

October 21, 1993

Ed Rodrick
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Mail Stop 324
5650 Nicholson Lane
Rockville, MD 20852

Dear Ed:

Enclosed, in accordance with your request, is information concerning the flooding analysis for the Zion IPE.

Xavier Polanski

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Flooding Analysis

Page 15 of the CECo Internal Flooding Evaluation Methodology Guideline, labeled as Attachment A, includes the statement, "If equipment is located either directly below or within a ten foot radius of one of these sources, then it will be analyzed with respect to failure modes as a result of spraying or splashing." This particular radius was established as a consensus engineering judgment by Westinghouse and Tenera personnel working on the flooding analysis, with CECo concurrence. In a spray or splash analysis, it is assumed that all equipment within a given radius, no matter what direction, is disabled if a leak occurs. This is very conservative, since it is extremely unlikely that the spray would occur in all directions at once. Use of a thirty foot, or so, spray radius, coupled with the assumption concerning spray in all directions, results in a very conservative consequence analysis, especially for lower-pressure water sources. It was judged, therefore, that a ten-foot radius would yield a more realistic estimate of spray/splash risk.

For the Zion IPE flooding analysis, no supporting calculations for adequacy of drainage were required. This is because, to be of interest, a flooding location had to have a source of water, cause a plant trip, and disable important equipment. Nearly all such places of interest were areas in the general open areas of the building. In all of those cases, a stairway was nearby. Because of the large drainage area provided by the stairways, no detailed calculations were required. Once that water drained into the basement of the respective building, the consequences were assessed. In no case was critical equipment at serious risk. For flooding locations not in the general areas of the buildings, large gratings providing many square feet of drainage area were available, thus eliminating the need for detailed drainage calculations.

The flooding analysis lists no water sources in the switchgear rooms. As you and I observed during the walkdown, there are heating system (HS) pipes in the ceiling of the switchgear rooms. The unit heaters in these rooms are fed by 1" lines, and the pressure in the pipes is only a few pounds. Furthermore the insulation on the pipes would prevent significant spray. Therefore, their contribution to flooding or to spray is considered to be negligible. In addition, flood or spray in a non-essential equipment room could cause a plant trip, but it would not degrade safe shutdown equipment. Loss of equipment in an essential switchgear room would not cause a plant trip.

The CECo methodology does take pipe breaks into account. However, the Zion screening analysis resulted in no locations in which a flooding frequency had to be determined. Attachment B shows Table 5 of the Zion IPE Flooding Analysis Notebook. These are the flood areas not eliminated by coarse screening. Detailed examination of these areas showed that flooding was prevented by adequate drainage, and there were either no spray sources, or spray would not result in a reactor trip.

area, then that area can be eliminated without performing additional time consuming calculations to account for the mitigative features. If the calculated flood height threatens the equipment within the area, then calculations must be performed to account for the mitigative features, such as the drains, sump pumps, and any other flow paths out of the area.

In performing these more detailed calculations for areas, the maximum flood rates and volumes are assumed for the flooding sources. For example, double-ended guillotine breaks are assumed for pipe ruptures and catastrophic tank, valve and pump ruptures are also assumed as the component failures which result in flooding. An example of the tank failure is described in Case 1 given below. A double-ended guillotine break may be found by assuming the maximum flow rate from the pipe. When the maximum expected flood height is calculated, it can be determined whether the equipment in the room can be submerged by taking into account the capacity of the drainage system and other protective features. Equations for calculating the maximum flood in these areas are given in the cases described below. The analyst should also note maximum flow and drainage rates and the time associated with flooding equipment in each particular area. It should also be noted that equipment failures might result not only from submerging but could also be caused from getting wet, (e.g., water spraying, splashing or dripping from a pipe above).

After calculating the maximum flood height in each area, the area is reviewed to determine if there is any equipment located above the maximum flood height that could fail as a result of water spraying or splashing onto it. For this analysis, it is conservatively assumed that if water comes in contact with any electrical equipment (cables, control circuitry), or pump or valve motors that are not covered and/or sealed to protect them from water intrusion, water spraying or splashing onto them will cause equipment failure. The source of the spraying or splashing and the relative position of equipment should be identified. If it is determined (either through the walkdown or by examining the plant general arrangement drawings) that it is feasible for water to splash or spray on equipment, then this must be analyzed in addition to equipment failures resulting from the flood in that area. In this analysis only pipe joints (flanges, valves) and tanks will be considered as sources of spraying or splashing. If equipment is located either directly below or within a ten foot radius of one of these sources, then it will be analyzed with respect to failure modes as a result of spraying or splashing.

The following equations can be used to calculate flood depths for various situations. The equations are given for three cases; tank rupture, flooding inside a curbed area, and flood depth in a room with drainage under a door.

Table 5
Zion Internal Flooding Analysis
Results of Qualitative Analysis

Zone	Description	Rx Elev	Fld Spr			Screened from Flooding		Screened from Spray	
			Trp	Src	Src Drn	Scr	Comment	Scr	Comment
11.2-0	Aux Building, Basement Level	560	Y	Y	Y Y	Y	Adequate Drainage	Y	No Reactor Trip
11.2F-1	Unit 1 Pipe Chase	560	Y	Y	Y -	Y	Adequate Drainage	Y	No Reactor Trip
11.2F-2	Unit 2 Pipe Chase	560	Y	Y	Y -	Y	Adequate Drainage	Y	No Reactor Trip
11.3E-1	Unit 1 Pipe Chase	579	Y	Y	Y Y	Y	Adequate Drainage	Y	No Reactor Trip
11.3E-2	Unit 2 Pipe Chase	579	Y	Y	Y Y	Y	Adequate Drainage	Y	No Reactor Trip
11.4C-1	Unit 1 Pipe Chase	592	Y	Y	Y Y	Y	Adequate Drainage	Y	No Reactor Trip
11.4C-2	Unit 2 Pipe Chase	592	Y	Y	Y Y	Y	Adequate Drainage	Y	No Reactor Trip
18.4B-0	Inner Crib House	594	Y	Y	Y Y	Y	Adequate Drainage	Y	No Reactor Trip
18.5-1	Unit 1 Steam Pipe Tunnel	560	Y	N	N Y	Y	Adequate Drainage	Y	No Spray Sources
18.5-2	Unit 2 Steam Pipe Tunnel	560	Y	N	N Y	Y	Adequate Drainage	Y	No Spray Sources
N/A	Turbine Building	All	Y	Y	Y Y	Y	Adequate Drainage	Y	No Reactor Trip

ATTACHMENT

B

Importance Measures in the Zion IPE

Importance Measures from the Westinghouse Code QT (Attachment 1)

The first page (Initiating Event Report) shows core damage frequency associated with each initiator. The next two pages (Top Events Report) show the sum, for each PRT node, of the core damage frequency for every sequence in which that node has failed. (This is a Fussel-Vesely-type importance.) The fourth and fifth pages (Damage States Report) are a similar listing for each core damage state. The final pages (Dominant Sequence Report) are a listing of the top 110 core damage sequences.

Importance Measures from the SAIC code RMQS

To produce this model, the fault tree quantifications (cutsets) for each node in the top sequences (the top 110 sequences, plus others as useful to incorporate key equipment nodes) are combined with the PRT sequences. RMQS uses them to produce basic event importance measures.

Basic Event Risk Reduction Worth (Attachment 2)

This listing includes the basic event identifier and the text from each basic event in the fault trees. For basic event with the highest importance, additional text ("Comments" and "System") have been added for clarification. Fussel-Vesely importance is also available, but $RRW \approx 1 + (FV)$, so a similar ranking would result.

Basic Event Risk Achievement Worth (Attachment 3)

This listing includes the basic event identifier and the text from each basic event in the fault trees. For basic event with the highest importance, additional text ("Comments" and "System") have been added for clarification.

PRT Node Risk Reduction Worth (Attachment 4)

This listing provides "nodal" importances for each different PRT nodal quantification. Since most operator actions are included as PRT nodes rather than as fault tree basic events, this list provides operator action importances and importances for other PRT nodes, like RWST and safeguards actuation, that are not quantified directly with a fault tree. These importances can be compared to the component basic event importances from Attachment 2. (Operator action nodes all start with "O.")

PRT Node Risk Achievement Worth (Attachment 5)

This listing provides "nodal" importances for each different PRT nodal quantification. Since most operator actions are included as PRT nodes rather than as fault tree basic events, this list provides operator action importances and importances for other PRT nodes, like RWST and safeguards actuation, that are not quantified directly with a fault tree. These importances can be compared to the component basic event importances from Attachment 3. (Operator action nodes all start with "O.")

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Initiating Event Report

ATTACHMENT 1

Created: Mon Mar 02 10:47:32 1992

Summary over all initiating events on 03/02/92 10:47:27

NAME	DESCRIPTION	FREQUENCY	PERCENT
LLOCA	LARGE LOCA INITIATING EVENT	1.324E-006	33.09%
SGTR	STEAM GENERATOR TUBE RUPTURE INITIATING EVENT	1.152E-006	28.80%
DLOOP	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT	9.000E-007	22.50%
MLOCA	MEDIUM LOCA INITIATING EVENT	3.973E-007	9.93%
SLOCA	SMALL LOCA INITIATING EVENT	1.540E-007	3.85%
GTR	GENERAL TRANSIENT INITIATING EVENT	4.615E-008	1.15%
LOOP	LOSS OF OFFSITE POWER INITIATING EVENT	2.124E-008	0.53%
ISLOCA	INTERFACING SYSTEMS LOCA INITIATING EVENT	4.532E-009	0.11%
LDC	LOSS OF 125V DC BUS 111 INITIATING EVENT	7.209E-010	0.02%
FBIN	FEED BREAK INSIDE CONTAINMENT INITIATING EVENT	2.346E-010	0.01%
SBIN	STEAM BREAK INSIDE CONTAINMENT INITIATING EVENT	2.346E-010	0.01%
FBOUT	FEED BREAK OUTSIDE CONTAINMENT INITIATING EVENT	2.345E-010	0.01%
SBOUT	STEAM BREAK OUTSIDE CONTAINMENT INITIATING EVENT	2.344E-010	0.01%
LSW	LOSS OF SERVICE WATER INITIATING EVENT	5.126E-011	0.00%
LCCW	LOSS OF COMPONENT COOLING WATER INITIATING EVENT	4.687E-013	0.00%

Total plant damage state frequency = 4.001E-006

Top Events Report

Summary over all initiating events on 03/02/92 10:47:27

NAME	DESCRIPTION	FREQUENCY	PERCENT
DRT	OP ACTION - REFILL THE RWST	1.366E-006	34.15%
RTK	EQUIPMENT TO REFILL RWST	1.337E-006	33.42%
BUS	4160V AC BUSES 147, 148, 149	9.128E-007	22.82%
ORC	OP ACTION - ESTABLISH ECC RECIRCULATION	8.144E-007	20.36%
LPI	LOW PRESSURE INJECTION	7.430E-007	18.57%
ODS	OP ACTION - SG DEPRESS FOR PRIM COOLING	6.785E-007	16.96%
FC	REACTOR CONTAINMENT FAN COOLERS	5.243E-007	13.11%
AFW	AUXILIARY FEEDWATER SYSTEM	5.114E-007	12.78%
DIR	OP ACTION - REDUCE INJECTION	4.770E-007	11.92%
HPR	HIGH PRESSURE RECIRCULATION	4.559E-007	11.40%
SBO	TRANSFER TO STATION BLACKOUT PRT	4.433E-007	11.08%
LPR	LOW PRESSURE RECIRCULATION	3.604E-007	9.01%
XCC	CORE UNCOVERED PROBABILITY (SEALLOCA)	2.237E-007	5.59%
ORE	OP ACTION - RESTORE EQUIP/SUPPORT SYSTEMS	1.699E-007	4.25%
SWS	SERVICE WATER SYSTEM	1.375E-007	3.44%
CSI	CONTAINMENT SPRAY SYSTEM	1.329E-007	3.32%
SAC	SAFEGUARDS ACTUATION 17, 18, 19	1.168E-007	2.92%
ESF	ENGINEERED SAFETY FEATURES ACTUATION	1.139E-007	2.85%
CCP	CENTRIFUGAL CHARGING PUMPS	1.115E-007	2.79%
CI	CONTAINMENT ISOLATION	1.062E-007	2.65%
HPI	HIGH PRESSURE INJECTION	9.939E-008	2.48%
DCB	125V DC BUSES 011-1, 111, 112	5.691E-008	1.42%
CCW	COMPONENT COOLING WATER SYSTEM	5.624E-008	1.41%
OSI	OP ACTION - INITIATE SAFETY INJECTION	4.691E-008	1.17%
SIP	SAFETY INJECTION PUMPS	3.345E-008	0.84%
CB	CONDENSATE BOOSTER PUMPS	3.015E-008	0.75%
RHX	RHR HEAT EXCHANGER COOLING	2.692E-008	0.67%
XHR	POWER RECOVERY PROBABILITY	1.884E-008	0.47%
RXT	REACTOR TRIP	1.404E-008	0.35%
PL	PROBABILITY POWER LEVEL LESS THAN 60%	1.373E-008	0.34%
LO	TRANSFER TO CONSEQUENTIAL SMALL LOCA PRT	1.183E-008	0.30%
AFT	TURBINE-DRIVEN AUXILIARY FEEDWATER PUMP	1.042E-008	0.26%
MF	FRAC OF TRAN MFW AVAIL UNTIL TT	6.377E-009	0.16%
AM	ATWS MITIGATING SYSTEM ACTUATION CIRCUIT	6.377E-009	0.16%
ORS	OP ACTION - RAPID SG DEPRESS FOR CB INJ	5.478E-009	0.14%
DIB	OP ACTION - ISOLATE RHR BREACH	4.532E-009	0.11%
OWC	OP ACTION - ESTABLISH NORMAL CHARGING	4.083E-009	0.10%
RE	RESTORE EQUIPMENT & SUPPORT SYSTEMS	3.932E-009	0.10%
AFI	CLOSE ALL FW/AFW VALVES TO RUPT SG	2.860E-009	0.07%
OTT	OP ACTION - TURBINE TRIP OR CLOSE MSIVS	2.474E-009	0.06%
ORF	OP ACTION - RESTORE CB &/OR MFW	1.916E-009	0.05%
OPR	OP ACTION - DEPRESS PRIM WITH PRZR PORVS	1.469E-009	0.04%
OHX	OP ACTION - ESTABLISH CCW TO RHR HX	1.369E-009	0.03%
QAF	OP ACTION - ISOLATE FEED TO RUPT SG	1.114E-009	0.03%
SEQ	SAFE SHUTDOWN SEQUENCERS 17, 18, 19	1.103E-009	0.03%
ODF	OP ACTION - OPEN AFW THROTTLE VALVES	7.853E-010	0.02%
PRV	PRESSURIZER PORVS	5.109E-010	0.01%
DS	SECONDARY PRESSURE RELIEF	3.843E-010	0.01%
TT	TURBINE TRIP	3.695E-010	0.01%
YHR	POWER RECOVERY PROBABILITY AT 24 HRS	3.634E-010	0.01%
PPR	PRIMARY PRESSURE RELIEF	1.993E-010	0.00%
TK	REFUELING WATER STORAGE TANK	1.567E-010	0.00%
ALT	ALTERNATE FEEDWATER	1.372E-010	0.00%
MSI	MAIN STEAM ISOLATION	1.199E-010	0.00%
DP	PRESSURIZER PORVS	7.382E-011	0.00%
QAT	OP ACTION - ISOLATE STEAM FROM RUPT SG	6.782E-011	0.00%
OSW	OP ACTION - RESTORE SW AND ALIGN CCW	4.939E-011	0.00%
ORI	OP ACTION - MANUAL CONTROL ROD INSERTION	1.731E-011	0.00%
TT2	TURBINE TRIP OR ALL MSIVS CLOSE	1.659E-011	0.00%
AC	CHARGING PUMP FLOW ALIGNMENTS	1.626E-011	0.00%
QAC	OP ACTION - ALIGN CHARGING SUCTION	5.600E-012	0.00%
OFW	OP ACTION - START AUX FEEDWATER	4.897E-012	0.00%
MC	NORMAL CHARGING	4.355E-012	0.00%
ACC	ACCUMULATORS	4.345E-012	0.00%
IC	FIREWATER TO OPERATING CHARGING PUMP	4.099E-012	0.00%
JOP	OP ACTION - DEPRESS PRIM WITH PRZR PORVS	3.027E-012	0.00%
NRC	NORMAL RHR COOLING	2.437E-012	0.00%
QEC	OP ACTION - FIREWATER TO CCP OIL COOLER	2.393E-012	0.00%
MFW	MAIN FEEDWATER SYSTEM	1.451E-012	0.00%
QNR	OP ACTION - ESTABLISH NORMAL RHR COOLING	1.198E-012	0.00%
SGI	SEC BREAK INSIDE CTMT ISO - MSIV + FWIV	1.183E-012	0.00%
OSC	OP ACTION - STOP CCW PUMPS	6.488E-013	0.00%
BL	PRESSURIZER PORVS BLEEDING	4.930E-013	0.00%

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OSR	OP ACTION - CONTROL RODS TO CORE BOTTOM	3.229E-013	0.00%
CRI	CONTROL ROD INSERTION	2.870E-013	0.00%
NCP	PROBABILITY OF 2/2 CCP AVAIL	2.681E-013	0.00%
JBL	OP ACTION - DEPRESS PRIM WITH PRZR PORVS	1.482E-013	0.00%
OCC	OP ACTION - RESTORE CCW	1.461E-013	0.00%
FB1	FEEDWATER ISOLATION (FOR BREAK OUTSIDE CONTAINMENT)	8.406E-014	0.00%
VLV	CHARGING PUMP INJECTION VALVING	3.560E-014	0.00%
OEB	OP ACTION - EMERGENCY BORATION	3.446E-014	0.00%
SW	EQUIPMENT TO RESTORE SW & ALIGN CCW	1.730E-014	0.00%
MSR	OPEN BREAKER OR TRIP MG SET OR INSERT	1.681E-014	0.00%
FB2	FEEDWATER ISOLATION (FOR BREAK INSIDE CONTAINMENT)	4.608E-015	0.00%
OKR	OP ACTION - ECC RECIRC AFTER CORE DAMAGE	3.368E-015	0.00%
EB	EMERGENCY BORATION	2.249E-016	0.00%
RCW	EQUIPMENT TO RESTORE CCW	2.620E-017	0.00%

