)	16
																						2CBF1119D		OP-02501 (OPEN CC5098)	OP-02501 (OPEN CC5098)	16
2CBF1119I	OP-02501 (OPEN CC5098)	OP-02501 (OPEN CC5098)	16																							
2CBF1119J	OP-02501 (OPEN CC5098)	OP-02501 (OPEN CC5098)	16																							
2CCW002B	OP-02501 (OPEN CC5098)	OP-02501 (OPEN CC5098)	16																							
2CCW002C	OP-02501 (OPEN CC5098)	OP-02501 (OPEN CC5098)	16																							
2PBF1119A	OP-02501 (OPEN CC5098)	OP-02501 (OPEN CC5098)	16																							
EV5096	OP-02501 (OPEN CC5098)	OP-02501 (OPEN CC5098)	16																							
FFIS1422D	OP-02501 (OPEN CC5098)	OP-02501 (OPEN CC5098)	16																							
FFIS1427D	OP-02501 (OPEN CC5098)	OP-02501 (OPEN CC5098)	16																							
MV5098	OP-02501 (OPEN CC5098)	OP-02501 (OPEN CC5098)	16																							
NV5098	OP-02501 (OPEN CC5098)	OP-02501 (OPEN CC5098)	16																							
E22-1	CCW HEAT EXCHANGER 1-1	H/EX	T	1	FUNC	FUNC	N/A		H	NONE														PASSIVE COMPONENT	27	
E22-2	CCW HEAT EXCHANGER 1-2	H/EX	T	2	FUNC	FUNC	N/A		H	NONE														PASSIVE COMPONENT	27	
E22-3	CCW HEAT EXCHANGER 1-3	H/EX	T	1/2	FUNC	FUNC	N/A		H	NONE			PASSIVE COMPONENT	27												
FIS1422D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	2CD2P23B		NOT USED FOR S/D		11												
										2CD2P23D		NOT USED FOR S/D	11													
										2CD2P23E		NOT USED FOR S/D	11													
										FIS1422D		NOT USED FOR S/D	11													
FIS1427C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	1CD1P23A		NOT USED FOR S/D		11												
										1CD1P23C		NOT USED FOR S/D	11													
										FIS1427C		NOT USED FOR S/D	11													
										FIS1427D		FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	2CD2P23B		NOT USED FOR S/D		11	
2CD2P23D	NOT USED FOR S/D	11																								
2CD2P23E	NOT USED FOR S/D	11																								
FIS1427D	NOT USED FOR S/D	11																								
FIS1432C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	1CD1P23A		NOT USED FOR S/D		11												
										1CD1P23C		NOT USED FOR S/D	11													
										FIS1432C		NOT USED FOR S/D	11													
										P43-1		CCW PUMP 1	PUMP	T	1	O/F	ON	OFF		H	1CCW001B		NOT USED FOR S/D		11	
1CCW001C	NOT USED FOR S/D	11																								
1PAC113A	EXEMPTION REQUEST (SEPARATION)	10																								
FFIS1427C	NOT USED FOR S/D	11																								
FFIS1432C	NOT USED FOR S/D	11																								
MP0431	EXEMPTION REQUEST (SEPARATION)	10																								
P43-2	CCW PUMP 2	PUMP	T	2	O/F	ON	OFF		H	2CCW002B		NOT USED FOR S/D		11												
										2CCW002C		NOT USED FOR S/D	11													
										2PAD113A		EXEMPTION REQUEST (SEPARATION)	10													
										FFIS1422D		NOT USED FOR S/D	11													
										FFIS1427D		NOT USED FOR S/D	11													

LEGEND

H - required for hot standby

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N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	P43-2	CCW PUMP 2	PUMP	T	2	O/F	ON	OFF		H	MP0432			EXEMPTION REQUEST (SEPARATION)	10
	P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	1CAC108K 2CAD108K 3PACD1A FFIS1422D FFIS1427C FFIS1427D FFIS1432C MP0433			NOT USED FOR S/D NOT USED FOR S/D NOT USED FOR S/D NOT USED FOR S/D NOT USED FOR S/D NOT USED FOR S/D NOT USED FOR S/D NOT USED FOR S/D	7 7 7 7 7 7 7 7
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B C	NONE		OP-02501 (CLOSE CF01A)	OP-02501 (CLOSE CF01A)	22
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B C	NONE		OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	22
CREVS	C21-1	CTRM EVS FAN 1	FAN	HH	1	OFF	ON	OFF		H	NONE			N/A	
	C21-2	CTRM EVS FAN 2	FAN	HH	2	OFF	ON	OFF		H	NONE			N/A	
	S33-1	CTRM EMERG A/C UNIT 1	A/C	HH	1	OFF	ON	OFF		H	NONE			N/A	
	S33-2	CTRM EMERG A/C UNIT 2	A/C	HH	2	OFF	ON	OFF		H	NONE			N/A	
	SV4823A	CREVS CONDENSER UNIT 1 (S33-1) IN VLV	SOV	HH	1	C	O	CLOSED		H	NONE			N/A	
	SV4827A	CREVS CONDENSER UNIT 2 (S33-2) IN VLV	SOV	HH	2	C	O	CLOSED		H	NONE			N/A	
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B H	NONE			OP-02501 (TRIP P56-1)	13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	NONE			OP-02501 (TRIP P56-2)	13
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	NONE		OP-02501 (TRIP P56-1)	OP-02501 (TRIP P56-1)	13
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE		OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2)	13
DHRS	DH01A	LPI LINE 2 VLV	MOV	A	2	O	O	AS IS		C	NONE			N/A	
	DH01B	LPI LINE 1 VLV	MOV	AB	1	O	O	AS IS		C	NONE			N/A	
	DH07A	BWST ISO VLV A	MOV	AC	2	O	O	AS IS		H	NONE			N/A	
	DH07B	BWST ISO VLV B	MOV	AC	1	O	O	AS IS		H	NONE			N/A	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH13A	DH CLR 2 BYPASS VLV	SOV	AB	2	C	C	FC		C	NONE			N/A	
	DH13B	DH CLR 1 BYPASS VLV	SOV	AB	1	C	C	FC		C	NONE			N/A	
	DH14A	DH CLR 2 OUT VLV	SOV	AB	2	O	O	FO		C	NONE			N/A	
	DH14B	DH CLR 1 OUT VLV	SOV	AB	1	O	O	FO		C	NONE			N/A	
	DH1517	DH NORM SUCT LINE 1 VLV	MOV	A	1	C	O/C	AS IS		C	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
DHRS	DH1518	DH NORM SUCT LINE 2 VLV	MOV	A	2	C	O/C	AS IS		C	NONE			N/A	
	DH2733	DH PUMP 1 BWST SUCT VLV	MOV	AB	1	O	O/C	AS IS		C	NONE			N/A	
	DH2734	DH PUMP 2 BWST SUCT VLV	MOV	AB	2	O	O/C	AS IS		C	NONE			N/A	
	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	
	DH63	LPI/HPI CROSS-TIE VLV	MOV	A	2	C	C	AS IS		C	NONE			N/A	
	DH64	LPI/HPI CROSS-TIE VLV	MOV	AB	1	C	C	AS IS		C	NONE			N/A	
	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-1)	OP-02501 (TRIP P42-1)	13
P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	OP-02501 (TRIP P42-2)	13	
EDG	DA1147A/B	EDG 1 AIR START VLV	SOV	K	1	C	O	FC		H	NONE			N/A	
	DA1148A/B	EDG 2 AIR START VLV	SOV	J	2	C	O	FC		H	NONE			N/A	
	DA2987	AIR START RCVR 1-1-1 DISCH VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA2988	AIR START RCVR 1-1-2 DISCH VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA2989	AIR START RCVR 1-2-1 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA2994	AIR START RCVR 1-2-2 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA60	AIR START RCVR 1-1-1 RELAY VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA61	AIR START RCVR 1-1-2 RELAY VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA62	AIR START RCVR 1-2-1 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA63	AIR START RCVR 1-2-2 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	K5-1	EMERG DIESEL GENERATOR 1	EDG	K	1	O/F	ON	OFF		H	NONE			N/A	
	K5-2	EMERG DIESEL GENERATOR 2	EDG	J	2	O/F	ON	OFF		H	NONE			N/A	
	P148-1A	EDG JACKET WATER PUMP (RIGHT)	PUMP	K	1	O/F	O	OFF		H	NONE			N/A	
	P148-1B	EDG JACKET WATER PUMP (LEFT)	PUMP	K	1	O/F	O	OFF		H	NONE			N/A	
	P148-2A	EDG JACKET WATER PUMP (RIGHT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P148-2B	EDG JACKET WATER PUMP (LEFT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P195-1	EDG FUEL OIL TRANSFER PUMP 1	PUMP	BN	1	OFF	ON	OFF		C	NONE			N/A	
	P195-2	EDG FUEL OIL TRANSFER PUMP 2	PUMP	BN	2	OFF	ON	OFF		C	NONE			N/A	
	P201-1	EDG 1-1 M/D FUEL OIL PUMP	PUMP	K	1	O/F	ON	OFF	P205-1	H	NONE			N/A	
	P201-2	EDG 1-2 M/D FUEL OIL PUMP	PUMP	J	1	O/F	ON	OFF	P205-2	H	NONE			N/A	
P205-1	EDG 1-1 E/D FUEL OIL PUMP	PUMP	K	2	O/F	ON	OFF	P201-1	H	NONE			N/A		
P205-2	EDG 1-2 E/D FUEL OIL PUMP	PUMP	J	2	O/F	ON	OFF	P201-2	H	NONE			N/A		
P8-1	DO XFER PUMP 1	PUMP	BM	1	O/F	O	OFF	P195-1	H	NONE			N/A		

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
EDG	S206-01	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-02	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-03	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-04	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S207-01	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-02	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-03	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-04	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
BSSPWR	1N	125VDC STATION BATTERY	BATT	Y	1	ON	ON	OFF		H	NONE			N/A	
	1P	125VDC STATION BATTERY	BATT	Y	1	ON	ON	OFF		H	NONE			N/A	
	2N	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	2P	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	NONE			N/A	7
	C1	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF		H	NONE			N/A	
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1, -2, -3	H	NONE			N/A	
	C3615	EDG1-1 ELECT CONTROL & RELAY PANEL	PNL	K	1	ON	ON	OFF		H	NONE			N/A	
	C3616	EDG1-2 PANEL LIGHTS (ALT PWR)	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	C3628	CONT POWER ESS METER HPI FLOW X	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C3629	CONT POWER ESS METER HPI FLOW Y	PNL	R	2	ON	ON	OFF		H	NONE			N/A	
	C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C3645	CONT POWER TO AUX FW CONTROL PNL	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	C4602	NEUTRON FLUX MON. CABINET (CH.2)	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	C4625	CONT POWER TO AUX FW CONTROL PANEL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	C4808	NEUTRON FLUX MON. CABINET (CH.1)	PNL	DG	1	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5755C	SPAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
C5755D	SPAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A		
C5755E	CONTROL ROOM REACT PROT. SYS PNL(CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A		
C5755G	POST ACCIDENT MON. RACK (CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A		
C5756D	SPAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A		

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	C5759C	INST POWER NNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5762A	CONTROL POWER TO SFRCS CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5762C	SFAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5762E	CONTROL ROOM REACT PROT. SYS PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5763A	POST ACCIDENT MON. SYS PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5792	CONTROL ROOM SFRCS CABINET (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5792A	CH 2 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5798	POST ACCIDENT MON. IND. PNL (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5799	POST ACCIDENT MON. IND. PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C6708	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	1	ON	ON	OFF		H	NONE			N/A	
	C6709	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	C6714	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	1	ON	ON	OFF		H	NONE			N/A	
	C6715	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	CDE-11B-1	CONTROL POWER (LOADS NON-SSD)	PNL	V	1	ON	OFF	ON		H	NONE			N/A	
	CDE-11B-2	CONT POWER TO DH12 INTLK	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	CDE-12A-1	D1P CONT POWER TO AFWP GOV (ICS038A)	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	CDF-11A-1	CONTROL DISCONNECT TRANSFER SWITCH	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	CDF-12A-1	D2P CONT POWER TO AFWP GOV (ICS038B)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	D1	4.16KV AC SWGR	SWGR	Q	2	ON	ON	OFF		H	NONE			N/A	
	D1N	125VDC DIST PNL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1NA	125VDC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1P	125VDC DIST PNL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D1PA	125VDC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	D2	4.16KV SWGR	SWGR	Q	2	ON	ON	OFF	APWS TRAIN 1&2	H	NONE			N/A	
	D2N	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	D2P	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DAN	125VDC DIST PANEL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DAP	125VDC DIST PANEL	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

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ESSPWR	DBC1N	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC1P	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC1PN	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF	DBC1P,DBC1N	H	NONE			N/A	
	DBC2N	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2P	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2PN	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF	DBC2P,DBC2N	H	NONE			N/A	7
	DBN	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBP	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DC MCC 1	250/125V DC MCC	MCC	Y	1	ON	ON	OFF		H	NONE			N/A	
	DC MCC 2	250/125V DC MCC	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	E1	480 VAC MCC E1	SWGR	Y	1	ON	ON	OFF		H	NONE			N/A	
	E11A	480VAC MCC	MCC	G	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E11B	480VAC MCC	MCC	V	1	ON	ON	OFF		H	NONE			N/A	
	E11C	480VAC MCC	MCC	V	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E11D	480VAC MCC	MCC	G	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E11E	480VAC MCC	MCC	DG	1	ON	ON	OFF		H	NONE			N/A	
	E12A	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E12B	480VAC MCC	MCC	K	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E12C	480VAC MCC	MCC	BE	1	ON	ON	OFF		H	NONE			N/A	
	E12D	480V AC MCC	MCC	BE	1	ON	ON	OFF		H	NONE			N/A	
	E12E	480VAC MCC	MCC	B	1	ON	ON	OFF		H	NONE			N/A	
	E12F	480VAC MCC	MCC	K	1	ON	ON	OFF		H	NONE			N/A	
	E14	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E15	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E16A	480V AC MCC	MCC	EE	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E16B	480VAC MCC	MCC	DG	1	ON	ON	OFF		H	NONE			N/A	
	F1	480 V AC MCC F1	SWGR	X	2	ON	ON	OFF		H	NONE			N/A	
	F11A	480VAC MCC	MCC	DF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11B	480VAC MCC	MCC	V	2	ON	ON	OFF		H	NONE			N/A	
	F11C	480VAC MCC	MCC	A	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11D	480VAC MCC	MCC	G	2	ON	ON	OFF		H	NONE			N/A	
	F11E	480VAC MCC	MCC	B	2	ON	ON	OFF		C	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

4.6.T .6 TABLE1  
Detailed Analysis

FIRE HAZARDS ANALYSIS

DAVIS BESS

SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	F12A	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12B	480VAC MCC	MCC	J	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12C	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12D	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE			N/A	
	F14	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F15	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F16A	480V AC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	NONE			N/A	
	RC3601	DC CONT POWER RCP MONITOR	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	RC3602	DC CONTROL POWER RCP MONITOR	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3607	CONTROL POWER (TO CCCW001)	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	RC3608	CONTROL POWER (TO CCCW002)	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3701	DC CONTROL POWER TO CAC 1 OUT VLV	PNL	A	1	ON	ON	OFF		H	NONE			N/A	
	RC3702	DC CONTROL POWER TO CAC 2 OUT VLV	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3705	CONT POWER RC3705 (LR3758)	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3706	CONTROL POWER (LOADS NON-SSD)	PNL	V	1	ON	OFF	ON		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	NONE			N/A	
	RC3716										NONE			N/A	
	RC4606	DC CONT PWR (MU6406,RC4610A,PORV)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	RC4801	DC CONT PWR TO RC4801 (MU6405, MU6407)	PNL	DG	1	ON	ON	OFF		H	NONE			N/A	
	RC4802	CONT PWR (TO MUTK, SG DRN RLY)	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	NONE			NOT USED FOR S/D	7
	XY1	CONSTANT VOLT TRANSFORMER (CVT CH 1)	XFMR	Y	1	ON	ON	OFF		H	NONE			N/A	
	XY2	CONSTANT VOLT TRANSFORMER (CVT CH 2)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	XY3	CONSTANT VOLT TRANSFORMER (CVT CH 3)	XFMR	Y	1	ON	ON	OFF		H	NONE			N/A	
	XY4	CONSTANT VOLT TRANSFORMER (CVT CH 4)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	Y1	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y1A	120 VAC ESS INSTR DISTR PANEL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y2	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y2A	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

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H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	D E S C R I P T I O N	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
BSSPWR	Y3	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y3602	CONTROL POWER (MU19 & MU32)	PNL	II	2	ON	ON	OFF		H	NONE			N/A	
	Y4	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YAU	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	YBU	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YE1	120VAC MCC	PNL	K	1	ON	ON	OFF		H	NONE			N/A	
	YE2	240/120VAC MCC	PNL	V	1	ON	ON	OFF		H	NONE			LOST DUE TO BKR COORDINATION	21
	YF1	120VAC MCC	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	YF2	240/120VAC MCC	PNL	DF	2	ON	ON	OFF		H	NONE			LOST DUE TO BKR COORDINATION	21
	YV1	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	YV2	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YV3	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	YV4	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YVA	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	YVB	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	ZC6451	AFP #2 CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A	
	ZC6452	AFP #1 CTRL VLV POSITION CONTROLLER	PNL	E	1	ON	ON	OFF		H	NONE			N/A	
	ZC6459	MDFP CONTROL VLV POSITION CONTROLLER	PNL	II	1	ON	ON	OFF		H	NONE			N/A	
ZC6460	MDFP CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A		
HPIS	HP02A	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02B	H	NONE			N/A	
	HP02B	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02A	H	NONE			N/A	
	HP02C	HPI 1 DISCH ISO VLV	MOV	AB	1	C	O	AS IS	HP02D	H	NONE			N/A	
	HP02D	HPI 1 DISCH ISO VLV	MOV	AB	1	C	O	AS IS	HP02C	H	NONE			N/A	
	HP31	HPI PMP 2 RECIRC VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	HP32	HPI PMP 1 RECIRC VLV	MOV	AB	1	O	O	AS IS		H	NONE			N/A	
	P197-1	HPI PMP 1 AC LO PUMP	PUMP	AB	1	OFF	ON	OFF		H	NONE			N/A	
	P197-2	HPI PMP 1 DC LO PMP	PUMP	AB	1	OFF	ON	OFF	P197-1	H	NONE			N/A	
	P198-1	HPI PMP 2 AC LO PMP	PUMP	A	2	OFF	ON	OFF		H	NONE			N/A	
	P198-2	HPI PMP 2 DC LO PUMP	PUMP	A	2	OFF	ON	OFF	P198-1	H	NONE			N/A	
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	OP-02501 (TRIP P58-1)	13
P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-2)	OP-02501 (TRIP P58-2)	13	
HVAC	C100	TRAV SCR AREA EXH FAN (B/U SW PUMP)	FAN	BD	1	O/F	O/F	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

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H/L - High/Low interface

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N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
HVAC	C133	LV SWGR RM VENT FAN 2	FAN	EE	2	O/F	ON	OFF		H	NONE			N/A	
	C25-1	EDG RM 1 VENT FAN 1	FAN	K	1	O/F	ON	OFF		H	NONE			N/A	
	C25-2	EDG RM 1 VENT FAN 2	FAN	K	1	O/F	ON	OFF		H	NONE			N/A	
	C25-3	EDG RM 2 VENT FAN 3	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C25-4	EDG RM 2 VENT FAN 4	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C71-1	LV SWGR RM VENT FAN 1	FAN	Y	1	O/F	ON	OFF		H	NONE			N/A	
	C73-1	APP RM VENT FAN 1	FAN	E	1	O/F	ON	OFF		H	NONE			N/A	
	C73-2	APP RM VENT FAN 2	FAN	F	2	O/F	ON	OFF		H	NONE			N/A	
	C78-1	BATT RM VENT FAN 1	FAN	Y	1	O/F	ON	OFF		H	NONE			N/A	
	C78-2	BATT RM VENT FAN 2	FAN	X	2	O/F	ON	OFF		H	NONE			N/A	
	C99-1	SW PMP RM EXH FAN 1	FAN	BF	1	O/F	ON	OFF		H	NONE			N/A	
	C99-2	SW PMP RM EXH FAN 2	FAN	BF	1	O/F	ON	OFF		H	NONE			N/A	
	C99-3	SW PMP RM EXH FAN 3	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	C99-4	SW PMP RM EXH FAN 4	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	HV0531A	AIR IN LVR FOR B/U SW PUMP	DMPR	BD	1	O/C	O/C	OPEN		H	NONE			N/A	
	HV0532A	AIR IN LVR FOR B/U SW PUMP	DMPR	BD	1	O/C	O/C	OPEN		H	NONE			N/A	
	HV5305	LV SWGR RM FAN 1 DAMPER	DMPR	Y	1	O/C	O	AS IS		H	NONE			N/A	
	HV5305A	LV SWGR RM 429 DAMPER	DMPR	Y	1	O/C	O	AS IS	HV5305B	H	NONE			N/A	
	HV5305B	LV SWGR RM 429 DAMPER	DMPR	Y	1	O/C	O	AS IS	HV5305A	H	NONE			N/A	
	HV5314	LV SWGR RM 428 DAMPER	DMPR	EE	2	O/C	O	AS IS		H	NONE			N/A	
	HV5314A	LV SWGR RM 428 DAMPER	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
	HV5329A	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FC		H	NONE			N/A	
	HV5329B	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FO		H	NONE			N/A	
	HV5329C	EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FC		H	NONE			N/A	
	HV5336A	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5336B	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FO		H	NONE			N/A	
	HV5336C	EDG ROOM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5597	BATT RM 429B ATM DMPR	DMPR	Y	1	O/C	O	AS IS		H	NONE			N/A	
	HV5598	BATT RM 428A ATM DMPR	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
MSS	ICS11A	MSL 2 ATM VENT VLV	SOV	DH	2	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11A)	LOSS OF AIR	12
	ICS11B	MSL 1 ATM VENT VLV	SOV	DH	1	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11B)	LOSS OF AIR	12
	MS100	MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A	

LEGEND

H - required for hot standby

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MSS	MS100-1	MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A	
	MS101	MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A	
	MS101-1	MSIV 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	NONE			N/A	
	PSV-SP17A1	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A2	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A3	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A4	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A5	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A6	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A7	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A8	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A9	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17B1	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B2	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B3	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B4	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B5	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B6	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B7	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B8	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
PSV-SP17B9	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A		
MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP1556)	OP-02501 (OPEN HP1556)	16
	HP26	HPI TO RCP SEALS	MAN	AB	1	C	O	AS IS		H	NONE			N/A	
	HP27	HPI TO RCP SEALS	MAN	A	2	C	O	AS IS		H	NONE			N/A	
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP29)	OP-02501 (OPEN HP29)	16
	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE			N/A	
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE		OP-02501 (OPEN MU01B)	OP-02501 (OPEN MU01B)	16
	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	NONE		OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03)	13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	NONE			N/A	
MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	NONE		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16	

LEGEND

H - required for hot standby

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H/L - High/Low interface

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N/A - not affected



SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	NONE		OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT)	16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	NONE			OP-02501 (OPERATE MU214/MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU203	Recirc to Seal Return Stop Valve	MAN	AB	2	O	O/C	AS IS		H	NONE		OP-02501(CLOSE MU203/206)	OP-02501(CLOSE MU203/206)	16
	MU206	Recirc to Seal Return Stop Valve	MAN	AB	1	O	O/C	AS IS		H	NONE		OP-02501(CLOSE MU203/206)	OP-02501(CLOSE MU203/206)	16
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU32	RC MU ISO VLV	FCV	AB	2	O/C	O	FO	HPIS TRAIN 1&2	H	NONE			N/A	
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B	H	NONE	OP-02501 (OPEN MU38)	OP-02501 (OPEN MU38)	13
	MU3971	RC MU PUMP SUCT VLV	MOV	AB	2	C	O/C	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59A)	OP-02501 (OPEN MU59A)	13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59B)	OP-02501 (OPEN MU59B)	13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C)	13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59D)	OP-02501 (OPEN MU59D)	13
	MU6405	RC MU PUMP SUCT VLV	MOV	AB	1	C	O/C	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6406	MU RECIRC ISO VLV	AOV	AB	2	O	O/C	FO	HPIS TRAIN 2	H	NONE			N/A	
	MU6407	MU RECIRC ISO VLV	AOV	AB	1	O	O/C	FO	HPIS TRAIN 1	H	NONE			N/A	
	MU6408	MU CROSS CONNECT ISO VLV	MOV	AB	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU6409	MU CROSS CONNECT ISO VLV	MOV	AB	1	O	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6419	MU DISCH VLV	MOV	AB	1	C	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6420	MU32 BYPASS VLV	MOV	AB	2	C	O	AS IS	HPIS,MU32	H	NONE			N/A	
	MU6421	MU CTMT ISO VLV	MOV	AB	1	C	O	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6422	MU CTMT ISO VLV	MOV	A	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A)	13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B)	13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C)	13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D)	13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-371B	MUP 1 MAIN LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	

LEGEND

H - required for hot standby

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N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	P-371C	MUP 1 AUX LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS,P-371B	H	NONE			N/A	
	P-371D	MUP 1 AUX GEAR LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P-372B	MUP 2 MAIN LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P-372C	MUP 2 AUX LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS,P-372B	H	NONE			N/A	
	P-372D	MUP 2 AUX GEAR LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P37-1	MU PUMP 1	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P37-2	MU PUMP 2	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P371A	MU PMP 1 MAIN GEAR LO PMP	PUMP	AB	1	O/F	O	OFF	P371D	H	NONE			N/A	
	P372A	MU PMP 2 MAIN GEAR LO PMP	PUMP	AB	2	O/F	O	OFF	P372D	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1743)	OP-02501 (OPEN WC1743)	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1747)	OP-02501 (OPEN WC1747)	12
	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	NONE			N/A	
NI	NI-5874A	SOURCE RANGE IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	NI-5874C	LOCAL SOURCE RANGE IND	IND	DG	1	ON	ON	OFF	NI-5874A	H	NONE			N/A	
	NI-5875A	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	NI-NI1	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	NI-NI2	SOURCE RANGE IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
NNI	FI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI6425	RC MU FLOW-HI RANGE	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FI6435	RC MU FLOW-LOW RANGE	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A1	HPI FLOW IND. (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B1	HPI FLOW IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03C	HPI FLOW INDICATION	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03C1	HPI FLOW IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03D	HPI FLOW INDICATION	IND	FF	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
NNI	FYI-HP03D1	HPI FLOW IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-1	PRZR LEVEL IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-2	PRZR LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-3	PRZR LEVEL IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-4	PRZR LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A1	SG1-2 START-UP LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A3	SG1-2 START-UP LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A8	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A8A	SG1-2 START-UP LEVEL IND (C5710)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A9	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09B1	SG1-1 START-UP LEVEL IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	LI-SP09B3	SG1-1 START-UP LEVEL IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-SP09B8	SG1-1 START-UP LEVEL IND (C5761A)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	LI-SP09B8A	SG1-1 START-UP LEVEL IND (C5708)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	LI-SP09B9	SG1-1 START-UP LEVEL IND (C5761A)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	LRS-RC14	PRZR LEVEL RECORDER	REC	FF	2	ON	ON	OFF	LI-RC14-1-4	H	NONE			N/A	
	PI-6365A	RCS LOOP 2 EXTENDED RANGE PRESS	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-6365A1	RCS LOOP2 EXTENDED RANGE PRESS (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-6365B	RCS LOOP 1 EXTENDED RANGE PRESS	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-6365B1	RCS LOOP 1 EXTENDED RANGE PRESS (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A3	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A4	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2B3	RCS LOOP 1 PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-RC2B4	RCS LOOP 1 PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1	SG1-2 OUTLET PRESS IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1-A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF	PI-SP12A	H	NONE			N/A	
	PI-SP12B	SG1-1 OUTLET PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12B1	SG1-1 OUTLET PRESS IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12B2	SG1-1 OUTLET PRESS IND	IND	FF	1	ON	ON	OFF	PI-SP12B-1	H	NONE			N/A	
	TE-RC3A6	RCS LOOP 2 HOT LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TE-RC3B5	RCS LOOP 1 HOT LEG TEMP (RM 303)	TE	D	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
NNI	TE-RC4A2	RCS LOOP 2 COLD LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A		
	TE-RC4B3	RCS LOOP 1 COLD LEG TEMP (RM 303)	TE	D	1	ON	ON	OFF		H	NONE			N/A		
	TI-RC3A4	RCS LOOP 2 HOT LEG TEMP (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A		
	TI-RC3A5	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A		
	TI-RC3A6	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A		
	TI-RC3B2	RCS LOOP 1 HOT LEG TEMP (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A		
	TI-RC3B5	RCS LOOP 1 HOT LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A		
	TI-RC3B6	RCS LOOP 1 HOT LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A		
	TI-RC4A2	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A		
	TI-RC4A4	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A		
	TI-RC4B2	RCS LOOP 1 COLD LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A		
	TI-RC4B4	RCS LOOP 1 COLD LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A		
	RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A	
		RC13A	RCS CODE SAFETY VALVE	SV	D	2	C	C	CLOSED		H	NONE			N/A	
RC13B		RCS CODE SAFETY VALVE	SV	D	1	C	C	CLOSED		H	NONE			N/A		
RC147		PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A		
RC200		PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A		
RC239A		PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A		
RC239B		PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A		
RC2A		PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			N/A		
RC4608A		SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	NONE			N/A		
RC4608B		SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A		
RC4610A		SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A		
RC4610B		SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A		
RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	NONE			N/A			
SFAS	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	C5765D	SFAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13	