Total plant damage state frequency = 4.001E-006

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Damage States Report

Summary over all initiating events on 03/02/92 10:47:27

NAME	DESCRIPTION	FREQUENCY	PERCENT
AE9S	LARGE LOCA; CD 0-2 HRS; ECCS RECIRC FAILS	1.211E-006	30.26%
RL9T	SGTR; CD 6-24 HRS; ECCS RECIRC FAILS	1.152E-006	28.79%
LI9S	(D)LOOP; CD 2-6 HRS; ECCS RECIRC FAILS	4.209E-007	10.52%
ML9S	MED LOCA; CD 6-24 HRS; ECCS RECIRC FAILS	3.761E-007	9.40%
BI4S	SBO; CD 2-6 HRS; HIGH PRES INJEC FAILS, SPRAYS WORK	2.385E-007	5.96%
BI7K	SBO; CD 2-6 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	1.799E-007	4.50%
SL9S	SMALL LOCA; CD 6-24 HRS; ECCS RECIRC FAILS	1.260E-007	3.15%
AE7S	LARGE LOCA; CD 0-2 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	5.796E-008	1.45%
AE9F	LARGE LOCA; CD 0-2 HRS; ECCS RECIRC FAILS	4.953E-008	1.24%
TI7A	TRANSIENT; CD 2-6 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	2.889E-008	0.72%
SE7K	SMALL LOCA; CD 0-2 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	2.140E-008	0.53%
LI9F	(D)LOOP; CD 2-6 HRS; ECCS RECIRC FAILS	1.749E-008	0.44%
LL9S	(D)LOOP; CD 6-24 HRS; ECCS RECIRC FAILS	1.606E-008	0.40%
ML9F	MED LOCA; CD 6-24 HRS; ECCS RECIRC FAILS	1.540E-008	0.38%
TE1S	ATWS; CD 0-2 HRS; REACTIVITY CMTL FAILS, SPRAYS WORK	1.089E-008	0.27%
SE6S	SMALL LOCA; CD 0-2 HRS; ALL ECCS INJEC FAILS, SPRAYS WORK	9.968E-009	0.25%
BI4E	SBO; CD 2-6 HRS; HIGH PRES INJEC FAILS, SPRAYS WORK	9.932E-009	0.25%
BI7E	SBO; CD 2-6 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	7.492E-009	0.19%
BL9S	SBO; CD 6-24 HRS; ECCS RECIRC FAILS	6.989E-009	0.17%
LI9K	(D)LOOP; CD 2-6 HRS; ECCS RECIRC FAILS	6.581E-009	0.16%
SI9S	SMALL LOCA; CD 2-6 HRS; ECCS RECIRC FAILS	5.240E-009	0.13%
VL9D	ISLOCA; CD 6-24 HRS; ECCS RECIRC FAILS	4.531E-009	0.11%
LI4S	(D)LOOP; CD 2-6 HRS; HIGH PRES INJEC FAILS, SPRAYS WORK	4.100E-009	0.10%
MI7A	MED LOCA; CD 2-6 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	3.305E-009	0.08%
TE4S	ATWS; CD 0-2 HRS; HIGH PRES INJEC FAILS, SPRAYS WORK	2.582E-009	0.06%
AE7F	LARGE LOCA; CD 0-2 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	2.506E-009	0.06%
AE7K	LARGE LOCA; CD 0-2 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	2.203E-009	0.06%
SL9K	SMALL LOCA; CD 6-24 HRS; ECCS RECIRC FAILS	1.926E-009	0.05%
MI9S	MED LOCA; CD 2-6 HRS; ECCS RECIRC FAILS	1.866E-009	0.05%
TI7F	TRANSIENT; CD 2-6 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	1.204E-009	0.03%
LI9S	SECONDARY BREAK	1.097E-009	0.03%
LI4S	TRANSIENT; CD 2-6 HRS; HIGH PRES INJEC FAILS, SPRAYS WORK	1.081E-009	0.03%
AI9S	LARGE LOCA; CD 2-6 HRS; ECCS RECIRC FAILS	6.030E-010	0.02%
DL9S	LOSS OF DC; CD 6-24 HRS; ECCS RECIRC FAILS	4.961E-010	0.01%
LL9F	(D)LOOP; CD 6-24 HRS; ECCS RECIRC FAILS	4.481E-010	0.01%
TE1E	ATWS; CD 0-2 HRS; REACTIVITY CMTL FAILS, SPRAYS WORK	4.451E-010	0.01%
TL9S	TRANSIENT; CD 6-24 HRS; ECCS RECIRC FAILS	4.240E-010	0.01%
SE6E	SMALL LOCA; CD 0-2 HRS; ALL ECCS INJEC FAILS, SPRAYS WORK	4.067E-010	0.01%
SE7S	SMALL LOCA; CD 0-2 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	3.852E-010	0.01%
ML9K	MED LOCA; CD 6-24 HRS; ECCS RECIRC FAILS	3.021E-010	0.01%
BL9E	SBO; CD 6-24 HRS; ECCS RECIRC FAILS	2.889E-010	0.01%
RESIDUAL	SUMMATION OF ALL PATHS BELOW CUTOFF FREQUENCY	2.295E-010	0.01%
AE9K	LARGE LOCA; CD 0-2 HRS; ECCS RECIRC FAILS	2.265E-010	0.01%
LL9E	(D)LOOP; CD 6-24 HRS; ECCS RECIRC FAILS	2.138E-010	0.01%
RL7C	SGTR; CD 6-24 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	1.937E-010	0.00%
LL9K	(D)LOOP; CD 6-24 HRS; ECCS RECIRC FAILS	1.684E-010	0.00%
LI4E	(D)LOOP; CD 2-6 HRS; HIGH PRES INJEC FAILS, SPRAYS WORK	1.673E-010	0.00%
SE6K	SMALL LOCA; CD 0-2 HRS; ALL ECCS INJEC FAILS, SPRAYS WORK	1.517E-010	0.00%
MI7F	MED LOCA; CD 2-6 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	1.377E-010	0.00%
ZL7A	SECONDARY BREAK	1.317E-010	0.00%
TE4F	ATWS; CD 0-2 HRS; HIGH PRES INJEC FAILS, SPRAYS WORK	1.056E-010	0.00%
SL9E	SMALL LOCA; CD 6-24 HRS; ECCS RECIRC FAILS	9.275E-011	0.00%
SI9K	SMALL LOCA; CD 2-6 HRS; ECCS RECIRC FAILS	9.197E-011	0.00%
RL6C	SGTR; CD 6-24 HRS; ALL ECCS INJEC FAILS, SPRAYS WORK	9.187E-011	0.00%
AI9K	LARGE LOCA; CD 2-6 HRS; ECCS RECIRC FAILS	8.781E-011	0.00%
DI9S	LOSS OF DC; CD 2-6 HRS; ECCS RECIRC FAILS	7.912E-011	0.00%
MI9F	MED LOCA; CD 2-6 HRS; ECCS RECIRC FAILS	7.660E-011	0.00%
BI7S	SBO; CD 2-6 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	6.988E-011	0.00%
RL9S	SGTR; CD 6-24 HRS; ECCS RECIRC FAILS	4.850E-011	0.00%
ZL9F	SECONDARY BREAK	4.532E-011	0.00%
TI4E	TRANSIENT; CD 2-6 HRS; HIGH PRES INJEC FAILS, SPRAYS WORK	4.373E-011	0.00%
DI7A	LOSS OF DC; CD 2-6 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	4.304E-011	0.00%
DI4S	LOSS OF DC; CD 2-6 HRS; HIGH PRES INJEC FAILS, SPRAYS WORK	3.534E-011	0.00%
MI9K	MED LOCA; CD 2-6 HRS; ECCS RECIRC FAILS	3.015E-011	0.00%
LI9F	LARGE LOCA; CD 2-6 HRS; ECCS RECIRC FAILS	2.772E-011	0.00%
LI6K	LOSS OF SW; CD 6-24 HRS; ALL ECCS INJEC FAILS, SPRAYS WORK	2.534E-011	0.00%
XL9K	LOSS OF SW; CD 6-24 HRS; ECCS RECIRC FAILS	2.065E-011	0.00%
DL9E	LOSS OF DC; CD 6-24 HRS; ECCS RECIRC FAILS	1.999E-011	0.00%
MI7S	MED LOCA; CD 2-6 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	1.995E-011	0.00%
LI5S	(D)LOOP; CD 2-6 HRS; HIGH PRES INJEC FAILS, SPRAYS FAIL	1.989E-011	0.00%
LI4K	(D)LOOP; CD 2-6 HRS; HIGH PRES INJEC FAILS, SPRAYS WORK	1.728E-011	0.00%
TL9E	TRANSIENT; CD 6-24 HRS; ECCS RECIRC FAILS	1.651E-011	0.00%
SE7F	SMALL LOCA; CD 0-2 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	1.355E-011	0.00%

File: ACCSEQ.REP

Length: 80674 bytes

Created: Mon Mar 02 10:47:32 1992

SE7E	SMALL LOCA; CD 0-2 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	1.021E-011	0.00%
SE6F	SMALL LOCA; CD 0-2 HRS; ALL ECCS INJEC FAILS, SPRAYS WORK	6.033E-012	0.00%
ZL7F	SECONDARY BREAK	5.489E-012	0.00%
E3A	ATWS; CD 0-2 HRS; REAC CNTL FAILS, ALL INJEC & SPRAYS FAIL	4.736E-012	0.00%
AE6S	LARGE LOCA; CD 0-2 HRS; ALL ECCS INJEC FAILS, SPRAYS WORK	4.624E-012	0.00%
SL9A	SMALL LOCA; CD 6-24 HRS; ECCS RECIRC FAILS	3.955E-012	0.00%
TL9K	TRANSIENT; CD 6-24 HRS; ECCS RECIRC FAILS	3.382E-012	0.00%
TE2S	ATWS; CD 0-2 HRS; REACTIVITY CNTL FAILS, SPRAYS FAIL	3.192E-012	0.00%
DI9F	LOSS OF DC; CD 2-6 HRS; ECCS RECIRC FAILS	2.989E-012	0.00%
LI7S	(D)LOOP; CD 2-6 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	2.450E-012	0.00%
ZL9A	SECONDARY BREAK	2.301E-012	0.00%
SI9E	SMALL LOCA; CD 2-6 HRS; ECCS RECIRC FAILS	2.182E-012	0.00%
DI7E	LOSS OF DC; CD 2-6 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	1.696E-012	0.00%
MI6K	MED LOCA; CD 2-6 HRS; ALL ECCS INJEC FAILS, SPRAYS WORK	1.340E-012	0.00%
ZL6S	SECONDARY BREAK	1.224E-012	0.00%
DI4E	LOSS OF DC; CD 2-6 HRS; HIGH PRES INJEC FAILS, SPRAYS WORK	1.172E-012	0.00%
DI9K	LOSS OF DC; CD 2-6 HRS; ECCS RECIRC FAILS	1.135E-012	0.00%
BI4K	SBO; CD 2-6 HRS; HIGH PRES INJEC FAILS, SPRAYS WORK	1.075E-012	0.00%
XL6E	LOSS OF SW; CD 6-24 HRS; ALL ECCS INJEC FAILS, SPRAYS WORK	9.424E-013	0.00%
XL9E	LOSS OF SW; CD 6-24 HRS; ECCS RECIRC FAILS	7.859E-013	0.00%
TE7S	ATWS; CD 0-2 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	7.129E-013	0.00%
MI6S	MED LOCA; CD 2-6 HRS; ALL ECCS INJEC FAILS, SPRAYS WORK	6.735E-013	0.00%
LI5E	(D)LOOP; CD 2-6 HRS; HIGH PRES INJEC FAILS, SPRAYS FAIL	5.760E-013	0.00%
RL9K	SGTR; CD 6-24 HRS; ECCS RECIRC FAILS	5.286E-013	0.00%
XL7K	LOSS OF SW; CD 6-24 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	4.960E-013	0.00%
AE6K	LARGE LOCA; CD 0-2 HRS; ALL ECCS INJEC FAILS, SPRAYS WORK	3.689E-013	0.00%
VE7D	ISLOCA; CD 0-2 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	2.815E-013	0.00%
XI4K	LOSS OF SW; CD 2-6 HRS; HIGH PRES INJEC FAILS, SPRAYS WORK	2.118E-013	0.00%
TI5S	TRANSIENT; CD 2-6 HRS; HIGH PRES INJEC FAILS, SPRAYS FAIL	2.097E-013	0.00%
TE7A	ATWS; CD 0-2 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	1.982E-013	0.00%
LI5K	(D)LOOP; CD 2-6 HRS; HIGH PRES INJEC FAILS, SPRAYS FAIL	1.588E-013	0.00%
LI7A	(D)LOOP; CD 2-6 HRS; ALL ECCS INJEC FAILS, SPRAYS FAIL	1.586E-013	0.00%
TI4K	TRANSIENT; CD 2-6 HRS; HIGH PRES INJEC FAILS, SPRAYS WORK	1.510E-013	0.00%
AE6F	LARGE LOCA; CD 0-2 HRS; ALL ECCS INJEC FAILS, SPRAYS WORK	1.082E-013	0.00%
TL9F	TRANSIENT; CD 6-24 HRS; ECCS RECIRC FAILS	1.022E-013	0.00%

Total plant damage statr frequency

4.001E-006

File: ACCSEQ.REP

Length: 80674 bytes

Created: Mon Mar 02 10:47:32 1992

Dominant Sequence Report

Summary over all initiating events on 03/02/92 10:47:27

Total plant damage state frequency = 4.000641E-006

NUMBER	FREQUENCY	PERCENT	SUPPORT	ST	DAMAGE	ST	EVENT	VALUE	DESCRIPTION
1.	6.087E-007	15.21%	1	AE9S	LLOCA	ORC		3.000E-004 2.160E-003	LARGE LOCA INITIATING EVENT OP ACTION - ESTAB LOW PRESSURE ECC RECIRC (LLOCA W/SPRAY)
2.	4.092E-007	10.23%	1	AE9S	LLOCA	LPI ORT		3.000E-004 1.450E-003 1.000E+000	LARGE LOCA INITIATING EVENT 1/2 LOW PRESSURE INJ PMPS TO 2/3 C LEGS ALL POWER RWST REFILL NOT POSSIBLE FOR LARGE LOCA WITH CURRENT EOPs
3.	3.962E-007	9.90%	98	LI9S	DLOOP	BUS AFW FC HPR RTK		1.400E-002 2.230E-003 1.450E-002 9.847E-001 1.000E+000 1.000E+000	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT AC POWER WITH DLOSP 148,149 FAIL 1/3 AUX FEED PMPS TO 4/4 SG NO POWER 2/5 FAN COOLERS (1-FC15) 1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS NO POWER EQUIPMENT TO REFILL THE RWST (POWER UNAVAILABLE)
4.	3.891E-007	9.73%	1	RL9T	SGTR	ODS ORT		9.020E-003 1.150E-003 3.800E-002	STEAM GENERATOR TUBE RUPTURE INITIATING EVENT OP ACTION - SG DEPRES FOR PRIM COOLING (ODS2) OP ACTION - REFILL THE RWST
5.	2.751E-007	6.88%	1	RL9T	SGTR	OIR ORT		9.020E-003 8.140E-004 3.800E-002	STEAM GENERATOR TUBE RUPTURE INITIATING EVENT OP ACTION - MINIMIZE ECCS FLOW OP ACTION - REFILL THE RWST
6.	2.472E-007	6.18%	1	RL9T	SGTR	ODS RTK		9.020E-003 1.150E-003 2.510E-002	STEAM GENERATOR TUBE RUPTURE INITIATING EVENT OP ACTION - SG DEPRES FOR PRIM COOLING (ODS2) EQUIPMENT TO REFILL THE RWST (SGTR)
7.	1.748E-007	4.37%	1	RL9T	SGTR	OIR RTK		9.020E-003 8.140E-004 2.510E-002	STEAM GENERATOR TUBE RUPTURE INITIATING EVENT OP ACTION - MINIMIZE ECCS FLOW EQUIPMENT TO REFILL THE RWST (SGTR)
8.	1.526E-007	3.81%	1	ML9S	MLOCA	LPR RTK		1.100E-003 5.200E-004 2.910E-001	MEDIUM LOCA INITIATING EVENT 1/2 LOW PRESSURE RECIRC TO 2/4 C LEGS ALL POWER (COND) EQUIPMENT TO REFILL THE RWST FOR LOCAs (RTK_ALL+0.25)
9.	1.448E-007	3.62%	1	AE9S	LLOCA	LPR ORT		3.000E-004 5.150E-004 1.000E+000	LARGE LOCA INITIATING EVENT 1/2 LOW PRESSURE RECIRC TO 1/3 C LEGS ALL POWER (COND) RWST REFILL NOT POSSIBLE FOR LARGE LOCA WITH CURRENT EOPs
10.	1.254E-007	3.13%	1	ML9S	MLOCA	ORC RTK		1.100E-003 4.270E-004 2.910E-001	MEDIUM LOCA INITIATING EVENT OP ACTION - ESTAB LOW PRESSURE ECC RECIRC EQUIPMENT TO REFILL THE RWST FOR LOCAs (RTK_ALL+0.25)
11.	1.171E-007	2.93%	198	BI4S	DLOOP	BUS SBO XCC		1.400E-002 3.090E-004 1.000E+000 4.090E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT AC POWER WITH DLOSP 147,148,149 FAIL LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT CORE UNCOVERED PRIOR TO POWER RECOVERY AT 24 HRS (SEALLOCA)
12.	8.786E-008	2.20%	198	BI7X	DLOOP	BUS SBO ORE		1.400E-002 3.090E-004 1.000E+000 3.090E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT AC POWER WITH DLOSP 147,148,149 FAIL LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT OP ACTION - RESTORE EQUIP&SUPPORT SYSTEMS
13.	7.954E-008	1.99%	1	SL9S	SLOCA	LPI RTK		6.800E-003 4.220E-005 2.910E-001	SMALL LOCA INITIATING EVENT 1/2 RHR PMPS ON MINIFLOW ALL POWER EQUIPMENT TO REFILL THE RWST FOR LOCAs (RTK_ALL+0.25)
14.	5.691E-008	1.42%	63	AE7S	LLOCA	ESF SAC LPI HPI CSI		3.000E-004 2.040E-004 1.000E+000 1.000E+000 1.000E+000 1.000E+000	LARGE LOCA INITIATING EVENT ESFAS NO OPER ACTION-BOTH TRAINS FAIL MANUAL ACTUATION OF EQUIPMENT NOT MODELED FOR LARGE LOCA 1/2 LOW PRESSURE INJ PMPS TO 2/3 C LEGS NO POWER 1/4 HIGH PRESSURE INJ PMPS TO 2/3 C LEGS NO POWER 1/3 CONTAINMENT SPRAY PUMPS NO POWER AVAIL
15.	4.846E-008	1.21%	1	ML9S	MLOCA	LPI RTK		1.100E-003 1.650E-004 2.910E-001	MEDIUM LOCA INITIATING EVENT 1/2 LOW PRESSURE INJ PMPS TO 2/4 C LEGS ALL POWER (COND) EQUIPMENT TO REFILL THE RWST FOR LOCAs (RTK_ALL+0.25)
16.	2.856E-008	0.71%	104	T17A	GTR	DCB AFW CB		3.000E+000 6.980E-007 1.430E-002 1.000E+000	GENERAL TRANSIENT INITIATING EVENT DC POWER W/OS 011-1,111,112 FAIL-ALL POWER 1/3 AUX FEED PMPS TO 4/4 SG NO POWER 1/4 COND BOOSTER PMPS TO 1/4 SGS - LOSS OF 011-1 OR LOSP

File: ACCSEQ.REP
Length: 80674 bytes

Created: Mon Mar 02 10:47:32 1992

Seq	Time	Prob	Code	Desc	Value	Action
			OSI	1.000E+000	OP ACTION - INITIATE SAFETY INJECTION (ESFAS HDW FAILED)	
			HPI	1.000E+000	1/4 HIGH PRESSURE INJ PMPS TO 2/4 C LEGS NO POWER	
			FC	1.000E+000	1/5 FAN COOLERS NO POWER	
			CSI	1.000E+000	1/3 CONTAINMENT SPRAY PUMPS NO POWER AVAIL	
			LPI	1.000E+000	1/2 LOW PRESSURE INJ PMPS TO 2/4 C LEGS NO POWER	
17.	2.738E-008	0.68% 1	RL9T	SGTR	9.020E-003	STEAM GENERATOR TUBE RUPTURE INITIATING EVENT
			CCP	2.660E-003	1/2 CCPs INJECTING TO 2/4 C LEGS ALL POWER	
			ODS	1.150E-003	OP ACTION - SG DEPRES FOR PRIM COOLING (ODS2)	
18.	2.490E-008	0.62% 1	AE9F	LLOCA	3.000E-004	LARGE LOCA INITIATING EVENT
			ORC	2.160E-003	OP ACTION - ESTAB LOW PRESSURE ECC RECIRC (LLOCA W/SPRAY)	
			CI	3.930E-002	CONTAINMENT ISOLATION (ESFAS SUCCESS, SPRAY ACTUATED)	
19.	2.293E-008	0.57% 198	B14S	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
			BUS	3.090E-004	AC POWER WITH DLOSP 147,148,149 FAIL	
			SWS	1.440E-001	SERVICE WATER W/DLOSP-NO POWER	
			SBO	1.000E+000	LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT	
			XCC	4.090E-002	CORE UNCOVERED PRIOR TO POWER RECOVERY AT 24 HRS (SEALLOCA)	
20.	2.072E-008	0.52% 1	ML9S	MLOCA	1.100E-003	MEDIUM LOCA INITIATING EVENT
			LPR	5.200E-004	1/2 LOW PRESSURE RECIRC TO 2/4 C LEGS ALL POWER (COND)	
			ORT	3.800E-002	OP ACTION - REFILL THE RWST	
21.	1.936E-008	0.48% 1	RL9T	SGTR	9.020E-003	STEAM GENERATOR TUBE RUPTURE INITIATING EVENT
			CCP	2.660E-003	1/2 CCPs INJECTING TO 2/4 C LEGS ALL POWER	
			DIR	8.140E-004	OP ACTION - MINIMIZE ECCS FLOW	
22.	1.922E-008	0.48% 198	B14E	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
			BUS	3.090E-004	AC POWER WITH DLOSP 147,148,149 FAIL	
			CCW	1.410E-001	COMPONENT COOLING WATER W/DLOSP-NO POWER	
			SBO	1.000E+000	LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT	
			XCC	4.090E-002	CORE UNCOVERED PRIOR TO POWER RECOVERY AT 24 HRS (SEALLOCA)	
23.	1.721E-008	0.43% 198	B17K	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
			BUS	3.090E-004	AC POWER WITH DLOSP 147,148,149 FAIL	
			SWS	1.440E-001	SERVICE WATER W/DLOSP-NO POWER	
			SBO	1.000E+000	LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT	
			ORE	3.090E-002	OP ACTION - RESTORE EQUIP&SUPPORT SYSTEMS	
24.	1.702E-008	0.43% 1	ML9S	MLOCA	1.100E-003	MEDIUM LOCA INITIATING EVENT
			ORC	4.270E-004	OP ACTION - ESTAB LOW PRESSURE ECC RECIRC	
			ORT	3.800E-002	OP ACTION - REFILL THE RWST	
25.	1.674E-008	0.42% 1	AE9F	LLOCA	3.000E-004	LARGE LOCA INITIATING EVENT
			LPI	1.450E-003	1/2 LOW PRESSURE INJ PMPS TO 2/3 C LEGS ALL POWER	
			ORT	1.000E+000	RWST REFILL NOT POSSIBLE FOR LARGE LOCA WITH CURRENT EOPs	
			CI	3.930E-002	CONTAINMENT ISOLATION (ESFAS SUCCESS, SPRAY ACTUATED)	
26.	1.621E-008	0.41% 98	L19F	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
			BUS	2.230E-003	AC POWER WITH DLOSP 148,149 FAIL	
			AFW	1.450E-002	1/3 AUX FEED PMPS TO 4/4 SG NO POWER	
			FC	9.847E-001	2/5 FAN COOLERS (1-FC15)	
			HPR	1.000E+000	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS NO POWER	
			RTK	1.000E+000	EQUIPMENT TO REFILL THE RWST (POWER UNAVAILABLE)	
			CI	3.930E-002	CONTAINMENT ISOLATION (ESFAS SUCCESS, SPRAY ACTUATED)	
27.	1.565E-008	0.39% 98	L19S	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
			BUS	2.230E-003	AC POWER WITH DLOSP 148,149 FAIL	
			AFW	1.450E-002	1/3 AUX FEED PMPS TO 4/4 SG NO POWER	
			FC	9.847E-001	2/5 FAN COOLERS (1-FC15)	
			HPR	1.000E+000	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS NO POWER	
			ORT	3.800E-002	OP ACTION - REFILL THE RWST	
28.	1.442E-008	0.36% 198	B17K	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
			BUS	3.090E-004	AC POWER WITH DLOSP 147,148,149 FAIL	
			CCW	1.410E-001	COMPONENT COOLING WATER W/DLOSP-NO POWER	
			SBO	1.000E+000	LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT	
			ORE	3.090E-002	OP ACTION - RESTORE EQUIP&SUPPORT SYSTEMS	
29.	1.411E-008	0.35% 63	SE7K	SLOCA	6.800E-003	SMALL LOCA INITIATING EVENT
			ESF	6.670E-005	ESFAS W/OP ACTION-BOTH TRAINS FAIL	
			SAC	3.160E-002	MANUAL ACTUATION OF SAFEGUARDS EQUIPMENT (RE_SBO+ORE_SBO)	
			CCP	1.000E+000	1/2 CCPs INJECTING TO 2/4 C LEGS NO POWER	
			SIP	1.000E+000	1/2 SAFETY INJECTION PMPS TO 2/4 C LEGS NO POWER	
			LPI	1.000E+000	1/2 LOW PRESSURE INJ PMPS TO 2/4 C LEGS 147 AVAIL	
			FC	1.000E+000	1/5 FAN COOLERS NO POWER	
			CSI	1.000E+000	1/3 CONTAINMENT SPRAY PUMPS NO POWER AVAIL	
30.	1.399E-008	0.35% 61	AE9S	LLOCA	3.000E-004	LARGE LOCA INITIATING EVENT

File: ACCSEQ.REP
Length: 80674 bytes

Created: Mon Mar 02 10:47:32 1992

Seq	Value	Unit	Code	System	Time	Description
			SAC		5.150E-005	SAF ACT 18,19 FAIL-ONE ESFAS AVAIL
			LPI		1.000E+000	1/2 LOW PRESSURE INJ PMPS TO 2/3 C LEGS NO POWER
			ORT		1.000E+000	RWST REFILL NOT POSSIBLE FOR LARGE LOCA WITH CURRENT EOPs
31.	1.349E-008	0.34% 198	B14S	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
				BUS	2.200E-003	AC POWER WITH DLOSP 147,148 FAIL
				SWS	1.190E-002	SERVICE WATER W/DLOSP-147&148 FAIL
				SBO	1.000E+000	LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT
				XCC	4.090E-002	CORE UNCOVERED PRIOR TO POWER RECOVERY AT 24 HRS (SEALOC/
32.	1.080E-008	0.27% 1	SL9S	SLOCA	6.800E-003	SMALL LOCA INITIATING EVENT
				LPI	4.220E-005	1/2 RHR PUMPS ON MINIFLOW ALL POWER
				ORT	3.800E-002	OP ACTION - REFILL THE RWST
33.	1.016E-008	0.25% 98	LL9S	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
				BUS	2.230E-003	AC POWER WITH DLOSP 148,149 FAIL
				AFW	1.450E-002	1/3 AUX FEED PMPS TO 4/4 SG NO POWER
				FC	9.847E-001	2/5 FAN COOLERS (1-FC15)
				CSI	2.500E-002	1/3 CONTAINMENT SPRAY PUMPS 147 AVAIL
				RHX	1.000E+000	2/2 RHR HEAT EXCHANGERS 148 OR 149 FAILED
				RTK	1.000E+000	EQUIPMENT TO REFILL THE RWST (POWER UNAVAILABLE)
34.	1.012E-008	0.25% 198	B17X	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
				BUS	2.200E-003	AC POWER WITH DLOSP 147,148 FAIL
				SWS	1.190E-002	SERVICE WATER W/DLOSP-147&148 FAIL
				SBO	1.000E+000	LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT
				ORE	3.090E-002	OP ACTION - RESTORE EQUIP&SUPPORT SYSTEMS
35.	9.492E-009	0.24% 196	SE6S	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
				BUS	2.230E-003	AC POWER WITH DLOSP 148,149 FAIL
				CCW	5.440E-003	COMPONENT COOLING WATER W/DLOSP-148&149 FAIL
				SLO	6.190E-002	CONSEQUENTIAL SMALL LOCA NO SW/CCW (EC_LSCX+DEC_LSC+SLO_2)
				CCP	1.000E+000	1/2 CCPs INJECTING TO 2/4 C LEGS NO POWER
				SIP	1.000E+000	1/2 SAFETY INJECTION PMPS TO 2/4 C LEGS NO POWER
				LPI	1.000E+000	1/2 LOW PRESSURE INJ PMPS TO 2/4 C LEGS NO POWER
36.	8.033E-009	0.20% 1	SL9S	SLOCA	6.800E-003	SMALL LOCA INITIATING EVENT
				CCP	2.660E-003	1/2 CCPs INJECTING TO 2/4 C LEGS ALL POWER
				LPR	4.480E-004	1/2 LOW PRESSURE RECIRC TO 2/4 C LEGS ALL POWER (COND)
37.	7.659E-009	0.19% 1	SL9S	SLOCA	6.800E-003	SMALL LOCA INITIATING EVENT
				CCP	2.660E-003	1/2 CCPs INJECTING TO 2/4 C LEGS ALL POWER
				ORC	4.270E-004	OP ACTION - ESTAB LOW PRESSURE ECC RECIRC
38.	7.341E-009	0.18% 198	B17X	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
				BUS	3.090E-004	AC POWER WITH DLOSP 147,148,149 FAIL
				SBO	1.000E+000	LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT
				XHR	2.470E-003	POWER RECOV FAILURE PROB AT 24 HRS (TD & DS)
39.	7.313E-009	0.18% 198	B14S	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
				BUS	3.090E-004	AC POWER WITH DLOSP 147,148,149 FAIL
				SBO	1.000E+000	LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT
				CCP	2.660E-003	1/2 CCPs INJECTING TO 2/4 C LEGS ALL POWER
40.	6.721E-009	0.17% 198	B14S	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
				BUS	2.230E-003	AC POWER WITH DLOSP 148,149 FAIL
				SWS	5.850E-003	SERVICE WATER W/DLOSP-148&149 FAIL
				SBO	1.000E+000	LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT
				XCC	4.090E-002	CORE UNCOVERED PRIOR TO POWER RECOVERY AT 24 HRS (SEALLOCA
41.	6.577E-009	0.16% 1	ML9S	MLOCA	1.100E-003	MEDIUM LOCA INITIATING EVENT
				LPI	1.650E-004	1/2 LOW PRESSURE INJ PMPS TO 2/4 C LEGS ALL POWER (COND)
				ORT	3.800E-002	OP ACTION - REFILL THE RWST
42.	6.540E-009	0.16% 198	B14S	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
				BUS	2.170E-003	AC POWER WITH DLOSP 147,149 FAIL
				SWS	5.850E-003	SERVICE WATER W/DLOSP-147&149 FAIL
				SBO	1.000E+000	LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT
				XCC	4.090E-002	CORE UNCOVERED PRIOR TO POWER RECOVERY AT 24 HRS (SEALLOCA
43.	6.331E-009	0.16% 1	TE1S	GTR	3.000E+000	GENERAL TRANSIENT INITIATING EVENT
				RXT	2.620E-006	FAILURE OF REACTOR TRIP
				PL	4.890E-001	POWER LEVEL LESS THAN 60 PERCENT
				AFW	2.640E-003	1/1 AUX FEED TDP OR 2/2 MDP TO 1/4 SGS (OPEN THRTL VALVES)
44.	6.243E-009	0.16% 1	ML9F	MLOCA	1.100E-003	MEDIUM LOCA INITIATING EVENT
				LPR	5.200E-004	1/2 LOW PRESSURE RECIRC TO 2/4 C LEGS ALL POWER (COND)
				RTK	2.910E-001	EQUIPMENT TO REFILL THE RWST FOR LOCAs (RTK_ALL+0.25)
				CI	3.930E-002	CONTAINMENT ISOLATION (ESFAS SUCCESS, SPRAY ACTUATED)

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Created: Mon Mar 02 10:47:32 1992