LEGEND

H - required for hot standby

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SPAS	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
SFRCS	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101B	LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101C	LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS3869B	BLOCK CIRCUIT AF3869 (AFP-1 TO SG-2)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS3870B	BLOCK CIRCUIT AF3870 (AFP-1 TO SG-1)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	HIS3871B	BLOCK CIRCUIT AF3871 (APP-2 TO SG-1)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS3872B	BLOCK CIRCUIT AF3872 (APP-2 TO SG-2)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS603B	BLOCK CIRCUIT MS603 (SG-2 DRAIN STOP)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS611B	BLOCK CIRCUIT MS611 (SG-1 DRAIN STOP)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS6401	CH 1/3 MANUAL START APPT-1 C5707	HIS	FF	1	OFF	ON	OFF		H	NONE			N/A	14
	HIS6402	CH 2/4 MANUAL START APPT-2 C5707	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	HIS6403	CH 1/3 MAN STRT APPT-1 & ISOL SG-1 C57	HIS	FF	1	OFF	ON	OFF		H	NONE			N/A	14
	HIS6404	CH 2/4 MAN STRT APPT-2 & ISOL SG-2 C57	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
SFRCS	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE				INITIATES SFRCS ON LOOP	14
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE				INITIATES SFRCS ON LOOP	14
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE				INITIATES SFRCS ON LOOP	14
	RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE				INITIATES SFRCS ON LOOP	14
	SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	NONE			NOT USED FOR S/D	7
P3-1		SW PUMP 1	PUMP	BF	1	O/F	ON	OFF		H	NONE			N/A		
P3-2		SW PUMP 2	PUMP	BF	2	O/F	ON	OFF		H	NONE			N/A		
P3-3		SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1,P3-2	H	NONE			N/A		
SW1356		CAC 1 OUT ISO VLV	SOV	A	1	O/C	O	FO		H	NONE			N/A		
SW1357		CAC 2 OUT ISO VLV	SOV	A	2	O/C	O	FO		H	NONE			N/A		
SW1358		CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	NONE			N/A		
SW1366		CAC 1 IN ISO VLV	MOV	A	1	O	O	AS IS		H	NONE			N/A		
SW1367		CAC 2 IN ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A		
SW1368		CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	NONE			N/A		
SW1382		APP 1 SUCT VLV FROM SW	MOV	E	1	C	O/C	AS IS		C	NONE			N/A		
SW1383		APP 2 SUCT VLV FROM SW	MOV	A	2	C	O/C	AS IS		H	NONE			N/A		
SW1395		TPCW HX IN HEADER ISO VLV	MOV	BG	2	O/C	C	AS IS		H	NONE			N/A		
SW1399		TPCW HX IN HEADER ISO VLV	MOV	BG	1	O/C	C	AS IS		H	NONE			N/A		
SW1424		SW FROM CC HX 1 ISO VLV	SOV	T	1	O/C	O	FO		H	1CV1424A 1CV1424C 1CV1424D 1CV1424E 1CV1424G 1CV1424H EV1424 NV1424 PSL1424 SV1424	MOD 87-1315 MOD 87-1315 MOD 87-1315 MOD 87-1315 MOD 87-1315 MOD 87-1315 MOD 87-1315 MOD 87-1315 MOD 87-1315 MOD 87-1315	VALVE FAILS OPEN VALVE FAILS OPEN VALVE FAILS OPEN VALVE FAILS OPEN VALVE FAILS OPEN VALVE FAILS OPEN VALVE FAILS OPEN VALVE FAILS OPEN VALVE FAILS OPEN VALVE FAILS OPEN	28 28 28 28 28 28 28 28 28 28		

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : T

TRAIN 1/2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SWS	SW1429	SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	1CV1429C			VALVE FAILS OPEN	28
											1CV1429D			VALVE FAILS OPEN	28
											1CV1429E			VALVE FAILS OPEN	28
											2CV1429C			VALVE FAILS OPEN	28
											2CV1429D			VALVE FAILS OPEN	28
											2CV1429E			VALVE FAILS OPEN	28
											3CV1429A			VALVE FAILS OPEN	28
											3CV1429B			VALVE FAILS OPEN	28
											3CV1429D			VALVE FAILS OPEN	28
											3CV1429F			VALVE FAILS OPEN	28
											EV1424			VALVE FAILS OPEN	28
											EV1429			VALVE FAILS OPEN	28
											EV1460			VALVE FAILS OPEN	28
											NV1429			VALVE FAILS OPEN	28
NV1429A	VALVE FAILS OPEN	28													
NV1429B	VALVE FAILS OPEN	28													
PSL1429	VALVE FAILS OPEN	28													
SV1429	VALVE FAILS OPEN	28													
SWS	SW1434	SW FROM CC HX 2 ISO VLV	SOV	T	2	O/C	O	FO		H	2CV1434A			VALVE FAILS OPEN	28
											2CV1434C			VALVE FAILS OPEN	28
											2CV1434D			VALVE FAILS OPEN	28
											2CV1434E			VALVE FAILS OPEN	28
											2CV1434G			VALVE FAILS OPEN	28
											EV1460			VALVE FAILS OPEN	28
											NV1434			VALVE FAILS OPEN	28
											PSL1434			VALVE FAILS OPEN	28
											SV1434			VALVE FAILS OPEN	28
											SWS			SW2927	CTRM EVS COND UNIT IN VLV
SW2928	CTRM EVS COND UNIT IN VLV	MOV	HH	2	C	O	AS IS		H	NONE			N/A		
SW2929	SW TO INT STRU VLV	MOV	BG	1	O/C	O	AS IS	SW2930,31,32	H	NONE			N/A		
SW2930	SW TO INT FOREBAY VLV	MOV	BG	2	O/C	O	AS IS	SW2929,31,32	H	NONE			N/A		
SW2931	SW TO CLG TOWER MU VLV	MOV	BG	1	O/C	O	AS IS	SW2929,30,32	H	NONE			N/A		
SW2932	SW TO COLLECT BASIN VLV	MOV	BG	2	O/C	O	AS IS	SW2929,30,31	H	NONE			N/A		
SW54	TPCW HK1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B H	NONE			N/A		
SW55	TPCW HK2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A		
SW56	TPCW HK3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A		
ASSCKT	HV5443A	CCWP RM FAN 1 BYPASS DMPR										1PYE209A		LOST DUE TO BKR COORDINATION	21
ASSCKT	HV5443B	CCWP RM FAN 1 IN DMPR									1PYE210A		LOST DUE TO BKR COORDINATION	21	
ASSCKT	HV5443C	CCWP RM OA LOUVER 1									1PYE212A		LOST DUE TO BKR COORDINATION	21	
ASSCKT	HV5444A	CCWP RM FAN 2 BYPASS DMPR									2PYF209A		LOST DUE TO BKR COORDINATION	21	
ASSCKT	HV5444B	CCWP RM FAN 2 IN DMPR									2PYF210A		LOST DUE TO BKR COORDINATION	21	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA T TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent upstream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED

FIRE AREA T TABLE 1 NOTES

- 9. NOT USED
- 10. An exemption request has been granted for the lack of 20 ft. spatial separation at the pumps and pump local controllers (the short length of exposed conduit is also considered part of this exemption). For all other Safe Shutdown components and circuits in Fire Area T, adequate separation, or fire barrier protection of Train 1, is being assured. Procedural guidelines are included in OP-02501, "Serious Station Fire", to use the train of equipment not affected.
- 11. Circuits 1CCCW001B(C), 2CCW002B(C) and Flow Indicating Switches FIS1432C, 1427C, 1422D, and 1427D provide for the automatic start of Pump P43-1 (close AC108 or AD108, depending on alignment of ACD2/3) and the opening of the standby CCWS Header Valves CC5095, 5097, and 2645 or CC5096, 5098, and 2649 (See E50B/28). The loss of automatic valve operation is of no consequence since these valves are not needed for 8-hours.

MOD 96-0005 removed the trip function of the low flow and high temperature switches.

- 12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:

ICS11A/B	Throttle
WC1743	Open
WC1747	Open

C1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

- 13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level setpoint is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components:

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531	CS Iso Vlv	Open	Stop P56-1,-2
P42-1	LPI Pump 1	On	Trip Bkr AC111 at C1
P42-2	LPI Pump 2	On	Trip Bkr AD111 at D1
P56-1	CS Pump 1	On	Trip Bkr BE111 at E1
P56-2	CS Pump 2	On	Trip Bkr BF111 at F1
P58-1	HPI Pump 1	On	Trip Bkr AC112 at C1
P58-2	HPI Pump 2	On	Trip Bkr AD112 at D1
CC1407A, B	CCW Out Iso Vlv	Closed	Open CC1407A, B and Trip Bkr BE1173 at E11B & BF1158 at F11B

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA T TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip Bkr BE1176 at E11B & BF1159 at F11B
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03	RC Lt Dn Cooler Out	Closed	Open MU03
MU38	RCP Seal Rtn Isol	Closed	Open MU38
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

If AF3871 is manually closed, first trip Breaker BF1201 at F12A. If AF3869 is manually closed, first trip Breaker BE1146 at E11E.

15. NOT USED

16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or by performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injection and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA T TABLE 1 NOTES

RCP Seal Return Flow

The following manual valves will need to be operated:

MU97	Open	MU216	Throttle
MU182	Close	WC119	Open
MU214	Close	WC120	Open

Additionally, the following valves may need to be manually operated:

CC1410	Open	CC5096	Open
CC2645	Trip Bkr BE1161 at E11D & open CC2645	CC5097	Open
CC2649	Trip Bkr BF1161 at F11D & open CC2649	CC5098	Open
		MU01B	Open
		MU02B	Open
CC5095	Open	MU11	Direct Flow to CWRT

RCS Inventory Control

After transferring the Makeup suction to the BWST, MU203 (Train 2) or MU206 (Train 1) will be manually closed after opening HP29, HP1556, and MU208 to route MUPS Recirc to the BWST rather than the Makeup Tank.

17. NOT USED
18. To prevent spurious operation, Valves DH09A and DH09B are deenergized.
19. NOT USED
20. NOT USED
21. YE2/YF2 associated circuits are not coordinated. This results in loss of YE2/YF2. The loss of this panel will cause a Reactor Trip via ARTS which is acceptable.
22. The Core Flood Isolation Valves CF01A, B are normally open and are required to be closed when cooling down before going below 700 psig. Breakers BF1120 at F11A and BE1162 at E11B are normally open; manual action may be required to close CF01A, CF01B before going below 700 psig.
23. NOT USED
24. Essential CCW is provided to the Makeup Pump Cooler, bypassing CC1460.
25. Valves DH11 and DH12 are depowered. Bypass Valves DH21 and DH23 will therefore be manually operated to place the DHR System in service.
26. The DHR Cooler 1-1 (1-2) Isolation Valve CC1467 (CC1469) is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRS cooldown.

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA T TABLE 1 NOTES

The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467 (CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467 (CC1469).

27. CCW Heat Exchangers 1, 2, & 3 (E22-1, 2, 3) are passive metallic components located in an area with full area automatic wet-pipe sprinklers.
28. SW1424, SW1429 and SW1434 are single solenoid control valves. The valve will be modulating when the solenoid is energized and fail to the fully open position when the solenoid is deenergized. As such, a circuit failure cannot cause the valve to close and Safe Shutdown is assured.
29. Deleted.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: U

TRAIN ACCREDITED FOR SHUTDOWN: 2

4.6.U.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
310	PASSAGE	147,384	Y	AUTO
312	SPENT FUEL PMP RM	765	Y	MAN
313	HATCH AREA	11,545	Y	AUTO

4.6.U.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA U

The following components are located in fire area U.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
CCWS	1	CC1495	SOV	NON-ESSENTIAL IN ISOL (SEAL RETURN)
	1/2	CC42	MAN	Nonessential CCW Isolation Valve
	1/2	CC43	MAN	Nonessential CCW bypass Valve
ESSPWR	1	RC3715	PNL	CONTROL POWER (SV WC1453)

FIRE AREA U

4.6.U.3 Fire Propagation Control

Fire Area U is located in the Auxiliary Building consisting primarily of the northeast corner of the 585' elevation as shown on Drawing A-223F.

A fire that originates in this fire area will be contained in this fire area. This fire area is enclosed by 3-hour rated concrete (except as noted below).

The concrete block walls enclosing the stairwell and elevator shaft (Fire Area AD) are rated for 2-hours. Based on the construction, arrangement, automatic wet-pipe sprinkler system and low combustible loadings, a fire will not propagate from one fire area to the other. See Fire Area AD for more details.

The floor of Room 313 contains an equipment removal hatch to Room 227 (Fire Area G). Based on the construction of the hatch, the automatic wet-pipe sprinkler and the low combustible loadings, a fire will not propagate from one area to the other.

The floor of Room 313 contains removable concrete plugs which provide access to Room 233 (Fire Area G). Based on the construction of the plugs, automatic wet-pipe sprinklers and low combustible loadings, a fire will not propagate from one fire area to the other.

The floor of Room 312 contains removable concrete plugs which provide access to Room 228 (Fire Area G). Based on the construction of the plugs and low combustible loadings, a fire will not propagate from one fire area to the other.

There are several penetrations with small annular gaps which can not be sealed properly. These non-rated openings have been evaluated and will not allow the propagation of a fire.

Room 312 has structural steel which does not have a 3-hour fire rating. A detailed analysis shows that the steel will not fail based on the low combustible loading in the room.

Rooms 310 and 313 have structural steel which does not have a 3-hour rating. Based on analysis of the combustible loadings and automatic wet-pipe sprinklers in these rooms, the steel will not fail.

The wall between Room 310 (Fire Area U) in the Auxiliary Building and Room 346A (Fire Area PS) contains an HVAC duct without a fire damper, that is adequate to prevent the spread of fire based on the duct construction, the low combustible loading on both sides of the fire barrier near the duct, and the presence of an automatic sprinkler system on both sides of the barrier.

4.6.U.4 Fire Detection and Suppression

Fire Area U consists of three rooms. The following is a list of the rooms and their detection system.

1. Passage, Room 310, Fire Detection Zone FDZ 310
2. Spent Fuel Pool Pump Room 312, Fire Detection Zone FDZ 312
3. Hatch Area, Room 313, Fire Detection Zone FDZ 310

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA U

The following rooms are provided with automatic wet-pipe sprinklers.

1. Passage, Room 310
2. Hatch Area, Room 313

Manual fire suppression equipment is provided for this area. Fire extinguishers and Hose Stations (HS) are shown on Drawing A-223F.

In the event of a fire, isolation and smoke venting will be accomplished in accordance with the Pre-Fire Plans.

#### 4.6.U.5 Fire Area Safe Shutdown Summary

Train 2 will be used for Safe Shutdown in Fire Area U. Safe Shutdown will be accomplished using the High Pressure Injection System (HPIS) along with the power-operated relief valve (RC2A) for Reactor Coolant System Inventory Control, the Makeup and Purification System for a Letdown path and HPIS Seal Injection for RCP Seal Return Cooling. The RCP seals will be re-staged using flow through the RCP Seal Return lines.



SAFE SHUTDOWN ANALYSIS

FIRE AREA : U

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	1CBEL146B 1CBEL146H			OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1)	14 14	
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3871)	OP-02501 (CLOSE AF3871)	14	
	AF3872	AFWP 2 DISCH TO SG2	MOV	F	2	O	O	AS IS		H	NONE			N/A		
	AF599	AFW TO SG2 ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A		
	AF6451	AFWP 2 FLOW CTRL VLV	SOV	F	2	O	O/C	FO		H	NONE			N/A		
	FW6460	MDFF FLOW CTRL VLV	SOV	II	2	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			N/A	7	
	ICS038A	AFPT 2 GOV CTRL VLV	MOV	F	2	O	O/C	AS IS		H	NONE			POWER LOST	19	
	MS106A	APPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	1CBEL271K 1CBEL271L	PSL4930B		OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1)	14 14	
	MS107	APPT 2 MS IN ISO VLV	MOV	EE	2	C	O	AS IS		H	NONE			N/A		
	MS107A	APPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-1)	14	
	MS5889B	APPT 2 STEAM ADMISS VLV	SOV	F	2	C	O	FO		H	NONE			N/A		
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-1)	OP-02501 (TRIP P14-1)	14	
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE			N/A		
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A		
	P242-1	MDFF AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7	
	P242-2	MDFF SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			N/A		
	CACs	C1-2	CAC FAN 2	FAN	D	2	O/F	ON	OFF		H	NONE			N/A	
		C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	NONE			N/A	
	CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	1CBEL173E 1CBEL173G	KA, KB	OP-02501 (OPEN CC1407A) OP-02501 (OPEN CC1407A)	SFAS INITIATED SFAS INITIATED	13 13
		CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407B)	SFAS INITIATED	13
CC1409		CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE			N/A	16	
CC1410		CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1410)	OP-02501 (OPEN CC1410)	16	
CC1411A		CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	1CBEL176E 1CBEL176G 1CLR3757A 1CLR3757B	KA, KB	OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A)	SFAS INITIATED SFAS INITIATED SFAS INITIATED SFAS INITIATED	13 13 13 13	
CC1411B		CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	SFAS INITIATED	13	
CC1460		CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	2CV1460D 2CV1460E		MOD 88-0145 MOD 88-0145	BYPASSING CC1460 BYPASSING CC1460	27 27	
CC1469		DHR CLR 2 OUT ISO VLV	SOV	AB	2	C	O	FO		C	NONE		OP-02501 (OPERATE CC1469)	OP-02501 (OPERATE CC1469)	10	
CC1474		DG JKT CW HX 2 OUT VLV	MAN	J	2	O	O	AS IS		H	NONE			N/A		
CC1495		NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B H	1CV1495A			OP-02501 (OPERATE CC43)	10,12	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : U

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B H	1CV1495B 1CV1495C 1CV1495D 1CV1495E EV1495 NV1495 SV1495			OP-02501 (OPERATE CC43) OP-02501 (OPERATE CC43) OP-02501 (OPERATE CC43) OP-02501 (OPERATE CC43) OP-02501 (OPERATE CC43) OP-02501 (OPERATE CC43) OP-02501 (OPERATE CC43)	10,12 10,12 10,12 10,12 10,12 10,12 10,12
	CC2649	CC RETURN HDR 2 VLV	MOV	G	2	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	2CBF1161F 2CBF1161G	AD113	OP-02501 (OPEN CC2649) OP-02501 (OPEN CC2649)	OP-02501 (OPEN CC2649) OP-02501 (OPEN CC2649)	11,21 11,21
	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	
	CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501(OPERATE CC43)	OP-02501(OPERATE CC43)	10,12
	CC5096	CC HDR 2 IN ISO VLV	MOV	T	2	O/C	O	AS IS		H	2CBF1106B 2CBF1106I 2CBF1106J 2PBF1106A	2/X3 LSLL/X2	OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096)	OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096) OP-02501 (OPEN CC5096)	16 16 16 16
	CC5098	CCW LINE 2 RET ISO VLV	MOV	T	2	O/C	O/C	AS IS		H	2CBF1119B 2CBF1119I 2CBF1119J 2PBF1119A	LLSL/X2	OP-02501 (OPEN CC5098) OP-02501 (OPEN CC5098) OP-02501 (OPEN CC5098) OP-02501 (OPEN CC5098)	OP-02501 (OPEN CC5098) OP-02501 (OPEN CC5098) OP-02501 (OPEN CC5098) OP-02501 (OPEN CC5098)	16 16 16 16
	FIS1422D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	2CD2P23D			NOT USED FOR S/D	5e
	FIS1427D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	2CD2P23D			NOT USED FOR S/D	5e
	P43-2	CCW PUMP 2	PUMP	T	2	O/F	ON	OFF		H	NONE			N/A	
	P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	NONE			N/A	
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B C	NONE			N/A	
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B C	1CBE1162F 1CBE1162G 1CVCF01BB	PSH7530A	OP-02501 (CLOSE CF01B) OP-02501 (CLOSE CF01B) OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B) OP-02501 (CLOSE CF01B) OP-02501 (CLOSE CF01B)	22 22 22
CREVS	C21-2	CTRM EVS FAN 2	FAN	HH	2	OFF	ON	OFF		H	NONE			N/A	
	S33-2	CTRM EMERG A/C UNIT 2	A/C	HH	2	OFF	ON	OFF		H	NONE			N/A	
	SV4827A	CREVS CONDENSER UNIT 2 (S33-2) IN VLV	SOV	HH	2	C	O	CLOSED		H	NONE			N/A	
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B H	1CBE1156H 1CBE1156J			OP-02501 (TRIP P56-1) OP-02501 (TRIP P56-1)	13 13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	NONE			OP-02501 (TRIP P56-2)	13
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	NONE		OP-02501 (TRIP P56-1)	OP-02501 (TRIP P56-1)	13
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE		OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2)	13
DHRS	DH01A	LPI LINE 2 VLV	MOV	A	2	O	O	AS IS		C	NONE			N/A	
	DH07A	BWST ISO VLV A	MOV	AC	2	O	O	AS IS		H	NONE			N/A	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18

LEGEND

H - required for hot standby

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H/L - High/Low interface

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N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : U

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
DHRS	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	1CBEL112E 1CBEL112F 1CBEL112H		MOD 89-0089 MOD 89-0089 MOD 89-0089	VALVE DE-ENERGIZED VALVE DE-ENERGIZED VALVE DE-ENERGIZED	18 18 18
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	OP-02501 (OPEN DH21 & 23)	26
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	1CBEL183G 1CBEL183J		OP-02501 (OPEN DH21 & 23) OP-02501 (OPEN DH21 & 23)	OP-02501 (OPEN DH21 & 23) OP-02501 (OPEN DH21 & 23)	26 26
	DH13A	DH CLR 2 BYPASS VLV	SOV	AB	2	C	C	FC		C	NONE			N/A	
	DH14A	DH CLR 2 OUT VLV	SOV	AB	2	O	O	FO		C	2CVDH14AF			SPURIOUS CLOSURE NOT CREDIBLE	5C
	DH1518	DH NORM SUCT LINE 2 VLV	MOV	A	2	C	O/C	AS IS		C	NONE			N/A	
	DH2734	DH PUMP 2 BWST SUCT VLV	MOV	AB	2	O	O/C	AS IS		C	NONE			N/A	
	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	1CBEL155F			DH2736 FOR H/L INTERFACE	32
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	
	DH63	LPI/HPI CROSS-TIE VLV	MOV	A	2	C	C	AS IS		C	2CBF1195F		OP-02501 (CLOSE DH63)	OP-02501 (CLOSE DH63)	29
	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-1)	SPAS INITIATED	13
	P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	SPAS INITIATED	13
EDG	DA1148A/B	EDG 2 AIR START VLV	SOV	J	2	C	O	FC		H	NONE			N/A	
	DA2989	AIR START RCVR 1-2-1 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA2994	AIR START RCVR 1-2-2 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA62	AIR START RCVR 1-2-1 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA63	AIR START RCVR 1-2-2 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	K5-2	EMERG DIESEL GENERATOR 2	EDG	J	2	O/F	ON	OFF		H	NONE			N/A	
	P148-2A	EDG JACKET WATER PUMP (RIGHT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P148-2B	EDG JACKET WATER PUMP (LEFT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P195-2	EDG FUEL OIL TRANSFER PUMP 2	PUMP	BN	2	OFF	ON	OFF		C	NONE			N/A	
	P201-2	EDG 1-2 M/D FUEL OIL PUMP	PUMP	J	1	O/F	ON	OFF	P205-2	H	NONE			N/A	
	P205-2	EDG 1-2 E/D FUEL OIL PUMP	PUMP	J	2	O/F	ON	OFF	P201-2	H	NONE			N/A	
	S207-01	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-02	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-03	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-04	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
ESSPWR	2N	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	2P	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : U

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1, -2, -3	H	NONE			N/A	
	C3616	EDG1-2 PANEL LIGHTS (ALT PWR)	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	C3629	CONT POWER ESS METER HPI FLOW Y	PNL	R	2	ON	ON	OFF		H	NONE			N/A	
	C4602	NEUTRON FLUX MON. CABINET (CH.2)	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	C4625	CONT POWER TO AUX FW CONTROL PANEL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5755C	SFAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5755E	CONTROL ROOM REACT PROT. SYS PNL(CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755G	POST ACCIDENT MON. RACK (CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5756D	SFAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5759C	INST POWER NNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCs XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	1CYE211A			LOSS OF CH 1/3 INITIATES AFW	14
	C5762A	CONTROL POWER TO SFRCs CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762C	SFAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			SFAS INITIATED	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
	C5792A	CH 2 SFRCs XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5798	POST ACCIDENT MON. IND. PNL (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C6709	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	C6715	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	CDF-11A-1	CONTROL DISCONNECT TRANSFER SWITCH	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	CDF-12A-1	D2P CONT POWER TO AFWP GOV (ICS038B)	PNL	X	2	ON	ON	OFF		H	2CD2P20D			VALVE FAILS OPEN	19
	D1	4.16KV AC SWGR	SWGR	Q	2	ON	ON	OFF		H	NONE			N/A	
	D2	4.16KV SWGR	SWGR	Q	2	ON	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	
	D2N	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	D2P	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBC2N	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2P	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

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H/L - High/Low interface

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N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : U

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	DBC2PN	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF	DBC2P,DBC2N	H	2PBF1187A			MAY RESULT IN LOSS OF F11D	21
	DBN	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBP	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DC MCC 2	250/125V DC MCC	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	F1	480 V AC MCC F1	SWGR	X	2	ON	ON	OFF		H	NONE			N/A	
	F11A	480VAC MCC	MCC	DF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11B	480VAC MCC	MCC	V	2	ON	ON	OFF		H	NONE			N/A	
	F11C	480VAC MCC	MCC	A	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11D	480VAC MCC	MCC	G	2	ON	ON	OFF		H	2PBF1146A			NOT REQUIRED FOR S/D	21
	F11E	480VAC MCC	MCC	B	2	ON	ON	OFF		C	NONE			N/A	
	F12A	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12B	480VAC MCC	MCC	J	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12C	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12D	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE			N/A	
	F14	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F15	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F16A	480V AC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	BCYBU41A			OP-02501 (OPEN WC1747)	12
	RC3602	DC CONTROL POWER RCP MONITOR	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3608	CONTROL POWER (TO CCCW002)	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3702	DC CONTROL POWER TO CAC 2 OUT VLV	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3705	CONT POWER RC3705 (LR3758)	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	ACDAP28A ACDAP28B			POWER SUPPLY NOT REQUIRED POWER SUPPLY NOT REQUIRED	5D 5D
	RC3716										2CD2N16A BCYBU43B RC3716			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7
	RC4606	DC CONT PWR (MU6406,RC4610A,PORV)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	NONE			NOT REQUIRED FOR S/D	7
XY2	CONSTANT VOLT TRANSFORMER (CVT CH 2)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A		
XY4	CONSTANT VOLT TRANSFORMER (CVT CH 4)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A		
Y2	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A		

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : U

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	Y2A	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y3602	CONTROL POWER (MU19 & MU32)	PNL	II	2	ON	ON	OFF		H	NONE			N/A	
	Y4	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YBU	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YF1	120VAC MCC	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	YF2	240/120VAC MCC	PNL	DF	2	ON	ON	OFF		H	NONE			LOST DUE TO BKR COORDINATION	23
	YV2	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YV4	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YVB	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	ZC6451	APP #2 CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A	
ZC6460	MDFP CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A		
HPIS	HP02A	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02B	H	NONE		OP-02501 (OVERRIDE SPAS)	SPAS INITIATED	13
	HP02B	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02A	H	NONE		OP-02501 (OVERRIDE SPAS)	SPAS INITIATED	13
	HP31	HPI PMP 2 RECIRC VLV	MOV	A	2	O	O	AS IS		H	2CBF1194F			VALVE DE-ENERGIZED	16
	P198-1	HPI PMP 2 AC LO PMP	PUMP	A	2	OFF	ON	OFF		H	NONE			N/A	
	P198-2	HPI PMP 2 DC LO PUMP	PUMP	A	2	OFF	ON	OFF	P198-1	H	NONE			N/A	
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	SPAS INITIATED	13
	P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE			SPAS INITIATED	13
HVAC	C133	LV SWGR RM VENT FAN 2	FAN	EE	2	O/F	ON	OFF		H	NONE			N/A	
	C25-3	EDG RM 2 VENT FAN 3	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C25-4	EDG RM 2 VENT FAN 4	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C73-2	APP RM VENT FAN 2	FAN	F	2	O/F	ON	OFF		H	NONE			N/A	
	C78-2	BATT RM VENT FAN 2	FAN	X	2	O/F	ON	OFF		H	NONE			N/A	
	C99-3	SW PMP RM EXH FAN 3	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	C99-4	SW PMP RM EXH FAN 4	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	HV5314	LV SWGR RM 428 DAMPER	DMPR	EE	2	O/C	O	AS IS		H	NONE			N/A	
	HV5314A	LV SWGR RM 428 DAMPER	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
	HV5336A	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5336B	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FO		H	NONE			N/A	
	HV5336C	EDG ROOM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5598	BATT RM 428A ATM DMPR	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : U

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MSS	ICS11A	MSL 2 ATM VENT VLV	SOV	DH	2	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11A)	LOSS OF AIR	12
	MS100	MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A	
	MS100-1	MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A	
	MS101	MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A	
	MS101-1	MS1V 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	1CV1011C 1CV1011F			SO NOT POSSIBLE SO NOT POSSIBLE	5C 5C
	PSV-SP17A1	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A2	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A3	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A4	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A5	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A6	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A7	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A8	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A9	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE			N/A	
	HP27	HPI TO RCP SEALS	MAN	A	2	C	O	AS IS		H	NONE		OP-02501 (OPEN HP27)	OP-02501 (OPEN HP27)	16
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE			N/A	
	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE			N/A	
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE		OP-02501 (OPEN MU01B)	OP-02501 (OPEN MU01B)	16
	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	1CBE1171F 1CBE1171G		OP-02501 (OPEN MU02A) OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A) OP-02501 (OPEN MU02A)	13,16 13,16
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	1CBE1172F		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	2CVMU03C 2CVMU03E		OP-02501 (OPEN MU03) OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03) OP-02501 (OPEN MU03)	13,16 13,16
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	ACBE2259C		OP-02501 (OPEN MU04)	OP-02501 (OPEN MU04)	16
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	ACBE2262C		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	ACBE2263C			USE MU10A	16
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	ACBE2278C ACBE2278I ACBE2278J ACBE2278L	FYIC-MU39 86/FB	OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT)	16 16 16 16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	BLNMI261D			OP-02501 (OPERATE MU214/MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	ACBE2271C			NOT REQUIRED FOR S/D	7