Seq	Time	Prob	Code	Event	Description
45.	6.201E-009	0.15% 98	L19S	LOOP BUS AFW FC HPR RTK	3.200E-002 LOSS OF OFFSITE POWER INITIATING EVENT 1.510E-005 AC POWER WITH LOSP 148,149 FAIL 1.450E-002 1/3 AUX FEED PMPS TO 4/4 SG NO POWER 9.847E-001 2/5 FAN COOLERS (1-FC15) 1.000E+000 1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS NO POWER 1.000E+000 EQUIPMENT TO REFILL THE RWST (POWER UNAVAILABLE)
46.	6.193E-009	0.15% 198	B14S	DLOOP BUS SWS SBO XCC	1.400E-002 DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT 4.790E-002 AC POWER WITH DLOSP 148 FAILS 2.510E-004 SERVICE WATER W/DLOSP-148 FAILED 1.000E+000 LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT 4.090E-002 CORE UNCOVERED PRIOR TO POWER RECOVERY AT 24 HRS (SEALLOCA
47.	6.152E-009	0.15% 98	L19K	DLOOP BUS AFW FC RHX HPR RTK	1.400E-002 DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT 2.230E-003 AC POWER WITH DLOSP 148,149 FAIL 1.450E-002 1/3 AUX FEED PMPS TO 4/4 SG NO POWER 1.530E-002 1/5 FAN COOLERS 147 AVAIL 1.000E+000 2/2 RHR HEAT EXCHANGERS 148 OR 149 FAILED 1.000E+000 1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS NO POWER 1.000E+000 EQUIPMENT TO REFILL THE RWST (POWER UNAVAILABLE)
48.	5.986E-009	0.15% 198	B14S	DLOOP BUS SWS SBO XCC	1.400E-002 DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT 4.630E-002 AC POWER WITH DLOSP 147 FAILS 2.510E-004 SERVICE WATER W/DLOSP-147 FAILED 1.000E+000 LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT 4.090E-002 CORE UNCOVERED PRIOR TO POWER RECOVERY AT 24 HRS (SEALLOCA
49.	5.924E-009	0.15% 1	AE9F	LLOCA LPR ORT CI	3.000E-004 LARGE LOCA INITIATING EVENT 5.150E-004 1/2 LOW PRESSURE RECIRC TO 1/3 C LEGS ALL POWER (COND) 1.000E+000 RWST REFILL NOT POSSIBLE FOR LARGE LOCA WITH CURRENT EOPs 3.930E-002 CONTAINMENT ISOLATION (ESFAS SUCCESS, SPRAY ACTUATED)
50.	5.334E-009	0.13% 1	AE9S	LLOCA ESF ORC	3.000E-004 LARGE LOCA INITIATING EVENT 8.610E-003 ESFAS NO OPER ACTION-ONE TRAIN FAILS 2.160E-003 OP ACTION - ESTAB LOW PRESSURE ECC RECIRC (LLOCA W/SPRAY)
51.	5.334E-009	0.13% 1	AE9S	LLOCA ESF ORC	3.000E-004 LARGE LOCA INITIATING EVENT 8.610E-003 ESFAS NO OPER ACTION-ONE TRAIN FAILS 2.160E-003 OP ACTION - ESTAB LOW PRESSURE ECC RECIRC (LLOCA W/SPRAY)
52.	5.187E-009	0.13% 200	B14S	LOOP DCB SBO OSI	3.200E-002 LOSS OF OFFSITE POWER INITIATING EVENT 1.960E-007 DC POWER WITH LOSP 011-1,111,112 FAIL 1.000E+000 LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT 1.000E+000 OP ACTION - INITIATE SAFETY INJECTION (ESFAS HDW FAILED)
53.	5.129E-009	0.13% 1	ML9F	MLOCA ORC RTK CI	1.100E-003 MEDIUM LOCA INITIATING EVENT 4.270E-004 OP ACTION - ESTAB LOW PRESSURE ECC RECIRC 2.910E-001 EQUIPMENT TO REFILL THE RWST FOR LOCAs (RTK_ALL+0.25) 3.930E-002 CONTAINMENT ISOLATION (ESFAS SUCCESS, SPRAY ACTUATED)
54.	5.044E-009	0.13% 198	B17K	DLOOP BUS SWS SBO ORE	1.400E-002 DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT 2.230E-003 AC POWER WITH DLOSP 148,149 FAIL 5.850E-003 SERVICE WATER W/DLOSP-148&149 FAIL 1.000E+000 LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT 3.090E-002 OP ACTION - RESTORE EQUIP&SUPPORT SYSTEMS
55.	4.908E-009	0.12% 198	B17K	DLOOP BUS SWS SBO ORE	1.400E-002 DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT 2.170E-003 AC POWER WITH DLOSP 147,149 FAIL 5.850E-003 SERVICE WATER W/DLOSP-147&149 FAIL 1.000E+000 LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT 3.090E-002 OP ACTION - RESTORE EQUIP&SUPPORT SYSTEMS
56.	4.878E-009	0.12% 198	B14E	DLOOP BUS SBO XCC CI	1.400E-002 DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT 3.090E-004 AC POWER WITH DLOSP 147,148,149 FAIL 1.000E+000 LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT 4.090E-002 CORE UNCOVERED PRIOR TO POWER RECOVERY AT 24 HRS (SEALLOCA 4.000E-002 CONTAINMENT ISOLATION (ESFAS FAILED, SPRAY ACTUATED)
57.	4.673E-009	0.12% 104	SE7K	SLOCA DCB CCP SIP LPI FC CSI	6.800E-003 SMALL LOCA INITIATING EVENT 6.980E-007 DC POWER W/OS 011-1,111,112 FAIL-ALL POWER 1.000E+000 1/2 CCPs INJECTING TO 2/4 C LEGS NO POWER 1.000E+000 1/2 SAFETY INJECTION PMPS TO 2/4 C LEGS NO POWER 1.000E+000 1/2 LOW PRESSURE INJ PMPS TO 2/4 C LEGS 147 AVAIL 1.000E+000 1/5 FAN COOLERS NO POWER 1.000E+000 1/3 CONTAINMENT SPRAY PUMPS NO POWER AVAIL
58.	4.648E-009	0.12% 198	B17K	DLOOP BUS SWS SBO	1.400E-002 DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT 4.790E-002 AC POWER WITH DLOSP 148 FAILS 2.510E-004 SERVICE WATER W/DLOSP-148 FAILED 1.000E+000 LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT

			ORE		OP ACTION - RESTORE EQUIP&SUPPORT SYSTEMS	
59.	4.493E-009	0.11% 198	B17K	DLOOP BUS SWS SBO ORE	1.400E-002 4.630E-002 2.510E-004 1.000E+000 3.090E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT AC POWER WITH DLOSP 147 FAILS SERVICE WATER W/DLOSP-147 FAILED LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT OP ACTION - RESTORE EQUIP&SUPPORT SYSTEMS
60.	3.747E-009	0.09% 198	B17K	DLOOP BUS SBO XCC ORE	1.400E-002 3.090E-004 1.000E+000 4.090E-002 3.090E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT AC POWER WITH DLOSP 147,148,149 FAIL LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT CORE UNCOVERED PRIOR TO POWER RECOVERY AT 24 HRS (SEALLOCA OP ACTION - RESTORE EQUIP&SUPPORT SYSTEMS
61.	3.697E-009	0.09% 21	AE9S	LLOCA SAC LPR ORT	3.000E-004 8.830E-004 1.490E-002 1.000E+000	LARGE LOCA INITIATING EVENT SAF ACT 18 FAILS-ONE ESFAS AVAIL 1/2 LOW PRESSURE RECIRC TO 1/3 C LEGS 149 AVAIL RWST REFILL NOT POSSIBLE FOR LARGE LOCA WITH CURRENT EOPs
62.	3.693E-009	0.09% 10	AE9S	LLOCA SAC LPR ORT	3.000E-004 8.830E-004 1.490E-002 1.000E+000	LARGE LOCA INITIATING EVENT SAF ACT 19 FAILS-ONE ESFAS AVAIL 1/2 LOW PRESSURE RECIRC TO 1/3 C LEGS 148 AVAIL RWST REFILL NOT POSSIBLE FOR LARGE LOCA WITH CURRENT EOPs
63.	3.661E-009	0.09% 198	B17E	DLOOP BUS SBO ORE CI	1.400E-002 3.090E-004 1.000E+000 3.090E-002 4.000E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT AC POWER WITH DLOSP 147,148,149 FAIL LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT OP ACTION - RESTORE EQUIP&SUPPORT SYSTEMS CONTAINMENT ISOLATION (ESFAS FAILED, SPRAY ACTUATED)
64.	3.586E-009	0.09% 1	AE9S	LLOCA ESF LPI ORT	3.000E-004 8.610E-003 1.450E-003 1.000E+000	LARGE LOCA INITIATING EVENT ESFAS NO OPER ACTION-ONE TRAIN FAILS 1/2 LOW PRESSURE INJ PMPs TO 2/3 C LEGS ALL POWER RWST REFILL NOT POSSIBLE FOR LARGE LOCA WITH CURRENT EOPs
65.	3.586E-009	0.09% 1	AE9S	LLOCA ESF LPI ORT	3.000E-004 8.610E-003 1.450E-003 1.000E+000	LARGE LOCA INITIATING EVENT ESFAS NO OPER ACTION-ONE TRAIN FAILS 1/2 LOW PRESSURE INJ PMPs TO 2/3 C LEGS ALL POWER RWST REFILL NOT POSSIBLE FOR LARGE LOCA WITH CURRENT EOPs
66.	3.343E-009	0.08% 1	TE1S	GTR RXT PL MF AM AFW	3.000E+000 2.620E-006 4.890E-001 3.460E-001 1.000E+000 2.640E-003	GENERAL TRANSIENT INITIATING EVENT FAILURE OF REACTOR TRIP POWER LEVEL LESS THAN 60 PERCENT FRACTION OF TRANSIENTS MAIN FEED AVAIL UNTIL TURBINE TRIP ATWS MITIGATING SYSTEM ACTUATION CIRCUIT 1/1 AUX FEED TDP OR 2/2 MDP TO 1/4 SGS (OPEN THRTL VALVES)
67.	2.843E-009	0.07% 1	SL9S	SLOCA RHX LPR RTK	6.800E-003 3.370E-003 4.480E-004 2.910E-001	SMALL LOCA INITIATING EVENT 2/2 RHR HEAT EXCHANGERS 148&149 AVAILABLE (COND) 1/2 LOW PRESSURE RECIRC TO 2/4 C LEGS ALL POWER (COND) EQUIPMENT TO REFILL THE RWST FOR LOCAs (RTK_ALL+0.25)
68.	2.788E-009	0.07% 27	RL9T	SGTR BUS ODS RTK	9.020E-003 2.860E-004 1.150E-003 1.000E+000	STEAM GENERATOR TUBE RUPTURE INITIATING EVENT AC POWER WITH OFFSITE 147 FAILS OP ACTION - SG DEPRES FOR PRIM COOLING (ODS2) EQUIPMENT TO REFILL THE RWST (POWER UNAVAILABLE)
69.	2.711E-009	0.07% 1	SL9S	SLOCA RHX ORC RTK	6.800E-003 3.370E-003 4.270E-004 2.910E-001	SMALL LOCA INITIATING EVENT 2/2 RHR HEAT EXCHANGERS 148&149 AVAILABLE (COND) OP ACTION - ESTAB LOW PRESSURE ECC RECIRC EQUIPMENT TO REFILL THE RWST FOR LOCAs (RTK_ALL+0.25)
70.	2.680E-009	0.07% 198	B14S	DLOOP BUS SBO AFT XHR	1.400E-002 3.090E-004 1.000E+000 1.540E-002 6.150E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT AC POWER WITH DLOSP 147,148,149 FAIL LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT 1/1 AUX FEED TDP TO 4/4 SGS POWER RECOV FAILURE PROB AT 2 HRS (TD FAIL)
71.	2.651E-009	0.07% 198	B14S	DLOOP BUS SBO OSI	1.400E-002 3.090E-004 1.000E+000 9.660E-004	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT AC POWER WITH DLOSP 147,148,149 FAIL LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT OP ACTION - INITIATE SAFETY INJECTION
72.	2.371E-009	0.06% 63	AE7F	LLOCA ESF SAC LPI HPI CSI CI	3.000E-004 2.040E-004 1.000E+000 1.000E+000 1.000E+000 1.000E+000 4.000E-002	LARGE LOCA INITIATING EVENT ESFAS NO OPER ACTION-BOTH TRAINS FAIL MANUAL ACTUATION OF EQUIPMENT NOT MODELED FOR LARGE LOCA 1/2 LOW PRESSURE INJ PMPs TO 2/3 C LEGS NO POWER 1/4 HIGH PRESSURE INJ PMPs TO 2/3 C LEGS NO POWER 1/3 CONTAINMENT SPRAY PUMPS NO POWER AVAIL CONTAINMENT ISOLATION (ESFAS FAILED, SPRAY ACTUATED)

73.	2.360E-009	0.06% 1	TE4S	GTR RXT PL MF AM OTT HPI	3.000E+000 2.620E-006 4.890E-001 3.460E-001 1.000E+000 1.860E-003 1.000E+000	GENERAL TRANSIENT INITIATING EVENT FAILURE OF REACTOR TRIP POWER LEVEL LESS THAN 60 PERCENT FRACTION OF TRANSIENTS MAIN FEED AVAIL UNTIL TURBINE TRIP ATWS MITIGATING SYSTEM ACTUATION CIRCUIT OP ACTION - TURB TRIP OR CLOSE MSIVS HIGH PRESSURE INJECTION ASSUMED TO FAIL - ATWS
74.	2.279E-009	0.06% 1	VL9D	ISLOCA OIB RTK	5.830E-008 1.000E+000 4.090E-002	INTERFACING SYSTEMS LOCA INITIATING EVENT OP ACTION - ISOLATE RHR BREACH EQUIPMENT TO REFILL THE RWST
75.	2.201E-009	0.06% 1	VL9D	ISLOCA OIB ORT	5.830E-008 1.000E+000 3.800E-002	INTERFACING SYSTEMS LOCA INITIATING EVENT OP ACTION - ISOLATE RHR BREACH OP ACTION - REFILL THE RWST
76.	2.191E-009	0.05% 63	M17A	MLOCA ESF SAC HPI LPI FC CSI	1.100E-003 6.670E-005 3.160E-002 1.000E+000 1.000E+000 1.000E+000 1.000E+000	MEDIUM LOCA INITIATING EVENT ESFAS W/OP ACTION-BOTH TRAINS FAIL MANUAL ACTUATION OF SAFEGUARDS EQUIPMENT (RE_SBO+ORE_SBO) 1/4 HIGH PRESSURE INJ PMPS TO 2/4 C LEGS NO POWER 1/2 LOW PRESSURE INJ PMPS TO 2/4 C LEGS 147 AVAIL 1/5 FAN COOLERS NO POWER 1/3 CONTAINMENT SPRAY PUMPS NO POWER AVAIL
77.	2.190E-009	0.05% 198	B14S	LOOP BUS SBO XCC	3.200E-002 1.940E-006 1.000E+000 4.090E-002	LOSS OF OFFSITE POWER INITIATING EVENT AC POWER WITH LOSP 147,148,149 FAIL LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT CORE UNCOVERED PRIOR TO POWER RECOVERY AT 24 HRS (SEALLOCA)
78.	2.146E-009	0.05% 61	S19S	SLOCA SAC LPI FC RTK	6.800E-003 1.210E-006 1.000E+000 9.847E-001 2.910E-001	SMALL LOCA INITIATING EVENT SAF ACT 18,19 FAIL-BOTH ESFAS AVAIL (W/RESTORATION) 1/2 RHR PUMPS ON MINIFLOW NO POWER 2/5 FAN COOLERS (1-FC15) EQUIPMENT TO REFILL THE RWST FOR LOCAs (RTK_ALL+0.25)
79.	2.034E-009	0.05% 198	B17K	DLOOP BUS SBO RE	1.400E-002 3.090E-004 1.000E+000 7.380E-004	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT AC POWER WITH DLOSP 147,148,149 FAIL LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT RESTORE EQUIP & SUPPORT SYSTEMS (2B SWITCHES+SW_LSW)
80.	2.006E-009	0.05% 196	L19S	DLOOP BUS CCW AFW FC HPR RTK	1.400E-002 2.230E-003 5.440E-003 1.450E-002 9.847E-001 1.000E+000 1.000E+000	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT AC POWER WITH DLOSP 148,149 FAIL COMPONENT COOLING WATER W/DLOSP-148&149 FAIL 1/3 AUX FEED PMPS TO 4/4 SG NO POWER 2/5 FAN COOLERS (1-FC15) 1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS NO POWER EQUIPMENT TO REFILL THE RWST (POWER UNAVAILABLE)
81.	1.982E-009	0.05% 1	ML9F	MLOCA LPI RTK CI	1.100E-003 1.650E-004 2.910E-001 3.930E-002	MEDIUM LOCA INITIATING EVENT 1/2 LOW PRESSURE INJ PMPS TO 2/4 C LEGS ALL POWER (COND) EQUIPMENT TO REFILL THE RWST FOR LOCAs (RTK_ALL+0.25) CONTAINMENT ISOLATION (ESFAS SUCCESS, SPRAY ACTUATED)
82.	1.971E-009	0.05% 27	RL9T	SGTR BUS OIR RTK	9.020E-003 2.860E-004 8.140E-004 1.000E+000	STEAM GENERATOR TUBE RUPTURE INITIATING EVENT AC POWER WITH OFFSITE 147 FAILS OP ACTION - MINIMIZE ECCS FLOW EQUIPMENT TO REFILL THE RWST (POWER UNAVAILABLE)
83.	1.898E-009	0.05% 198	BL9S	DLOOP BUS SBO HPR RTK	1.400E-002 3.090E-004 1.000E+000 7.200E-004 1.000E+000	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT AC POWER WITH DLOSP 147,148,149 FAIL LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT 1/2 CCPs RECIRC TO 2/4 C LEGS ALL POWER AVAILABLE (COND) EQUIPMENT TO REFILL THE RWST (POWER UNAVAILABLE)
84.	1.889E-009	0.05% 198	BL9S	DLOOP BUS SBO ORC RTK	1.400E-002 3.090E-004 1.000E+000 7.160E-004 1.000E+000	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT AC POWER WITH DLOSP 147,148,149 FAIL LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT OP ACTION - ESTAB HIGH PRESSURE ECC RECIRC EQUIPMENT TO REFILL THE RWST (POWER UNAVAILABLE)
85.	1.824E-009	0.05% 88	SL9K	SLOCA FCB LPI FC CSI RTK	6.800E-003 2.870E-007 1.000E+000 1.000E+000 1.000E+000 1.000E+000	SMALL LOCA INITIATING EVENT DC POWER W/OS 011-1,112 FAIL-147&149 AVAIL 1/2 RHR PUMPS ON MINIFLOW NO POWER 1/5 FAN COOLERS NO POWER 1/3 CONTAINMENT SPRAY PUMPS NO POWER AVAIL EQUIPMENT TO REFILL THE RWST (POWER UNAVAILABLE)
86.	1.816E-009	0.05% 1	SL9S	SLOCA ONC	6.800E-003 2.160E-003	SMALL LOCA INITIATING EVENT OP ACTION - ESTAB NORMAL CHARGING (ONC2)

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Seq	Prob	Cond	AE	Comp	Value	Description
				LPR	4.480E-004	1/2 LOW PRESSURE RECIRC TO 2/4 C LEGS ALL POWER (COND)
				RTK	2.910E-001	EQUIPMENT TO REFILL THE RWST FOR LOCAs (RTK_ALL+0.25)
87.	1.815E-009	0.05% 63	AE7K	LLOCA	3.000E-004	LARGE LOCA INITIATING EVENT
				ESF	2.040E-004	ESFAS NO OPER ACTION-BOTH TRAINS FAIL
				SAC	1.000E+000	MANUAL ACTUATION OF EQUIPMENT NOT MODELED FOR LARGE LOCA
				LPI	1.000E+000	1/2 LOW PRESSURE INJ PMPS TO 2/3 C LEGS NO POWER
				HPI	1.000E+000	1/4 HIGH PRESSURE INJ PMPS TO 2/3 C LEGS NO POWER
				FC	3.090E-002	1/5 FAN COOLERS ALL POWER WITH RESTORATION (FC11+ORE_SBO)
				CSI	1.000E+000	1/3 CONTAINMENT SPRAY PUMPS NO POWER AVAIL
88.	1.760E-009	0.04% 97	SL9S	SLOCA	6.800E-003	SMALL LOCA INITIATING EVENT
				DCB	2.870E-007	DC POWER W/OS 111,112 FAIL-148&149 AVAIL
				LPI	1.000E+000	1/2 RHR PUMPS ON MINIFLOW NO POWER
				FC	9.847E-001	2/5 FAN COOLERS (1-FC15)
				RTK	1.000E+000	EQUIPMENT TO REFILL THE RWST (POWER UNAVAILABLE)
89.	1.741E-009	0.04% 200	B14S	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
				DCB	1.960E-007	DC POWER WITH DLOSP 011-1,111,112 FAIL
				SBO	1.000E+000	DLOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT
				OSI	1.000E+000	OP ACTION - INITIATE SAFETY INJECTION (ESFAS NOW FAILED)
90.	1.732E-009	0.04% 1	SL9S	SLOCA	6.800E-003	SMALL LOCA INITIATING EVENT
				OMC	2.160E-003	OP ACTION - ESTAB NORMAL CHARGING (OMC2)
				ORC	4.270E-004	OP ACTION - ESTAB LOW PRESSURE ECC RECIRC
				RTK	2.910E-001	EQUIPMENT TO REFILL THE RWST FOR LOCAs (RTK_ALL+0.25)
91.	1.643E-009	0.04% 198	B17K	LOOP	3.200E-002	LOSS OF OFFSITE POWER INITIATING EVENT
				BUS	1.940E-006	AC POWER WITH DLOSP 147,148,149 FAIL
				SBO	1.000E+000	DLOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT
				ORE	3.090E-002	OP ACTION - RESTORE EQUIP&SUPPORT SYSTEMS
92.	1.578E-009	0.04% 1	SL9S	SLOCA	6.800E-003	SMALL LOCA INITIATING EVENT
				ODS	1.320E-004	OP ACTION - SG DEPRES FOR PRIM COOLING (ODS1a)
				HPR	6.370E-003	1/2 SIPs RECIRC TO 2/4 C LEGS ALL POWER (COND)
				RTK	2.910E-001	EQUIPMENT TO REFILL THE RWST FOR LOCAs (RTK_ALL+0.25)
93.	1.478E-009	0.04% 12	LL9S	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
				BUS	4.730E-002	AC POWER WITH DLOSP 149 FAILS
				AFW	1.320E-004	1/3 AUX FEED PMPS TO 4/4 SG OR 1/4 SG W/OA 148 AVAIL
				HPR	1.840E-002	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS 147 & 148 AVAIL
				RTK	1.000E+000	EQUIPMENT TO REFILL THE RWST (POWER UNAVAILABLE)
94.	1.474E-009	0.04% 22	LL9S	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
				BUS	4.790E-002	AC POWER WITH DLOSP 148 FAILS
				AFW	1.300E-004	1/3 AUX FEED PMPS TO 4/4 SG OR 1/4 SG W/OA 149 AVAIL
				HPR	1.840E-002	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS 147 & 149 AVAIL
				RTK	1.000E+000	EQUIPMENT TO REFILL THE RWST (POWER UNAVAILABLE)
95.	1.438E-009	0.04% 198	B17K	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
				BUS	3.090E-004	AC POWER WITH DLOSP 147,148,149 FAIL
				SWS	1.440E-001	SERVICE WATER W/DLOSP-NO POWER
				SBO	1.000E+000	DLOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT
				XHR	2.470E-003	POWER RECOV FAILURE PROB AT 24 HRS (TD & DS)
96.	1.432E-009	0.04% 198	B14S	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
				BUS	3.090E-004	AC POWER WITH DLOSP 147,148,149 FAIL
				SWS	1.440E-001	SERVICE WATER W/DLOSP-NO POWER
				SBO	1.000E+000	DLOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT
				UCP	2.660E-003	1/2 CCPs INJECTING TO 2/4 C LEGS ALL POWER
97.	1.414E-009	0.04% 1	L14S	LOOP	3.200E-002	LOSS OF OFFSITE POWER INITIATING EVENT
				AFW	4.770E-005	1/3 AUX FEED PMPS TO 4/4 SG OR 1/4 SG W/OA 148 & 149 AVAIL
				OSI	9.660E-004	OP ACTION - INITIATE SAFETY INJECTION
98.	1.333E-009	0.03% 198	B14S	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
				BUS	3.090E-004	AC POWER WITH DLOSP 147,148,149 FAIL
				SBO	1.000E+000	DLOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT
				ORS	1.100E-002	OP ACTION - RAPID SG DEPRES FOR CB INJ (ORS2)
				XCC	4.200E-002	CORE UNCOVERED PRIOR TO POWER RECOVERY AT 16 HRS (SEALLOCA)
99.	1.325E-009	0.03% 198	B17K	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
				BUS	3.090E-004	AC POWER WITH DLOSP 147,148,149 FAIL
				SBO	1.000E+000	DLOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT
				AFT	1.540E-002	1/1 AUX FEED TOP TO 4/4 SGs
				ORE	3.090E-002	OP ACTION - RESTORE EQUIP&SUPPORT SYSTEMS
100.	1.269E-009	0.03% 1	AE9S	LLOCA	3.000E-004	LARGE LOCA INITIATING EVENT
				ESF	8.610E-003	ESFAS NO OPER ACTION-ONE TRAIN FAILS
				LPR	5.150E-004	1/2 LOW PRESSURE RECIRC TO 1/3 C LEGS ALL POWER (COND)

				ORT	1.000E+000	RWST REFILL NOT POSSIBLE FOR LARGE LOCA WITH CURRENT EOPs
101.	1.269E-009	0.03% 1	AE9S	LLOCA	3.000E-004	LARGE LOCA INITIATING EVENT
				ESF	8.610E-003	ESFAS NO OPER ACTION-ONE TRAIN FAILS
				LPR	5.150E-004	1/2 LOW PRESSURE RECIRC TO 1/3 C LEGS ALL POWER (COND)
				ORT	1.000E+000	RWST REFILL NOT POSSIBLE FOR LARGE LOCA WITH CURRENT EOPs
102.	1.206E-009	0.03% 198	814S	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
				BUS	3.090E-004	AC POWER WITH DLOSP 147,148,149 FAIL
				SBO	1.000E+000	LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT
				AFT	1.540E-002	1/1 AUX FEED TDP TO 4/4 SGS
				XCC	2.830E-002	CORE UNCOVERED PRIOR TO POWER RECOVERY AT 2 HRS (SEALLOCA)
103.	1.205E-009	0.03% 198	817K	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
				BUS	3.090E-004	AC POWER WITH DLOSP 147,148,149 FAIL
				CCW	1.410E-001	COMPONENT COOLING WATER W/DLOSP-NO POWER
				SBO	1.000E+000	LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT
				XHR	2.470E-003	POWER RECOV FAILURE PROB AT 24 HRS (TD & DS)
104.	1.200E-009	0.03% 198	814S	DLOOP	1.400E-002	DUAL UNIT LOSS OF OFFSITE POWER INITIATING EVENT
				CUS	3.090E-004	AC POWER WITH DLOSP 147,148,149 FAIL
				CCW	1.410E-001	COMPONENT COOLING WATER W/DLOSP-NO POWER
				SBO	1.000E+000	LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT
				CCP	2.660E-003	1/2 CCPs INJECTING TO 2/4 C LEGS ALL POWER
105.	1.199E-009	0.03% 1	RL9T	SGTR	9.020E-003	STEAM GENERATOR TUBE RUPTURE INITIATING EVENT
				ESF	3.070E-003	ESFAS W/OP ACTION-ONE TRAIN FAILS
				ODS	1.150E-003	OP ACTION - SG DEPRES FOR PRIM COOLING (ODS2)
				ORT	3.800E-002	OP ACTION - REFILL THE RWST
106.	1.199E-009	0.01% 1	RL9T	SGTR	9.020E-003	STEAM GENERATOR TUBE RUPTURE INITIATING EVENT
				ESF	3.070E-003	ESFAS W/OP ACTION-ONE TRAIN FAILS
				ODS	1.150E-003	OP ACTION - SG DEPRES FOR PRIM COOLING (ODS2)
				ORT	3.800E-002	OP ACTION - REFILL THE RWST
107.	1.190E-009	0.03% 104	T17F	GTF	3.000E+000	GENERAL TRANSIENT INITIATING EVENT
				DCB	6.980E-007	DC POWER W/DS 011-1,111,112 FAIL-ALL POWER
				AFW	1.430E-002	1/3 AUX FEED PMPS TO 4/4 SG NO POWER
				CB	1.000E+000	1/4 COND BOOSTER PMPS TO 1/4 SGS - LOSS OF 011-1 OR LOSP
				OSI	1.000E+000	OP ACTION - INITIATE SAFETY INJECTION (ESFAS HDW FAILED)
				HPI	1.000E+000	1/4 HIGH PRESSURE INJ PMPS TO 2/4 C LEGS NO POWER
				FC	1.000E+000	1/5 FAN COOLERS NO POWER
				CSI	1.000E+000	1/3 CONTAINMENT SPRAY PUMPS NO POWER AVAIL
				LPI	1.000E+000	1/2 LOW PRESSURE INJ PMPS TO 2/4 C LEGS NO POWER
				CI	4.000E-002	CONTAINMENT ISOLATION (ESFAS FAILED, SPRAY ACTUATED)
108.	1.155E-009	0.03% 61	M19S	MLOCA	1.100E-003	MEDIUM LOCA INITIATING EVENT
				SAC	1.210E-006	SAF ACT 18,19 FAIL-BOTH ESFAS AVAIL (W/RESTORATION)
				LPI	1.000E+000	1/2 LOW PRESSURE INJ PMPS TO 2/4 C LEGS 147 AVAIL
				FC	9.847E-001	2/5 FAN COOLERS (1-FC15)
				RTK	1.000E+000	EQUIPMENT TO REFILL THE RWST (POWER UNAVAILABLE)
109.	1.084E-009	0.03% 21	AE9S	LLOCA	3.000E-004	LARGE LOCA INITIATING EVENT
				SAC	8.833E-004	SAF ACT 18 FAILS-ONE ESFAS AVAIL
				LPI	4.340E-001	1/2 LOW PRESSURE INJ PMPS TO 2/3 C LEGS 147 & 149 AVAIL
				ORT	1.000E+000	RWST REFILL NOT POSSIBLE FOR LARGE LOCA WITH CURRENT EOPs
110.	1.083E-009	0.03% 10	AE9S	LLOCA	3.000E-004	LARGE LOCA INITIATING EVENT
				SAC	8.833E-004	SAF ACT 19 FAILS-ONE ESFAS AVAIL
				LPI	4.340E-001	1/2 LOW PRESSURE INJ PMPS TO 2/3 C LEGS 147 & 148 AVAIL
				ORT	1.000E+000	RWST REFILL NOT POSSIBLE FOR LARGE LOCA WITH CURRENT EOPs

WESTINGHOUSE CONFIGURATION CONTROL
Westinghouse Proprietary Information

Code: QT-DOS-T4 Verified: No
Version: 1.00

Configuration: February 27, 1992
Execution: March 2, 1992 @ 10:47:32.86
Control Number: 5741995699163

A record of this configuration exists in the
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Configuration Control Department.

ATTACHMENT 2

Page 1
September 10, 1993

ZION STATION

Basic Event	Risk Reduction Worth	Description	Comments	System
ORT_ALL	1.23	OP ACTION - REFILL THE RWST	N/A	N/A
1SICV8957A---DZZ	1.11	CHECK VALVE 1S18957A RANDOMLY FAILS TO OPEN	Cold leg injection chk. vlv.	RH
RTKFACTOR	1.09	FACTOR USED IN RTK_LOC HAND CALC	N/A	N/A
1AFPTFW004---ML4	1.09	TD PUMP 1FW004 UNAVAILABLE DUE TO MAINTENANCE	Turbine-driven AFW	AF
1DGDG1A-----XG4	1.07	DIESEL GENERATOR 1A FAILS TO RUN		DG
1DGDG1B-----XG2	1.07	DIESEL GENERATOR 1B FAILS TO RUN		DG
XCC_S24	1.06	CORE UNCOVERED PRIOR TO POWER RECOVERY AT 24 HRS (SEAL LOCA)	N/A	N/A
ORE_SBO	1.06	OP ACTION - RESTORE EQUIP&SUPPORT SYSTEMS	N/A	N/A
1DGDG1A-----MG4	1.04	DIESEL GENERATOR 1A UNAVAILABLE DUE TO MAINTENANCE		DG
1AFVMS0057---DL4	1.04	AIR-OP FLOW CNTRL 1FCV-MS57 FAILS TO OPEN DUE TO LOCAL FLT	Steam to TDAFW Pp.	AF
1DGDG1B-----MG2	1.04	DIESEL GENERATOR 1B UNAVAILABLE DUE TO MAINTENANCE		DG
1DGDG1A-----AG4	1.03	DG 1A FAILS TO START ON DEMAND		DG
1DGDG1B-----AG2	1.03	DG 1B FAILS TO START ON DEMAND		DG
1ACCB4718191-DCC	1.03	BREAKERS 1471, 1481, & 1491 FAIL TO OPEN DUE TO COMMON CAUSE	Feed from service bus	AP1
1ACCB4738393-KCC	1.03	CBs 1473, 1483, & 1493 FAIL TO CLOSE DUE TO COMMON CAUSE	D/G output bkr.	AP1
1RHLS8700ASTMFZZ	1.02	STEM-MOUNTED LIMIT SWITCH ON 1RH8700A FAILS DURING OPERATION	Interlock	RH
1RHLS8700BSTMFZZ	1.02	STEM-MOUNTED LIMIT SWITCH ON 1RH8700B FAILS DURING OPERATION	Interlock	RH
1DGDGO-----XG6	1.02	DIESEL GENERATOR 0 FAILS TO RUN		DG
1RHLS8700AB--FCC	1.02	STEM MOUNTED LIMIT SWITCHES ON 1RH8700A, B FAIL DUE TO CC	Interlock	RH
1CSPM001A----XJ5	1.01	CS PUMP CS001-1A FAILS TO RUN RANDOMLY	Not related to core melt	CS
1RHCV8958---DZZ	1.01	CHECK VALVE 1S18958 RANDOMLY FAILS TO OPEN	RHR suction from RWST	RH
1DGC81483----KC7	1.01	DG CIRC. BREAKER 1483 FAILS TO CLOSE ON DEMAND	D/G output bkr.	AP1
1ACCB1481----DC7	1.01	MAIN FD. BREAKER 1481 FAILS TO OPEN ON DEMAND	Feed from service bus	AP1
1DGC81493----KC5	1.01	DG CIRC. BREAKER 1493 FAILS TO CLOSE ON DEMAND	D/G output bkr.	AP1
1ACCB1491----DC5	1.01	MAIN FD. BREAKER 1491 FAILS TO OPEN ON DEMAND	Feed from service bus	AP1
1SWPM003----MR1	1.01	SW PUMP 1C (1SW003) UNAVAILABLE DUE TO MAINTENANCE		SW
1SIMV8811A---DZZ	1.01	MOTOR OPERATED VALVE 1S18811A FAILS TO OPEN	Recirc. sump suction	RH
1RHMV8700A---KZZ	1.01	MOTOR OPERATED VALVE 1RH8700A FAILS TO CLOSE	Suction from RWST, hot leg	RH
1AFPTFW004---AL4	1.01	TD PUMP 1FW004 MECHANICAL FAILURE TO START	Turbine-driven AFW	AF
1RHMV8700B---KZZ	1.01	MOTOR OPERATED VALVE 1RH8700B FAILS TO CLOSE IN RHR SYS SEG	Suction from RWST, hot leg	RH
1SIMV8811B---DZZ	1.01	MOTOR OPERATED VALVE 1S18811B RANDOMLY FAILS TO OPEN	Recirc. sump suction	RH
1VCCV9032---DZZ	1.01	CHECK VALVE 1S19032 RANDOMLY FAILS TO OPEN	Chg. pp. cold leg injection	SI
1VCCV8546---DZZ	1.01	CHECK VALVE 1VC8546 RANDOMLY FAILS TO OPEN	Chg. pp. suction from RWST	SI
1RHMV610611--DCC	1.01	RHR MINIFLOW VALVES 1RHFCV610 & 1RHFCV611 FAIL DUE TO CC		RH
1DGDGO-----MG6	1.01	DIESEL GENERATOR 0 UNAVAILABLE DUE TO MAINTENANCE		DG
1DGDGO-----AG6	1.01	DG 0 FAILS TO START ON DEMAND		DG
1AFPTFW004---XL4	1.01	TD PUMP 1FW004 MECHANICAL FAILURE TO RUN	Turbine-driven AFW	AF
2SWPM003----MR1	1.01	SW PUMP 2C (2SW003) UNAVAILABLE DUE TO MAINTENANCE		SW
1VCMVSI8801A-KZZ	1.01	MOTOR OPERATED VALVE 1S18803A FAILS TO CLOSE	Chg. pp. cold leg injection	SI
1VCMVLCV112B-DZZ	1.01	MOTOR OPERATED VALVE VC LCV112B FAILS TO OPEN	RWST refill	VC
1VCMVVC8106--DZZ	1.01	MOTOR OPERATED VALVE VC8106 FAILS TO OPEN	RWST refill, normal charging	VC
1VCMVLCV112C-DZZ	1.01	MOTOR OPERATED VALVE VC LCV112C FAILS TO OPEN	RWST refill	VC
1VCMVVC8105--DZZ	1.01	MOTOR OPERATED VALVE VC8105 FAILS TO OPEN	RWST refill, normal charging	VC