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : U

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU203	Recirc to Seal Return Stop Valve	MAN	AB	2	O	O/C	AS IS		H	NONE			N/A	
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU32	RC MU ISO VLV	FCV	AB	2	O/C	O	FO	HPIS TRAIN 1&2	H	BCNNI264C BCY36217A BLCOF532A BLCOF532C BLNNI264D JT3708			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7 7 7
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B H	2CVMU38C 2CVMU38D 2CVMU38E		OP-02501 (OPEN MU38) OP-02501 (OPEN MU38) OP-02501 (OPEN MU38)	OP-02501 (OPEN MU38) OP-02501 (OPEN MU38) OP-02501 (OPEN MU38)	13 13 13
	MU3971	RC MU PUMP SUCT VLV	MOV	AB	2	C	O/C	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	1CBE1174F 1CBE1174G	2/TDC KA, KB	OP-02501 (OPEN MU59A) OP-02501 (OPEN MU59A)	OP-02501 (OPEN MU59A) OP-02501 (OPEN MU59A)	13 13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	1CBE1175F 1CBE1175G	KA, KB	OP-02501 (OPEN MU59B) OP-02501 (OPEN MU59B)	OP-02501 (OPEN MU59B) OP-02501 (OPEN MU59B)	13 13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	1CBE1177F 1CBE1177G	KA, KB	OP-02501 (OPEN MU59C) OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C) OP-02501 (OPEN MU59C)	13 13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	1CBE1178F 1CBE1178G	KA, KB	OP-02501 (OPEN MU59D) OP-02501 (OPEN MU59D)	OP-02501 (OPEN MU59D) OP-02501 (OPEN MU59D)	13 13
	MU6406	MU RECIRC ISO VLV	AOV	AB	2	O	O/C	FO	HPIS TRAIN 2	H	NONE			N/A	
	MU6408	MU CROSS CONNECT ISO VLV	MOV	AB	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU6420	MU32 BYPASS VLV	MOV	AB	2	C	O	AS IS	HPIS, MU32	H	NONE			N/A	
	MU6422	MU CTMT ISO VLV	MOV	A	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	2CVMU66AB 2CVMU66AD		OP-02501 (OPEN MU66A) OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A) OP-02501 (OPEN MU66A)	13 13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	1CSP1736A 1CVMU66BB 1CVMU66BD	KA, KB KA, KB	OP-02501 (OPEN MU66B) OP-02501 (OPEN MU66B) OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B) OP-02501 (OPEN MU66B) OP-02501 (OPEN MU66B)	13 13 13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	1CSP1737A 1CVMU66CB 1CVMU66CD	KA, KB KA, KB	OP-02501 (OPEN MU66C) OP-02501 (OPEN MU66C) OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C) OP-02501 (OPEN MU66C) OP-02501 (OPEN MU66C)	13 13 13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	2CVMU66DB 2CVMU66DD		OP-02501 (OPEN MU66D) OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D) OP-02501 (OPEN MU66D)	13 13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-372B	MUP 2 MAIN LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	BCBF1167B BCBF1167C	RX-2, RX-11-2		NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7
	P-372C	MUP 2 AUX LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS, P-372B	H	BCD217B BCD217F	PS2MU105A		NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7
	P-372D	MUP 2 AUX GEAR LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	BCBF1168C			NOT REQUIRED FOR S/D	7

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



SAFE SHUTDOWN ANALYSIS

FIRE AREA : U

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	P-372D	MUP 2 AUX GEAR LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	BCBF1168D BCBF1168E BCBF1168F	BF1167 PSMU102A		NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7
	P37-2	MU PUMP 2	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	BCAD105K	MV3971		NOT REQUIRED FOR S/D	7
	P372A	MU PMP 2 MAIN GEAR LO PMP	PUMP	AB	2	O/F	O	OFF	P372D	H	NONE			NOT REQUIRED FOR S/D	7
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	ACV1453D ACV1453F ACV1453G		OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453)	OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453) OP-02501 (CLOSE WC1453)	16 16 16
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	ACV1743G		OP-02501 (OPEN WC1743)	OP-02501 (OPEN WC1743)	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	BCV1747G		OP-02501 (OPEN WC1747)	OP-02501 (OPEN WC1747)	12
	WC3560	DBGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	ACV3560C ACV3560D		OP-02501 (OPEN WC3560) OP-02501 (OPEN WC3560)	OP-02501 (OPEN WC3560) OP-02501 (OPEN WC3560)	16 16
	NI	NI-5875A	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A
NI-NI1		SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
NNI	PI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	2LLMU31A			NOT REQUIRED FOR S/D	7
	PI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	2LLMU34A			NOT REQUIRED FOR S/D	7
	FYI-HP03A	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A1	HPI FLOW IND. (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B1	HPI FLOW IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-2	PRZR LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-4	PRZR LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A1	SG1-2 START-UP LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A3	SG1-2 START-UP LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A8	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A8A	SG1-2 START-UP LEVEL IND (C5710)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A9	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LRS-RC14	PRZR LEVEL RECORDER	REC	FF	2	ON	ON	OFF	LI-RC14-1-4	H	NONE			N/A	
	PI-6365A	RCS LOOP 2 EXTENDED RANGE PRESS	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-6365A1	RCS LOOP2 EXTENDED RANGE PRESS (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
PI-RC2A3	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A		
PI-RC2A4	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A		

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : U

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
NNI	PI-SP12A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1	SG1-2 OUTLET PRESS IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1-A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF	PI-SP12A	H	ALNNI852G			NOT REQUIRED FOR S/D	7
	TE-RC3A6	RCS LOOP 2 HOT LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TE-RC4A2	RCS LOOP 2 COLD LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A4	RCS LOOP 2 HOT LEG TEMP (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A5	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A6	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A2	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
TI-RC4A4	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	ALNNI833A			USE TI-RC4A2	30	
RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A	
	RC13A	RCS CODE SAFETY VALVE	SV	D	2	C	C	CLOSED		H	NONE			N/A	
	RC147	PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
	RC200	PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A	
	RC239A	PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	2CBF1126H			SO NOT CREDIBLE	28
	RC239B	PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	2CBF1127G			SO NOT CREDIBLE	28
	RC2A	PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			N/A	
	RC4608A	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	1CV4608AC 1CV4608AD			SPURIOUS OPERATION NOT CREDIBLE SPURIOUS OPERATION NOT CREDIBLE	25 25
	RC4608B	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	1CV4608BC			SPURIOUS OPERATION NOT CREDIBLE	25
	RC4610A	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A	
RC4610B	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A		
RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	2CV4632B			SO NOT CREDIBLE	28	
SFAS	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SPAS MAY ACTUATE	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5765D	SFAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	1CLY6453A 1CLY6453B			SPAS ACTUATES SPAS ACTUATES	13 13
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

4.6.U .6 TABLE1  
Detailed Analysis

FIRE HAZARDS ANALYSIS

DAVIS BESS

SAFE SHUTDOWN ANALYSIS

FIRE AREA : U

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	D E S C R I P T I O N	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFAS	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	2LSFLT21A			SPAS ACTUATES	13
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	3LSFLT31A			SPAS ACTUATES	13
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	4LSFLT41A			SPAS ACTUATES	13
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13	
SFRCS	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101B	LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101C	LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS3871B	BLOCK CIRCUIT AF3871 (APP-2 TO SG-1)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS3872B	BLOCK CIRCUIT AF3872 (APP-2 TO SG-2)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS603B	BLOCK CIRCUIT MS603 (SG-2 DRAIN STOP)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS6402	CH 2/4 MANUAL START APPT-2 C5707	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : U

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	HIS6404	CH 2/4 MAN STRT APPT-2 & ISOL SG-2 C57	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	1LSGLT11A			SFRCS MAY ACTUATE	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	1LSGLT11B			SFRCS MAY ACTUATE	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	1CRCPD31C			SFRCS MAY ACTUATE	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	1CRCPD11B			SFRCS MAY ACTUATE	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	1CRCPD31B			SFRCS MAY ACTUATE	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	2CRCPD21C			SPAS MAY ACTUATE	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	2CRCPD41C			SFRCS MAY ACTUATE	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : U

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	BE	1/2	C	C	OPEN		H	NONE			N/A	14
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	1CRCPM31B			SFRCS INITIATES ON LOOP	14
	RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	NONE			NOT REQUIRED FOR S/D	7
	P3-2	SW PUMP 2	PUMP	BF	2	O/F	ON	OFF		H	NONE			N/A	
	P3-3	SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1, P3-2	H	NONE			N/A	
	SW1357	CAC 2 OUT ISO VLV	SOV	A	2	O/C	O	FO		H	NONE			N/A	
	SW1358	CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	NONE			N/A	
	SW1367	CAC 2 IN ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	SW1368	CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	1CBE1207F			NOT REQUIRED FOR S/D	7
	SW1383	APP 2 SUCT VLV FROM SW	MOV	A	2	C	O/C	AS IS		H	NONE			N/A	
	SW1395	TPCW HX IN HEADER ISO VLV	MOV	BG	2	O/C	C	AS IS		H	NONE			N/A	
	SW1429	SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	2CV1429C			NOT REQUIRED FOR S/D	7
	SW1434	SW FROM CC HX 2 ISO VLV	SOV	T	2	O/C	O	FO		H	2CV1434D 2CV1434G			SC NOT CREDIBLE SC NOT CREDIBLE	5C 5C
	SW2928	CTRM EVS COND UNIT IN VLV	MOV	HH	2	C	O	AS IS		H	NONE			N/A	
	SW2930	SW TO INT FOREBAY VLV	MOV	BG	2	O/C	O	AS IS	SW2929, 31, 32	H	NONE			N/A	
	SW2932	SW TO COLLECT BASIN VLV	MOV	BG	2	O/C	O	AS IS	SW2929, 30, 31	H	NONE			N/A	
	SW54	TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
	SW55	TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
	SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
ASSCKT	PDY5014B	FPDY5014B									2CY217A			LOST DUE TO BKR COORDINATION	20
ASSCKT	FPDY5014C	CTMT ANNULUS PRESS DIF RE									2CY217B			LOST DUE TO BKR COORDINATION	20
ASSCKT	FTY5444	FTY5444									2CY217C			LOST DUE TO BKR COORDINATION	20
ASSCKT	C3801	CTMT HYDROGEN SYS PANEL									2CY218A			LOST DUE TO BKR COORDINATION	20
ASSCKT	RT4597BA	CTMT RAD MON									2PY216AA			LOST DUE TO BKR COORDINATION	20
ASSCKT	RT4597BB	CTMT RAD MON									2PY220AA			LOST DUE TO BKR COORDINATION	20
ASSCKT	HV5444C	CCWP RM OA LOUVER 2									2PY212A			LOST DUE TO BKR COORDINATION	23

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA U TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent upstream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED

FIRE AREA U TABLE 1 NOTES

9. NOT USED
10. The DHR Cooler 1-1 Isolation Valves CC1469 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return coolers and opened for DHRS Cooldown.

The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467(CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467(CC1469).

11. CCW Return Header 2 Valve CC2649 is normally closed and required to be open to provide cooling for Seal Return. A review of the circuits indicates spurious closure and loss of control power. Therefore, trip Breaker BF1161 at MCC F11D and open CC2649.
12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:

ICS11A	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level setpoint is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Train 1, Complimentary Channels, SFAS could actuate. This actuation could operate the following components.

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531	CS Iso Vlv	Open	Stop P56-1, -2
HP02A, B	HPI 2 Disch Iso Vlv	Open	Operate from the CR after blocking SFAS
P42-1	LPI Pump 1	On	Trip Bkr AC112 at C1
P42-2	LPI Pump 2	On	Stop P42-2 from CR after blocking SFAS
P56-1	CS Pump 1	On	Trip Bkr BE111 at E1
P56-2	CS Pump 2	On	Stop P56-2 from CR after blocking SFAS
P58-1	HPI Pump 1	On	Trip Bkr AC111 at C1
P58-2	HPI Pump 2	On	Req'd for RCS Inventory Control

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA U TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CC1407A, B	CCW Out Iso Vlv	Closed	Open CC1407A, B and Trip Bkr BE1173 at E11B & BF1158 at F11B
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip BE1176 at E11B & BF1159 at F11B
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03	RC Lt Dn Cooler Out	Closed	Open MU03
MU38	RCP Seal Rtn Isol	Closed	Open MU38
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

If AF3871 is manually closed, first trip Breaker BF102 at F12A.

15. NOT USED
16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or by performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injection and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.



Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA U TABLE 1 NOTES

RCP Seal Return Flow

The following manual valves will need to be operated:

MU97	Open	WC119	Open
MU182	Close	WC120	Open

Additionally, the following valves may need to be manually operated:

CC5096	Open	MU11	Direct Flow to CWRT
CC5098	Open	WC1453	Close
MU10A	Open	WC3560	Open

RCS Inventory Control

HPI Pump 2 will be operated for RCS Inventory Control. To prevent spurious operation, HP31 has been de-energized.

RCP Seal Injection from the HPI System

The following valves may need to be manually operated:

CC1410	Open	MU02A	Open	MU208	Open
HP27	Open	MU04	Open	MU214	Close
MU01B	Open	MU02B	Trip Bkr BE1172 at E11B & open MU02B	MU216	Throttle

17. NOT USED
18. To prevent spurious operation, Valves DH09A and DH09B are deenergized.
19. AFPT 2 Governor Control Valve ICS038A is normally open on the high speed stops and required to be operable for SSD. Loss of power causes the valve to fail as-is (open). The AFPT 2 will operate at normal speed and AFW will be controlled using Valve AF6451.
20. NOT USED
21. The only Safe Shutdown equipment affected by loss of MCC F11D are Backup Battery Charger (DBC2PN) and CCW Return Header 2 Valve (CC2649). DBC2PN is not required for Shutdown. CC2649 can be manually opened.
22. The Core Flood Isolation Valves CF01A, B are normally open and are required to be closed when cooling down before going below 700 psig. Breakers BF1120 at F11A and BE1162 at E11B are normally open; in the event of control power manual action may be required to close CF01B before going below 700 psig.
23. YE2/YF2 associated circuits are not coordinated. This results in loss of YE2/YF2. The loss of this panel will cause a Reactor Trip via ARTS which is acceptable.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA U TABLE 1 NOTES

24. NOT USED
25. Valves RC4608A & B are in series and 4 shorts would be required to repower both valves. See E-52B sht 71A & B. Such an occurrence is not credible. The one inch lines include a restricting orifice sized to limit the flow to within the Makeup System capacity.
26. Valves DH11 and DH12 are depowered. Bypass Valves DH21 and 23 will therefore be manually opened to place the DHR System in service.
27. Essential CCW is provided to the Makeup Pump cooler, bypassing CC1460.
28. Pressurizer Vapor Sample Valves RC239A & B and Cold Leg SG 2 Sample Valve RC4632 are normally closed and are required to be closed to prevent RCS Depressurization. A review of the circuit indicates that spurious actuation of the valves is not possible.
29. A hot short at Circuit 2CBF1195F may result in spurious opening of Valve DH63; therefore, trip Breaker BF1194 at F11E and close DH63. Due to the torque/limit switches possibly being bypassed by a hot short, the valve operator may be damaged. If this occurs, procedures instruct plant personnel to remove the operator, replace it with a dedicated spare operator and then manually close the valve. Since this valve is only needed to go to cold shutdown, GL 86-10 allows repairs to be made.
30. TI-RC4A4 may be lost due to failure of Circuit ALNNI833A; however, TI-RC4A2 remains available.
31. NOT USED
32. A hot short in Circuit 1CBE1155F could cause spurious opening of DH2735; however, DH2736 remains available as a High/Low Pressure Interface.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: UU

TRAIN ACCREDITED FOR SHUTDOWN: 2

4.6.UU.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
327	TB ELEV MACHINE ROOM	628	N	MAN
329	VESTIBULE	400	N	MAN
AB1	AUX BLD STAIRWELL (MAIN)	8,000	N	MAN
EL2	AUX BLD ELEVATOR (MAIN)	400	N	MAN

4.6.UU.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA UU

The following components are located in fire area UU.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
NONE				

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA UU

#### 4.6.UU.3 Fire Propagation Control

Fire Area UU is located in the Auxiliary Building and consists primarily of one elevator shaft (with its Machine Room) and one stairwell (Elevations 585' to 657') as shown on Drawing A-223F through A-227F.

A fire that originates in this fire area will be contained in the fire area. This fire area is enclosed by either 2-hour or 3-hour fire-rated floors, walls and ceilings.

There is only Safe Shutdown circuits in this fire area. These circuits are routed in conduits, the majority of which are embedded in the poured concrete wall in the Elevator Machine Room (Rm 327). The remainder are also in Room 327 with all but one conduit located behind a concrete block wall. Three of the walls around Room 327 are 3-hour fire walls. The fourth wall is into the elevator shaft, which is not a fire barrier. For a fire to enter the elevator shaft from another fire area at elevation 585', it would have to pass through a 3-hour fire barrier. At upper elevations it would have to pass through at least one 2-hour fire barrier and travel down the elevator shaft. Based on this arrangement, the Safe Shutdown circuits in this fire area are adequately separated from other Safe Shutdown fire areas.

A fire would have to propagate through a minimum of two 2-hour fire barriers to pass through Fire Area UU. This is the equivalent of 3-hour separation where Fire Area UU acts as a boundary between other Safe Shutdown fire areas.

The concrete block walls used to provide 2-hour fire-rated walls in the elevator shaft do not conform to a UL tested configuration. Based on the low combustibility loadings and construction of the walls, a fire will not propagate from one area to another.

There are penetrations which do not conform to a tested configuration. Based on the low combustibility loadings and construction, a fire will not propagate from one area to another.

#### 4.6.UU.4 Fire Detection and Suppression

There is no automatic detection or suppression in this fire area.

Manual fire suppression equipment is provided for this fire area. Fire extinguishers and Hose Stations (HS) are shown on Drawings A-223F through A-229F.

In the event of a fire, smoke venting will be accomplished in accordance with the Pre-Fire Plans.

#### 4.6.UU.5 Fire Area Safe Shutdown Summary

Train 2 will be used for Safe Shutdown in Fire Area UU. Safe Shutdown will be accomplished using the Makeup and Purification System (MUPS) for Reactor Coolant System Inventory Control, MUPS for a Letdown path and MUPS Seal Injection for RCP Seal Cooling.

SAFE SHUTDOWN ANALYSIS

FIRE AREA : UU

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	NONE			OP-02501 (TRIP P14-1)	14
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3871)	OP-02501 (CLOSE AF3871)	14
	AF3872	AFWP 2 DISCH TO SG2	MOV	F	2	O	O	AS IS		H	NONE			N/A	
	AF599	AFW TO SG2 ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	AF6451	AFWP 2 FLOW CTRL VLV	SOV	F	2	O	O/C	FO		H	NONE			N/A	
	FW6460	MDFP FLOW CTRL VLV	SOV	II	2	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			N/A	7
	ICS038A	APPT 2 GOV CTRL VLV	MOV	F	2	O	O/C	AS IS		H	NONE			N/A	
	MS106A	APPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	NONE			N/A	
	MS107	APPT 2 MS IN ISO VLV	MOV	EE	2	C	O	AS IS		H	NONE			N/A	
	MS107A	APPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-1)	14
	MS5889B	APPT 2 STEAM ADMISS VLV	SOV	F	2	C	O	FO		H	NONE			N/A	
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-1)	OP-02501 (TRIP P14-1)	14
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE			N/A	
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	P242-1	MDFP AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
P242-2	MDFP SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			N/A	7	
CACs	C1-2	CAC FAN 2	FAN	D	2	O/F	ON	OFF		H	NONE			N/A	
	C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	NONE			N/A	
CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	OP-02501 (OPEN CC1407A)	13
	CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407B)	OP-02501 (OPEN CC1407B)	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE			N/A	
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1410)	OP-02501 (OPEN CC1410)	16
	CC1411A	CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411A)	OP-02501 (OPEN CC1411A)	13
	CC1411B	CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	OP-02501 (OPEN CC1411B)	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	N/A	24
	CC1469	DHR CLR 2 OUT ISO VLV	SOV	AB	2	C	O	FO		C	NONE		OP-02501 (OPERATE CC1469)	OP-02501 (OPERATE CC1469)	26
	CC1474	DG JKT CW HX 2 OUT VLV	MAN	J	2	O	O	AS IS		H	NONE			N/A	
	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B H	NONE			OP-02501 (OPERATE CC43)	12,26
	CC2649	CC RETURN HDR 2 VLV	MOV	G	2	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	NONE			N/A	
	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	
CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501(OPERATE CC43)	OP-02501(OPERATE CC43)	12,26	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : UU

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC5096	CC HDR 2 IN ISO VLV	MOV	T	2	O/C	O	AS IS		H	NONE			N/A	
	CC5098	CCW LINE 2 RET ISO VLV	MOV	T	2	O/C	O/C	AS IS		H	NONE			N/A	
	FIS1422D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1427D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1432D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	P43-2	CCW PUMP 2	PUMP	T	2	O/F	ON	OFF		H	NONE			N/A	
	P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	NONE			N/A	
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B C	NONE			N/A	
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B C	NONE	OP-02501 (CLOSE CF01B)		OP-02501 (CLOSE CF01B)	22
CREVS	C21-2	CTRM EVS FAN 2	FAN	HH	2	OFF	ON	OFF		H	NONE			N/A	
	S33-2	CTRM EMERG A/C UNIT 2	A/C	HH	2	OFF	ON	OFF		H	NONE			N/A	
	SV4827A	CREVS CONDENSER UNIT 2 (S33-2) IN VLV	SOV	HH	2	C	O	CLOSED		H	NONE			N/A	
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B H	NONE			OP-02501 (TRIP P56-1)	13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	NONE			OP-02501 (TRIP P56-2)	13
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	NONE	OP-02501 (TRIP P56-1)		OP-02501 (TRIP P56-1)	13
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE	OP-02501 (TRIP P56-2)		OP-02501 (TRIP P56-2)	13
DHRS	DH01A	LPI LINE 2 VLV	MOV	A	2	O	O	AS IS		C	NONE			N/A	
	DH07A	BWST ISO VLV A	MOV	AC	2	O	O	AS IS		H	NONE			N/A	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE	MOD 89-0089		VALVE DE-ENERGIZED	18
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	NONE	MOD 89-0089		VALVE DE-ENERGIZED	18
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE	OP-02501 (OPEN DH21 & 23)		VALVE DE-ENERGIZED	25
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	NONE	OP-02501 (OPEN DH21 & 23)		VALVE DE-ENERGIZED	25
	DH13A	DH CLR 2 BYPASS VLV	SOV	AB	2	C	C	FC		C	NONE			N/A	
	DH14A	DH CLR 2 OUT VLV	SOV	AB	2	O	O	FO		C	NONE			N/A	
	DH1518	DH NORM SUCT LINE 2 VLV	MOV	A	2	C	O/C	AS IS		C	NONE			N/A	
	DH2734	DH PUMP 2 BWST SUCT VLV	MOV	AB	2	O	O/C	AS IS		C	NONE			N/A	
	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	
	DH63	LPI/HPI CROSS-TIE VLV	MOV	A	2	C	C	AS IS		C	NONE			N/A	
	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	1CAC112B		OP-02501 (TRIP P42-1)		OP-02501 (TRIP P42-1)

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : UU

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
DHR	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	1CAC112C 1CAC112F		OP-02501 (TRIP P42-1) OP-02501 (TRIP P42-1)	OP-02501 (TRIP P42-1) OP-02501 (TRIP P42-1)	13 13
	P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	OP-02501 (TRIP P42-2)	13
EDG	DA1148A/B	EDG 2 AIR START VLV	SOV	J	2	C	O	FC		H	NONE			N/A	
	DA2989	AIR START RCVR 1-2-1 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA2994	AIR START RCVR 1-2-2 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA62	AIR START RCVR 1-2-1 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA63	AIR START RCVR 1-2-2 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	K5-2	EMERG DIESEL GENERATOR 2	EDG	J	2	O/F	ON	OFF		H	NONE			N/A	
	P148-2A	EDG JACKET WATER PUMP (RIGHT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P148-2B	EDG JACKET WATER PUMP (LEFT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P195-2	EDG FUEL OIL TRANSPER PUMP 2	PUMP	BN	2	OFF	ON	OFF		C	NONE			N/A	
	P201-2	EDG 1-2 M/D FUEL OIL PUMP	PUMP	J	1	O/F	ON	OFF	P205-2	H	NONE			N/A	
	P205-2	EDG 1-2 E/D FUEL OIL PUMP	PUMP	J	2	O/F	ON	OFF	P201-2	H	NONE			N/A	
	S207-01	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-02	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-03	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
S207-04	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A		
ESSPWR	2N	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	2P	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	NONE			N/A	
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1, -2, -3	H	NONE			N/A	
	C3616	EDG1-2 PANEL LIGHTS (ALT PWR)	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	C3629	CONT POWER ESS METER HPI FLOW Y	PNL	R	2	ON	ON	OFF		H	NONE			N/A	
	C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C4602	NEUTRON FLUX MON. CABINET (CH.2)	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	C4625	CONT POWER TO AUX FW CONTROL PANEL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5755C	SFAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A		

LEGEND

H - required for hot standby

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H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : UU

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	C5755E	CONTROL ROOM REACT PROT. SYS PNL(CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755G	POST ACCIDENT MON. RACK (CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5756D	SFAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5759C	INST POWER NNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762A	CONTROL POWER TO SFRCS CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762C	SFAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			SFAS INITIATED	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
	C5792	CONTROL ROOM SFRCS CABINET (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5792A	CH 2 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5798	POST ACCIDENT MON. IND. PNL (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C6709	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	C6715	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	CDF-11A-1	CONTROL DISCONNECT TRANSFER SWITCH	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	CDF-12A-1	D2P CONT POWER TO APWP GOV (ICS038B)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	D1	4.16KV AC SWGR	SWGR	Q	2	ON	ON	OFF		H	NONE			N/A	
	D2	4.16KV SWGR	SWGR	Q	2	ON	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	D2N	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	D2P	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBC2N	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2P	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2PN	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF	DBC2P,DBC2N	H	NONE			N/A	7
	DBN	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
DBP	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A		
DC MCC 2	250/125V DC MCC	MCC	X	2	ON	ON	OFF		H	NONE			N/A		
F1	480 V AC MCC F1	SWGR	X	2	ON	ON	OFF		H	NONE			N/A		
F11A	480VAC MCC	MCC	DF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**	
F11B	480VAC MCC	MCC	V	2	ON	ON	OFF		H	NONE			N/A		
F11C	480VAC MCC	MCC	A	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**	
F11D	480VAC MCC	MCC	G	2	ON	ON	OFF		H	NONE			N/A		

LEGEND

H - required for hot standby

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N/A - not affected



SAFE SHUTDOWN ANALYSIS

FIRE AREA : UU

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
ESSPWR	F11E	480VAC MCC	MCC	B	2	ON	ON	OFF		C	NONE			N/A		
	F12A	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**	
	F12B	480VAC MCC	MCC	J	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**	
	F12C	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**	
	F12D	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE			N/A		
	F14	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**	
	F15	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**	
	F16A	480V AC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**	
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7	
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7	
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	NONE			N/A		
	RC3602	DC CONTROL POWER RCP MONITOR	PNL	Q	2	ON	ON	OFF		H	NONE			N/A		
	RC3608	CONTROL POWER (TO CCCW002)	PNL	Q	2	ON	ON	OFF		H	NONE			N/A		
	RC3702	DC CONTROL POWER TO CAC 2 OUT VLV	PNL	A	2	ON	ON	OFF		H	NONE			N/A		
	RC3705	CONT POWER RC3705 (LR3758)	PNL	A	2	ON	ON	OFF		H	NONE			N/A		
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	NONE			N/A		
	RC3716													NONE	N/A	
	RC4606	DC CONT PWR (MU6406,RC4610A,PORV)	PNL	X	2	ON	ON	OFF		H	NONE			N/A		
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	NONE			N/A	7	
	XY2	CONSTANT VOLT TRANSFORMER (CVT CH 2)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A		
	XY4	CONSTANT VOLT TRANSFORMER (CVT CH 4)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A		
	Y2	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A		
	Y2A	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A		
	Y3602	CONTROL POWER (MU19 & MU32)	PNL	II	2	ON	ON	OFF		H	NONE			N/A		
	Y4	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A		
	YBU	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A		
	YF1	120VAC MCC	PNL	J	2	ON	ON	OFF		H	NONE			N/A		
	YF2	240/120VAC MCC	PNL	DF	2	ON	ON	OFF		H	NONE			N/A		
	YV2	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A		
	YV4	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A		
	YVB	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A		
	ZC6451	AFP #2 CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A		