1VCMVLCV112E-KZZ	1.01	MOV VC LCV112E RANDOMLY FAILS TO CLOSE	RWST refill, normal charging	SI
1VCMVLCV112D-KZZ	1.01	MOV VC LCV112D RANDOMLY FAILS TO CLOSE	RWST refill, normal charging	SI
1VCMVSI8801B-KZZ	1.01	MOTOR OPERATED VALVE 1S18803B FAILS TO CLOSE	RWST refill, normal charging	SI
1VCCVB440----DZZ	1.01	VCT OUTLET CHECK VALVE FTO VC-8440	RWST refill	VC
1VCXVB42B----DZZ	1.01	MANUAL VALVE FTO VC-8428	Bldr. to VCT outlet (mistake)	VC
1VCXVB416----DZZ	1.01	MANUAL VALVE FTO VC-8416	VCT inlet (mistake)	VC
1VCXVB432----DZZ	1.01	MANUAL VALVE FTO VC-8432	RWST refill	VC
1VCCVB443----DZZ	1.01	CHECK VALVE FTO VC-8443	RWST refill	VC
1VCXVB434----DZZ	1.01	MANUAL VALVE FTO VC-8434	RWST refill	VC
1VCXVB281----KZZ	1.01	MANUAL VALVE FTO VC-8281	RWST refill	VC
1VCCVB433----DZZ	1.01	CHECK VALVE FTO VC-8433	RWST refill	VC
1RHMVB700AB--KCC	1.01	MOTOR OPERATED VALVE 1RH8700A & B FAIL TO CLOSE, C CAUSE	Suction from RWST, hot leg	RH
1S1MV8811AB--DCC	1.01	MOTOR OPERATED VALVE 1S18811A & B FAIL TO OPEN COMMON CAUSE	Recirc. sump suction	RH
1DGDG01A1B---FCC	1.01	DGs O, 1A, & 1B FAIL TO RUN DUE TO COMMON CAUSE		DG
1ESRE18R219R2FCC	1.01	DIV 18 RELAY R2 AND DIV 19 RELAY R2 FAIL DUE TO COMMON CAUSE	ESFAS actuation of RHR pps.	RH
2DGDG2A-----XG5	1.01	DIESEL GENERATOR 2A FAILS TO RUN		DG
1VCAVFCV0110ADZZ	1.00	AIR OPERATED VALVE FTO VC-FCV-0110A	RWST refill	VC
1RHPM001-----AH5	1.00	RHR PUMP 1A RANDOMLY FAILS TO START		RH
1VCPM006-----AK4	1.00	CHARGING PUMP 1A FAILS TO START		VC
1RHPM002-----AH7	1.00	RHR PUMP 1B RANDOMLY FAILS TO START		RH
1DGDG1A1B----FCC	1.00	DGs 1A AND 1B FAIL TO RUN DUE TO COMMON CAUSE		DG
2DGDG2B-----XG3	1.00	DIESEL GENERATOR 2B FAILS TO RUN		DG
1RHMVFCV610--DZZ	1.00	RHR MINIFLOW VALVE 1RHFCV610 FAILS TO OPEN		RH
1RHMVFCV611--DZZ	1.00	RHR MINIFLOW VALVE 1RHFCV611 FAILS TO OPEN		RH
1ACCN148-----NC7	1.00	DG AUTO START SIGNAL (BUS UV) NOT AVAILABLE		AP1
1ACCN1483-----NC7	1.00	AUTO CLOSE SIGNAL TO BREAKER 1483 CLOSE CIR- CUIT IS UNAVA		AP1
2DGDG2A-----MG5	1.00	DIESEL GENERATOR 2A UNAVAILABLE DUE TO MAINTENANCE		DG
1VCFLO21-----PZZ	1.00	FILTER FAILS TO PASS COOLANT IN EMG BORATION SYS SEGMENT L	Boric acid filter	VC
1ACCN149-----NC5	1.00	DG AUTO START SIGNAL (BUS UV) NOT AVAILABLE		AP1
1ACCN1493-----NC5	1.00	AUTO CLOSE SIGNAL TO BREAKER 1493 CLOSE CIR- CUIT IS UNAVA		AP1
1DCCBA21B22B2UCC	1.00	CB 011A2, 111B2 AND 112B2 TRANS- FER OPEN DUE TO A COMMON CA	Battery feed to DC bus	DC2
1DGDG01A1B---ACC	1.00	DGs O, 1A, & 1B FAIL TO START DUE TO COMMON CAUSE		DG
1ACCB483493--KCC	1.00	CIRC. BR. 1483 AND 1493 FAIL TO CLOSE DUE TO COMMON CAUSE	D/G output bkr.	AP1
1ACCB481491--DCC	1.00	FD. BREAKER 1481 AND 1491 FAIL TO OPEN DUE TO COMMON CAUSE	Feed from service bus	AP1
1RHPM002-----MH5	1.00	RHR PUMP 1B UNAVAILABLE DUE TO MAINTENANCE		RH
1RHPM001-----MH5	1.00	RHR PUMP 1A UNAVAILABLE DUE TO MAINTENANCE		RH
1DGC81473----KD1	1.00	DG CIRC. BREAKER 1473 FAILS TO CLOSE ON DEMAND	D/G output bkr.	AP1
1ACCB1471----DD1	1.00	MAIN FD. BREAKER 1471 FAILS TO OPEN ON DEMAND	Feed from service bus	AP1
1SWNV00160017GH3	1.00	DG HEAT EXCHANGER ISOL. VALVES NOT RESTORED AFTER TEST/MAI		
2DGDG2A-----AG5	1.00	DG 2A FAILS TO START ON DEMAND		
2DGDG2B-----MG3	1.00	DIESEL GENERATOR 2B UNAVAILABLE DUE TO MAINTENANCE		
0ESSQSSDSEQ28FC6	1.00	SAFE SHUTDOWN SEQUENCER 28 FAILS		
1ESSILOLO5GLVFC5	1.00	FAILURE OF ACTUATION SIGNAL LO-LO SG LEVEL		
1DGDG1A1B----ACC	1.00	DGs 1A AND 1B FAIL TO START DUE TO COMMON CAUSE		
2DGDG2B-----AG3	1.00	DG 2B FAILS TO START ON DEMAND		
1ESRE19R2----FC5	1.00	DIV 19 RELAY R2 FAILS DURING OPERATION		
1ESRE18R2----FC7	1.00	DIV 18 RELAY R2 FAILS DURING OPERATION		
0ESSQSSDSEQ29FC6	1.00	SAFE SHUTDOWN SEQUENCER 29 FAILS		

PL_ATW	1.00	POWER LEVEL GREATER THAN 60 PERCENT
BACTRSAT242--HZZ	1.00	OPERATOR FAILS TO RESTORE DEAD ESF BUS VIA THE SAT 242 TIE
1FPPD0007----AZZ	1.00	DIESEL DRIVEN PUMP FP0007 FAILS TO START
1SFPM003-----AZZ	1.00	SPENT FUEL PIT PUMP RANDOM FTS 1SF-003
2ACCB2412----KD4	1.00	FD. BRKR. 2412 FROM BUS 241 FAILS TO CLOSE
1SICV8957B---DZZ	1.00	CHECK VALVE 1S18957B RANDOMLY FAILS TO OPEN
1RHPM001002--ACC	1.00	RHR PUMPS 1A & 1B FAIL TO START DUE TO COMMON CAUSE
1VCAVFCV0111BDZZ	1.00	MAKE-UP ISOL. VALVE TO VCT FTO (F.C.) FCV-VC-0111B
1VCAVFCV0111ADZZ	1.00	AIR OPERATED VALVE FTO VC-FCV-0111A
1VCAVFCV0110BDZZ	1.00	MAKE-UP ISOL. VALVE TO VCT FTO (F.C.) FCV-VC-0110B
BCCPM004-----MK1	1.00	PUMP 0B UNAVAILABLE DUE TO MAINTENANCE
1RHPM001-----XH5	1.00	RHR PUMP 1A FAILS TO RUN
1RHPM002-----XH7	1.00	RHR PUMP 1B FAILS TO RUN
1VCPM006-----XK4	1.00	CHARGING PUMP 1A FAILS TO RUN 18HRS
1DGG001A-----FCC	1.00	DGs 0 AND 1A FAIL TO RUN DUE TO COMMON CAUSE
1DCBY0111112FCC	1.00	BATTERY 011, 111, AND 112 FAIL DUE TO A COMMON CAUSE
1FPPD0007----XZZ	1.00	DIESEL DRIVEN PUMP FP0007 FAILS TO RUN
2ACCB2481----DCB	1.00	MAIN FD. BREAKER 2481 FAILS TO OPEN ON DEMAND
2DGC82483----KCB	1.00	DG CIRC. BREAKER 2483 FAILS TO CLOSE ON DEMAND
1DGG001B-----FCC	1.00	DGs 0 AND 1B FAIL TO RUN DUE TO COMMON CAUSE
1SICV9002B---DZZ	1.00	CHECK VALVE 1S19002B RANDOMLY FAILS TO OPEN
1SICV9001B---DZZ	1.00	CHECK VALVE 1S19001B RANDOMLY FAILS TO OPEN
1SICV9002A---DZZ	1.00	CHECK VALVE 1S19002A RANDOMLY FAILS TO OPEN
1SICV9001A---DZZ	1.00	CHECK VALVE 1S19001A RANDOMLY FAILS TO OPEN
1CCMV9412B---DZZ	1.00	CCW VALVE 1CC9412B TO RHR HX 1B FAILS TO OPEN
1CCMV9412A---DZZ	1.00	CCW VALVE 1CC9412A TO RHR HX 1A FAILS TO OPEN
1AFCVFW0068--DA5	1.00	FAULT IN SEG. B CHECK VALVE 1FW0068 FAILS TO OPEN
1AFCVFW0066--DA5	1.00	FAULT IN SEG. D CHECK VALVE 1FW0066 FAILS TO OPEN
1AFCVFW0067--DA5	1.00	FAULT IN SEG. C CHECK VALVE 1FW0067 FAILS TO OPEN
1AFCVFW0069--DA5	1.00	FAULT IN SEG. A CHECK VALVE 1FW0069 FAILS TO OPEN
1AFCVFW0031--DL4	1.00	CHECK VALVE 1FW0031 FAILS TO OPEN
1SICV9002ABC-DCC	1.00	CHECK VALVES 1S19002A, B, C FAIL TO OPEN DUE TO COMMON CAUSE
1ACCN1473----ND1	1.00	AUTO CLOSE SIG- NAL TO BREAKER 1473 CLOSE CIR- CUIT IS UNAVA
1ACCN147-----ND1	1.00	DG AUTO START SIGNAL (BUS UV) NOT AVAILABLE
1SICV9001C---DZZ	1.00	CHECK VALVE 1S19001C RANDOMLY FAILS TO OPEN
1SICV8957AB--DCC	1.00	CHECK VALVES 1S18957A, B FAIL TO OPEN DUE TO COMMON CAUSE
1SWPM001-----AR1	1.00	SW PUMP 1A RANDOMLY FAILS TO START
2ACCB2491----DC6	1.00	MAIN FD. BREAKER 2491 FAILS TO OPEN ON DEMAND
2DGC82493----KC6	1.00	DG CIRC. BREAKER 2493 FAILS TO CLOSE ON DEMAND
1AFAMSG1D----DCC	1.00	SG 1D SAFETY VALVES (5) FAIL TO OPEN DUE TO COMMON CAUSE
1AFAMSG1B----DCC	1.00	SG 1B SAFETY VALVES (5) FAIL TO OPEN DUE TO COMMON CAUSE
1AFAMSG1C----DCC	1.00	SG 1C SAFETY VALVES (5) FAIL TO OPEN DUE TO COMMON CAUSE
1AFAMSG1A----DCC	1.00	SG 1A SAFETY VALVES (5) FAIL TO OPEN DUE TO COMMON CAUSE
1ACCB473483--KCC	1.00	CIRC. BR. 1473 AND 1483 FAIL TO CLOSE DUE TO COMMON CAUSE
1ACCB471481--DCC	1.00	FD. BREAKER 1471 AND 1481 FAIL TO OPEN DUE TO COMMON CAUSE
1ACCB1421----DD3	1.00	CIRCUIT BREAKER 1421 FAILS TO OPEN AUTOMAT- ICALLY
1ACCB1422----KD3	1.00	CIRCUIT BREAKER 1422 FAILS TO CLOSE AUTOMAT- ICALLY
1RHCV9002C---DZZ	1.00	CHECK VALVE 1S19002C RANDOMLY FAILS TO OPEN

1ACCB473493--KCC	1.00	CIRC. BR. 1473 AND 1493 FAIL TO CLOSE DUE TO COMMON CAUSE
1ACCB471491--DCC	1.00	FD. BREAKER 1471 AND 1491 FAIL TO OPEN DUE TO COMMON CAUSE
1SWPM002-----AR1	1.00	SW PUMP 1B RANDOMLY FAILS TO START
2SIXV8927----DZZ	1.00	RWST-U2 BLOCK VALVE (N.C.) FTO 2SI-8927
1SFCV8766----DZZ	1.00	SPENT FUEL PIT FLOW TO RWST CHK VLV FTO SF-8766
1SFXV8774----DZZ	1.00	SPENT FUEL FLTR BLOCK VLV FTO SF-8774
1SIXV8927----DZZ	1.00	RWST-U1 BLOCK VALVE (N.C.) FTO 1SI-8927
2SFXV8758----DZZ	1.00	RWST-U2 REFU. WTR PUR. PUMP BLOCK VLV (N.C.) FTO 2SF-87
1SFXV8788----DZZ	1.00	MANUAL ISOLATION VALVE SPENT FUEL PIT FLOW TO RWST FTO SF-87
1SFXV8758----DZZ	1.00	RWST-U1 REFU. WTR PUR. PUMP BLOCK VALVE N.C. FTO 1SF-87
1SFXV8765----KZS	1.00	SPENT FUEL PUMP PIT RETURN BLOCK VALVE FTC 1SF8765
1SIXV8931----DZZ	1.00	MANUAL BLOCK VLV TO RWST FTO SI-8931
2SWPM002-----AR1	1.00	SW PUMP 2B RANDOMLY FAILS TO START
1FPPD0007----MZZ	1.00	DIESEL DRIVEN PUMP FPD007 MAINTENANCE UNAVAILABILITY
1SICV9002ABCD0CC	1.00	CHECK VALVES 1SI9002A,B,C,D FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9001ABCD0CC	1.00	CHECK VALVES 1SI9001A,B,C,D FAIL TO OPEN DUE TO COMMON CAUSE
1SWPM003-----AR1	1.00	SW PUMP 1C RANDOMLY FAILS TO START
1DGDG01A-----ACC	1.00	DGs 0 AND 1A FAIL TO START DUE TO COMMON CAUSE
1CSMV0002----DJ5	1.00	1MOV-CS0002 FAILS TO OPEN RANDOMLY
2ACCB481491--DCC	1.00	FD. BREAKER 2481 AND 2491 FAIL TO OPEN DUE TO COMMON CAUSE
1SIPM004-----X17	1.00	SI PUMP 1B FAILS TO RUN
1DGDG01B-----ACC	1.00	DGs 0 AND 1B FAIL TO START DUE TO COMMON CAUSE
1AFOPACTION--HZZ	1.00	OPERATOR FAILS TO OPEN AFW THROTTLE VALVES
1ESCN19TR15&60C5	1.00	TEST RELAY TR1/19 CONTACTS 5&6 SPURIOUSLY OPEN
1ESCN18TR15&60C7	1.00	TEST RELAY TR1/18 CONTACTS 5&6 SPURIOUSLY OPEN
1ESCN16A5&B5-0C5	1.00	TEST SWITCH #16 N-T CONTACTS A5&B5 SPURIOUSLY OPEN
1ESCN15A5&B5-0C7	1.00	TEST SWITCH #15 N-T CONTACTS A5&B5 SPURIOUSLY OPEN
2SWPM003-----AR1	1.00	SW PUMP 2C RANDOMLY FAILS TO START
1SIPM003-----X15	1.00	SI PUMP 1A FAILS TO RUN
1EST117TSI---FD1	1.00	DIV 17 MECHANICAL CAM TIMER TSI FAILS DURING OPERATION
1AFPMFW006---AL4	1.00	MOTOR-DRIVEN PUMP 1FW006 RANDOM FAILURE TO START
1RHCV8730A---DZZ	1.00	CHECK VALVE 1RH8730A RANDOMLY FAILS TO OPEN
1RHCV8730B---DZZ	1.00	CHECK VALVE 1RH8730B RANDOMLY FAILS TO OPEN
1AFPMFW005---AL4	1.00	MOTOR-DRIVEN PUMP 1FW005 RANDOM FAILURE TO START
1SICV9001ABC-DCC	1.00	CHECK VALVES 1SI9001A, B, C FAIL TO OPEN DUE TO COMMON CAUSE
BESRE171819--FCC	1.00	DIVS 17, 18 & 19 RELAYS FAIL DUE TO CC
1ACCB14841494UCC	1.00	CB 1484 AND 1494 TRANSFERS OPEN DUE TO A COMMON CAUSE
1ACCB383D395BUCC	1.00	CB 1383D AND 1395B TRANSFER OPEN DUE TO A COMMON CAUSE
1AFPMFW006---ML4	1.00	MDP 1FW006 UNAVAILABLE DUE TO MAINTENANCE
1AFPMFW005---ML4	1.00	MDP 1FW005 UNAVAILABLE DUE TO MAINTENANCE
1ACCB1494----UC5	1.00	CIRCUIT BREAKER 1494 FROM 4160V ESF BUS 149 TRANSFERS OPEN
1SICV9001D---DZZ	1.00	CHECK VALVE 1SI9001D RANDOMLY FAILS TO OPEN
1SICV9002C---DZZ	1.00	CHECK VALVE 1SI9002C RANDOMLY FAILS TO OPEN
1SICV9002D---DZZ	1.00	CHECK VALVE 1SI9002D RANDOMLY FAILS TO OPEN
1RHCV8730AB--DCC	1.00	CHECK VALVES 1RH8730A, B FAIL DUE TO COMMON CAUSE
1RHPM001002--XCC	1.00	RHR PUMPS 1A & 1B FAIL TO RUN DUE TO COMMON CAUSE
1ACCB1395B---UC5	1.00	CIRCUIT BREAKER 1395B FROM 480V ESF BUS 139 TRANSFERS OPEN
1ESRE17R6---FD1	1.00	DIV 17 RELAY R6 RANDOMLY FAILS DURING OPERATION