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : UU

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
ESSPWR	ZC6460	MDFP CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A		
HPIS	HP02A	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02B	H	NONE			N/A		
	HP02B	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02A	H	NONE			N/A		
	HP31	HPI PMP 2 RECIRC VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A		
	P198-1	HPI PMP 2 AC LO PMP	PUMP	A	2	OFF	ON	OFF		H	NONE			N/A		
	P198-2	HPI PMP 2 DC LO PUMP	PUMP	A	2	OFF	ON	OFF	P198-1	H	NONE			N/A		
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	SPAS INITIATED	13	
	P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-2)	SPAS INITIATED	13	
HVAC	C133	LV SWGR RM VENT FAN 2	FAN	EE	2	O/F	ON	OFF		H	NONE			N/A		
	C25-3	EDG RM 2 VENT FAN 3	FAN	J	2	O/F	ON	OFF		H	NONE			N/A		
	C25-4	EDG RM 2 VENT FAN 4	FAN	J	2	O/F	ON	OFF		H	NONE			N/A		
	C73-2	APP RM VENT FAN 2	FAN	F	2	O/F	ON	OFF		H	NONE			N/A		
	C78-2	BATT RM VENT FAN 2	FAN	X	2	O/F	ON	OFF		H	NONE			N/A		
	C99-3	SW PMP RM EXH FAN 3	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A		
	C99-4	SW PMP RM EXH FAN 4	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A		
	HV5314	LV SWGR RM 428 DAMPER	DMPR	EE	2	O/C	O	AS IS		H	NONE				N/A	
	HV5314A	LV SWGR RM 428 DAMPER	DMPR	X	2	O/C	O	AS IS		H	NONE				N/A	
	HV5336A	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE				N/A	
	HV5336B	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FO		H	NONE				N/A	
	HV5336C	EDG ROOM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE				N/A	
	HV5598	BATT RM 428A ATM DMPR	DMPR	X	2	O/C	O	AS IS		H	NONE				N/A	
MSS	ICS11A	MSL 2 ATM VENT VLV	SOV	DH	2	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11A)	LOSS OF AIR	12	
	MS100	MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A		
	MS100-1	MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A		
	MS101	MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A		
	MS101-1	MS1V 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	NONE			N/A		
	PSV-SP17A1	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
	PSV-SP17A2	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
	PSV-SP17A3	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
	PSV-SP17A4	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		
	PSV-SP17A5	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A		

LEGEND

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## Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : UU

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MSS	PSV-SP17A6	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A7	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A8	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A9	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP1556)	OP-02501 (OPEN HP1556)	16
	HP27	HPI TO RCP SEALS	MAN	A	2	C	O	AS IS		H	NONE			N/A	
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP29)	OP-02501 (OPEN HP29)	16
	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE			N/A	
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE		OP-02501 (OPEN MU01B)	OP-02501 (OPEN MU01B)	16
	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	NONE		OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03)	13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	NONE			N/A	
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	NONE		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	NONE		OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT)	16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	NONE		OP-02501 (OPERATE MU214/MU216)	OP-02501 (OPERATE MU214/MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU203	Recirc to Seal Return Stop Valve	MAN	AB	2	O	O/C	AS IS		H	NONE		OP-02501 (CLOSE MU203)	OP-02501 (CLOSE MU203)	16
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU32	RC MU ISO VLV	FCV	AB	2	O/C	O	FO	HPIS TRAIN 1&2	H	NONE			N/A	
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B H	NONE		OP-02501 (OPEN MU38)	OP-02501 (OPEN MU38)	13
	MU3971	RC MU PUMP SUCT VLV	MOV	AB	2	C	O/C	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59A)	OP-02501 (OPEN MU59A)	13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59B)	OP-02501 (OPEN MU59B)	13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C)	13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59D)	OP-02501 (OPEN MU59D)	13
	MU6406	MU RECIRC ISO VLV	AOV	AB	2	O	O/C	FO	HPIS TRAIN 2	H	NONE			N/A	
	MU6408	MU CROSS CONNECT ISO VLV	MOV	AB	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	

## LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : UU

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU6420	MU32 BYPASS VLV	MOV	AB	2	C	O	AS IS	HPIS, MU32	H	NONE			N/A	
	MU6422	MU CIMT ISO VLV	MOV	A	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A)	13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B)	13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C)	13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE		OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D)	13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-372B	MUP 2 MAIN LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P-372C	MUP 2 AUX LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS, P-372B	H	NONE			N/A	
	P-372D	MUP 2 AUX GEAR LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P37-2	MU PUMP 2	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P372A	MU PMP 2 MAIN GEAR LO PMP	PUMP	AB	2	O/F	O	OFF	P372D	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1743)	LOSS OF AIR	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1747)	LOSS OF AIR	12
	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	NONE			N/A	
NI	NI-5875A	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	NI-NI1	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
NNI	FI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A1	HPI FLOW IND. (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B1	HPI FLOW IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-2	PRZR LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-4	PRZR LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A1	SG1-2 START-UP LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A3	SG1-2 START-UP LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A8	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	

LEGEND

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Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : UU

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
NNI	LI-SP09A8A	SG1-2 START-UP LEVEL IND (C5710)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A9	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LRS-RC14	PRZR LEVEL RECORDER	REC	FF	2	ON	ON	OFF	LI-RC14-1-4	H	NONE			N/A	
	PI-6365A	RCS LOOP 2 EXTENDED RANGE PRESS	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-6365A1	RCS LOOP2 EXTENDED RANGE PRESS (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A3	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A4	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1	SG1-2 OUTLET PRESS IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1-A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF	PI-SP12A	H	NONE			N/A	
	TE-RC3A6	RCS LOOP 2 HOT LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TE-RC4A2	RCS LOOP 2 COLD LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A4	RCS LOOP 2 HOT LEG TEMP (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A5	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A6	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A2	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A4	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A	
	RC13A	RCS CODE SAFETY VALVE	SV	D	2	C	C	CLOSED		H	NONE			N/A	
	RC147	PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
	RC200	PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A	
	RC239A	PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A	
	RC239B	PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A	
	RC2A	PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			N/A	
	RC4608A	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	NONE			N/A	
	RC4608B	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A	
	RC4610A	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A	
	RC4610B	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A	
RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	NONE			N/A		
SFAS	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS MAY ACTUATE	13

LEGEND

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SAFE SHUTDOWN ANALYSIS

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SFAS	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS MAY ACTUATE	13
	C5765D	SFAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
SFRCS	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : UU

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	HIS101B	LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101C	LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS3871B	BLOCK CIRCUIT AF3871 (APP-2 TO SG-1)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS3872B	BLOCK CIRCUIT AF3872 (APP-2 TO SG-2)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS603B	BLOCK CIRCUIT MS603 (SG-2 DRAIN STOP)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS6402	CH 2/4 MANUAL START APPT-2 C5707	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	HIS6404	CH 2/4 MAN STRT APPT-2 & ISOL SG-2 C57	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	1CRCPD11C			SFRCS ACTUATES	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : UU

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
SFRCS	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	1CRCPM11B			SFRCS INITIATES ON LOOP	14	
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14	
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14	
	RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14	
	SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	NONE			N/A	7
		P3-2	SW PUMP 2	PUMP	BF	2	O/F	ON	OFF		H	NONE			N/A	
		P3-3	SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1,P3-2	H	NONE			N/A	
SW1357		CAC 2 OUT ISO VLV	SOV	A	2	O/C	O	FO		H	NONE			N/A		
SW1358		CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	NONE			N/A		
SW1367		CAC 2 IN ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A		
SW1368		CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	NONE			N/A		
SW1383		AFP 2 SUCT VLV FROM SW	MOV	A	2	C	O/C	AS IS		H	NONE			N/A		
SW1395		TPCW HX IN HEADER ISO VLV	MOV	BG	2	O/C	C	AS IS		H	NONE			N/A		
SW1429		SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	NONE			N/A		
SW1434		SW FROM CC HX 2 ISO VLV	SOV	T	2	O/C	O	FO		H	NONE			N/A		
SW2928		CTRM EVS COND UNIT IN VLV	MOV	HH	2	C	O	AS IS		H	NONE			N/A		
SW2930		SW TO INT FOREBAY VLV	MOV	BG	2	O/C	O	AS IS	SW2929,31,32	H	NONE			N/A		
SW2932		SW TO COLLECT BASIN VLV	MOV	BG	2	O/C	O	AS IS	SW2929,30,31	H	NONE			N/A		
SW54		TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B H	NONE			N/A		
SW55		TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A		
SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A			
ASSCKT	FTY5444	FTY5444									2CY217C			LOST DUE TO BKR COORDINATION	20	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA UU TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent upstream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA UU TABLE 1 NOTES

- 9. NOT USED
- 10. NOT USED
- 11. NOT USED
- 12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:

ICS11A	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

- 13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level setpoint is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components.

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531 P42-2	CS Iso Vlv LPI Pump 2	Open On	Stop P56-1, -2 Stop P42-2 from the CR after blocking SFAS
P42-1 P56-2	LPI Pump 1 CS Pump 2	On On	Trip Bkr AC112 at C1 Stop P56-2 from the CR after blocking SFAS
P56-1 P58-2	CS Pump 1 HPI Pump 2	On On	Trip Bkr BE111 at E1 Stop P58-2 from the CR after blocking SFAS
P58-1 CC1407A, B	HPI Pump 1 CCW Out Iso Vlv	On Closed	Trip Bkr AC111 at C1 Open CC1407A, B and Trip Bkr BE1173 at E11B & BF1158 at F11B
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip Bkr BE1176 at E11B & BF1159 at F11B
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03 MU38	RC Lt Dn Cooler Out RCP Seal Rtn Isol	Closed Closed	Open MU03 Open MU38

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA UU TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

If AF3871 is manually closed, first trip Breaker BF1201 at F12A.

15. NOT USED

16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or by performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injection and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.

RCP Seal Return, Seal Injection and Letdown Flow

The following manual valves will need to be operated:

MU97	Open	MU216	Throttle
MU182	Close	WC119	Open
MU214	Close	WC120	Open

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA UU TABLE 1 NOTES

Additionally, the following valves may need to be manually operated:

CC1410	Open	MU10A	Open
MU01B	Open	MU11	Direct Flow to CWRT
MU02B	Open		

RCS Inventory Control

After transferring the Makeup suction to the BWST, MU203 will be manually closed after opening MU208, HP29, and HP1556 to route MUPS Recirc to the BWST rather than the Makeup Tank.

- 17. NOT USED
- 18. To prevent spurious operation, Valves DH09A and DH09B are deenergized.
- 19. NOT USED
- 20. NOT USED
- 21. NOT USED
- 22. The Core Flood Isolation Valves CF01A, B are normally open and are required to be closed when cooling down before going below 700 psig. Breakers BF1120 at F11A and BE1162 at E11B are normally open; manual action may be required to close CF01B before going below 700 psig.
- 23. NOT USED
- 24. Essential CCW is provided to the Makeup Pump Cooler, bypassing CC1460.
- 25. Valves DH11 and DH12 are depowered. Bypass Valves DH21 and DH23 can be manually operated to place the DHR System in service.
- 26. The DHR Cooler 1-2 Isolation Valve CC1469 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRS cooldown.

The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467(CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467(CC1469).

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: V

TRAIN ACCREDITED FOR SHUTDOWN: 2

4.6.V.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
222	FUEL TRANSFER TUBE RM	0	N	MAN
223	CASK PIT	400	Y	MAN
224	SPENT FUEL STORAGE POOL	0	Y	MAN
300	FUEL HANDLING AREA	46,502	Y	MAN
300A	CASK WASH AREA	400	Y	MAN
300B	DRUM STORAGE	400	Y	MAN
301	SOLID WASTE BALER AREA	400	Y	MAN
302	HOT SHOP	28,740	Y	MAN
304	CORRIDOR	56,358	Y	AUTO
305	DEMIN. VESSELS	400	Y	MAN
306	NEW FUEL STORAGE	3,244	Y	MAN
400	PASSAGE	48,793	Y	MAN
401	FUEL HAND EXH UNIT RM	35,059	N	MAN
404	CORRIDOR	75,151	Y	MAN
405	STORAGE	26,050	Y	AUTO
406	HOT INSTRUMENT SHOP	36,000	Y	MAN
TT	TRANSFER TUBES	0	N	MAN

4.6.V.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA V

The following components are located in fire area V.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
ESSPWR	1	CDE-11B-1	PNL	CONTROL POWER (LOADS NON-SSD)
	1	CDE-11B-2	PNL	CONT POWER TO DH12 INTLK
	1	E11B	MCC	480VAC MCC
	1	E11C	MCC	480VAC MCC
	2	F11B	MCC	480VAC MCC
	1	RC3706	PNL	CONTROL POWER (LOADS NON-SSD)
	1	RC4802	PNL	CONT PWR (TO MUTK, SG DRN RLY)
	1	YE2	PNL	240/120VAC MCC

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

4.6.V.2 Cont.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
MUPS	1/2	F59-1	FLT	SEAL INJECT FLT 1-1
	1/2	F59-2	FLT	SEAL INJECT FLT 1-2
SFAS	1/2	PT2000	PT	CTMT Vessel Press Xmtr

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## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA V

#### 4.6.V.3 Fire Propagation Control

Fire Area V is located in the Auxiliary Building and Fuel Handling Building and consists primarily of the Fuel Handling Area, Fuel Storage Area and several Passages as shown on Drawings A-223 through A-229.

The south wall of the Auxiliary Building, west of column line H to the LLRSF, from grade to the roof, where the CAF (Fire Area CA) faces the Auxiliary Building, is a 3 hour fire rated barrier.

The floor of Room 304 has removable concrete plugs which provide access for equipment removal from Room 209 (Fire Area G). Based on the construction of the plugs and low combustible loadings, a fire will not propagate from one fire area to the other.

The floor of Room 300 has several removable concrete plugs which provide access to Rooms 102 (Fire Area A), 210 and 205 (Fire G). Based on the construction of the plugs and the low combustible loadings, a fire will not propagate from one fire area to another.

The concrete block walls enclosing the stairwell (Fire Area VA) are rated for 2-hours. Based on the construction and low combustible loadings, a fire will not propagate from one fire area to the other. See Fire Area VA for more details.

There are several penetrations which have penetration seals which are inaccessible or do not conform to a tested configuration or penetrations with small annular gaps. These non-rated openings have been evaluated and will not allow the propagation of a fire.

Room 405 has structural steel which does not have a 3-hour fire rating. Based on analysis of the low combustible loadings the steel will not fail.

#### 4.6.V.4 Fire Detection and Suppression

Fire Area V consists of various rooms and/or plant areas. The following areas have detection.

1. Fuel Handling Area, Room 300 and subrooms, including detection under balcony, Fire Detection Zones FDZ 300S and 300.
2. Corridor, Room 304, Fire Detection Zone FDZ 304
3. Passage (Equipment Hatch Area), Room 400, fire Detection Zone FDZ 400
4. Corridor, Room 404, Fire Detection Zone FDZ 404
5. Storage Room 405, Fire Detection Zone FDZ 405
6. Hot Instrument Shop, Room 406, Fire Detection Zone FDZ 406
7. Solid Waste Baler Area, Room 301, FDZ 301
8. Hot Shop, Room 302, FDZ 302

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA V

The following rooms are provided with automatic wet-pipe sprinkler systems

1. Corridor, Room 304
2. Storage Room 405

Manual fire suppression equipment is provided for this fire area. Fire extinguishers and Hose Stations (HS) are shown on Drawings A-223F through A-229F.

In the event of a fire, isolation and smoke venting will be accomplished in accordance with the Pre-Fire Plans.

#### 4.6.V.5 Fire Area Safe Shutdown Summary

Train 2 will be used for Safe Shutdown in Fire Area V. Safe Shutdown will be accomplished using the High Pressure Injection System (HPIS) along with the Pressurizer Sample/Vent Header Valves (RC200 and RC239A) for Reactor Coolant System Inventory Control, the Makeup and Purification system for a Letdown path and the HPIS Seal Injection for RCP Seal Cooling. The RCP Seals will be restaged via flow through the RCP Seal Return line.



Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : V

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	1CBE1146B 1CBE1146F 1CBE1146G 1CBE1146H 1PBE1146A			OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1)	27 27 27 27 27
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3871)	OP-02501 (CLOSE AF3871)	28
	AF3872	AFWP 2 DISCH TO SG2	MOV	F	2	O	O	AS IS		H	NONE			N/A	
	AF599	AFW TO SG2 ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	AF6451	AFWP 2 FLOW CTRL VLV	SOV	F	2	O	O/C	FO		H	NONE			N/A	
	FW6460	MDFP FLOW CTRL VLV	SOV	II	2	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			N/A	7
	ICS038A	AFPT 2 GOV CTRL VLV	MOV	F	2	O	O/C	AS IS		H	NONE			N/A	7
	MS106A	AFPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	1CBE1271B 1CBE1271G 1CBE1271H 1CBE1271J 1CBE1271K 1CBE1271L CDE-11C	PSL4930B		OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1)	29 29 29 29 29 29 29
	MS107	AFPT 2 MS IN ISO VLV	MOV	EE	2	C	O	AS IS		H	NONE			N/A	
	MS107A	AFPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	2CBF1188B 2CBF1188F 2CBF1188G 2CBF1188H 2CBF1188J 2CBF1188L 2PBF1188A BF1188 CDF-11B			OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1) OP-02501 (TRIP P14-1)	30 30 30 30 30 30 30 30 30
	MS5889B	AFPT 2 STREAM ADMISS VLV	SOV	F	2	C	O	FO		H	NONE			N/A	
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-1)	OP-02501 (TRIP P14-1)	14
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE			N/A	
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	P242-1	MDFP AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	P242-2	MDFP SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			N/A	7
CACS	C1-2	CAC FAN 2	FAN	D	2	O/F	ON	OFF		H	NONE			N/A	
	C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	NONE			N/A	
CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	1CBE1173C 1CBE1173E 1CBE1173F 1CBE1173G 1PBE1173A BE1173 CDE-11B-2	KA,KB	OP-02501 (OPEN CC1407A) OP-02501 (OPEN CC1407A) OP-02501 (OPEN CC1407A) OP-02501 (OPEN CC1407A) OP-02501 (OPEN CC1407A) OP-02501 (OPEN CC1407A) OP-02501 (OPEN CC1407A)	OP-02501 (OPEN CC1407A) OP-02501 (OPEN CC1407A) OP-02501 (OPEN CC1407A) OP-02501 (OPEN CC1407A) OP-02501 (OPEN CC1407A) OP-02501 (OPEN CC1407A) OP-02501 (OPEN CC1407A)	13,31 13,31 13,31 13,31 13,31 13,31 13,31

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : V

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	2CBF1158B 2CBF1158E 2CBF1158F 2CBF1158G 2PBF1158A BF1158 CDF-11B		OP-02501 (OPEN CC1407B) OP-02501 (OPEN CC1407B) OP-02501 (OPEN CC1407B) OP-02501 (OPEN CC1407B) OP-02501 (OPEN CC1407B) OP-02501 (OPEN CC1407B) OP-02501 (OPEN CC1407B) OP-02501 (OPEN CC1407B)	OP-02501 (OPEN CC1407B) OP-02501 (OPEN CC1407B) OP-02501 (OPEN CC1407B) OP-02501 (OPEN CC1407B) OP-02501 (OPEN CC1407B) OP-02501 (OPEN CC1407B) OP-02501 (OPEN CC1407B) OP-02501 (OPEN CC1407B)	13, 31 13, 31 13, 31 13, 31 13, 31 13, 31 13, 31 13, 31
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE			N/A	
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1410)	OP-02501 (OPEN CC1410)	16
	CC1411A	CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	1CBE1176C 1CBE1176E 1CBE1176F 1CBE1176G 1CBE1176H 1CLR3757A 1CLR3757B 1PBE1176A BE1176 CDE-11B-1	KA, KB	OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A)	OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A) OP-02501 (OPEN CC1411A)	13, 31 13, 31 13, 31 13, 31 13, 31 13, 31 13, 31 13, 31 13, 31 13, 31 13, 31
	CC1411B	CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	2CBF1159B 2CBF1159E 2CBF1159F 2CBF1159G 2CBF1159H 2PBF1159A BF1159 CDF-11B	LSLL/X1	OP-02501 (OPEN CC1411B) OP-02501 (OPEN CC1411B) OP-02501 (OPEN CC1411B) OP-02501 (OPEN CC1411B) OP-02501 (OPEN CC1411B) OP-02501 (OPEN CC1411B) OP-02501 (OPEN CC1411B) OP-02501 (OPEN CC1411B)	OP-02501 (OPEN CC1411B) OP-02501 (OPEN CC1411B) OP-02501 (OPEN CC1411B) OP-02501 (OPEN CC1411B) OP-02501 (OPEN CC1411B) OP-02501 (OPEN CC1411B) OP-02501 (OPEN CC1411B) OP-02501 (OPEN CC1411B)	13, 31 13, 31 13, 31 13, 31 13, 31 13, 31 13, 31 13, 31
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	N/A	24
	CC1469	DHR CLR 2 OUT ISO VLV	SOV	AB	2	C	O	FO		C	NONE		OP-02501 (OPERATE CC1469)	OP-02501 (OPERATE CC1469)	26
	CC1474	DG JKT CW HX 2 OUT VLV	MAN	J	2	O	O	AS IS		H	NONE			N/A	
	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B	H	NONE		OP-02501 (OPERATE CC43)	12, 26
	CC2649	CC RETURN HDR 2 VLV	MOV	G	2	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	NONE			N/A	
	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	
	CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501(OPERATE CC43)	OP-02501(OPERATE CC43)	12, 26
	CC5096	CC HDR 2 IN ISO VLV	MOV	T	2	O/C	O	AS IS		H	NONE			N/A	
	CC5098	CCW LINE 2 RET ISO VLV	MOV	T	2	O/C	O/C	AS IS		H	NONE			N/A	
	FIS1422D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1427D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1432D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	P43-2	CCW PUMP 2	PUMP	T	2	O/F	ON	OFF		H	NONE			N/A	
	P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	NONE			N/A	
	CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B	C	NONE		N/A
CF01B		CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B	C	1CBE1162C	OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	32

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : V

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES															
CFS	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B C	1CBE1162E	PSH7530A	OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	32															
											1CBE1162F		OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	32															
											1CBE1162G		OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	32															
											1CVCF01BA		OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	32															
											1CVCF01BB		OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	32															
											1CVCF01BC		OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	32															
											1PBE1162A		OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	32															
											BE1162		OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	32															
											CDE-11B-1		OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	32															
											CREVS		C21-2	CTRM EVS FAN 2	FAN	HH	2	OFF	ON	OFF		H	NONE			N/A				
S33-2	CTRM EMERG A/C UNIT 2	A/C	HH	2	OFF	ON	OFF	H	NONE	N/A																				
SV4827A	CREVS CONDENSER UNIT 2 (S33-2) IN VLV	SOV	HH	2	C	O	CLOSED	H	NONE	N/A																				
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B H	1CBE1156B			OP-02501 (TRIP P56-1)	13															
											1CBE1156D			OP-02501 (TRIP P56-1)	13															
											1CBE1156F			OP-02501 (TRIP P56-1)	13															
											1CBE1156H			OP-02501 (TRIP P56-1)	13															
											1CBE1156I			OP-02501 (TRIP P56-1)	13															
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	2CBF1147B			OP-02501 (TRIP P56-2)	13															
											2CBF1147D			OP-02501 (TRIP P56-2)	13															
											2CBF1147H			OP-02501 (TRIP P56-2)	13															
											2CBF1147I			OP-02501 (TRIP P56-2)	13															
											2CBF1147J			OP-02501 (TRIP P56-2)	13															
P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	1CBE111F			OP-02501 (TRIP P56-1)	13																
										P56-2			CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE	OP-02501 (TRIP P56-2)	13						
DHRS	DH01A	LPI LINE 2 VLV	MOV	A	2	O	O	AS IS		C	NONE			N/A																
																DH07A	BWST ISO VLV A	MOV	AC	2	O	O	AS IS	H	2CBF1148B	MVDH09A			VALVE DE-ENERGIZED	18
																									2CBF1148C				VALVE DE-ENERGIZED	18
																									2CBF1148F				VALVE DE-ENERGIZED	18
																									2CBF1148G				VALVE DE-ENERGIZED	18
	2CBF1148H	VALVE DE-ENERGIZED	18																											
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS	B H	NONE			MOD 89-0089	VALVE DE-ENERGIZED	18															
										DH09B			CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS	B H	1CBE1112E			MOD 89-0089	VALVE DE-ENERGIZED	18				
	1CBE1112F	MOD 89-0089	VALVE DE-ENERGIZED	18																										
	1CBE1112G	MOD 89-0089	VALVE DE-ENERGIZED	18																										
DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS	H/L C	NONE			OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25																

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

## Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : V

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
DHRS	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	1CBE1183C 1CBE1183F 1CBE1183G 1CBE1183I 1CBE1183J 1CBE1183A 1PBE1183A BE1183 CDE-11B-2		OP-02501 (OPEN DH21 & 23) OP-02501 (OPEN DH21 & 23) OP-02501 (OPEN DH21 & 23) OP-02501 (OPEN DH21 & 23) OP-02501 (OPEN DH21 & 23) OP-02501 (OPEN DH21 & 23) OP-02501 (OPEN DH21 & 23) OP-02501 (OPEN DH21 & 23) OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED VALVE DE-ENERGIZED VALVE DE-ENERGIZED VALVE DE-ENERGIZED VALVE DE-ENERGIZED VALVE DE-ENERGIZED VALVE DE-ENERGIZED VALVE DE-ENERGIZED VALVE DE-ENERGIZED	25 25 25 25 25 25 25 25 25	
	DH13A	DH CLR 2 BYPASS VLV	SOV	AB	2	C	C	FC		C	NONE			N/A		
	DH14A	DH CLR 2 OUT VLV	SOV	AB	2	O	O	FO		C	NONE			N/A		
	DH1518	DH NORM SUCT LINE 2 VLV	MOV	A	2	C	O/C	AS IS		C	NONE			N/A		
	DH2734	DH PUMP 2 BWST SUCT VLV	MOV	AB	2	O	O/C	AS IS		C	NONE			N/A		
	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	1CBE1155C 1CBE1155E 1CBE1155F 1PBE1155A BE1155 CDE-11B-1			DH2736 FOR H/L INTERFACE DH2736 FOR H/L INTERFACE DH2736 FOR H/L INTERFACE DH2736 FOR H/L INTERFACE DH2736 FOR H/L INTERFACE DH2736 FOR H/L INTERFACE	42 42 42 42 42 42	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A		
	DH63	LPI/HPI CROSS-TIE VLV	MOV	A	2	C	C	AS IS		C	NONE			N/A		
	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-1)	OP-02501 (TRIP P42-1)	13	
	P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	OP-02501 (TRIP P42-2)	13	
	EDG	DA1148A/B	EDG 2 AIR START VLV	SOV	J	2	C	O	FC		H	NONE			N/A	
		DA2989	AIR START RCVR 1-2-1 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
		DA2994	AIR START RCVR 1-2-2 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
		DA62	AIR START RCVR 1-2-1 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
DA63		AIR START RCVR 1-2-2 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A		
K5-2		EMERG DIESEL GENERATOR 2	EDG	J	2	O/F	ON	OFF		H	NONE			N/A		
P148-2A		EDG JACKET WATER PUMP (RIGHT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A		
P148-2B		EDG JACKET WATER PUMP (LEFT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A		
P195-2		EDG FUEL OIL TRANSFER PUMP 2	PUMP	BN	2	OFF	ON	OFF		C	NONE			N/A		
P201-2		EDG 1-2 M/D FUEL OIL PUMP	PUMP	J	1	O/F	ON	OFF	P205-2	H	NONE			N/A		
P205-2		EDG 1-2 E/D FUEL OIL PUMP	PUMP	J	2	O/F	ON	OFF	P201-2	H	NONE			N/A		
S207-01		EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A		
S207-02		EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A		
S207-03		EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A		
S207-04	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A			
ESSPWR	2N	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A		

## LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Detailed Analysis

SAFE SHUTDOWN ANALYSIS

FIRE AREA : V

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	2P	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	NONE			N/A	
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1,-2,-3	H	NONE			N/A	
	C3616	EDG1-2 PANEL LIGHTS (ALT PWR)	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	C3629	CONT POWER ESS METER HPI FLOW Y	PNL	R	2	ON	ON	OFF		H	NONE			N/A	
	C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C4602	NEUTRON FLUX MON. CABINET (CH.2)	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	C4625	CONT POWER TO AUX PW CONTROL PANEL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5755C	SFAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5755E	CONTROL ROOM REACT PROT. SYS PNL(CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755G	POST ACCIDENT MON. RACK (CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5756D	SFAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5759C	INST POWER NNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			LOSS OF CH 1/3 INITIATES AFW	14
	C5762A	CONTROL POWER TO SFRCS CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	1CYE211A			LOSS OF CH 1/3 INITIATES AFW	14
	C5762C	SFAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	NONE			SFAS INITIATED	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS INITIATED	13
	C5792	CONTROL ROOM SFRCS CABINET (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5792A	CH 2 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5798	POST ACCIDENT MON. IND. PNL (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C6709	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	C6715	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	CDF-11A-1	CONTROL DISCONNECT TRANSFER SWITCH	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	CDF-12A-1	D2P CONT POWER TO AFWP GOV (ICS038B)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	D1	4.16KV AC SWGR	SWGR	Q	2	ON	ON	OFF		H	NONE			N/A	
	D2	4.16KV SWGR	SWGR	Q	2	ON	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

## Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : V

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	D2N	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	D2P	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBC2N	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2P	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2PN	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF	DBC2P,DBC2N	H	NONE			N/A	7
	DBN	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBP	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DC MCC 2	250/125V DC MCC	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	F1	480 V AC MCC F1	SWGR	X	2	ON	ON	OFF		H	NONE			N/A	
	F11A	480VAC MCC	MCC	DF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11B	480VAC MCC	MCC	V	2	ON	ON	OFF		H	2PBF1137A F11B			LOSS OF POWER LOSS OF POWER	40 40
	F11C	480VAC MCC	MCC	A	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11D	480VAC MCC	MCC	G	2	ON	ON	OFF		H	NONE			N/A	
	F11E	480VAC MCC	MCC	B	2	ON	ON	OFF		C	NONE			N/A	
	F12A	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12B	480VAC MCC	MCC	J	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12C	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12D	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE			N/A	
	F14	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F15	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F16A	480V AC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	NONE			N/A	
	RC3602	DC CONTROL POWER RCP MONITOR	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3608	CONTROL POWER (TO CCCW002)	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3702	DC CONTROL POWER TO CAC 2 OUT VLV	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3705	CONT POWER RC3705 (LR3758)	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	NONE			N/A	
	RC3716									H	NONE			N/A	
	RC4606	DC CONT PWR (MU6406,RC4610A,PORV)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	NONE			N/A	7

## LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : V

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	XY2	CONSTANT VOLT TRANSFORMER (CVT CH 2)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	XY4	CONSTANT VOLT TRANSFORMER (CVT CH 4)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	Y2	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y2A	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y3602	CONTROL POWER (MU19 & MU32)	PNL	II	2	ON	ON	OFF		H	NONE			N/A	
	Y4	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YBU	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YF1	120VAC MCC	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	YF2	240/120VAC MCC	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	YV2	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YV4	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YVB	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	ZC6451	AFP #2 CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A	
ZC6460	MDFP CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A		
HPIS	HP02A	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02B	H	NONE		OP-02501 (OVERRIDE SFAS)	SFAS INITIATED	13
	HP02B	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02A	H	NONE		OP-02501 (OVERRIDE SFAS)	SFAS INITIATED	13
	HP31	HPI PMP 2 RECIRC VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	P198-1	HPI PMP 2 AC LO PMP	PUMP	A	2	OFF	ON	OFF		H	NONE			N/A	
	P198-2	HPI PMP 2 DC LO PUMP	PUMP	A	2	OFF	ON	OFF	P198-1	H	NONE			N/A	
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	SFAS INITIATED	13
	P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE			SFAS INITIATED	13
HVAC	C133	LV SWGR RM VENT FAN 2	FAN	EE	2	O/F	ON	OFF		H	NONE			N/A	
	C25-3	EDG RM 2 VENT FAN 3	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C25-4	EDG RM 2 VENT FAN 4	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C73-2	AFP RM VENT FAN 2	FAN	F	2	O/F	ON	OFF		H	NONE			N/A	
	C78-2	BATT RM VENT FAN 2	FAN	X	2	O/F	ON	OFF		H	NONE			N/A	
	C99-3	SW PMP RM EXH FAN 3	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	C99-4	SW PMP RM EXH FAN 4	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	HV5314	LV SWGR RM 428 DAMPER	DMPR	EE	2	O/C	O	AS IS		H	NONE			N/A	
	HV5314A	LV SWGR RM 428 DAMPER	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
	HV5336A	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : V

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
HVAC	HV5336B	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FO		H	NONE			N/A		
	HV5336C	EDG ROOM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A		
	HV5598	BATT RM 428A ATM DMPR	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A		
MSS	ICS11A	MSL 2 ATM VENT VLV	SOV	DH	2	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11A)	LOSS OF AIR	12	
	MS100	MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A		
	MS100-1	MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A		
	MS101	MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A		
	MS101-1	MSIV 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	1CV1011C 1CV1011F			SO NOT POSSIBLE SO NOT POSSIBLE	5C 5C	
	PSV-SP17A1	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B		H	NONE			N/A	
	PSV-SP17A2	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B		H	NONE			N/A	
	PSV-SP17A3	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B		H	NONE			N/A	
	PSV-SP17A4	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B		H	NONE			N/A	
	PSV-SP17A5	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B		H	NONE			N/A	
	PSV-SP17A6	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B		H	NONE			N/A	
	PSV-SP17A7	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B		H	NONE			N/A	
	PSV-SP17A8	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B		H	NONE			N/A	
	PSV-SP17A9	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B		H	NONE			N/A	
	MUPS	F59-1	SEAL INJECT FLT 1-1	FLT	V	1/2	FUNC	FUNC	N/A		H	NONE			LOW COMBUSTIBLE AREA	34
		F59-2	SEAL INJECT FLT 1-2	FLT	V	1/2	FUNC	FUNC	N/A		H	NONE			LOW COMBUSTIBLE AREA	34
		HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2		H	NONE		N/A	
HP27		HPI TO RCP SEALS	MAN	A	2	C	O	AS IS			H	NONE	OP-02501 (OPEN HP27)	OP-02501 (OPEN HP27)	16	
HP29		MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2		H	NONE		N/A		
MU01A		LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03		H	NONE		N/A		
MU01B		LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03		H	NONE	OP-02501 (OPEN MU01B)	OP-02501 (OPEN MU01B)	16	
MU02A		LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS			H	1CBE1171C 1CBE1171E 1CBE1171F 1CBE1171G 1PB1171A BE1171 CDE-11B-1		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13, 35
														OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13, 35
														OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13, 35
														OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13, 35
MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS			H	1CBE1172C 1CBE1172E 1CBE1172F 1CBE1172G		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16, 35	
													OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16, 35	
													OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16, 35	
													OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16, 35	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



SAFE SHUTDOWN ANALYSIS

FIRE AREA : V

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	1PB1172A BE1172 CDE-11B-1		OP-02501 (OPEN MU02B) OP-02501 (OPEN MU02B) OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B) OP-02501 (OPEN MU02B) OP-02501 (OPEN MU02B)	16, 35 16, 35 16, 35
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	2CVMU03C 2CVMU03E		OP-02501 (OPEN MU03) OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03) OP-02501 (OPEN MU03)	13 13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	ACBE2259C		OP-02501 (OPEN MU04)	OP-02501 (OPEN MU04)	16
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	ACBE2262C		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16, 35
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	ACBE2263C			USE MU10A	35
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	ACBE2278C ACBE2278I ACBE2278L	FYIC-MU39	OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT) OP-02501 (ALIGN MU11 TO CWRT)	16 16 16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	BCNNI261C BCNNI264A BCY36218A BLNNI264B			OP-02501 (OPERATE MU214/MU216) OP-02501 (OPERATE MU214/MU216) OP-02501 (OPERATE MU214/MU216) OP-02501 (OPERATE MU214/MU216)	16 16 16 16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	ACBE2271C			USE MU10A	35
	MU203	Recirc to Seal Return Stop Valve	MAN	AB	2	O	O/C	AS IS		H	NONE			N/A	
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU32	RC MU ISO VLV	FCV	AB	2	O/C	O	FO	HPIS TRAIN 1&2	H	NONE			N/A	
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B H	2CVMU38C 2CVMU38D 2CVMU38E		OP-02501 (OPEN MU38) OP-02501 (OPEN MU38) OP-02501 (OPEN MU38)	OP-02501 (OPEN MU38) OP-02501 (OPEN MU38) OP-02501 (OPEN MU38)	13 13 13
	MU3971	RC MU PUMP SUCT VLV	MOV	AB	2	C	O/C	AS IS	HPIS TRAIN 2	H	ACHILOWAA BCHILOW2A RC4802			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	1CBE1174C 1CBE1174E 1CBE1174F 1CBE1174G 1PB1174A BE1174 CDE11B-1	2/TDC 2/TDC KA, KB	OP-02501 (OPEN MU59A) OP-02501 (OPEN MU59A) OP-02501 (OPEN MU59A) OP-02501 (OPEN MU59A) OP-02501 (OPEN MU59A) OP-02501 (OPEN MU59A) OP-02501 (OPEN MU59A)	OP-02501 (OPEN MU59A) OP-02501 (OPEN MU59A) OP-02501 (OPEN MU59A) OP-02501 (OPEN MU59A) OP-02501 (OPEN MU59A) OP-02501 (OPEN MU59A) OP-02501 (OPEN MU59A)	13 13 13 13 13 13 13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	1CBE1175C 1CBE1175E 1CBE1175F 1CBE1175G 1PB1175A BE1175 CDE11B-1	KA, KB	OP-02501 (OPEN MU59B) OP-02501 (OPEN MU59B) OP-02501 (OPEN MU59B) OP-02501 (OPEN MU59B) OP-02501 (OPEN MU59B) OP-02501 (OPEN MU59B) OP-02501 (OPEN MU59B)	OP-02501 (OPEN MU59B) OP-02501 (OPEN MU59B) OP-02501 (OPEN MU59B) OP-02501 (OPEN MU59B) OP-02501 (OPEN MU59B) OP-02501 (OPEN MU59B) OP-02501 (OPEN MU59B)	13 13 13 13 13 13 13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	1CBE1177C 1CBE1177E 1CBE1177F		OP-02501 (OPEN MU59C) OP-02501 (OPEN MU59C) OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C) OP-02501 (OPEN MU59C) OP-02501 (OPEN MU59C)	13 13 13

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

## Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : V

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	1CBE1177G 1PBE1177A BE1177 CDE11B-2	KA, KB	OP-02501 (OPEN MU59C) OP-02501 (OPEN MU59C) OP-02501 (OPEN MU59C) OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C) OP-02501 (OPEN MU59C) OP-02501 (OPEN MU59C) OP-02501 (OPEN MU59C)	13 13 13 13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	1CBE1178C 1CBE1178E 1CBE1178F 1CBE1178G 1PBE1178A 1PBE1178A BE1178 CDE11B-2	KA, KB	OP-02501 (OPEN MU59D) OP-02501 (OPEN MU59D) OP-02501 (OPEN MU59D) OP-02501 (OPEN MU59D) OP-02501 (OPEN MU59D) OP-02501 (OPEN MU59D) OP-02501 (OPEN MU59D) OP-02501 (OPEN MU59D)	OP-02501 (OPEN MU59D) OP-02501 (OPEN MU59D) OP-02501 (OPEN MU59D) OP-02501 (OPEN MU59D) OP-02501 (OPEN MU59D) OP-02501 (OPEN MU59D) OP-02501 (OPEN MU59D) OP-02501 (OPEN MU59D)	13 13 13 13 13 13 13 13
	MU6406	MU RECIRC ISO VLV	AOV	AB	2	O	O/C	FO	HPIS TRAIN 2	H	NONE			N/A	
	MU6408	MU CROSS CONNECT ISO VLV	MOV	AB	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU6420	MU32 BYPASS VLV	MOV	AB	2	C	O	AS IS	HPIS, MU32	H	NONE			N/A	
	MU6422	MU CTMT ISO VLV	MOV	A	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	2CVMU66AB 2CVMU66AD		OP-02501 (OPEN MU66A) OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A) OP-02501 (OPEN MU66A)	13 13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	1CSF1736A 1CVMU66BB 1CVMU66BD	KA, KB KA, KB	OP-02501 (OPEN MU66B) OP-02501 (OPEN MU66B) OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B) OP-02501 (OPEN MU66B) OP-02501 (OPEN MU66B)	13 13 13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	1CSF1737A 1CVMU66CB 1CVMU66CD	KA, KB KA, KB	OP-02501 (OPEN MU66C) OP-02501 (OPEN MU66C) OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C) OP-02501 (OPEN MU66C) OP-02501 (OPEN MU66C)	13 13 13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	2CVMU66DB 2CVMU66DD		OP-02501 (OPEN MU66D) OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D) OP-02501 (OPEN MU66D)	13 13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-372B	MUP 2 MAIN LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	BCBF1167C	RX-2, RX-11-2		NOT REQUIRED FOR S/D	7
	P-372C	MUP 2 AUX LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS, P-372B	H	BCD217D BCD217E BCD217F BCD217G			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7
	P-372D	MUP 2 AUX GEAR LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	BCBF1168D BCBF1168E BCBF1168F BCBF1168G BCBF1168I	PS2MU105A AD105		NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7 7
	P37-2	MU PUMP 2	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	BCAD105G BCAD105H			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7
	P372A	MU PMP 2 MAIN GEAR LO PMP	PUMP	AB	2	O/F	O	OFF	P372D	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1743)	LOSS OF AIR	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE		OP-02501 (OPEN WC1747)	LOSS OF AIR	12

## LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : V

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	NONE			N/A	
NI	NI-5875A	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	NI-NI1	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
NNI	FI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A1	HPI FLOW IND. (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B1	HPI FLOW IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-2	PRZR LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-4	PRZR LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A1	SG1-2 START-UP LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A3	SG1-2 START-UP LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A8	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A8A	SG1-2 START-UP LEVEL IND (C5710)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A9	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LRS-RC14	PRZR LEVEL RECORDER	REC	FF	2	ON	ON	OFF	LI-RC14-1-4	H	NONE			N/A	
	PI-6365A	RCS LOOP 2 EXTENDED RANGE PRESS	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-6365A1	RCS LOOP2 EXTENDED RANGE PRESS (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A3	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A4	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1	SG1-2 OUTLET PRESS IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1-A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF	PI-SP12A	H	NONE			N/A	
	TE-RC3A6	RCS LOOP 2 HOT LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TE-RC4A2	RCS LOOP 2 COLD LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A4	RCS LOOP 2 HOT LEG TEMP (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A5	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	1LTRC3A5B			USE TI-RC3A6	36
	TI-RC3A6	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A2	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A4	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

## Detailed Analysis

## SAFE SHUTDOWN ANALYSIS

FIRE AREA : V

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	1CBE1602K			USE RC200/RC239A	39
	RC13A	RCS CODE SAFETY VALVE	SV	D	2	C	C	CLOSED		H	NONE			N/A	
	RC147	PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
	RC200	PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A	
	RC239A	PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A	
	RC239B	PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A	
	RC2A	PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			N/A	
	RC4608A	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	1CV4608AD RC3706			SO NOT CREDIBLE SO NOT CREDIBLE	41 41
	RC4608B	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	1CV4608BC			SO NOT CREDIBLE	41
	RC4610A	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A	
	RC4610B	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A	
	RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	NONE			N/A	
SFAS	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS MAY ACTUATE	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			SFAS MAY ACTUATE	13
	C5765D	SFAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	1CLY6453A 1CLY6453B			SFAS MAY ACTUATE SFAS MAY ACTUATE	13 13
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	1LSPLT11A			SFAS MAY ACTUATE	13
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13

## LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : V

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFAS	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	1LSFPT12A			SPAS MAY ACTUATE	13
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
SFRCS	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101B	LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101C	LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS3871B	BLOCK CIRCUIT AF3871 (APP-2 TO SG-1)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS3872B	BLOCK CIRCUIT AF3872 (APP-2 TO SG-2)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS603B	BLOCK CIRCUIT MS603 (SG-2 DRAIN STOP)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS6402	CH 2/4 MANUAL START AFPT-2 C5707	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	HIS6404	CH 2/4 MAN STRT AFPT-2 & ISOL SG-2 C57	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	1LSGLT11A			SFRCS ACTUATES	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	1LSGLT31A			SFRCS ACTUATES	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	1LSGLT11B			SFRCS ACTUATES	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	1LSGLT31B			SFRCS ACTUATES	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : V

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
SFRCS	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14	
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14	
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	1CRCPD11B			SFRCS ACTUATES	14	
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	1CRCPD31B			SFRCS ACTUATES	14	
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	2CRCPD21C			SFRCS ACTUATES	14	
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	2CRCPD41C			SFRCS ACTUATES	14	
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	1CRCP511F			SFRCS ACTUATES	14	
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	1CRCP511G			ONLY CH 1 AFFECTED	37	
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	1CRCP511H			ONLY CH 1 AFFECTED	37	
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D		1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D		1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D		1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14	
RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D		1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14	
SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	NONE			N/A	7	
	P3-2	SW PUMP 2	PUMP	BF	2	O/F	ON	OFF		H	NONE			N/A		
	P3-3	SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1, P3-2	H	NONE			N/A		
	SW1357	CAC 2 OUT ISO VLV	SOV	A	2	O/C	O	FO		H	NONE			N/A		
	SW1358	CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	NONE			N/A		
	SW1367	CAC 2 IN ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A		

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : V

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SWS	SW1368	CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	1CBE1207F			USE CAC 2	38
	SW1383	AFP 2 SUCT VLV FROM SW	MOV	A	2	C	O/C	AS IS		H	NONE			N/A	
	SW1395	TPCW HX IN HEADER ISO VLV	MOV	BG	2	O/C	C	AS IS		H	NONE			N/A	
	SW1429	SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	NONE			N/A	
	SW1434	SW FROM CC HX 2 ISO VLV	SOV	T	2	O/C	O	FO		H	NONE			N/A	
	SW2928	CTRM EVS COND UNIT IN VLV	MOV	HH	2	C	O	AS IS		H	NONE			N/A	
	SW2930	SW TO INT FOREBAY VLV	MOV	BG	2	O/C	O	AS IS	SW2929,31,32	H	NONE			N/A	
	SW2932	SW TO COLLECT BASIN VLV	MOV	BG	2	O/C	O	AS IS	SW2929,30,31	H	NONE			N/A	
	SW54	TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
	SW55	TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
	SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
ASSCKT	MV0624B	CTMT ISO VALVE PENET 72									2PBF1160A	F11B		LOSS OF MCC	40
ASSCKT	MV1567B	CC IN ISO VALVE 2 TO CRD									2PBF1176A	F11B		LOSS OF MCC	40
ASSCKT	MV2012B	CTMT NORM SUMP ISO VLV									2PBF1138A	F11B		LOSS OF MCC	40
ASSCKT	MV5262	CTRM EMER VNT FN 2 IN VLV									2PBF1186A	F11B		LOSS OF MCC	40
ASSCKT	C3801	CTMT HYDROGEN SYS PANEL									2CY218A			LOST DUE TO BKR COORDINATION	20

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA V TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent upstream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED



Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA V TABLE 1 NOTES

- 9. NOT USED
- 10. NOT USED
- 11. NOT USED
- 12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:
 

ICS11A	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

- 13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level setpoint is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components.

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531 HP02A, B	CS Iso Vlv HPI 2 Disch Iso Vlv	Open Open	Stop P56-1, -2 Operate from the CR after blocking SFAS
P42-1 P42-2	LPI Pump 1 LPI Pump 2	On On	Trip Bkr AC112 at C1 Stop P42-2 from CR after blocking SFAS
P56-1 P56-2	CS Pump 1 CS Pump 2	On On	Trip Bkr BE111 at E1 Stop P56-2 from CR after blocking SFAS
P58-1 P58-2 CC1407A, B	HPI Pump 1 HPI Pump 2 CCW Out Iso Vlv	On On Closed	Trip Bkr AC111 at C1 Req'd for RCS Inventory Control Open CC1407A, B and Trip BE1120 at E11A* & BF1137 at F11A**
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip BE1120 at E11A* & BF1137 at F11A**
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1120 at E11A*
MU03 MU38	RC Lt Dn Cooler Out RCP Seal Rtn Isol	Closed Closed	Open MU03 Open MU38

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA V TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1120 at E11A*
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1120 at E11A*
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1120 at E11A*
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1120 at E11A*
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

\* Trip Breaker BE1120 at MCC E11A to de-energize MCC E11B. All equipment powered from MCC E11A is Train 1 equipment and therefore not required for this fire area.

\*\* See Note 40.

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

If AF3871 is manually closed, first trip Breaker BF1201 at F12A.

15. NOT USED
16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or by performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injection and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA V TABLE 1 NOTES

RCP Seal Return Flow

The following manual valves will need to be operated:

MU97	Open	MU182	Close
WC119	Open	WC120	Open

Additionally, the following valves may need to be manually operated:

CC1410	Open	MU10A	Trip Bkr BE2262 at E22B & open MU10A
MU01B	Open		
MU02B	Open*	MU11	Trip Bkr BE2278 at E22B & Direct Flow to CWRT

\* Trip Breaker BE1120 at MCC E11A to de-energize MCC E11B. All equipment powered from MCC E11A is Train 1 equipment and therefore not required for this fire area.

RCS Inventory Control RCP

Seal Injection from the HPI System with RCS Letdown via the Makeup System

The following valves may need to be manually operated:

HP27	Open	MU208	Open
MU04	Trip Bkr BE2259 at E22B & open MU04	MU214	Close
		MU216	Throttle

17. NOT USED
18. To prevent spurious operation, Valves DH09A, DH9B, DH7A, and DH7B are deenergized.
19. NOT USED
20. NOT USED
21. NOT USED
22. NOT USED
23. NOT USED
24. Essential CCW is provided to the Makeup Pump Cooler, bypassing CC1460.
25. Valves DH11 and DH12 are depowered. Bypass Valves DH21 and DH23 can be manually operated to place the DHR System in service.

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA V TABLE 1 NOTES

26. The DHR Cooler 1-2 Isolation Valve CC1469 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRS cooldown.  
  
The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467 (CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467 (CC1469).
27. The AFW Pump 1 Discharge to SG 2 Valve AF3869 is normally closed. This valve could spuriously open, thereby supplying Feedwater to SG 2. However, with the Control Governor for AFPT 1-1 tripped, the AFW Pump cannot feed SG 2. Therefore, no action is required.
28. The AFW Pump 2 Discharge to SG 1 Valve AF3871 is normally closed. This valve could spuriously open and AFPT 2 P14-2 could start on SFRCS actuation. In order to avoid overfilling the steam generator which is not utilized for Shutdown in this fire area, AF3871 needs to be closed.
29. The AFPT 1-1 Main Steam Cross-Connect Valve MS106A is normally open to provide a steam supply to AFPT 1-1 from SG 2. For a fire in this area, no credit is taken for AFPT 1-1. During cooldown at lower temperatures, the flow diversion could effect AFW Pump 2 capacity. However, with the control governor for AFPT 1-1 tripped, steam flow past MS106A will be insignificant. Therefore, no action is required.
30. The AFPT 1-2 Main Steam Cross-Connect Valve MS107A is normally open to provide a steam supply to AFPT 1-2 from SG 1. No credit is taken for SG1. Any steam to AFPT 1-2 from SG1 will not affect the operation of AFPT 1-2 and AFPT 1-1 is tripped to prevent overfilling SG 1; therefore, no action is required.
31. The CCW Inlet Isolation Valves CC1411A, B and Outlet Isolation Valves CC1407A, B are normally open and required to be open for Safe Shutdown to restore Letdown. A review of the circuits shows that spurious closure is possible. For restoring letdown, open/verify open CC1407A, B, and CC1411A, B. Also, trip Breaker BE1120 at E11A and BF1137 at F11A to de-energize MCC's E11B and F11B and therefore CC1407A, B and CC1411A, B. All equipment powered from MCC E11B is Train 1 equipment and therefore not required for this fire area. See Note 40 regarding MCC F11B.
32. The Core Flood Isolation Valves CF01A, B are normally open and are required to be closed when cooling down before going below 700 psig. Breakers BF1120 at F11A and BE1162 at E11B are normally open; in the event of a loss of control power for BE1120 manual action may be required to close CF01B before going below 700 psig.
33. NOT USED
34. Seal Injection Filters F59-1 and F59-2 are mechanical components located in an area of low combustible loading.

FIRE AREA V TABLE 1 NOTES

35. Although MU02A and MU02B may not be available due to circuit failure, MU03 remains available as the High/Low pressure Interface boundary. MU02A, MU02B, MU04 and MU10A can be manually operated to provide a flow path for Letdown. MU1903 and MU10B provide parallel flow paths to MU10A. Adequate flow can be obtained without operating MU1903 or MU10B.
36. Although TI-RC3A5 may be lost, TI-RC3A6 remains available to monitor RCS Hot Leg Temperatures.
37. PS3689K and PS3689L input to SFRCS input Channel 1. Since PS3689M and PS3689N (input Channel 3) are unaffected, and complimentary inputs are required, SFRCS would not align the AFW to feed only one steam generator.
38. Normally closed manual Valve SW325 maintains isolation for CAC 3.
39. Although RC11 may be affected, RC2A remains available as a High/Low Pressure Interface boundary while RC200 and RC239A remain available to lower RCS pressure to the point HPI can be used.
40. Trip Breaker BF1137 at F11A to de-energize F11B. The following Safe Shutdown equipment is supplied from MCC F11B. Also listed below are the actions required to compensate for the loss of power:

COMPONENT

ACTION

CC1407B  
 CC1411B  
 CS1531  
 MS107A  
 DH07A

Open CC1407B (See Notes 13 & 31)  
 Open CC1411B (See Notes 13 & 31)  
 Trip P56-2 (See Note 13)  
 Not Required for S/D (See Note 30)  
 None. Valve and breaker are maintained in open position.

41. RCS Loop 1 High Point Vent Valves RC4608A and B are normally closed and are required to remain closed in order to prevent uncontrolled blowdown via the High Point Vents. The valves are in series and both would be required to open for blowdown to the containment atmosphere to occur.

Fire damage to the D cable for Valve RC4608A cannot spuriously open the respective valve due to the open control switch in the Control Room. Hence, fire damage to this cable is inconsequential with regards to breach of a High/Low Pressure Interface.

In order for spurious actuation of Valves RC4608A and B to occur, 2 concurrent hot shorts of the proper polarity without grounding to the C cable would be required. Since these valves are aligned in series, an inadvertent breach of a High/Low Pressure Interface could only occur in the event of 4 specific concurrent hot shorts of the proper polarity. Such an occurrence is not credible.

Hence, fire damage of the cables for RC4608A and B is concluded not to be a concern from the point of view of breaching a High/Low Pressure Interface.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA V TABLE 1 NOTES

42. DH2735 may spuriously open due to a hot short; however, DH2736 remains available as a High/Low Pressure Interface.

# Davis-Besse Unit 1 Fire Hazard Analysis Report

## FIRE AREA VA

### 4.6.VA.1 Fire Area Description

Room number and fire protection features for this area are as follows:

<u>Room No.</u>	<u>Description</u>	<u>Combustible Loading</u>	<u>Detection</u>	<u>Suppression</u>
AB3A	Aux Bldg Stairwell (West)	400 Btu/ft <sup>2</sup>	N	Man

### 4.6.VA.2 Safe Shutdown Equipment In Fire Area VA

There are no Safe Shutdown components or cable in this area.

### 4.6.VA.3 Fire Propagation Control

Fire Area VA is located in the Fuel Handling Area of the Auxiliary Building consisting of Stairwell AB3A (Elevations 565' to 623') as shown on Drawings A-222F through A-229F.

A fire that originates in this fire area will be contained in the fire area. This fire area is enclosed by a minimum of 2-hour fire-rated floors, walls and ceilings.

This fire area contains no Safe Shutdown components or cables and therefore provides the equivalent of 3-hour separation between fire areas containing Safe Shutdown equipment. That is, a fire in one Safe Shutdown fire area would have to breach one 2-hour wall to enter the stairwell and then breach another 2-hour wall to spread to another Safe Shutdown fire area. Based on the low combustible loading in this fire area and surrounding fire areas, it is highly unlikely for a fire to breach one of the 2-hour fire barriers, let alone 2 fire barriers.

The fire barriers are primarily 12 inch concrete block walls with minimum 9 inch thick poured concrete floors and ceilings.

### 4.6.VA.4 Fire Detection and Suppression

There is no automatic suppression in this area.

Manual fire suppression equipment is provided for this fire area. Fire extinguishers and Hose Stations (HS) are shown on Drawings A-222F through A-229F.

In the event of a fire, smoke venting will be accomplished in accordance with the Pre-Fire Plans.

### 4.6.VA.5 Fire Area VA Safe Shutdown Summary

Since there are no Safe Shutdown components or cables in this fire area, a fire in this area will not affect Safe Shutdown.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: X

TRAIN ACCREDITED FOR SHUTDOWN: 1

4.6.X.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
428	LOW VOLT SWGR RM-F-BUS	46,600	Y	MAN
428A	BATTERY ROOM B	31,257	Y	MAN
428B	NO.1 ELECT ISOLATION RM	2,197	N	MAN

4.6.X.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA X

The following components are located in fire area X.

See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
ESSPWR	2	2N	BATT	125VDC STATION BATTERY
	2	2P	BATT	125VDC STATION BATTERY
	2	C4625	PNL	CONT POWER TO AUX FW CONTROL PANEL
	2	CDF-12A-1	PNL	D2P CONT POWER TO AFWP GOV (ICS038B)
	2	D2N	MCC	125VDC DIST PNL
	2	D2P	MCC	125VDC DIST PNL
	2	DBC2N	BCHG	125VDC BATTERY CHARGER
	2	DBC2P	BCHG	125VDC BATTERY CHARGER
	2	DBC2PN	BCHG	125VDC BATTERY CHARGER
	2	DBN	MCC	125VDC DIST PANEL
	2	DBP	MCC	125VDC DIST PANEL
	2	DC MCC 2	MCC	250/125V DC MCC
	2	F1	SWGR	480 V AC MCC F1
	2	F12A	MCC	480VAC MCC
	2	F14	MCC	480VAC MCC
	2	F15	MCC	480VAC MCC
	2	F16A	MCC	480V AC MCC
	2	RC4606	PNL	DC CONT PWR (MU6406,RC4610A,PORV)
	2	XY2	XFMR	CONSTANT VOLT TRANSFORMER (CVT CH 2)
	2	XY4	XFMR	CONSTANT VOLT TRANSFORMER (CVT CH 4)
	2	Y2	PNL	120V AC DIST PNL
	2	Y2A	PNL	120VAC DIST PNL
	2	Y4	PNL	120V AC DIST PNL
2	YBU	PNL	120VAC DIST PNL	



Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

4.6.X.2 Cont.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
ESSPWR	2	YRF2	PNL	RECTIFIER
	2	YRF4	PNL	RECTIFIER
	2	YV2	INV	125VDC INVERTER
	2	YV4	INV	125VDC INVERTER
	2	YVB	INV	125VDC INVERTER
	HVAC	2	C78-2	FAN
2		HV5314A	DMPR	LV SWGR RM 428 DAMPER
2		HV5598	DMPR	BATT RM 428A ATM DMPR

.....

FIRE AREA X

4.6.X.3 Fire Propagation Control

Fire Area X is located in the Non-RCA portion of the Auxiliary Building (elevation 603') as shown on Drawing A-224F.

A fire that originates in this fire area will be contained in the fire area. This fire area is enclosed by 3-hour rated concrete barriers (except as noted below).

The floor of Room 428 has an equipment hatch which allows access to Room 322 (Fire Area Q). Based on the combustibile loading and construction of the hatch, a fire will not propagate from one fire area to the other.

There are non-rated openings in the wall separating fire area DF and X. These non-rated openings have been evaluated and will not allow the propagation of a fire.

Room 428A analysis shows that the steel will not fail based on the combustibile loadings in the room.

The Battery Room 428A is separated from the rest of Fire Area X by a 3-hour barrier. This separates the batteries from the rest of the area.

4.6.X.4 Fire Detection and Suppression

Fire Area X consists of three rooms. The following rooms have detection.

1. Low Voltage Switchgear Room 428, Fire Detection Zone FDZ 428
2. Battery Room 428A, Fire Detection Zone FDZ 428A

Manual fire suppression equipment is provided for this fire area. Fire extinguishers and Hose Stations (HS) are shown on Drawing A-224F.

In the event of a fire, isolation and smoke venting will be accomplished in accordance with the Pre-Fire Plans.