1SFPM003-----XZZ	1.00	SPENT FUEL PIT PUMP RANDOM FTR 1SF-0003
2DGDG2A2B---XCC	1.00	DGs 2A AND 2B FAIL TO RUN DUE TO COMMON CAUSE
1ESRE18R6---FD1	1.00	DIV 18 RELAY R6 RANDOMLY FAILS DURING OPERATION
1SIPM003004---XCC	1.00	SI PUMPS 1A AND 1B FAIL TO RUN DUE TO COMMON CAUSE
1SICV9001AC--DCC	1.00	CHECK VALVES 1S19001A, C FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9002AB--DCC	1.00	CHECK VALVES 1S19002A, B FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9001AB--DCC	1.00	CHECK VALVES 1S19001A, B FAIL TO OPEN DUE TO COMMON CAUSE
2ESRE28R6---FD1	1.00	DIV 28 RELAY R6 RANDOMLY FAILS DURING OPERATION
2ACCB483493--KCC	1.00	CIRC. BR. 2483 AND 2493 FAIL TO CLOSE DUE TO COMMON CAUSE
1CSMV0003----TZZ	1.00	COMP. FAULT IN SEGMENT D: 1MOV- CS0003 & TRAIN A TEST UNAVAI
1ACCB1373A---UD1	1.00	CIRCUIT BREAKER 1373A FROM 480V ESF BUS 137 TRANSFERS OPEN
1ACCB1474---UD1	1.00	CIRCUIT BREAKER 1474 FROM 4160V ESF BUS 147 TRANSFERS OPEN
1SICV9002ACD-DCC	1.00	CHECK VALVES 1S19002A, C, D FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9002BCD-DCC	1.00	CHECK VALVES 1S19002B, C, D FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9002ABD-DCC	1.00	CHECK VALVES 1S19002A, B, D FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9001ABD-DCC	1.00	CHECK VALVES 1S19001A, B, D FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9001BCD-DCC	1.00	CHECK VALVES 1S19001B, C, D FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9001ACD-DCC	1.00	CHECK VALVES 1S19001A, C, D FAIL TO OPEN DUE TO COMMON CAUSE
1DCCB1A2111B2UCC	1.00	CB 011A2 AND 111B2 TRANSFER OPEN DUE TO A COMMON CAUSE
1ACCB1374B---UD1	1.00	CIRCUIT BREAKER 1374B FROM 480V ESF BUS 137 TRANSFERS OPEN
1CSPM001A----AJ5	1.00	CS PUMP CS001-1A FAILS TO START RANDOMLY
1DCCB1B2112B2UCC	1.00	CB 111B2 AND 112B2 TRANSFER OPEN DUE TO A COMMON CAUSE
MF_ATW	1.00	FRACTION OF TRANSIENTS MAIN FEED UNAVAIL UNTIL TURBINE TRIP
2DGDG2A2B---ACC	1.00	DGs 2A AND 2B FAIL TO START DUE TO COMMON CAUSE
1CSPM001A----MJ5	1.00	SEGMENT B (TRAIN A) UNAVAILABLE DUE TO MAINTENANCE
1S1MV8804B---DZZ	1.00	MOTOR OPERATED VALVE 1S18804B RANDOMLY FAILS TO OPEN
1S1MV8804A---DZZ	1.00	MOTOR OPERATED VALVE 1S18804A FAILS TO OPEN IN SEGMENT NR
OPWPM002-----XZZ	1.00	PRIMARY WATER MAKE-UP PUMP 0B RANDOM FTR OPW002
1VCMV8801AB--DCC	1.00	MOTOR OPERATED VALVE 1S18801A & B FAIL TO OPEN COMMON CAUSE
1VCMVLCV112DEDCC	1.00	MOV VC LCV112D & E FAIL TO OPEN DUE TO COMMON CAUSE
OPWPM002-----MZZ	1.00	PRIMARY WATER PUMP 0B UNAVAILABLE DUE TO MAINTENANCE
1ACTR139-----QC5	1.00	4160-480V TRANS- FORMER 139 FAILS
1SICV9002BC--DCC	1.00	CHECK VALVES 1S19002B, C FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9002AC--DCC	1.00	CHECK VALVES 1S19002A, C FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9001BC--DCC	1.00	CHECK VALVES 1S19001B, C FAIL TO OPEN DUE TO COMMON CAUSE
1ESRE19R6---FD1	1.00	DIV 19 RELAY R6 RANDOMLY FAILS DURING OPERATION
1ACTR137-----QD1	1.00	4160-480V TRANS- FORMER 137 FAILS
OEC_LSC	1.00	OP ACTION - FIREWATER TO CCP OIL COOLER
1VCPM023-----XZZ	1.00	B A TRANSFER PUMP 1A RANDOMLY FAILS TO RUN
2ESRE29R6---FD1	1.00	DIV 29 RELAY R6 RANDOMLY FAILS DURING OPERATION
1ESRE17R3---FD1	1.00	DIV 17 RELAY R3 FAILS DURING OPERATION
2ACCB2421---DD4	1.00	CIRCUIT BREAKER 2421 FAILS TO OPEN AUTOMAT- ICALLY
2ACCB2422---KD4	1.00	CIRCUIT BREAKER 2422 FAILS TO CLOSE AUTOMAT- ICALLY
BCCPM007-----AK1	1.00	PUMP 0E RANDOMLY FAILS TO START
1FPXVH24-----DZZ	1.00	RANDOM FAILURE OF FIRE PLUG VALVE AT COLUMN H-24 TO OPEN
1DCFU20AMP---BE3	1.00	20 AMP FUSE FROM DC DISTRIBUTION PANEL 1CB37 FAILS
1DCFU1CB3720ABE3	1.00	20A FUSE FROM DC DISTRIB. PANEL 1CB37 FAILS OPEN
1DCFU1CB3820ABD7	1.00	20A FUSE FROM DC DISTRIB. PANEL 1CB38 FAILS OPEN

OPWPM001-----XZZ	1.00	PRIMARY WATER MAKE-UP PUMP 0A RANDOM FIR OPW-001
1CSXV0037----GJ5	1.00	COMPONENT FAULT IN SEGMENT C: VALVE 1CS0037 LEFT OPEN
1SWPM002-----XR1	1.00	SW PUMP 1B RANDOMLY FAILS TO CONTINUE TO RUN
1SFFLSTRAINER PZZ	1.00	SPENT FUEL PIT PUMP SUCTION PIPING STRAINER (AT TANK) PLUGS
1SFFL006-----PZZ	1.00	SPENT FUEL PIT FILTER PLUGS SF-006
DESRE17R7----FD1	1.00	DIV 17 RELAY R7 RANDOMLY FAILS DURING OPERATION
1ACCB1484----UC7	1.00	CIRCUIT BREAKER 1484 FROM 4160V ESF BUS 148 TRANSFERS OPEN
2CCPM003-----AK1	1.00	PUMP 0A RANDOMLY FAILS TO START
2DGDG2A2B---XCC	1.00	DGs 2A AND 2B FAIL TO RUN DUE TO COMMON CAUSE
1SWPM001-----XR1	1.00	SW PUMP 1A RANDOMLY FAILS TO CONTINUE TO RUN
1FPXVH24-----MZZ	1.00	MAINTENANCE UNAVAILABILITY OF FIRE PLUG VALVE H-24
1ESRE18R7----FC7	1.00	DIV 18 RELAY R7 FAILS DURING OPERATION
1ESRE19R7----FC5	1.00	DIV 19 RELAY R7 FAILS DURING OPERATION
1SICV8900ABCDDCC	1.00	CHECK VALVES 1S18900A,B,C,D FAIL TO OPEN DUE TO COMMON CAUSE
1ACCB1383D---UC7	1.00	CIRCUIT BREAKER 1383D FROM 480V ESF BUS 138 TRANSFERS OPEN
2SWPM002-----XR1	1.00	SW PUMP 2B RANDOMLY FAILS TO CONTINUE TO RUN
1VCPM024-----XZZ	1.00	B A TRANSFER PUMP 1B RANDOMLY FAILS TO RUN
1SFCVB793----DZZ	1.00	SPENT FUEL PIT PUMP DISCHARGE CHECK VALVE FTO SF-8793
DESRE29R8----FC6	1.00	DIV 29 RELAY R8 RANDOMLY FAILS DURING OPERATION
1AFPMFW006---XL4	1.00	MOTOR-DRIVEN PUMP 1FW006 RANDOM FAILURE TO RUN
1ESCN18S1X3&4KC7	1.00	DIV 18 RELAY SIX CONTACTS 3&4 FAIL TO CLOSE ON DEMAND
1ESCN19S1X3&4KC5	1.00	DIV 19 RELAY SIX CONTACTS 3&4 FAIL TO CLOSE ON DEMAND
1ESCN19R21&2-KC5	1.00	DIV 19 RELAY R2 CONTACTS 1&2 FAIL TO CLOSE ON DEMAND
1AFPMFW005---XL4	1.00	MOTOR-DRIVEN PUMP 1FW005 RANDOM FAILURE TO RUN
1ESCN18R21&2-KC7	1.00	DIV 18 RELAY R2 CONTACTS 1&2 FAIL TO CLOSE ON DEMAND
AFWFACTOR	1.00	AFW 13 HOUR RUN FACTOR
1VCPM024-----MZZ	1.00	B A TRANSFER PUMP 1B UNAVAIL- ABLE DUE TO MAINTENANCE
1VCCV8429----DZZ	1.00	CHECK VALVE FTO VC-8429
2CCPM004-----AK1	1.00	PUMP 0B RANDOMLY FAILS TO START
1VCPM024-----AZZ	1.00	B A TRANSFER PUMP FAILS TO START (HIGH SPEED)
1ACCBUATSAT--ND3	1.00	AUTO BUS TRANSFER SIGNAL IS UNAVAILABLE
BUS OSP 1	1.00	AC POWER WITH OFFSITE 147,148,149 FAIL
1SWFL005-----PR1	1.00	SW STRAINER 1B RANDOMLY FAILS (PLUGS)
1SWFL004-----PR1	1.00	SW STRAINER 1A RANDOMLY FAILS (PLUGS)
1RCVPCV455C-DCC	1.00	COMMON CAUSE FAILURE OF PORVS PCV-455C AND PCV-456
1SWPM003-----XR1	1.00	SW PUMP 1C RANDOMLY FAILS TO RUN
1MSAVMS21K---DZZ	1.00	SD VALVE 1PCV-MS21K RANDOM FAILURE TO OPEN
DESRE28R8----FCB	1.00	DIV 28 RELAY R8 RANDOMLY FAILS DURING OPERATION
1MSAVMS21F---DZZ	1.00	SD VALVE 1PCV-MS21F RANDOM FAILURE TO OPEN
1MSAVMS21B---DZZ	1.00	SD VALVE 1PCV-MS21B RANDOM FAILURE TO OPEN
2CCPM003-----XK1	1.00	PUMP 0A RANDOMLY FAILS TO CONTINUE TO RUN
BSWPM1A1B2B---ACC	1.00	PUMPS 1A, 1B & 2B FAIL TO START DUE TO CC
1VCMV8801B---DZZ	1.00	MOTOR OPERATED VALVE 1S18801B FAILS TO OPEN
1VCMVLCV112E-DZZ	1.00	MOV VC LCV112E RANDOMLY FAILS TO OPEN
1VCMV8801A---DZZ	1.00	MOTOR OPERATED VALVE 1S18801A FAILS TO OPEN
1VCMVLCV112D-DZZ	1.00	MOV-VC-112D RANDOMLY FAILS TO OPEN
2SWPM003-----XR1	1.00	SW PUMP 2C RANDOMLY FAILS TO RUN
1AFMVFW0056---DZZ	1.00	MOTOR OPERATED VALVE FW0056 RANDOMLY FAILS TO OPEN

1AFMVFW0054--DZZ	1.00	MOTOR OPERATED VALVE FW0054 RANDOMLY FAILS TO OPEN
1AFMVFW0052--DZZ	1.00	MOTOR OPERATED VALVE FW0052 RANDOMLY FAILS TO OPEN
1AFMVFW0050--DZZ	1.00	MOTOR OPERATED VALVE FW0050 RANDOMLY FAILS TO OPEN
1MSGV0003----KZZ	1.00	RANDOM FAILURE TO CLOSE GOV. VALVE 3
2ESRE2829R6--FCC	1.00	DIV 28 & 29 RELAYS FAIL DURING OPERATION DUE TO CC
1MSSV0002----KZZ	1.00	RANDOM FAILURE TO CLOSE STOP VALVE 2
1MSSV0001----KZZ	1.00	RANDOM FAILURE TO CLOSE STOP VALVE 1
1MSSV0004----KZZ	1.00	RANDOM FAILURE TO CLOSE STOP VALVE 4
1AFCV69686766DCC	1.00	COMMON CAUSE FAILURE OF CV 1FW0069 AND 0068 AND 067 AND 066
1MSSV0003----KZZ	1.00	RANDOM FAILURE TO CLOSE STOP VALVE 3
1MSGV0004----KZZ	1.00	RANDOM FAILURE TO CLOSE GOV. VALVE 4
1MSGV0002----KZZ	1.00	RANDOM FAILURE TO CLOSE GOV. VALVE 2
1MSGV0001----KZZ	1.00	RANDOM FAILURE TO CLOSE GOV. VALVE 1
1ACTR139-----MC5	1.00	4160-480V TRANS- FORMER 139 IS UNAVAILABLE DUE TO MAINTENANC
1CSCV009-----KZZ	1.00	RANDOM FAILURE OF CHECK VALVE CS009 TO CLOSE
1CSCV005-----KZZ	1.00	RANDOM FAILURE OF CHECK VALVE CS005 TO CLOSE
1CSCV0013-----KZZ	1.00	RANDOM FAILURE OF CHECK VALVE CS0013 TO CLOSE
1AFPM005006--ACC	1.00	COMMON CAUSE FAILURE TO START MDPS 1FW005 AND 1FW006
1ACCB1393A---UC5	1.00	CIRCUIT BREAKER 1393A FROM 480V ESF BUS 139 TRANSFERS OPEN
1ACCB1383A---UC7	1.00	CIRCUIT BREAKER 1383A FROM 480V ESF BUS 138 TRANSFERS OPEN
1VCAVFCV121--VZZ	1.00	CHARGING PUMP FCV RANDOM FAIL. TO REMAIN OPEN FCV-VC-121
BCCPM007-----XK1	1.00	PUMP OE RANDOMLY FAILS TO RUN
1ESCNTR18S3&4001	1.00	TEST RELAY TRIBS/TR1 CONTACTS 3&4 SPURIOUSLY OPEN
1ESCN17TR17&8001	1.00	TEST RELAY TR1/17 CONTACTS 7&8 SPURIOUSLY OPEN
1ESCN14C4&04-001	1.00	TEST SWITCH #14 N-T CONTACTS C4&04 SPURIOUSLY OPEN
1AFMVFW0057--DZZ	1.00	MOTOR OPERATED VALVE FW0057 RANDOMLY FAILS TO OPEN
1AFMVFW0055--DZZ	1.00	MOTOR OPERATED VALVE FW0055 RANDOMLY FAILS TO OPEN
1AFMVFW0053--DZZ	1.00	MOTOR OPERATED VALVE FW0053 RANDOMLY FAILS TO OPEN
1AFMVFW0051--DZZ	1.00	MOTOR OPERATED VALVE FW0051 RANDOMLY FAILS TO OPEN
1ACCB14728292KCC	1.00	FD. BRKR. 1472 & 1482 & 1492 FAIL TO CLOSE DUE TO COMMON CAU
1AFAMSG10305-DCC	1.00	SG 1D SAFETY VALVES (3/5) FTO DUE TO C.C. (10 PAIRS)
1AFAMSG1C305-DCC	1.00	SG 1C SAFETY VALVES (3/5) FTO DUE TO C.C. (10 PAIRS)
1AFAMSG1B305-DCC	1.00	SG 1B SAFETY VALVES (3/5) FTO DUE TO C.C. (10 PAIRS)
1AFAMSG1A305-DCC	1.00	SG 1A SAFETY VALVES (3/5) FTO DUE TO C.C. (10 PAIRS)
1AFMVTHROTLCDDCC	1.00	AFW THROTTLE VALVES (8) FAIL DUE TO COMMON CAUSE
1SICV8900ABD-DCC	1.00	CHECK VALVES 1S18900A, B, D FAIL TO OPEN DUE TO COMMON CAUSE
1SICV8900BCD-DCC	1.00	CHECK VALVES 1S18900B, C, D FAIL TO OPEN DUE TO COMMON CAUSE
1SICV8900ACD-DCC	1.00	CHECK VALVES 1S18900A, C, D FAIL TO OPEN DUE TO COMMON CAUSE
1SICV8900ABC-DCC	1.00	CHECK VALVES 1S18900A, B, C FAIL TO OPEN DUE TO COMMON CAUSE
1S1MV8804AB--DCC	1.00	MOTOR OPERATED VALVE 1S18804A & B FAIL TO OPEN DUE TO C. CAU
1ACCB1341----U03	1.00	FD. BREAKER 1341 TO BUS 134 TRANSFERS OPEN
1CSCV0005----DJ5	1.00	CHECK VALVE 1CS0005 FAILS TO OPEN RANDOMLY
1CSCV0003----DJ5	1.00	CHECK VALVE 1CS0003 FAILS TO OPEN RANDOMLY
1ACCB1443----U03	1.00	CIRCUIT BREAKER 1443 FROM 480V BUS 144 TRANSFERS OPEN
1VCXV8434----KZZ	1.00	BLOCK VALVE BLENDER TO RWST FTC VC-8434
1VCXV8432----KZZ	1.00	ISOLATION VALVE BLENDER TO RWST FTC VC-8432
1ACTR137-----MD1	1.00	4160-480V TRANS- FORMER 137 IS UNAVAILABLE DUE TO MAINTENANC
1ACCB14821492KCC	1.00	FD. BRKR. 1482 & 1492 FAIL TO CLOSE DUE TO COMMON CAUSE