4.6.X.5 Fire Area Safe Shutdown Summary

Train 1 will be used for Safe Shutdown in Fire Area X. Safe Shutdown will be accomplished using the Makeup and Purification System (MUPS) for Reactor Coolant System Inventory Control, a Letdown path and Seal Injection for RCP Seal Cooling.

SAFE SHUTDOWN ANALYSIS

FIRE AREA : X

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPO INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3869)	OP-02501 (CLOSE AF3869)	14
	AF3870	AFWP 1 DISCH TO SG1	MOV	E	1	O	O	AS IS		H	1CD107G			EMBEDDED CONDUIT	1*
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	2CBF1201B 2CBF1201E 2CBF1201F 2CBF1201G 2CBF1201H 2PBF1201A BF1201 CDF-12A-2			OP-02501 (TRIP P14-2) OP-02501 (TRIP P14-2) OP-02501 (TRIP P14-2) OP-02501 (TRIP P14-2) OP-02501 (TRIP P14-2) OP-02501 (TRIP P14-2) OP-02501 (TRIP P14-2) OP-02501 (TRIP P14-2)	14 14 14 14 14 14 14 14
	AF608	AFW TO SG1 ISO VLV	MOV	AB	1	O	O	AS IS		H	NONE			N/A	
	AF6452	AFWP 1 FLOW CTRL VLV	SOV	E	1	O	O/C	FO		H	NONE			N/A	
	FW6459	MDFP FLOW CTRL VALVE	SOV	II	1	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			N/A	
	ICS038B	APPT 1 GOV CTRL VLV	MOV	E	1	O	O/C	AS IS		H	NONE			N/A	
	MS106	APPT 1 MS IN ISO VLV	MOV	EE	1	C	O	AS IS		H	1CD135G 1FD135A		OP-02501 (OPEN MS106) OP-02501 (OPEN MS106)	OP-02501 (OPEN MS106) OP-02501 (OPEN MS106)	27 27
	MS106A	APPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	1PBE1271A			OP-02501 (TRIP P14-2)	14
	MS107A	APPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-2)	14
	MS5889A	APPT 1 STEAM ADMISS VLV	SOV	E	1	C	O	FO		H	NONE			N/A	
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H	NONE			N/A	
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-2)	OP-02501 (TRIP P14-2)	14
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	
	P242-1	MDFP AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
P242-2	MDFP SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			N/A	7	
CACs	C1-1	CAC FAN 1	FAN	D	1	O/F	ON	OFF		H	1CBE1401G 1CBE1401J 1CBE1401K 1PBE1401A 1PBE1401B			EMBEDDED CONDUIT EMBEDDED CONDUIT EMBEDDED CONDUIT EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1* 1* 1* 1*
	C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	1CBE1501F 1CBE1501G 1CBE1501H 3PBEF15A 3PBEF15B			EMBEDDED CONDUIT EMBEDDED CONDUIT EMBEDDED CONDUIT EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1* 1* 1* 1*
CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	OP-02501 (OPEN CC1407A)	13
	CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407B)	OP-02501 (OPEN CC1407B)	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	2CBF1227C 2CBF1227E 2CBF1227F 2CBF1227H 2PBF1227A	MU01A MU01A MU01A MU01A MU01A	OP-02501 (OPEN CC1409) OP-02501 (OPEN CC1409) OP-02501 (OPEN CC1409) OP-02501 (OPEN CC1409) OP-02501 (OPEN CC1409)	OP-02501 (OPEN CC1409) OP-02501 (OPEN CC1409) OP-02501 (OPEN CC1409) OP-02501 (OPEN CC1409) OP-02501 (OPEN CC1409)	28 28 28 28 28

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : X

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	BF1227 CDF12A-2 RC4605	MU01A MU01A MU01A	OP-02501 (OPEN CC1409) OP-02501 (OPEN CC1409) OP-02501 (OPEN CC1409)	OP-02501 (OPEN CC1409) OP-02501 (OPEN CC1409) OP-02501 (OPEN CC1409)	28 28 28
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	2CBF1228C 2CBF1228E 2CBF1228F 2CBF1228H 2PBF1228A BF1228 CDF12A-2 RC4605	MU01B MU01B MU01B MU01B MU01B MU01B MU01A MU01A		N/A N/A N/A N/A N/A N/A N/A N/A	28 28 28 28 28 28 28 28
	CC1411A	CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411A)	OP-02501 (OPEN CC1411A)	13
	CC1411B	CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	OP-02501 (OPEN CC1411B)	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	N/A	24
	CC1467	DHR CLR 1 OUT ISO VLV	SOV	AB	1	C	O	FO		C	NONE		OP-02501 (OPERATE CC1467)	OP-02501 (OPERATE CC1467)	26
	CC1471	DG JKT CW HX 1 OUT VLV	MAN	K	1	O	O	AS IS		H	NONE			N/A	
	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B	H	NONE		OP-02501 (OPERATE CC43)	12,26
	CC2645	CC RETURN HDR 1 VLV	MOV	G	1	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	NONE			N/A	
	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	
	CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501(OPERATE CC43)	OP-02501(OPERATE CC43)	12,26
	CC5095	CC HDR 1 IN ISO VLV	MOV	T	1	O/C	O	AS IS		H	1CBE1226F 1PBE1226A		OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095)	OP-02501 (OPEN CC5095) OP-02501 (OPEN CC5095)	16 16
	CC5097	CCW LINE 1 RET ISO VLV	MOV	T	1	O/C	O/C	AS IS		H	1CBE1227E 1PBE1227A		OP-02501 (OPEN CC5097) OP-02501 (OPEN CC5097)	OP-02501 (OPEN CC5097) OP-02501 (OPEN CC5097)	16 16
	FIS1422C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A	
FIS1427C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A		
FIS1432C	FLOW SWITCH CCWS PUMP	FS	T	1	ON	ON	OFF		H	NONE			N/A		
P43-1	CCW PUMP 1	PUMP	T	1	O/F	ON	OFF		H	NONE			N/A		
P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	NONE			N/A		
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B	C	NONE	OP-02501 (CLOSE CF01A)	OP-02501 (CLOSE CF01A)	22
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B	C	NONE		N/A	
CREVS	C21-1	CTRM EVS FAN 1	FAN	HH	1	OFF	ON	OFF		H	1CBE1209C			EMBEDDED CONDUIT	1*
	S33-1	CTRM EMERG A/C UNIT 1	A/C	HH	1	OFF	ON	OFF		H	1CBE1216E			EMBEDDED CONDUIT	1*
	SV4823A	CREVS CONDENSER UNIT 1 (S33-1) IN VLV	SOV	HH	1	C	O	CLOSED		H	NONE			N/A	
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B	H	NONE		OP-02501 (TRIP P56-1)	13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B	H	NONE		OP-02501 (TRIP P56-2)	13

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : X

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CSS	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	1CBE111B 1CBE111C 1CBE111E		OP-02501 (TRIP P56-1) OP-02501 (TRIP P56-1) OP-02501 (TRIP P56-1)	OP-02501 (TRIP P56-1) OP-02501 (TRIP P56-1) OP-02501 (TRIP P56-1)	13 13 13
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	2CBF111B 2CBF111C 2CBF111D 2CBF111E 2CBF111F 2PBF111A		OP-02501 (TRIP P56-2) OP-02501 (TRIP P56-2) OP-02501 (TRIP P56-2) OP-02501 (TRIP P56-2) OP-02501 (TRIP P56-2) OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2) OP-02501 (TRIP P56-2) OP-02501 (TRIP P56-2) OP-02501 (TRIP P56-2) OP-02501 (TRIP P56-2) OP-02501 (TRIP P56-2)	13 13 13 13 13 13
DHRS	DH01B	LPI LINE 1 VLV	MOV	AB	1	O	O	AS IS		C	NONE			N/A	
	DH07B	BWST ISO VLV B	MOV	AC	1	O	O	AS IS		H	NONE			N/A	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH13B	DH CLR 1 BYPASS VLV	SOV	AB	1	C	C	FC		C	NONE			N/A	
	DH14B	DH CLR 1 OUT VLV	SOV	AB	1	O	O	FO		C	NONE			N/A	
	DH1517	DH NORM SUCT LINE 1 VLV	MOV	A	1	C	O/C	AS IS		C	NONE			N/A	
	DH2733	DH PUMP 1 BWST SUCT VLV	MOV	AB	1	O	O/C	AS IS		C	NONE			N/A	
	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	
	DH64	LPI/HPI CROSS-TIE VLV	MOV	AB	1	C	C	AS IS		C	NONE			N/A	
	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-1)	OP-02501 (TRIP P42-1)	13
P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	OP-02501 (TRIP P42-2)	13	
EDG	DA1147A/B	EDG 1 AIR START VLV	SOV	K	1	C	O	FC		H	NONE			N/A	
	DA2987	AIR START RCVR 1-1-1 DISCH VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA2988	AIR START RCVR 1-1-2 DISCH VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA60	AIR START RCVR 1-1-1 RELAY VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	DA61	AIR START RCVR 1-1-2 RELAY VLV	AOV	K	1	FUNC	FUNC	N/A		H	NONE			N/A	
	K5-1	EMERG DIESEL GENERATOR 1	EDG	K	1	O/F	ON	OFF		H	NONE			N/A	
	P148-1A	EDG JACKET WATER PUMP (RIGHT)	PUMP	K	1	O/F	O	OFF		H	NONE			N/A	
	P148-1B	EDG JACKET WATER PUMP (LEPT)	PUMP	K	1	O/F	O	OFF		H	NONE			N/A	
	P195-1	EDG FUEL OIL TRANSPER PUMP 1	PUMP	BN	1	OFF	ON	OFF		C	NONE			N/A	
	P201-1	EDG 1-1 M/D FUEL OIL PUMP	PUMP	K	1	O/F	ON	OFF	P205-1	H	NONE			N/A	
P205-1	EDG 1-1 E/D FUEL OIL PUMP	PUMP	K	2	O/F	ON	OFF	P201-1	H	NONE			N/A		

LEGEND

H - required for hot standby

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H/L - High/Low interface

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N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : X

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
EDG	P8-1	DO XFER PUMP 1	PUMP	BM	1	O/F	O	OFF	P195-1	H	NONE			N/A	
	S206-01	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-02	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-03	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
	S206-04	EDG 1 AIR START MOTOR	MTR	K	1	OFF	ON	N/A		H	NONE			N/A	
ESSPWR	1N	125VDC STATION BATTERY	BATT	Y	1	ON	ON	OFF		H	NONE			N/A	
	1P	125VDC STATION BATTERY	BATT	Y	1	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	2PD202A BFDBP02A BFDBP04A DBP			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7 7
	C1	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF		H	NONE			N/A	
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1, -2, -3	H	NONE			N/A	
	C3615	EDG1-1 ELECT CONTROL & RELAY PANEL	PNL	K	1	ON	ON	OFF		H	NONE			N/A	
	C3628	CONT POWER ESS METER HPI FLOW X	PNL	R	1	ON	ON	OFF		H	NONE			N/A	
	C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	2CY208A			NOT REQUIRED FOR S/D	7
	C3645	CONT POWER TO AUX FW CONTROL PNL	PNL	S	1	ON	ON	OFF		H	NONE			N/A	
	C4808	NEUTRON FLUX MON. CABINET (CH.1)	PNL	DG	1	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	2CY211A 2CY419A			INDICATION ONLY INDICATION ONLY	5A 5A
	C5708	CNTRL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	1CY112A			EMBEDDED CONDUIT	1*
	C5716	CONTROL POWER PROCESS MON (DIXSON)	PNL	FF	1	ON	ON	OFF		H	1CY112A 2CY211A			EMBEDDED CONDUIT NOT REQUIRED FOR S/D	1* 5D
	C5717	CONT POWER SV IND LIGHTS	PNL	FF	1	ON	ON	OFF		H	1CY116A			EMBEDDED CONDUIT	1*
	C5755C	SPAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	2CD2P19A			SPAS INITIATED	13
	C5755D	SPAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	2CY207A			SPAS INITIATED	13
	C5756D	SPAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	2CDCP18A 4CY407A			SPAS INITIATED SPAS INITIATED	13 13
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	NONE			N/A	
	C5761A	CH 1 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	1CY115B			EMBEDDED CONDUIT	1*
	C5762A	CONTROL POWER TO SFRCS CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	1CY121A 1CY121B 1PD1P11A			EMBEDDED CONDUIT EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1* 1*
C5762C	SPAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	1CD1P18A			EMBEDDED CONDUIT	1*	
C5762D	SPAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	1CY107A			EMBEDDED CONDUIT	1*	
C5762E	CONTROL ROOM REACT PROT. SYS PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	1CY106A			EMBEDDED CONDUIT	1*	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : X

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
ESSPWR	C5763A	POST ACCIDENT MON. SYS PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	1CY1A105A			EMBEDDED CONDUIT	1*	
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	1CD1P19A 3CY307A			EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1*	
	C5792A	CH 2 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	2CY215B			SFRCS ACTUATES	14	
	C5799	POST ACCIDENT MON. IND. PNL (CH1)	PNL	FF	1	ON	ON	OFF		H	1CY107AA 1CY109AA			EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1*	
	C6708	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	1	ON	ON	OFF		H	1CY104A			EMBEDDED CONDUIT	1*	
	C6714	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	1	ON	ON	OFF		H	1CY104A			EMBEDDED CONDUIT	1*	
	CDE-11B-1	CONTROL POWER (LOADS NON-SSD)	PNL	V	1	ON	OFF	ON		H	NONE				N/A	
	CDE-11B-2	CONT POWER TO DH12 INTLK	PNL	V	1	ON	ON	OFF		H	NONE				N/A	
	CDE-12A-1	D1P CONT POWER TO AFWP GOV (ICS038A)	PNL	Y	1	ON	ON	OFF		H	NONE				N/A	
	D1N	125VDC DIST PNL	MCC	Y	1	ON	ON	OFF		H	NONE				N/A	
	D1NA	125VDC MCC	MCC	Y	1	ON	ON	OFF		H	NONE				N/A	
	D1P	125VDC DIST PNL	MCC	Y	1	ON	ON	OFF		H	NONE				N/A	
	D1PA	125VDC MCC	MCC	Y	1	ON	ON	OFF		H	NONE				N/A	
	DAN	125VDC DIST PANEL	MCC	Y	1	ON	ON	OFF		H	NONE				N/A	
	DAP	125VDC DIST PANEL	MCC	Y	1	ON	ON	OFF		H	NONE				N/A	
	DBC1N	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF		H	NONE				N/A	
	DBC1P	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF		H	NONE				N/A	
	DBC1PN	125VDC BATTERY CHARGER	BCHG	Y	1	FUNC	FUNC	OFF	DBC1P,DBC1N	H	NONE				N/A	
	DC MCC 1	250/125V DC MCC	MCC	Y	1	ON	ON	OFF		H	NONE				N/A	
	E1	480 VAC MCC E1	SWGR	Y	1	ON	ON	OFF		H	1CBCE11B 1CBCE12B			EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1*	
	E11A	480VAC MCC	MCC	G	1	ON	ON	OFF		H	NONE		MOD 85-0063		N/A	6**
	E11B	480VAC MCC	MCC	V	1	ON	ON	OFF		H	NONE				N/A	
	E11C	480VAC MCC	MCC	V	1	ON	ON	OFF		H	NONE		MOD 85-0063		N/A	6**
	E11D	480VAC MCC	MCC	G	1	ON	ON	OFF		H	NONE		MOD 85-0063		N/A	6**
	E11E	480VAC MCC	MCC	DG	1	ON	ON	OFF		H	NONE				N/A	
	E12A	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063		N/A	6**
	E12B	480VAC MCC	MCC	K	1	ON	ON	OFF		H	NONE		MOD 85-0063		N/A	6**
E12C	480VAC MCC	MCC	BE	1	ON	ON	OFF		H	NONE				N/A		
E12D	480V AC MCC	MCC	BE	1	ON	ON	OFF		H	NONE				N/A		
E12E	480VAC MCC	MCC	B	1	ON	ON	OFF		H	1PB1234A			EMBEDDED CONDUIT	1*		
E12F	480VAC MCC	MCC	K	1	ON	ON	OFF		H	NONE				N/A		

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : X

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	E14	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E15	480VAC MCC	MCC	Y	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E16A	480V AC MCC	MCC	EE	1	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	E16B	480VAC MCC	MCC	DG	1	ON	ON	OFF		H	NONE			N/A	
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	BPDBN11A BFDBP11A DBN DBP			NOT REQUIRED FOR S/D	7
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			NOT REQUIRED FOR S/D	7
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	BCYBU41A			NOT REQUIRED FOR S/D	5D
	RC3601	DC CONT POWER RCP MONITOR	PNL	S	1	ON	ON	OFF		H	1CD1P21A			EMBEDDED CONDUIT	1*
	RC3607	CONTROL POWER (TO CCCW001)	PNL	S	1	ON	ON	OFF		H	1CD1P21A			EMBEDDED CONDUIT	1*
	RC3701	DC CONTROL POWER TO CAC 1 OUT VLV	PNL	A	1	ON	ON	OFF		H	1CD1P21A			EMBEDDED CONDUIT	1*
	RC3706	CONTROL POWER (LOADS NON-SSD)	PNL	V	1	ON	OFF	ON		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	NONE			N/A	
	RC3716									H	BCYBU43A YBU			POWER SUPPLY NOT REQ'D FOR S/D POWER SUPPLY NOT REQ'D FOR S/D	5D 5D
	RC4801	DC CONT PWR TO RC4801 (MU6405, MU6407)	PNL	DG	1	ON	ON	OFF		H	NONE			N/A	
	RC4802	CONT PWR (TO MUTK, SG DRN RLY)	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	NONE			NOT REQUIRED FOR S/D	7
	XY1	CONSTANT VOLT TRANSFORMER (CVT CH 1)	XFMR	Y	1	ON	ON	OFF		H	NONE			N/A	
	XY3	CONSTANT VOLT TRANSFORMER (CVT CH 3)	XFMR	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y1	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	1CY112A			EMBEDDED CONDUIT	1*
	Y1A	120 VAC ESS INSTR DISTR PANEL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	Y3	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	YAU	120VAC DIST PNL	PNL	Y	1	ON	ON	OFF		H	NONE			N/A	
	YE1	120VAC MCC	PNL	K	1	ON	ON	OFF		H	NONE			N/A	
	YE2	240/120VAC MCC	PNL	V	1	ON	ON	OFF		H	NONE			N/A	
	YV3	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	YVA	125VDC INVERTER	INV	Y	1	ON	ON	OFF		H	NONE			N/A	
	ZC6452	APP #1 CTRL VLV POSITION CONTROLLER	PNL	E	1	ON	ON	OFF		H	NONE			N/A	
ZC6459	MDFP CONTROL VLV POSITION CONTROLLER	PNL	II	1	ON	ON	OFF		H	NONE			N/A		
HPIS	HP02C	HPI 1 DISCH ISO VLV	MOV	AB	1	C	O	AS IS	HP02D	H	NONE			N/A	
	HP02D	HPI 1 DISCH ISO VLV	MOV	AB	1	C	O	AS IS	HP02C	H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

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N/A - not affected



SAFE SHUTDOWN ANALYSIS

FIRE AREA : X

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
HPIS	HP32	HPI PMP 1 RECIRC VLV	MOV	AB	1	O	O	AS IS		H	NONE			N/A	
	P197-1	HPI PMP 1 AC LO PUMP	PUMP	AB	1	OFF	ON	OFF		H	NONE			N/A	
	P197-2	HPI PMP 1 DC LO PMP	PUMP	AB	1	OFF	ON	OFF	P197-1	H	1CD106B 1CD106D 1PD106A			NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D NOT REQUIRED FOR S/D	7 7 7
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	SFAS INITIATED	13
	P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-2)	SFAS INITIATED	13
	HVAC	C100	TRAV SCR AREA EXH FAN (B/U SW PUMP)	FAN	BD	1	O/F	O/F	OFF		H	NONE			N/A
C25-1		EDG RM 1 VENT FAN 1	FAN	K	1	O/F	ON	OFF		H	NONE			N/A	
C25-2		EDG RM 1 VENT FAN 2	FAN	K	1	O/F	ON	OFF		H	NONE			N/A	
C71-1		LV SWGR RM VENT FAN 1	FAN	Y	1	O/F	ON	OFF		H	NONE			N/A	
C73-1		APP RM VENT FAN 1	FAN	E	1	O/F	ON	OFF		H	NONE			N/A	
C78-1		BATT RM VENT FAN 1	FAN	Y	1	O/F	ON	OFF		H	NONE			N/A	
C99-1		SW PMP RM EXH FAN 1	FAN	BF	1	O/F	ON	OFF		H	NONE			N/A	
C99-2		SW PMP RM EXH FAN 2	FAN	BF	1	O/F	ON	OFF		H	NONE			N/A	
HV0531A		AIR IN LVR FOR B/U SW PUMP	DMPR	BD	1	O/C	O/C	OPEN		H	NONE			N/A	
HV0532A		AIR IN LVR FOR B/U SW PUMP	DMPR	BD	1	O/C	O/C	OPEN		H	NONE			N/A	
HV5305		LV SWGR RM FAN 1 DAMPER	DMPR	Y	1	O/C	O	AS IS		H	NONE			N/A	
HV5305A		LV SWGR RM 429 DAMPER	DMPR	Y	1	O/C	O	AS IS	HV5305B	H	1CBE1240E			EMBEDDED CONDUIT	1*
HV5305B		LV SWGR RM 429 DAMPER	DMPR	Y	1	O/C	O	AS IS	HV5305A	H	1CBE1241E			EMBEDDED CONDUIT	1*
HV5329A		EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FC		H	NONE			N/A	
HV5329B		EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FO		H	NONE			N/A	
HV5329C		EDG RM 1 DAMPER	DMPR	K	1	O/C	O	FC		H	NONE			N/A	
HV5597	BATT RM 429B ATM DMPR	DMPR	Y	1	O/C	O	AS IS		H	1PBE1208H			DO NOT NEED FOR 72 HOURS	30	
MSS	ICS11B	MSL 1 ATM VENT VLV	SOV	DH	1	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11B)	LOSS OF AIR	12
	MS100	MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A	
	MS100-1	MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A	
	MS101	MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A	
	MS101-1	MS1V 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	NONE			N/A	
	PSV-SF17B1	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SF17B2	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SF17B3	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : X

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MSS	PSV-SP17B4	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B5	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B6	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B7	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B8	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
	PSV-SP17B9	MSL 1 SAFETY VALVE	SV	DH	1	C	C/O	FC	ICS11A	H	NONE			N/A	
MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP1556)	OP-02501 (OPEN HP1556)	16
	HP26	HPI TO RCP SEALS	MAN	AB	1	C	O	AS IS		H	NONE			N/A	
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP29)	OP-02501 (OPEN HP29)	16
	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	2CBF1237C 2CBF1237E 2CBF1237F 2CBF1237G 2CBF1237H 2CBF1237K 2PBF1237A BF1237 CDF-12A-2 RC4605	CC1409 CC1409 CC1409 CC1409 CC1409 CC1409 CC1409 CC1409 CC1409	OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A)	OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A)	28 28 28 28 28 28 28 28 28 28
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	2CBF1238C 2CBF1238E 2CBF1238F 2CBF1238J 2CBF1238K 2PBF1238A BF1238 CDF-12A-2 RC4605	CC1410 CC1410 CC1410 CC1410 CC1410 CC1410 CC1410 CC1410 CC1410	OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A) OP-02501 (OPEN MU01A)	N/A N/A N/A N/A N/A N/A N/A N/A N/A	28 28 28 28 28 28 28 28 28
	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	NONE		OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03)	13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	NONE			N/A	
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	NONE		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	NONE		OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT)	16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	NONE		OP-02501 (OPERATE MU214/MU216)	OP-02501 (OPERATE MU214/MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU206	Recirc to Seal Return Stop Valve	MAN	AB	1	O	O/C	AS IS		H	NONE		OP-02501(CLOSE MU206)	OP-02501(CLOSE MU206)	16
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : X

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	0	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B H	NONE		OP-02501 (OPEN MU38)	OP-02501 (OPEN MU38)	13
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	0	AS IS		H	NONE		OP-02501 (OPEN MU59A)	OP-02501 (OPEN MU59A)	13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	0	AS IS		H	NONE		OP-02501 (OPEN MU59B)	OP-02501 (OPEN MU59B)	13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	0	AS IS		H	NONE		OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C)	13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	0	AS IS		H	NONE		OP-02501 (OPEN MU59D)	OP-02501 (OPEN MU59D)	13
	MU6405	RC MU PUMP SUCT VLV	MOV	AB	1	C	O/C	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6407	MU RECIRC ISO VLV	AOV	AB	1	O	O/C	FO	HPIS TRAIN 1	H	NONE			N/A	
	MU6409	MU CROSS CONNECT ISO VLV	MOV	AB	1	O	0	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6419	MU DISCH VLV	MOV	AB	1	C	0	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU6420	MU32 BYPASS VLV	MOV	AB	2	C	0	AS IS	HPIS, MU32	H	2CBF1616A 2CBF1616B 2CBF1616C 2PBF1616F			OP-02501 (MONITOR FOR PMP RUNOUT) OP-02501 (MONITOR FOR PMP RUNOUT) OP-02501 (MONITOR FOR PMP RUNOUT) OP-02501 (MONITOR FOR PMP RUNOUT)	31 31 31 31
	MU6421	MU CTMT ISO VLV	MOV	AB	1	C	0	AS IS	HPIS TRAIN 1	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	0	FC		H	NONE		OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A)	13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	0	FC		H	NONE		OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B)	13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	0	FC		H	NONE		OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C)	13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	0	FC		H	NONE		OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D)	13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	0	N/A		H	NONE		OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)	16
	P-371B	MUP 1 MAIN LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P-371C	MUP 1 AUX LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS, P-371B	H	ACD117H ACD117I ACD117J			EMBEDDED CONDUIT EMBEDDED CONDUIT EMBEDDED CONDUIT	1* 1* 1*
	P-371D	MUP 1 AUX GEAR LO PUMP	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P37-1	MU PUMP 1	PUMP	AB	1	O/F	ON	OFF	HPIS TRAIN 1	H	NONE			N/A	
	P371A	MU PMP 1 MAIN GEAR LO PMP	PUMP	AB	1	O/F	O	OFF	P371D	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	0	AS IS		H	NONE		OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)	16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	0	AS IS		H	NONE		OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)	16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	0	FC		H	NONE		OP-02501 (OPEN WC1743)	OP-02501 (OPEN WC1743)	12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	0	FC		H	NONE		OP-02501 (OPEN WC1747)	OP-02501 (OPEN WC1747)	12
	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	0	FO		H	NONE			N/A	
NI	NI-5874A	SOURCE RANGE IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : X

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
NI	NI-5874C	LOCAL SOURCE RANGE IND	IND	DG	1	ON	ON	OFF	NI-5874A	H	NONE			N/A	
	NI-NI2	SOURCE RANGE IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
NNI	FI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI6425	RC MU FLOW-HI RANGE	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FI6435	RC MU FLOW-LOW RANGE	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03C	HPI FLOW INDICATION	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03C1	HPI FLOW IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03D	HPI FLOW INDICATION	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03D1	HPI FLOW IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-1	PRZR LEVEL IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-3	PRZR LEVEL IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	LI-SP09B1	SG1-1 START-UP LEVEL IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	LI-SP09B3	SG1-1 START-UP LEVEL IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	LI-SP09B8	SG1-1 START-UP LEVEL IND (C5761A)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	LI-SP09B8A	SG1-1 START-UP LEVEL IND (C5708)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	LI-SP09B9	SG1-1 START-UP LEVEL IND (C5761A)	IND	FF	1	ON	ON	OFF	LI-SP09B1,3	H	NONE			N/A	
	PI-6365B	RCS LOOP 1 EXTENDED RANGE PRESS	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-6365B1	RCS LOOP 1 EXTENDED RANGE PRESS (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	PI-RC2B3	RCS LOOP 1 PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-RC2B4	RCS LOOP 1 PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12B	SG1-1 OUTLET PRESS IND	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12B1	SG1-1 OUTLET PRESS IND (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	PI-SP12B2	SG1-1 OUTLET PRESS IND	IND	FF	1	ON	ON	OFF	PI-SP12B-1	H	NONE			N/A	
	TE-RC3B5	RCS LOOP 1 HOT LEG TEMP (RM 303)	TE	D	1	ON	ON	OFF		H	NONE			N/A	
	TE-RC4B3	RCS LOOP 1 COLD LEG TEMP (RM 303)	TE	D	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC3B2	RCS LOOP 1 HOT LEG TEMP (ASP)	IND	R	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC3B5	RCS LOOP 1 HOT LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC3B6	RCS LOOP 1 HOT LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC4B2	RCS LOOP 1 COLD LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
	TI-RC4B4	RCS LOOP 1 COLD LEG TEMP	IND	FF	1	ON	ON	OFF		H	NONE			N/A	
RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : X

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
RCS	RC13B	RCS CODE SAFETY VALVE	SV	D	1	C	C	CLOSED		H	NONE			N/A	
	RC147	PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
	RC200	PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	2CBF1285G 2CBF1285K 2CBF1285L 2BBF1285J BF1285 CDF-12A-2		MOD 84-0185	RC239A FOR H/L INTERFACE RC239A FOR H/L INTERFACE RC239A FOR H/L INTERFACE RC239A FOR H/L INTERFACE RC239A FOR H/L INTERFACE RC239A FOR H/L INTERFACE	29 29 29 29 29 29
	RC239A	PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A	
	RC239B	PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A	
	RC2A	PZR PORV	SOV	D	2	C	O/C	FC		H/L H	2CVRC2J 2CVRC2M BCVRC2P RC4606			RC11 FOR H/L INTERFACE RC11 FOR H/L INTERFACE RC11 FOR H/L INTERFACE RC11 FOR H/L INTERFACE	29 29 29 29
	RC4608A	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	NONE			N/A	
	RC4608B	SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A	
	RC4610A	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	2CV4610AD RC4606			RC4610B FOR H/L INTERFACE RC4610B FOR H/L INTERFACE	29 29
	RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	2CV4632E RC4606			OPEN CONTACT OPEN CONTACT	5C 5C
SPAS	C5755D	SPAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	2CY207A			SPAS ACTUATES	13
	C5762D	SPAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	1CY107A			SPAS ACTUATES	13
	C5763D	SPAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	3CY307A			SPAS ACTUATES	13
	C5765D	SPAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	4CY407A			SPAS ACTUATES	13
	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

4.6.X .6 TABLE1  
Detailed Analysis

FIRE HAZARDS ANALYSIS

DAVIS BESSE

SAFE SHUTDOWN ANALYSIS

FIRE AREA : X

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	D E S C R I P T I O N	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFAS	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
SFRCS	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101B	LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101C	LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS3869B	BLOCK CIRCUIT AF3869 (AFP-1 TO SG-2)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS3870B	BLOCK CIRCUIT AF3870 (AFP-1 TO SG-1)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS611B	BLOCK CIRCUIT MS611 (SG-1 DRAIN STOP)	HIS	FF	1	OFF	OFF	ON		H	NONE			N/A	14
	HIS6401	CH 1/3 MANUAL START AFPT-1 C5707	HIS	FF	1	OFF	ON	OFF		H	NONE			N/A	14
	HIS6403	CH 1/3 MAN STRT AFPT-1 & ISOL SG-1 C57	HIS	FF	1	OFF	ON	OFF		H	NONE			N/A	14
	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14	
LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14	

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : X

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SFRCS	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN		H	NONE			SFRCS INITIATES ON LOOP	14
SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	NONE			N/A	7
	P3-1	SW PUMP 1	PUMP	BF	1	O/F	ON	OFF		H	NONE			N/A	
	P3-3	SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1, P3-2	H	NONE			N/A	
	SW1356	CAC 1 OUT ISO VLV	SOV	A	1	O/C	O	FO		H	1CV1356E			EMBEDDED CONDUIT	1*

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : X

TRAIN 1 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SWS	SW1358	CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	1CV1358AG 1CV1358AH 1CV1358AJ			EMBEDDED CONDUIT	1*
	SW1366	CAC 1 IN ISO VLV	MOV	A	1	O	O	AS IS		H	1CBE1142G			EMBEDDED CONDUIT	1*
	SW1368	CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	1CBE1207E 1CBE1207F			EMBEDDED CONDUIT	1*
	SW1382	APP 1 SUCT VLV FROM SW	MOV	E	1	C	O/C	AS IS		C	NONE			N/A	
	SW1399	TPCW HX IN HEADER ISO VLV	MOV	BG	1	O/C	C	AS IS		H	NONE			N/A	
	SW1424	SW FROM CC HX 1 ISO VLV	SOV	T	1	O/C	O	FO		H	NONE			N/A	
	SW1429	SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	NONE			N/A	
	SW2927	CTRM EVS COND UNIT IN VLV	MOV	HH	1	C	O	AS IS		H	1CBE1232F			EMBEDDED CONDUIT	1*
	SW2929	SW TO INT STRU VLV	MOV	BG	1	O/C	O	AS IS	SW2930,31,32	H	NONE			N/A	
	SW2931	SW TO CLG TOWER MU VLV	MOV	BG	1	O/C	O	AS IS	SW2929,30,32	H	NONE			N/A	
	SW54	TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
	SW55	TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
	SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
ASSCKT	C5763F	RPS-3 CABINET									3CY308A			LOST DUE TO BKR COORDINATION	23
ASSCKT	CFP05Q	BWST HEAT TRACING									3CY310A			LOST DUE TO BKR COORDINATION	23
ASSCKT	C5760A	CTRM CABINET									3CY313A			LOST DUE TO BKR COORDINATION	23

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected



Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA X TABLE 1 NOTES

1. 1-hour fire wrap provided with room detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, detection and room suppression.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the component are the same; spurious operation of three-phase power circuits is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals; the minimum requirements of NRC IEN 84-09 are met).

(This note is not referenced for control circuits susceptible to maloperation due to a single short, open, or ground or for power and control circuits for High/Low Pressure Interface valves).

6. Associated circuit coordination exists, see Appendix C-3. An asterisk indicates that it is assumed that the Associated Circuits related to MOV's are considered to have no impact since they are not expected to be in operation. Spurious operation of the valve coincident with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1) and Motor Control Centers (supplied from E1 & F1) which will prevent up-stream breakers from tripping on a ground.

E11A	E12A	E15	F11A	F12B	F15
E11C	E12B	E16A	F11C	F12C	F16A
E11D	E14		F12A	F14	

7. This backup component is not needed for SSD in this fire area.
8. NOT USED

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA X TABLE 1 NOTES

- 9. NOT USED
- 10. NOT USED
- 11. NOT USED
- 12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:

ICS11B	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

- 13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level set-point is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components.

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531 P42-1	CS Iso Vlv LPI Pump 1	Open On	Stop P56-1, -2 Stop P42-1 from the CR after blocking SFAS
P42-2	LPI Pump 2	On	Trip Bkr AD112 at D1
P56-1	CS Pump 1	On	Trip Bkr BE111 at E1
P56-2	CS Pump 2	On	Trip Bkrs for AD1DF11 and AD1DF12 at D1*
P58-1	HPI Pump 1	On	Stop P58-1 from the CR after blocking SFAS
P58-2	HPI Pump 2	On	Trip Bkr AD111 at D1
CC1407A, B	CCW Out Iso Vlv	Closed	Open CC1407A, B and Trip Bkr BE1173 at E11B & BF1158 at F11B
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip BE1176 at E11B & BF1159 at F11B
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03	RC Lt Dn Cooler Out	Closed	Open MU03
MU38	RCP Seal Rtn Isol	Closed	Open MU38

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA X TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

\* Since MCC F1 is located in the fire area, these breakers (located at MCC D1) will be tripped to stop P56-2. All equipment powered via MCC F1 is Train 2 equipment and therefore not required for Shutdown.

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS.

The steam generator level control and steam generator level indication for the nonaccredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the nonaccredited train while maintaining AFW flow to the accredited steam generator may be required.

If AF3869 is manually closed, first trip Breaker BE1146 at E11E. If MS106 is manually opened, first trip Breaker D135 at DINA.

15. NOT USED
16. RCP Inventory Control and RCP Seal Integrity are maintained by re-establishing Seal Return, Seal Injection and RCS Letdown.

RCP Seal Return Flow (after 8-hours)

The following manual valves will need to be operated:

MU97	Open	MU216	Throttle
MU182	Close	WC119	Open
MU214	Close	WC120	Open

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA X TABLE 1 NOTES

Additionally, the following valves may need to be manually operated:

CC5095	Trip Bkr BE1226 at E12A & open CC5095	MU02B MU10A	Open Open
CC5097	Trip Bkr BE1227 at E12A & open CC5097	MU11	Align to CWRT

RCS Inventory Control

After transferring the Makeup suction to the BWST, MU206 will be manually closed after opening MU208, HP29, and HP1556 to route MUPS Recirc to the BWST rather than the Makeup Tank.

17. NOT USED
18. To prevent spurious operation, Valves DH09A and DH09B are deenergized.
19. NOT USED
20. NOT USED
21. NOT USED
22. The Core Flood Isolation Valves CF01A, B are normally open and are required to be closed when cooling down before going below 700 psig. Breakers BF1120 at F11A and BE1162 at E11B are normally open; manual action may be required to close CF01A before going below 700 psig.
23. NOT USED
24. Essential CCW is provided to the Makeup Pump Cooler, bypassing CC1460.
25. Valves DH11 and DH12 are depowered. Bypass Valves DH21 and DH23 can be manually operated to place the DHR System in service.
26. The DHR Cooler 1-1 Isolation Valve CC1467 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRS cooldown.  
  
The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened. (NOTE: Verify CC1467 (CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467 (CC1469).
27. MS106 may need to be manually opened upon failure of its circuits. Spurious opening of MS106 is not credible since 1CD135G is embedded and 1PD135A is a three-phase power supply.
28. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injection and letdown are not required for safe shutdown,

## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA X TABLE 1 NOTES

they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control. When Letdown is required, trip Breakers AD1DF11 and AD1DF12 at MCC D1 to de-energize MCC F1, MCC F12A and Valves CC1409 and MU01A and manually operate CC1409 and MU01A.

29. RC239A is in series with RC200 and can be relied upon for the high/Low pressure Interface. RC11 is in series with RC2A and can be relied upon for the High/Low pressure Interface. RC4610A is in series with RC4610B and can be relied upon for the High/Low Pressure Interface.
30. A calculation has been performed which demonstrates that Ventilation Damper HV5597 is not required to be opened for at least 72-hours.
31. Spurious opening of MU6420, MU32 Bypass Valve, could result in Makeup Pump 1 runout. Direct diagnostic indication of Makeup Pump 1 runout is available in the Control Room via Makeup Flow indicators, FI-6425 and FI-6435.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

FIRE AREA EVALUATION

FIRE AREA: Y

TRAIN ACCREDITED FOR SHUTDOWN: 2

4.6.Y.1 FIRE AREA DESCRIPTION

Room numbers and fire protection features for this fire area are as follows:

ROOM No.	ROOM DESCRIPTION	COMBUSTIBLE LOADING (BTU/FT2)	DETECTION Y/N	SUPPRESSION MAN/AUTO
429	LOW VOLT SWGR RM-E-BUS	80,515	Y	MAN
429A	NO.2 ELECT ISOLATION RM	1,683	N	MAN
429B	BATTERY ROOM A	31,553	Y	MAN

4.6.Y.2 SAFE SHUTDOWN SYSTEMS IN FIRE AREA Y

The following components are located in fire area Y.  
See Appendix B-2 for a list of circuits / cables in this fire area.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
ESSPWR	1	1N	BATT	125VDC STATION BATTERY
	1	1P	BATT	125VDC STATION BATTERY
	1	CDE-12A-1	PNL	D1P CONT POWER TO AFWP GOV (ICS038A)
	1	D1N	MCC	125VDC DIST PNL
	1	D1NA	MCC	125VDC MCC
	1	D1P	MCC	125VDC DIST PNL
	1	D1PA	MCC	125VDC MCC
	1	DAN	MCC	125VDC DIST PANEL
	1	DAP	MCC	125VDC DIST PANEL
	1	DBC1N	BCHG	125VDC BATTERY CHARGER
	1	DBC1P	BCHG	125VDC BATTERY CHARGER
	1	DBC1PN	BCHG	125VDC BATTERY CHARGER
	1	DC MCC 1	MCC	250/125V DC MCC
	1	E1	SWGR	480 VAC MCC E1
	1	E12A	MCC	480VAC MCC
	1	E14	MCC	480VAC MCC
	1	E15	MCC	480VAC MCC
	1	XY1	XFMR	CONSTANT VOLT TRANSFORMER (CVT CH 1)
	1	XY3	XFMR	CONSTANT VOLT TRANSFORMER (CVT CH 3)
	1	Y1	PNL	120VAC DIST PNL
	1	Y1A	PNL	120 VAC ESS INSTR DISTR PANEL
	1	Y3	PNL	120VAC DIST PNL
	1	YAU	PNL	120VAC DIST PNL

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE HAZARDS ANALYSIS

4.6.Y.2 Cont.

SYSTEM	TRAIN	COMPONENT	TYPE	DESCRIPTION
ESSPWR	1	YRF1	PNL	RECTIFIER
	1	YRF3	PNL	RECTIFIER
	1	YV1	INV	125VDC INVERTER
	1	YV3	INV	125VDC INVERTER
	1	YVA	INV	125VDC INVERTER
	HVAC	1	C71-1	FAN
1		C78-1	FAN	BATT RM VENT FAN 1
1		HV5305	DMPR	LV SWGR RM FAN 1 DAMPER
1		HV5305A	DMPR	LV SWGR RM 429 DAMPER
1		HV5305B	DMPR	LV SWGR RM 429 DAMPER
1		HV5597	DMPR	BATT RM 429B ATM DMPR

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## Davis-Besse Unit 1 Fire Hazard Analysis Report

### FIRE AREA Y

#### 4.6.Y.3 Fire Propagation Control

Fire Area Y is located in the Non-RCA portion of the Auxiliary Building (elev 603') as shown on Drawing A-224F.

A fire that originates in this fire area will be contained in the fire area. This fire area is enclosed by 3-hour rated concrete barriers.

The Battery Room 429B is separated from the rest of Fire Area Y by a 3-hour barrier. This separates the batteries from the rest of the area in accordance with APCSB 9.5.1, Appendix A.

#### 4.6.Y.4 Fire Detection and Suppression

Fire Area Y consists of three rooms. The following rooms have detection.

1. Low Voltage Switchgear Room 429, Fire Detection Zone FDZ 429
2. Battery Room 429B, Fire Detection Zone FDZ 429B

Manual fire suppression equipment is provided for this fire area. Fire extinguishers and Hose Stations (HS) are shown on Drawing A-224F.

In the event of a fire, isolation and smoke venting will be accomplished in accordance with the Pre-Fire Plans.

#### 4.6.Y.5 Fire Area Safe Shutdown Summary

Train 2 will be used for Safe Shutdown in Fire Area Y. Safe Shutdown will be accomplished using the Makeup and Purification System (MUPS) for Reactor Coolant System Inventory Control, MUPS for a Letdown path and MUPS Seal Injection for RCP Seal Cooling.



SAFE SHUTDOWN ANALYSIS

FIRE AREA : Y

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
AFWS	AF3869	AFWP 1 DISCH TO SG2	MOV	E	1	C	C	AS IS		B H	NONE			OP-02501 (TRIP P14-1)	14
	AF3871	AFWP 2 DISCH TO SG1	MOV	F	2	C	C	AS IS		B H	NONE		OP-02501 (CLOSE AF3871)	OP-02501 (CLOSE AF3871)	14
	AF3872	AFWP 2 DISCH TO SG2	MOV	F	2	O	O	AS IS		H	NONE			N/A	
	AF599	AFW TO SG2 ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	AF6451	AFWP 2 FLOW CTRL VLV	SOV	F	2	O	O/C	FO		H	NONE			N/A	
	FW6460	MDFP FLOW CTRL VLV	SOV	II	2	O	O/C	FO	AFWS TRAIN 1&2	H	NONE			N/A	
	ICS038A	AFPT 2 GOV CTRL VLV	MOV	F	2	O	O/C	AS IS		H	NONE			N/A	
	MS106A	AFPT 1 MS IN X-CONN	MOV	EE	1	O	O/C	AS IS	MS106	B H	NONE			OP-02501 (TRIP P14-1)	14
	MS107	AFPT 2 MS IN ISO VLV	MOV	EE	2	C	O	AS IS		H	NONE			N/A	
	MS107A	AFPT 2 MS IN X-CONN	MOV	EE	2	O	O/C	AS IS	MS107	B H	NONE			OP-02501 (TRIP P14-1)	14
	MS5889B	AFPT 2 STEAM ADMISS VLV	SOV	F	2	C	O	FO		H	NONE			N/A	
	P14-1	TD AUX FW PUMP 1	PUMP	E	1	OFF	ON	OFF		H	NONE		OP-02501 (TRIP P14-1)	OP-02501 (TRIP P14-1)	14
	P14-2	TD AUX FW PUMP 2	PUMP	F	2	OFF	ON	OFF		H	NONE			N/A	
	P241	MTR DRIVEN FEED PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	P242-1	MDFP AUX LUBE OIL PUMP	PUMP	II	1/2	OFF	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
P242-2	MDFP SHAFT DRVN LO PUMP	PUMP	II	1/2	FUNC	FUNC	N/A	AFWS TRAIN 1&2	H	NONE			N/A	7	
CACs	C1-2	CAC FAN 2	FAN	D	2	O/F	ON	OFF		H	NONE			N/A	
	C1-3	CAC FAN 3	FAN	D	1/2	O/F	ON	OFF	C1-1, C1-2	H	2PBF1501A 2PBF1501B 3PBEF15A 3PBEF15B BEF153			USE C1-2 USE C1-2 USE C1-2 USE C1-2 USE C1-2	27 27 27 27 27
CCWS	CC1407A	CCW OUT ISO VLV FROM CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407A)	OP-02501 (OPEN CC1407A)	13
	CC1407B	CCW OUT ISO VLV FROM CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1407B)	OP-02501 (OPEN CC1407B)	13
	CC1409	CCW TO LETDOWN CLR 1 IN VLV	MOV	D	1	O/C	O/C	AS IS		H	NONE			N/A	
	CC1410	CCW TO LETDOWN CLR 2 IN VLV	MOV	D	2	O/C	O/C	AS IS		H	NONE		OP-02501 (OPEN CC1410)	OP-02501 (OPEN CC1410)	16
	CC1411A	CCW INLET ISO VLV TO CTMT	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411A)	OP-02501 (OPEN CC1411A)	13
	CC1411B	CCW INLET ISO VLV TO CTMT	MOV	A	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN CC1411B)	OP-02501 (OPEN CC1411B)	13
	CC1460	CC TO MU PMP HDR IN VLV	SOV	T	1/2	O/C	O(M)	FC	HPIS TRAIN 1&2	H	NONE		MOD 88-0145	BYPASSING CC1460	24
	CC1469	DHR CLR 2 OUT ISO VLV	SOV	AB	2	C	O	FO		C	NONE		OP-02501 (OPERATE CC1469)	OP-02501 (OPERATE CC1469)	26
	CC1474	DG JKT CW HX 2 OUT VLV	MAN	J	2	O	O	AS IS		H	NONE			N/A	
	CC1495	NON-ESSENTIAL IN ISOL (SEAL RETURN)	SOV	U	1	O	O/C	FC		B H	NONE			OP-02501 (OPERATE CC43)	12,26
CC2649	CC RETURN HDR 2 VLV	MOV	G	2	O/C	O/C	AS IS	HPIS TRAIN 1&2	H	NONE			N/A		

LEGEND

H - required for hot standby

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H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : Y

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
CCWS	CC42	Nonessential CCW Isolation Valve	MAN	U	1/2	O	O/C	AS IS		H	NONE			N/A	
	CC43	Nonessential CCW bypass Valve	MAN	U	1/2	C	O/C	AS IS		H	NONE		OP-02501(OPERATE CC43)	OP-02501(OPERATE CC43)	12,26
	CC5096	CC HDR 2 IN ISO VLV	MOV	T	2	O/C	O	AS IS		H	NONE			N/A	
	CC5098	CCW LINE 2 RET ISO VLV	MOV	T	2	O/C	O/C	AS IS		H	NONE			N/A	
	FIS1422D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1427D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	FIS1432D	FLOW SWITCH CCWS PUMP	FS	T	2	ON	ON	OFF		H	NONE			N/A	
	P43-2	CCW PUMP 2	PUMP	T	2	O/F	ON	OFF		H	NONE			N/A	
	P43-3	CCW PUMP 3	PUMP	T	1/2	O/F	ON	OFF		H	NONE			N/A	
CFS	CF01A	CORE FLOOD TK 2 ISO VLV	MOV	D	2	O	C	AS IS		B C	NONE			N/A	
	CF01B	CORE FLOOD TK 1 ISO VLV	MOV	D	1	O	C	AS IS		B C	NONE		OP-02501 (CLOSE CF01B)	OP-02501 (CLOSE CF01B)	22
CREVS	C21-2	CTRM EVS FAN 2	FAN	HH	2	OFF	ON	OFF		H	NONE			N/A	
	S33-2	CTRM EMERG A/C UNIT 2	A/C	HH	2	OFF	ON	OFF		H	NONE			N/A	
	SV4827A	CREVS CONDENSER UNIT 2 (S33-2) IN VLV	SOV	HH	2	C	O	CLOSED		H	NONE			N/A	
CSS	CS1530	CTMT SPRAY ISO VLV	MOV	AB	1	C	C	AS IS	P56-1	B H	NONE			OP-02501 (TRIP P56-1)	13
	CS1531	CTMT SPRAY ISO VLV	MOV	A	2	C	C	AS IS	P56-2	B H	NONE			OP-02501 (TRIP P56-2)	13
	P56-1	CS PUMP 1	PUMP	AB	1	OFF	OFF	OFF	CS1530	B H	1CBE111B 1CBE111C 1CBE111D 1CBE111E 1CBE111F 1CBE111G 1PB111A		OP-02501 (TRIP P56-1) OP-02501 (TRIP P56-1) OP-02501 (TRIP P56-1) OP-02501 (TRIP P56-1) OP-02501 (TRIP P56-1) OP-02501 (TRIP P56-1) OP-02501 (TRIP P56-1)	OP-02501 (TRIP P56-1) OP-02501 (TRIP P56-1) OP-02501 (TRIP P56-1) OP-02501 (TRIP P56-1) OP-02501 (TRIP P56-1) OP-02501 (TRIP P56-1) OP-02501 (TRIP P56-1)	13 13 13 13 13 13 13
	P56-2	CS PUMP 2	PUMP	A	2	OFF	OFF	OFF	CS1531	B H	NONE		OP-02501 (TRIP P56-2)	OP-02501 (TRIP P56-2)	13
DHRS	DH01A	LPI LINE 2 VLV	MOV	A	2	O	O	AS IS		C	NONE			N/A	
	DH07A	BWST ISO VLV A	MOV	AC	2	O	O	AS IS		H	NONE			N/A	
	DH09A	CTMT SUMP ISO VLV A	MOV	AB	2	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH09B	CTMT SUMP ISO VLV B	MOV	AB	1	C	C	AS IS		B H	NONE		MOD 89-0089	VALVE DE-ENERGIZED	18
	DH11	DH NORM SUCT LINE VLV	MOV	D	2	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH12	DH NORM SUCT LINE VLV	MOV	D	1	C	O/C	AS IS		H/L C	NONE		OP-02501 (OPEN DH21 & 23)	VALVE DE-ENERGIZED	25
	DH13A	DH CLR 2 BYPASS VLV	SOV	AB	2	C	C	FC		C	NONE			N/A	
	DH14A	DH CLR 2 OUT VLV	SOV	AB	2	O	O	FO		C	NONE			N/A	
	DH1518	DH NORM SUCT LINE 2 VLV	MOV	A	2	C	O/C	AS IS		C	NONE			N/A	
	DH2734	DH PUMP 2 BWST SUCT VLV	MOV	AB	2	O	O/C	AS IS		C	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : Y

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
DHRS	DH2735	DH AUX SPRAY STOP VLV	MOV	D	1/2	C	C	AS IS		B C	NONE			N/A	
	DH2736	DH AUX SPRAY THRTL VLV	MOV	A	1/2	C	C	AS IS		B C	NONE			N/A	
	DH63	LPI/HPI CROSS-TIE VLV	MOV	A	2	C	C	AS IS		C	NONE			N/A	
	P42-1	DHR/LPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-1)	OP-02501 (TRIP P42-1)	13
	P42-2	DHR/LPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		C	NONE		OP-02501 (TRIP P42-2)	OP-02501 (TRIP P42-2)	13
EDG	DA1148A/B	EDG 2 AIR START VLV	SOV	J	2	C	O	FC		H	NONE			N/A	
	DA2989	AIR START RCVR 1-2-1 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA2994	AIR START RCVR 1-2-2 DISCH VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA62	AIR START RCVR 1-2-1 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	DA63	AIR START RCVR 1-2-2 RELAY VLV	AOV	J	2	O	O	N/A		H	NONE			N/A	
	K5-2	EMERG DIESEL GENERATOR 2	EDG	J	2	O/F	ON	OFF		H	NONE			N/A	
	P148-2A	EDG JACKET WATER PUMP (RIGHT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P148-2B	EDG JACKET WATER PUMP (LEFT)	PUMP	J	2	O/F	O	OFF		H	NONE			N/A	
	P195-2	EDG FUEL OIL TRANSFER PUMP 2	PUMP	BN	2	OFF	ON	OFF		C	NONE			N/A	
	P201-2	EDG 1-2 M/D FUEL OIL PUMP	PUMP	J	1	O/F	ON	OFF	P205-2	H	NONE			N/A	
	P205-2	EDG 1-2 E/D FUEL OIL PUMP	PUMP	J	2	O/F	ON	OFF	P201-2	H	NONE			N/A	
	S207-01	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-02	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
	S207-03	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A	
S207-04	EDG 2 AIR START MOTOR	MTR	J	2	OFF	ON	N/A		H	NONE			N/A		
ESSPWR	2N	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	2P	125VDC STATION BATTERY	BATT	X	2	ON	ON	OFF		H	NONE			N/A	
	BUS B	13.8 kV SWITCHGEAR (BREAKER HBBD)	SWGR	Q	1/2	ON	ON	OFF	BACKFEED D2	H	NONE			N/A	
	C2	4.16KV AC SWGR	SWGR	S	1	ON	ON	OFF	P3-1, -2, -3	H	APDAN07A			NOT REQUIRED FOR S/D	7
	C3616	EDG1-2 PANEL LIGHTS (ALT PWR)	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	C3629	CONT POWER ESS METER HPI FLOW Y	PNL	R	2	ON	ON	OFF		H	NONE			N/A	
	C3630	CONT POWER TO AUX SD PANEL INST	PNL	R	1	ON	ON	OFF		H	1CY108A			NOT REQUIRED FOR S/D	5D
	C4602	NEUTRON FLUX MON. CABINET (CH.2)	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	C4625	CONT POWER TO AUX FW CONTROL PANEL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	C5705	CONT POWER (PORV IND LIGHTS)	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
C5755C	SPAS POWERED SV CH.2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A		

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : Y

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	
	C5755E	CONTROL ROOM REACT PROT. SYS PNL(CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5755G	POST ACCIDENT MON. RACK (CH.2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5756D	SFAS LOGIC ACTUATED CH2	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5759C	INST POWER NNI-X BUS	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5760D	INST POWER FD TO NNI-Y BUS	PNL	FF	1	ON	ON	OFF		H	APYAU26A			NOT REQUIRED FOR S/D	5D
	C5761A	CH 1 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	1CY115B			LOSS OF CH 1/3 INITIATES AFW	14
	C5762A	CONTROL POWER TO SFRCS CH3 RELAY	PNL	FF	1	ON	ON	OFF		H	1CY121A 1CY121B 1PD1P11A			LOSS OF CH 1/3 INITIATES AFW LOSS OF CH 1/3 INITIATES AFW LOSS OF CH 1/3 INITIATES AFW	14 14 14
	C5762C	SFAS POWERED SV CH.1	PNL	FF	1	ON	ON	OFF		H	1CD1P18A			SFAS INITIATED	13
	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	1CY107A			SFAS INITIATED	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	1CD1P19A 3CY307A			SFAS INITIATED SFAS INITIATED	13 13
	C5792	CONTROL ROOM SFRCS CABINET (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C5792A	CH 2 SFRCS XMTR & LOGIC	PNL	FF	1/2	ON	ON	OFF		H	NONE			N/A	
	C5798	POST ACCIDENT MON. IND. PNL (CH2)	PNL	FF	2	ON	ON	OFF		H	NONE			N/A	
	C6709	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	C6715	CTRM EMERGENCY HVAC CONTROL PANEL	PNL	HH	2	ON	ON	OFF		H	NONE			N/A	
	CDF-11A-1	CONTROL DISCONNECT TRANSFER SWITCH	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	CDF-12A-1	D2P CONT POWER TO AFWP GOV (ICS038B)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	D1	4.16KV AC SWGR	SWGR	Q	2	ON	ON	OFF		H	NONE			N/A	
	D2	4.16KV SWGR	SWGR	Q	2	ON	ON	OFF	AFWS TRAIN 1&2	H	NONE			N/A	7
	D2N	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	D2P	125VDC DIST PNL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBC2N	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2P	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF		H	NONE			N/A	
	DBC2PN	125VDC BATTERY CHARGER	BCHG	X	2	FUNC	FUNC	OFF	DBC2P, DBC2N	H	NONE			N/A	7
	DBN	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
	DBP	125VDC DIST PANEL	MCC	X	2	ON	ON	OFF		H	NONE			N/A	
DC MCC 2	250/125V DC MCC	MCC	X	2	ON	ON	OFF		H	NONE			N/A		
F1	480 V AC MCC F1	SWGR	X	2	ON	ON	OFF		H	NONE			N/A		
F11A	480VAC MCC	MCC	DF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**	
F11B	480VAC MCC	MCC	V	2	ON	ON	OFF		H	NONE			N/A		

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : Y

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
ESSPWR	F11C	480VAC MCC	MCC	A	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F11D	480VAC MCC	MCC	G	2	ON	ON	OFF		H	NONE			N/A	
	F11E	480VAC MCC	MCC	B	2	ON	ON	OFF		C	NONE			N/A	
	F12A	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12B	480VAC MCC	MCC	J	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12C	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F12D	480VAC MCC	MCC	BF	2	ON	ON	OFF		H	NONE			N/A	
	F14	480VAC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F15	480VAC MCC	MCC	X	2	ON	ON	OFF		H	2CBP105B		MOD 85-0063	USE CAC 1-2	6**27
	F16A	480V AC MCC	MCC	X	2	ON	ON	OFF		H	NONE		MOD 85-0063	N/A	6**
	F7	480V AC MCC F7	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7
	F71	480V AC MCC	MCC	II	1/2	ON	ON	OFF		H	NONE			N/A	7
	RC1761	CONT POWER (WC1747)	PNL	A	1/2	ON	ON	OFF		H	NONE			N/A	
	RC3602	DC CONTROL POWER RCP MONITOR	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3608	CONTROL POWER (TO CCCW002)	PNL	Q	2	ON	ON	OFF		H	NONE			N/A	
	RC3702	DC CONTROL POWER TO CAC 2 OUT VLV	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3705	CONT POWER RC3705 (LR3758)	PNL	A	2	ON	ON	OFF		H	NONE			N/A	
	RC3715	CONTROL POWER (SV WC1453)	PNL	U	1	ON	ON	OFF		H	ACDAP28A			POWER SUPPLY NOT REQUIRED	5D
	RC3716										NONE			N/A	
	RC4606	DC CONT PWR (MU6406,RC4610A,PORV)	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	XAC01	BUS TIE XFMR BACKFEED	XFMR	OS	1/2	ON	ON	OFF	BACKFEED C2/D2	H	NONE			N/A	7
	XY2	CONSTANT VOLT TRANSFORMER (CVT CH 2)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	XY4	CONSTANT VOLT TRANSFORMER (CVT CH 4)	XFMR	X	2	ON	ON	OFF		H	NONE			N/A	
	Y2	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y2A	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	Y3602	CONTROL POWER (MU19 & MU32)	PNL	II	2	ON	ON	OFF		H	NONE			N/A	
	Y4	120V AC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YBU	120VAC DIST PNL	PNL	X	2	ON	ON	OFF		H	NONE			N/A	
	YF1	120VAC MCC	PNL	J	2	ON	ON	OFF		H	NONE			N/A	
	YF2	240/120VAC MCC	PNL	DF	2	ON	ON	OFF		H	NONE			N/A	
	YV2	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	YV4	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : Y

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

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ESSFWR	YVB	125VDC INVERTER	INV	X	2	ON	ON	OFF		H	NONE			N/A	
	ZC6451	AFP #2 CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A	
	ZC6460	MDFP CTRL VLV POSITION CONTROLLER	PNL	F	2	ON	ON	OFF		H	NONE			N/A	
HPIS	HP02A	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02B	H	NONE			N/A	
	HP02B	HPI 2 DISCH ISO VLV	MOV	A	2	C	O	AS IS	HP02A	H	NONE			N/A	
	HP31	HPI PMP 2 RECIRC VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A	
	P198-1	HPI PMP 2 AC LO PMP	PUMP	A	2	OFF	ON	OFF		H	NONE			N/A	
	P198-2	HPI PMP 2 DC LO PUMP	PUMP	A	2	OFF	ON	OFF	P198-1	H	NONE			N/A	
	P58-1	HPI PUMP 1	PUMP	AB	1	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-1)	SPAS INITIATED	13
	P58-2	HPI PUMP 2	PUMP	A	2	OFF	O/F	OFF		H	NONE		OP-02501 (TRIP P58-2)	SPAS INITIATED	13
HVAC	C133	LV SWGR RM VENT FAN 2	FAN	EE	2	O/F	ON	OFF		H	NONE			N/A	
	C25-3	EDG RM 2 VENT FAN 3	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C25-4	EDG RM 2 VENT FAN 4	FAN	J	2	O/F	ON	OFF		H	NONE			N/A	
	C73-2	AFP RM VENT FAN 2	FAN	F	2	O/F	ON	OFF		H	NONE			N/A	
	C78-2	BATT RM VENT FAN 2	FAN	X	2	O/F	ON	OFF		H	NONE			N/A	
	C99-3	SW PMP RM EXH FAN 3	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	C99-4	SW PMP RM EXH FAN 4	FAN	BF	2	O/F	ON	OFF		H	NONE			N/A	
	HV5314	LV SWGR RM 428 DAMPER	DMPR	EE	2	O/C	O	AS IS		H	NONE			N/A	
	HV5314A	LV SWGR RM 428 DAMPER	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
	HV5336A	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5336B	EDG RM 2 DAMPER	DMPR	J	2	O/C	O	FO		H	NONE			N/A	
	HV5336C	EDG ROOM 2 DAMPER	DMPR	J	2	O/C	O	FC		H	NONE			N/A	
	HV5598	BATT RM 428A ATM DMPR	DMPR	X	2	O/C	O	AS IS		H	NONE			N/A	
MSS	ICS11A	MSL 2 ATM VENT VLV	SOV	DH	2	C	O/C	FC		H	NONE		OP-02501 (THROTTLE ICS11A)	LOSS OF AIR	12
	MS100	MSL 2 ISO VLV	SOV	DH	2	O	C	FC		H	NONE			N/A	
	MS100-1	MSIV 2 WU ISO VLV	SOV	DH	2	C	C	FC		H	NONE			N/A	
	MS101	MSL 1 ISO VLV	SOV	DH	1	O	C	FC		H	NONE			N/A	
	MS101-1	MS1V 1 WU ISO VLV	SOV	DH	1	C	C	FC		H	NONE			N/A	
	PSV-SP17A1	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A2	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A3	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : Y

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MSS	PSV-SP17A4	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A5	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A6	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A7	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A8	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
	PSV-SP17A9	MSL 2 SAFETY VALVE	SV	DH	2	C	C/O	FC	ICS11B	H	NONE			N/A	
MUPS	HP1556	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP1556)	OP-02501 (OPEN HP1556)	16
	HP27	HPI TO RCP SEALS	MAN	A	2	C	O	AS IS		H	NONE			N/A	
	HP29	MU RECIRC TO BWST	MAN	AB	1/2	C	O	AS IS	HPI TRAIN 1&2	H	NONE		OP-02501 (OPEN HP29)	OP-02501 (OPEN HP29)	16
	MU01A	LETDOWN CLR 1 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE			N/A	
	MU01B	LETDOWN CLR 2 IN VLV	MOV	D	1/2	O/C	O/C	AS IS	MU02B, 2A, MU03	H	NONE		OP-02501 (OPEN MU01B)	OP-02501 (OPEN MU01B)	16
	MU02A	LETDOWN CLR OUT VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02A)	OP-02501 (OPEN MU02A)	13
	MU02B	LETDOWN CLR IN VLV	MOV	D	1/2	O	O/C	AS IS		H	NONE		OP-02501 (OPEN MU02B)	OP-02501 (OPEN MU02B)	16
	MU03	RC LETDOWN ISO VLV	SOV	AB	1/2	O	O/C	FC		H	NONE		OP-02501 (OPEN MU03)	OP-02501 (OPEN MU03)	13
	MU04	LETDOWN PRESS REDUCING VLV	MOV	AB	1/2	O	O	AS IS		H	NONE			N/A	
	MU10A	PURIFICATION DEMIN 1-1 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10B	H	NONE		OP-02501 (OPEN MU10A)	OP-02501 (OPEN MU10A)	16
	MU10B	PURIFICATION DEMIN 1-2 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU11	RC LETDOWN DIVERTING VLV	MOV	G	1/2	O	C	AS IS		H	NONE		OP-02501 (ALIGN MU11 TO CWRT)	OP-02501 (ALIGN MU11 TO CWRT)	16
	MU182	SEAL RETURN TO MAKE UP TANK ISO VLV	MAN	G	1/2	O	C	N/A		H	NONE		OP-02501 (CLOSE MU182)	OP-02501 (CLOSE MU182)	16
	MU19	SEAL INJ INLET ISO VLV	SOV	AB	1/2	O	O	FO		H	NONE			OP-02501 (OPERATE MU214/MU216)	16
	MU1903	PURIFICATION DEMIN 1-3 IN VALVE	MOV	G	1/2	O/C	O	AS IS	MU10A	H	NONE			N/A	
	MU203	Recirc to Seal Return Stop Valve	MAN	AB	2	O	O/C	AS IS		H	NONE		OP-02501(CLOSE MU203)	OP-02501(CLOSE MU203)	16
	MU208	HPI TO RCP SEALS	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (OPEN MU208)	OP-02501 (OPEN MU208)	16
	MU214	SEAL INJ INLET MANUAL ISO VALVE	MAN	AB	1/2	O	C	AS IS		H	NONE		OP-02501 (CLOSE MU214)	OP-02501 (CLOSE MU214)	16
	MU216	SEAL INJ INLET ISO BYPASS VALVE	MAN	AB	1/2	C	O	AS IS		H	NONE		OP-02501 (THROTTLE MU216)	OP-02501 (THROTTLE MU216)	16
	MU32	RC MU ISO VLV	FCV	AB	2	O/C	O	FO	HPIS TRAIN 1&2	H	NONE			N/A	
	MU38	RCP SEAL RETURN ISO VLV	SOV	AB	1/2	O/C	O/C	FC		B H	NONE		OP-02501 (OPEN MU38)	OP-02501 (OPEN MU38)	13
	MU3971	RC MU PUMP SUCT VLV	MOV	AB	2	C	O/C	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU59A	RCP 2-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59A)	OP-02501 (OPEN MU59A)	13
	MU59B	RCP 2-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59B)	OP-02501 (OPEN MU59B)	13
	MU59C	RCP 1-1 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59C)	OP-02501 (OPEN MU59C)	13
	MU59D	RCP 1-2 SEAL RETURN VALVE	MOV	D	1/2	O	O	AS IS		H	NONE		OP-02501 (OPEN MU59D)	OP-02501 (OPEN MU59D)	13

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : Y

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
MUPS	MU6406	MU RECIRC ISO VLV	AOV	AB	2	O	O/C	FO	HPIS TRAIN 2	H	NONE			N/A	
	MU6408	MU CROSS CONNECT ISO VLV	MOV	AB	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU6420	MU32 BYPASS VLV	MOV	AB	2	C	O	AS IS	HPIS,MU32	H	NONE			N/A	
	MU6422	MU CTMT ISO VLV	MOV	A	2	O	O	AS IS	HPIS TRAIN 2	H	NONE			N/A	
	MU66A	RCP 2-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE	OP-02501 (OPEN MU66A)	OP-02501 (OPEN MU66A)		13
	MU66B	RCP 2-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE	OP-02501 (OPEN MU66B)	OP-02501 (OPEN MU66B)		13
	MU66C	RCP 1-1 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE	OP-02501 (OPEN MU66C)	OP-02501 (OPEN MU66C)		13
	MU66D	RCP 1-2 SEAL INJ ISO VLV	AOV	AB	1/2	O	O	FC		H	NONE	OP-02501 (OPEN MU66D)	OP-02501 (OPEN MU66D)		13
	MU97	SEAL RETURN TO CLEAN WASTE TK ISO VLV	MAN	G	1/2	C	O	N/A		H	NONE	OP-02501 (OPEN MU97)	OP-02501 (OPEN MU97)		16
	P-372B	MUP 2 MAIN LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P-372C	MUP 2 AUX LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS,P-372B	H	NONE			N/A	
	P-372D	MUP 2 AUX GEAR LO PUMP	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P37-2	MU PUMP 2	PUMP	AB	2	O/F	ON	OFF	HPIS TRAIN 2	H	NONE			N/A	
	P372A	MU PMP 2 MAIN GEAR LO PMP	PUMP	AB	2	O/F	O	OFF	P372D	H	NONE			N/A	
	WC119	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	A	1/2	C	O	AS IS		H	NONE	OP-02501 (OPEN WC119)	OP-02501 (OPEN WC119)		16
	WC120	CLEAN WASTE TANKS INLET LINE ISO VLV	MAN	G	1/2	C	O	AS IS		H	NONE	OP-02501 (OPEN WC120)	OP-02501 (OPEN WC120)		16
	WC1453	CLEAN WST PRI DEMIN IN VLV	SOV	G	1/2	O	C	FC		H	NONE			N/A	
	WC1743	CLEAN WST RCVA TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE	OP-02501 (OPEN WC1743)	LOSS OF AIR		12
	WC1747	CLEAN WST RCVR TK IN VLV	SOV	A	1/2	O	O	FC		H	NONE	OP-02501 (OPEN WC1747)	LOSS OF AIR		12
	WC3560	DEGASIFIER BYPASS VLV	SOV	G	1/2	C	O	FO		H	NONE			N/A	
NI	NI-5875A	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	NI-NI1	SOURCE RANGE IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
NNI	FI-MU31	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FI-MU34	MUP TRAIN 2 FLOW IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03A1	HPI FLOW IND. (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B	HPI FLOW INDICATION	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	FYI-HP03B1	HPI FLOW IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-2	PRZR LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-RC14-4	PRZR LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A1	SG1-2 START-UP LEVEL IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : Y

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

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NNI	LI-SP09A3	SG1-2 START-UP LEVEL IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	LI-SP09A8	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A8A	SG1-2 START-UP LEVEL IND (C5710)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LI-SP09A9	SG1-2 START-UP LEVEL IND (C5792A)	IND	FF	2	ON	ON	OFF	LI-SP09A1	H	NONE			N/A	
	LRS-RC14	PRZR LEVEL RECORDER	REC	FF	2	ON	ON	OFF	LI-RC14-1-4	H	NONE			N/A	
	PI-6365A	RCS LOOP 2 EXTENDED RANGE PRESS	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-6365A1	RCS LOOP2 EXTENDED RANGE PRESS (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A3	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-RC2A4	RCS LOOP 2 PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1	SG1-2 OUTLET PRESS IND (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	PI-SP12A1-A	SG1-2 OUTLET PRESS IND	IND	FF	2	ON	ON	OFF	PI-SP12A	H	NONE			N/A	
	TE-RC3A6	RCS LOOP 2 HOT LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TE-RC4A2	RCS LOOP 2 COLD LEG TEMP (RM 314)	TE	D	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A4	RCS LOOP 2 HOT LEG TEMP (ASP)	IND	R	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A5	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC3A6	RCS LOOP 2 HOT LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A2	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	TI-RC4A4	RCS LOOP 2 COLD LEG TEMP	IND	FF	2	ON	ON	OFF		H	NONE			N/A	
	RCS	RC11	PORV BLOCK VLV	MOV	D	1	O	O/C	AS IS		H/L H	NONE			N/A
RC13A		RCS CODE SAFETY VALVE	SV	D	2	C	C	CLOSED		H	NONE			N/A	
RC147		PRESSURIZER VENT HEADER CONTROL VLV	MAN	D	1/2	O	C	AS IS	RC200	B H	NONE			N/A	
RC200		PZR SMPL CTMT VNT HDR VLV	MOV	D	2	C	O/C	AS IS		H/L H	NONE			N/A	
RC239A		PZR VAPOR SMPL VLV	MOV	D	2	C	O/C	AS IS	RC200	H/L H	NONE			N/A	
RC239B		PZR LIQUID SMPL VLV	MOV	D	2	C	C	AS IS	RC200	H/L H	NONE			N/A	
RC2A		PZR PORV	SOV	D	2	C	O/C	FC		H/L H	NONE			N/A	
RC4608A		SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608B	H/L H	NONE			N/A	
RC4608B		SG 1 HI-PT VENT VLV	SOV	D	1	C	C	FC	RC4608A	H/L H	NONE			N/A	
RC4610A		SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610B	H/L H	NONE			N/A	
RC4610B	SG 2 HI-PT VENT VLV	SOV	D	2	C	C	FC	RC4610A	H/L H	NONE			N/A		
RC4632	COLD LEG SG1-2 SMPL VLV	SOV	D	2	C	C	FC	RC200	H/L H	NONE			N/A		
SFAS	C5755D	SFAS CH.2 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13

LEGEND

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SAFE SHUTDOWN ANALYSIS

FIRE AREA : Y

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

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SFAS	C5762D	SFAS CH.1 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	1CY107A			SFAS MAY ACTUATE	13
	C5763D	SFAS CH.3 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	3CY307A			SFAS MAY ACTUATE	13
	C5765D	SFAS CH.4 LOGIC PANEL	PNL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6453	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	HIS6454	SG Auto Essen Level Control	HIS	A	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525A	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525B	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525C	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LI1525D	BWST Level Indicator	LI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525A1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LSL1525B1	BWST Level Switch	LSL	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525A	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525B	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525C	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	LT1525D	BWST Level Transmitter	LT	AC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2000	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2001	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2002	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PI2003	CTMT Vessel Press Indicator	PI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2000B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PSH2001B	CTMT Vessel Press Switch	PSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2000	CTMT Vessel Press Xmtr	PT	V	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2001	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2002	CTMT Vessel Press Xmtr	PT	EE	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	PT2003	CTMT Vessel Press Xmtr	PT	CC	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2004	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2005	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2006	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RI2007	CTMT Vessel Radiation Ind	RI	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2004A	CTMT Vessel Radiation Sw	RSH2	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
	RSH2005A	CTMT Vessel Radiation Sw	RSH	FF	1/2	OFF	OFF	OFF		H	NONE			N/A	13
SFRCs	HIS100B	LOGIC CH 2 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14

LEGEND

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FIRE AREA : Y

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SPRCS	HIS100C	LOGIC CH 4 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101B	LOGIC CH 1 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS101C	LOGIC CH 3 TRIP BLOCK/PERMISSIVE	HIS	FF	1/2	ON	ON	OFF		H	NONE			N/A	14
	HIS3871B	BLOCK CIRCUIT AF3871 (APP-2 TO SG-1)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS3872B	BLOCK CIRCUIT AF3872 (APP-2 TO SG-2)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS603B	BLOCK CIRCUIT MS603 (SG-2 DRAIN STOP)	HIS	FF	2	OFF	OFF	ON		H	NONE			N/A	14
	HIS6402	CH 2/4 MANUAL START APPT-2 C5707	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	HIS6404	CH 2/4 MAN STRT APPT-2 & ISOL SG-2 C57	HIS	FF	2	OFF	ON	OFF		H	NONE			N/A	14
	LLTSP9A6	SG2 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A7	SG2 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A8	SG2 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9A9	SG2 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B6	SG1 CH 2 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B7	SG1 CH 4 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B8	SG1 CH 1 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	LLTSP9B9	SG1 CH 3 SU LEVEL XMTR	LLT	D	1/2	ON	ON	OFF		H	NONE			N/A	14
	PDS2685A	CH 2 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685B	CH 4 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685C	CH 1 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2685D	CH 3 MN FW < SG2 PRESSURE SWITCH	PDS	II	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686A	CH 1 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686B	CH 3 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686C	CH 2 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PDS2686D	CH 4 MN FW < SG1 PRESSURE SWITCH	PDS	AB	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687A	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687C	CH 2 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687E	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687G	CH 4 MN STM LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687K	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687L	CH 2 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687M	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14
	PS3687N	CH 4 MN STM LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : Y

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES	
SFRCS	PS3689B	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689D	CH 1 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689F	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689H	CH 3 MS LINE 2 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689K	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689L	CH 1 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689M	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	PS3689N	CH 3 MS LINE 1 PRESSURE SWITCH	PS	EE	1/2	C	C	OPEN		H	NONE			N/A	14	
	RCPM1	CH 1 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN			H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM2	CH 2 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN			H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM3	CH 3 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN			H	NONE			SFRCS INITIATES ON LOOP	14
	RCPM4	CH 4 RCP MONITOR RELAY CONTACT	RCPM	D	1/2	C	C	OPEN			H	NONE			SFRCS INITIATES ON LOOP	14
	SWS	P180	BACKUP SW PUMP	PUMP	BD	1/2	OFF	ON	OFF	SWS TRAIN 1&2	H	NONE			N/A	7
		P3-2	SW PUMP 2	PUMP	BF	2	O/F	ON	OFF		H	NONE			N/A	
P3-3		SW PUMP 3	PUMP	BF	1/2	O/F	ON	OFF	P3-1, P3-2	H	NONE			N/A		
SW1357		CAC 2 OUT ISO VLV	SOV	A	2	O/C	O	FO		H	NONE			N/A		
SW1358		CAC 3 OUT ISO VLV	SOV	A	1/2	O/C	O	FO		H	2CV1358BH 2CV1358BJ BEF15			USE CAC 2 USE CAC 2 USE CAC 2	27 27 27	
SW1367		CAC 2 IN ISO VLV	MOV	A	2	O	O	AS IS		H	NONE			N/A		
SW1368		CAC 3 IN ISO VLV	MOV	A	1/2	O	O	AS IS		H	2CBF1224B 2CBF1224K 2PBF1224A 3PBE1207H BE1207 BE1501 BEF128 BEF129 CDE-12A-1			USE CAC 2 USE CAC 2 USE CAC 2 USE CAC 2 USE CAC 2 USE CAC 2 USE CAC 2 USE CAC 2 USE CAC 2	27 27 27 27 27 27 27 27 27	
SW1383		APP 2 SUCT VLV FROM SW	MOV	A	2	C	O/C	AS IS		H	NONE			N/A		
SW1395		TPCW HX IN HEADER ISO VLV	MOV	BG	2	O/C	C	AS IS		H	NONE			N/A		
SW1429		SW FROM CC HX 3 ISO VLV	SOV	T	1/2	O/C	O	FO		H	NONE			N/A		
SW1434		SW FROM CC HX 2 ISO VLV	SOV	T	2	O/C	O	FO		H	NONE			N/A		
SW2928		CTRM EVS COND UNIT IN VLV	MOV	HH	2	C	O	AS IS		H	NONE			N/A		
SW2930		SW TO INT FOREBAY VLV	MOV	BG	2	O/C	O	AS IS	SW2929, 31, 32	H	NONE			N/A		
SW2932		SW TO COLLECT BASIN VLV	MOV	BG	2	O/C	O	AS IS	SW2929, 30, 31	H	NONE			N/A		
SW54		TPCW HX1 OUTLET	MAN	II	1	O	C	N/A	SW1395, SW1399	B H	NONE			N/A		

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

SAFE SHUTDOWN ANALYSIS

FIRE AREA : Y

TRAIN 2 IS ACCREDITED FOR SHUTDOWN

SYSTEM	COMPONENT	DESCRIPTION	TYPE	LOC	TRN	NORM MODE	SHUT MODE	FAIL MODE	BACK UP FOR	COMPON INFO	CIRCUIT	INTERLOCK	REQUIRED CHANGE	JUSTIFICATION	NOTES
SWS	SW55	TPCW HX2 OUTLET	MAN	II	2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
	SW56	TPCW HX3 OUTLET	MAN	II	1/2	O	C	N/A	SW1395, SW1399	B H	NONE			N/A	
ASSCKT	RE4598BA	STA VENT RAD MON (JT5353)									2PY217AA			LOST DUE TO BKR COORDINATION	20
ASSCKT	RE4598BB	STA VENT RAD MON ACC RNG									2PY221AA			LOST DUE TO BKR COORDINATION	20

LEGEND

H - required for hot standby

C - required for cold shutdown

H/L - High/Low interface

B - valve maintains boundary isolation

N/A - not affected

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA Y TABLE 1 NOTES

1. 1-hour fire wrap provided with detection and suppression. An asterisk indicates the circuit is embedded and adequate separation exists with detection and suppression or low combustible loadings.
2. 20 ft. horizontal separation between redundant trains with suppression, detection, and no significant intervening combustibles or fire hazards, or separation by an equivalent distance around a fire retardant barrier.
3. 3-hour fire wrap provided (or a radiant energy shield inside Containment, as noted).
4. 20 ft. separation, partial suppression, and exemption request.
5. The circuit is not required for Safe Shutdown for one of the following reasons:
  - a. The circuit provides indicating lights only.
  - b. The normal, failed, and desired SSD positions of the three-phase motor-operated component are the same, spurious operation is incredible.
  - c. The solenoid/relay and isolating contact(s) is (are) outside the fire area and spurious operation due to a hot short on one side of the circuit and a simultaneous ground on the other is considered incredible.
  - d. The power supply is not needed for Safe Shutdown to operate the component.
  - e. Failure of the low level instrument cable will not prevent SSD (e.g. SFAS analog inputs, SFRCS pressure switches, AFW modulating valve digital signals, the minimum requirements of NRC IEN 84-09 are met).

(This note cannot be referenced for control circuits susceptible to maloperation due to shorts, opens, or grounds or to High/Low Interface valves where multiple faults are considered).
6. Associated circuit coordination exists, see Appendix C-3. A asterisk indicates that Associated Circuits related to MOV's are considered to have no impact since they are not expected to be operation. Spurious operaiton of the valve incidental with a short on the power cable is not considered credible.

A double asterisk indicates High Impedance Ground Fault protection for the 480V AC Switchgear (E1 & F1 and Motor Control Centers (supplied from E1 & F1) which will prevent up-stream breakers from tripping on a ground.

E11A	E12B	F11A	F12C
E11C	E14	F11C	F14
E11D	E15	F12A	F15
E12A	E16A	F12B	F16A

7. This backup component is not needed for SSD in this fire area.
8. NOT USED

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA Y TABLE 1 NOTES

- 9. NOT USED
- 10. NOT USED
- 11. NOT USED
- 12. Due to loss of Instrument Air, the following valves must be manually operated for Safe Shutdown:

ICS11A	Throttle
WC1743	Open
WC1747	Open

CC1495 also fails closed on loss of air. Manual Bypass Valve CC43 will be operated.

At least 30-minutes are available to complete the manual action unless otherwise noted.

- 13. Shorts, opens, or grounds in SFAS Analog inputs cannot cause a change of state of the SFAS logic channels. All inputs are isolated so hot shorts will not affect the logic. Either a high or low SG level set-point is adequate for SSD. SFAS actuated components will not change state unless both actuation output Channels (Ch 1/3 or Ch 2/4) or the air supply (where needed) is lost. NNI provides SG level indication.

Due to loss of power to Complimentary Channels, SFAS could actuate. This actuation could operate the following components.

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
CS1530, 1531 P42-2	CS Iso Vlv LPI Pump 2	Open On	Stop P56-1, -2 Stop P42-2 from the CR after blocking SFAS
P42-1 P56-2	LPI Pump 1 CS Pump 2	On On	Trip Bkr AC112 at C1 Stop P56-2 from the CR after blocking SFAS
P56-1	CS Pump 1	On	Trip Bkr for AC1CE11 and AC1CE12 at C1*
P58-2	HPI Pump 2	On	Stop P58-2 from the CR after blocking SFAS
P58-1 CC1407A, B	HPI Pump 1 CCW Out Iso Vlv	On Closed	Trip Bkr AC111 at C1 Open CC1407A, B and Trip Bkr BE1173 at E11B & BF1158 at F11B
CC1411A, B	CCW Inl Iso Vlv	Closed	Open CC1411A, B and Trip BE1176 at E11B & BE1159 at F11B
MU02A	RC Lt Dn Cooler Out	Closed	Open MU02A and Trip BE1171 at E11B
MU03 MU38	RC Lt Dn Cooler Out RCP Seal Rtn Isol	Closed Closed	Open MU03 Open MU38

FIRE AREA Y TABLE 1 NOTES

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>EFFECT</u>	<u>ACTION</u>
MU59A	RCP 2-1 Seal Rtn Vlv	Closed	Open MU59A and Trip BE1174 at E11B
MU59B	RCP 2-2 Seal Rtn Vlv	Closed	Open MU59B and Trip BE1175 at E11B
MU59C	RCP 1-1 Seal Rtn Vlv	Closed	Open MU59C and Trip BE1177 at E11B
MU59D	RCP 1-2 Seal Rtn Vlv	Closed	Open MU59D and Trip BE1178 at E11B
MU66A	RCP 2-1 Seal Inj Vlv	Closed	Open MU66A
MU66B	RCP 2-2 Seal Inj Vlv	Closed	Open MU66B
MU66C	RCP 1-1 Seal Inj Vlv	Closed	Open MU66C
MU66D	RCP 1-2 Seal Inj Vlv	Closed	Open MU66D

\* Since MCC E1 is located in the fire area, these breakers (located at MCC C1) will be tripped to stop P56-1. All equipment powered via MCC E1 is Train 1 equipment and therefore not required for Shutdown.

14. A loss of power to all four reactor coolant pumps will result in actuation of both Trains of the AFWS:

The steam generator level control and steam generator level indication for the non-accredited train may also be lost.

Spurious SFRCS signals in the nonaccredited train may result in opening AFWP Discharge Valve to the opposite steam generator (AF3869/AF3871) and/or AFW Flow Control Valve (AF6451/AF6452) which could then open the AFPT Steam Admission Valve (MS5889A/MS5889B).

Manual actions to close the appropriate valve(s) or trip the appropriate AFPT to terminate AFW flow to the steam generator associated with the non-accredited train while maintaining AFW flow to the accredited steam generator may be required.

If AF3871 is manually closed, first trip Breaker BF1201 at F12A.

15. NOT USED
16. RCP Seal Integrity is maintained by prompt restoration of seal cooling, or performing a plant cooldown to below 350 degrees F as discussed in section 3.6.3. RCS Inventory control is maintained by a controlled plant cooldown if letdown is not available. Although RCP seal injection and letdown are not required for safe shutdown, they are detailed in the FHAR because availability of these systems simplifies safe shutdown and results in enhanced plant control.



Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA Y TABLE 1 NOTES

RCP Seal Return Flow

The following manual valves will need to be operated:

MU97	Open	MU216	Throttle
MU182	Close	WC119	Open
MU214	Close	WC120	Open

Additionally, the following valves may need to be manually operated:

CC1410	Open	MU10A	Open
MU01B	Open	MU11	Direct Flow to CWRT
MU02B	Open		

RCS Inventory Control

After transferring the Makeup suction to the BWST, MU203 will be manually closed after opening MU208, HP29, and HP1556 to route MUPS Recirc to the BWST rather than the Makeup Tank.

17. NOT USED
18. To prevent spurious operation, Valves DH09A and DH09B are deenergized.
19. NOT USED
20. NOT USED
21. NOT USED
22. The Core Flood Isolation Valves CF01A, B are normally open and are required to be closed when cooling down before going below 700 psig. Breakers BF1120 at F11A and BE1162 at E11B are normally open; manual action may be required to close CF01B before going below 700 psig.
23. NOT USED
24. Essential CCW is provided to the Makeup Pump Cooler, bypassing CC1460.
25. Valves DH11 and DH12 are depowered. Bypass Valves DH21 and DH23 can be manually operated to place the DHR System in service.
26. The DHR Cooler 1-2 Isolation Valve CC1469 is normally closed. This valve fails open on loss of air. However, this valve is required to be closed when CCW is aligned to the Seal Return Coolers and opened for DHRs cooldown.

The CCW to Nonessential Isolation Valve CC1495 is normally opened. CC1495 is air-operated and fails closed on loss of air. Manual bypass Valve CC43 will be opened.

Davis-Besse Unit 1 Fire Hazard Analysis Report

FIRE AREA Y TABLE 1 NOTES

(NOTE: Verify CC1467(CC1469) is closed before opening CC43 and that CC43 is closed before opening CC1467(CC1469).

27. Although CA Fan 3 (C1-3) may be affected by a fire in this area, CAC Fan 2 (C1-2) remains available to provide Containment Cooling. The only SSD load supplied from MCC F15 (via EF15) is CAC Fan 3 (C1-3).