1ACCB1442----UD3	1.00	FD. BREAKER 1442 TO BUS 144 TRANSFERS OPEN
1CCMV9412AB--DCC	1.00	MOVS 1CC9412A,B FAIL TO OPEN DUE TO COMMON CAUSE
2CCPM004-----XK1	1.00	PUMP OB RANDOMLY FAILS TO RUN
1DCCB011C12--UE1	1.00	FD BR. C1-2 FROM DC BUS 011-1 TO PANEL 1CB37 TRANSFERS OPEN
1DCCBRE17----UE1	1.00	FD BREAKER E1-7 FROM DC BUS 111 TO 1CB38 TRANS- FERS OPEN
1DCCBC12-----UE3	1.00	FD BREAKER C1-2 FROM DC BUS 011-1 TRANSFERS OPEN
1AFAMSG1D505-DCC	1.00	SG 1D SAFETY VALVES (5/5) FTO DUE TO C.C.
1AFAMSG1D405-DCC	1.00	SG 1D SAFETY VALVES (4/5) FTO DUE TO C.C. (5 PAIRS)
1AFAMSG1C505-DCC	1.00	SG 1C SAFETY VALVES (5/5) FTO DUE TO C.C.
1AFAMSG1C405-DCC	1.00	SG 1C SAFETY VALVES (4/5) FTO DUE TO C.C. (5 PAIRS)
1AFAMSG1B505-DCC	1.00	SG 1B SAFETY VALVES (5/5) FTO DUE TO C.C.
1AFAMSG1B405-DCC	1.00	SG 1B SAFETY VALVES (4/5) FTO DUE TO C.C. (5 PAIRS)
1AFAMSG1A505-DCC	1.00	SG 1A SAFETY VALVES (5/5) FTO DUE TO C.C.
1AFAMSG1A405-DCC	1.00	SG 1A SAFETY VALVES (4/5) FTO DUE TO C.C. (5 PAIRS)
1ACTR138-----QC7	1.00	4160-480V TRANS- FORMER 138 FAILS
1S1MVB811AB--DCC	1.00	MOTOR OPERATED VALVE 1S1B811A & B FAIL TO OPEN COMMON CAUSE
1SFXVB762A/B-KCC	1.00	COMMON CAUSE FAILURE OF SF-8762B AND SF8762A
1AFAMSG1D205-DCC	1.00	SG 1D SAFETY VALVES (2/5) FTO DUE TO C.C. (10 PAIRS)
1AFAMSG1C205-DCC	1.00	SG 1C SAFETY VALVES (2/5) FTO DUE TO C.C. (10 PAIRS)
1AFAMSG1B205-DCC	1.00	SG 1B SAFETY VALVES (2/5) FTO DUE TO C.C. (10 PAIRS)
1AFAMSG1A205-DCC	1.00	SG 1A SAFETY VALVES (2/5) FTO DUE TO C.C. (10 PAIRS)
1AFCVFW0033--DL4	1.00	CHECK VALVE 1FW0033 FAILS TO OPEN
1DCBY011111--FCC	1.00	BATTERY 011 AND 111 FAIL DUE TO A COMMON CAUSE
1ACTR134-----Q03	1.00	4160-480V TRANS- FORMER 134 FAILS
1AFCVFW0032--DL4	1.00	CHECK VALVE 1FW0032 FAILS TO OPEN
1MSXXMS21BFK-DCC	1.00	COMMON CAUSE FAILURE OF SDV 1PCV-MS21B,MS21F MS21K
1SWCV11-----DR1	1.00	CHECK VALVE 1SW0001 RANDOMLY FAILS TO OPEN
1RCAVPCV455C-DZZ	1.00	RANDOM FAILURE OF PORV PCV-455C TO OPEN
1RCAVPCV456--DZZ	1.00	RANDOM FAILURE OF PORV PCV-456 TO OPEN
1ACCB4B73A95BUCC	1.00	CB 1374B, 1373A AND 1395B TRANS- FER OPEN DUE TO A COMMON CA
1ACCB1422----UD3	1.00	FD. BREAKER 1422 TO BUS 142 TRANSFERS OPEN (GIVEN CLOSED)
1VCPM0006----XK2	1.00	FAILURE OF CHARGING PUMP 1A TO CONTINUE RUNNING
1ACCB1424----UD3	1.00	FD. BREAKER 1424 TO BUS 147 TRANSFERS OPEN
1ACTR138-----MC7	1.00	4160-480V TRANS- FORMER 138 IS UNAVAILABLE DUE TO MAINTENANC
1MSAV0019AM--DZZ	1.00	ARV MOV-MS0019 VALVE STICKS OR FAILS TO OPEN (FAULT IN VALVE
1MSAV0017AM--DZZ	1.00	ARV MOV-MS0017 VALVE STICKS OR FAILS TO OPEN (FAULT IN VALVE
BESRE1819----FCC	1.00	1VS 18 & 19 RELAYS FAIL DURING OPERATION DUE TO CC
1MSAV0018AM--DZZ	1.00	V MOV-MS0018 VALVE STICKS OR FAILS TO OPEN (FAULT IN VALVE
1ACCB1471----UC5	1.00	FD. BREAKER 1471 TO BUS 147 TRANSFERS OPEN
BESRE1718----FCC	1.00	DIVS 17 & 18 RELAYS FAIL DUE TO CC
2SWCV21-----DR1	1.00	CHECK VALVE 2SW0001 RANDOMLY FAILS TO OPEN
2ACTR242-----QXX	1.00	OUTPUT FROM SYSTEM AUXILIARY TRANSFORMER 242 FAILS
1DCCBF113----UE1	1.00	FD BREAKER F1-13 FROM DC BUS 112 TRANSFERS OPEN
1DCCBE113----UE1	1.00	FD BREAKER E1-13 FROM DC BUS 111 TRANSFERS OPEN
1FPCVFP0002--DZZ	1.00	RANDOM FAILURE OF CHECK VALVE FP0002 TO OPEN
1DCCBRE134---UE1	1.00	FD. BRKR. RE1-34 FROM DC BUS 111 TRANSFERS OPEN
1DCCBRF132---UE1	1.00	FD. BRKR. RF1-32 FROM DC BUS 112 TRANSFERS OPEN
BSWPM01020102XCC	1.00	PUMPS 1A, 1B, 2A & 2B FAIL TO RUN DUE TO CC

1ESRED19D18R7XCC	1.00	RELAY R7 DIV 19 & DIV 18 FAILS DURING OPER. DUE TO COMMON CA
1ESRE19171718FCC	1.00	DIV 19 RELAY R1, DIV 17 RELAY R1 & R2 & DIV 18 RELAY R1 FAIL
1AFRVMS0029--DZZ	1.00	SG 1B SAFETY VALVE 1MS0029 RANDOMLY FAILS TO OPEN
1AFRVMS0019--DZZ	1.00	SG 1C SAFETY VALVE 1MS0019 RANDOMLY FAILS TO OPEN
1AFRVMS0030--DZZ	1.00	SG 1B SAFETY VALVE 1MS0030 RANDOMLY FAILS TO OPEN
1AFRVMS0032--DZZ	1.00	SG 1B SAFETY VALVE 1MS0032 RANDOMLY FAILS TO OPEN
1AFRVMS0026--DZZ	1.00	SG 1D SAFETY VALVE 1MS0026 RANDOMLY FAILS TO OPEN
1AFRVMS0024--DZZ	1.00	SG 1D SAFETY VALVE 1MS0024 RANDOMLY FAILS TO OPEN
1AFRVMS0021--DZZ	1.00	SG 1C SAFETY VALVE 1MS0021 RANDOMLY FAILS TO OPEN
1AFRVMS0020--DZZ	1.00	SG 1C SAFETY VALVE 1MS0020 RANDOMLY FAILS TO OPEN
1AFRVMS0027--DZZ	1.00	SG 1D SAFETY VALVE 1MS0027 RANDOMLY FAILS TO OPEN
1AFRVMS0031--DZZ	1.00	SG 1B SAFETY VALVE 1MS0031 RANDOMLY FAILS TO OPEN
1AFRVMS0025--DZZ	1.00	SG 1D SAFETY VALVE 1MS0025 RANDOMLY FAILS TO OPEN
1AFRVMS0028--DZZ	1.00	SG 1D SAFETY VALVE 1MS0028 RANDOMLY FAILS TO OPEN
1AFCV000700060L2	1.00	COMMON CAUSE FAILURE TO OPEN CV 1MS0007 AND CV 1MS0006
1AFRVMS0023--DZZ	1.00	SG 1C SAFETY VALVE 1MS0023 RANDOMLY FAILS TO OPEN
1AFRVMS0022--DZZ	1.00	SG 1C SAFETY VALVE 1MS0022 RANDOMLY FAILS TO OPEN
1AFRVMS0014--DZZ	1.00	SG 1A SAFETY VALVE 1MS0014 RANDOMLY FAILS TO OPEN
1AFRVMS0033--DZZ	1.00	SG 1B SAFETY VALVE 1MS0033 RANDOMLY FAILS TO OPEN
1AFRVMS0017--DZZ	1.00	SG 1A SAFETY VALVE 1MS0017 RANDOMLY FAILS TO OPEN
1AFRVMS0015--DZZ	1.00	SG 1A SAFETY VALVE 1MS0015 RANDOMLY FAILS TO OPEN
1AFRVMS0016--DZZ	1.00	SG 1A SAFETY VALVE 1MS0016 RANDOMLY FAILS TO OPEN
1AFRVMS0018--DZZ	1.00	SG 1A SAFETY VALVE 1MS0018 RANDOMLY FAILS TO OPEN
1RCMVRC8000B-CZZ	1.00	PORV FLOW PATH INOPERABLE DUE TO BLOCK VALVE RC8000B CLOSURE
1RCMVRC8000A-CZZ	1.00	PORV FLOW PATH INOPERABLE DUE TO BLOCK VALVE RC8000A CLOSURE
1ACCB374B395BUCC	1.00	CB 1374B AND 1395B TRANSFER OPEN DUE TO A COMMON CAUSE
1ACCB373A395BUCC	1.00	CB 1373A AND 1395B TRANSFER OPEN DUE TO A COMMON CAUSE
1MSCCMS21B---FZZ	1.00	CONTROL CIRCUIT FAILURE FOR STEAM DUMP VALVES
1VCPM007-----AK4	1.00	CHARGING PUMP 1B FAILS TO START
BSWPM1C2C----ACC	1.00	PUMPS 1C & 2C FAIL TO START DUE TO CC
1VCPM007-----MK4	1.00	CHARGING PUMP 1B UNAVAILABLE DUE TO MAINTENANCE
1MSXXMS21F21KDZZ	1.00	COMMON CAUSE FAILURE OF SDV 1PCV-MS21F AND 1PCV-MS21K
1MSXXMS21B21KDCC	1.00	COMMON CAUSE FAILURE OF SDV 1PCV-MS21B AND 1PCV-MS21K
1MSXXMS21B21FDCC	1.00	COMMON CAUSE FAILURE OF SDV 1PCV-MS21B AND 1PCV-MS21F
1MSPMMS21B---FZZ	1.00	CIRCULATING WATER PUMP FAILURE
1ACCB434444---UCC	1.00	FD. BREAKER 1434 AND 1444 TRANS- FER OPEN DUE TO COMMON CAUS
1ACBS139-----MC5	1.00	480V ESF BUS 139 IS UNAVAILABLE DUE TO MAINTENANCE
1ACCB481491---UCC	1.00	FD. BREAKER 1481 AND 1491 TRANS- FER OPEN DUE TO COMMON CAUS
1AFPM005006---XCC	1.00	COMMON CAUSE FAILURE TO RUN MDPS 1FW005 AND 1FW006
1ACCB1492---KC5	1.00	FD. BRKR. 1492 TO ESF BUS 149 FAILS TO CLOSE
1ACBS138-----MC7	1.00	480V ESF BUS 138 IS UNAVAILABLE DUE TO MAINTENANCE
1ACCB1482---KC7	1.00	FD. BRKR. 1482 TO ESF BUS 148 FAILS TO CLOSE
1DCCBE113F113UCC	1.00	CB E1-13 AND F1-13 TRANSFER OPEN DUE TO COMMON CAUSE
2CCCV9463B---DK1	1.00	CHECK VALVE 2CC9463B RANDOMLY FAILS TO OPEN
1AFMVF00051---KA2	1.00	FAILURE OF AFW MOV FW0051 TO CLOSE DUE TO HARDWARE
1AFMVF00050---KB2	1.00	FAILURE OF AFW MOV FW0050 TO CLOSE DUE TO HARDWARE
1ESRE17R1----FD1	1.00	DIV 17 RELAY R1 FAILS DURING OPERATION
1ESCN18TSD2ABKC7	1.00	DIV 18 TIMER TSD CONTACTS 2A&2B FAIL TO CLOSE ON DEMAND

1ESCN17R31&2-KD1	1.00	DIV 17 RELAY R3 CONTACTS 1&2 FAIL TO CLOSE ON DEMAND
1SICV8922B---DZZ	1.00	CHECK VALVE 1S18922B RANDOMLY FAILS TO OPEN
1ESCN17R33&4-KD1	1.00	DIV 17 RELAY R3 CONTACTS 3&4 FAIL TO CLOSE ON DEMAND
DESRE29R828R8FCC	1.00	DIVS 29 & 28 RELAYS FAIL DURING OPERATION DUE TO CC
1ESCN18R61&2-KC7	1.00	DIV 18 RELAY R6 CONTACTS 1&2 FAIL TO CLOSE ON DEMAND
1ESRE171819R5FCC	1.00	DIV 17,18 & 19 RELAY R5 FAILS DURING OPERATION DUE TO CC
1CCXV9485AB--FCC	1.00	COMMON CAUSE FAILURE OF ISOL. VALVES FOR CCW TO CHG. PUMPS
1CCXV358367--DCC	1.00	CCF OF VALVES 0358, 0367 TO OPEN
1CCXV358362--DCC	1.00	CCF OF VALVES 0358, 0362 TO OPEN
1CCXV355367--DCC	1.00	CCF OF VALVES 0355, 0367 TO OPEN
1CCXV355362--DCC	1.00	CCF OF VALVES 0355, 0362 TO OPEN
1ACDPMCC1383BMK1	1.00	MCC 1383B IS UNAVAILABLE DUE TO MAINTENANCE
1ACDPMCC1393CMK1	1.00	MCC 1393C IS UNAVAILABLE DUE TO MAINTENANCE
1SIPM004-----A17	1.00	S1 PUMP 1B RANDOMLY FAILS TO START
1SICV90028D--DCC	1.00	CHECK VALVES 1S19002B, D FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9002AD--DCC	1.00	CHECK VALVES 1S19002A, D FAIL TO OPEN DUE TO COMMON CAUSE
1AFCV00696867DCC	1.00	COMMON CAUSE FAILURE OF CV 1FW0069 AND 0068 AND 0067
1SICV90018D--DCC	1.00	CHECK VALVES 1S19001B, D FAIL TO OPEN DUE TO COMMON CAUSE
1AFCV00696866DCC	1.00	COMMON CAUSE FAILURE OF CV 1FW0069 AND 0068 AND 0066
1SICV9001AD--DCC	1.00	CHECK VALVES 1S19001A, D FAIL TO OPEN DUE TO COMMON CAUSE
1AFCV00696766DCC	1.00	COMMON CAUSE FAILURE OF CV 1FW0069 AND 0067 AND 0066
1AFCV00686766DCC	1.00	COMMON CAUSE FAILURE OF CV 1FW0068 AND 0067 AND 0066
BCCPM005-----MK1	1.00	PUMP 0C UNAVAILABLE DUE TO MAINTENANCE
1ACTR134-----MO3	1.00	4160-480V TRANS- FORMER 134 IS UNAVAILABLE DUE TO MAINTENANCE
BCCPM006-----MK1	1.00	PUMP 0D UNAVAILABLE DUE TO MAINTENANCE
1DCCBRF123---UE1	1.00	FD BREAKER RFI- 23 FROM DC BUS 112 TRANSFERS OPEN
1SICV9002CD--DCC	1.00	CHECK VALVES 1S19002C, D FAIL TO OPEN DUE TO COMMON CAUSE
1DCCBC16-----UE3	1.00	FD BREAKER C1-6 FROM DC BUS 011-1 TRANSFERS OPEN
1SICV9001CD--DCC	1.00	CHECK VALVES 1S19001C, D FAIL TO OPEN DUE TO COMMON CAUSE
1SFXV8762B---KZZ	1.00	SPENT FUEL PIT HEAT EXCHANGER OUTLET BLOCK VLV FTC SF-8762B
1SFXV8762A---KZZ	1.00	SPENT FUEL PIT HEAT EXCHANGER INLET BLOCK VLV FTC SF-8762A
2DCBY211-----FE2	1.00	BATTERY 211 FAILS
1ACTR137139--QCC	1.00	4160-480V TRANS- FORMER 139 AND 137 FAIL DUE TO COMMON CAUSE
1LOLOSLV&OPACTN	1.00	FAILURE OF LO-LO SG LEVEL SIGNAL & OP. ACTION TO START PUMPS
1ACBS139-----FC5	1.00	480V ESF BUS 139 FAILS
1ESCN19TS03ABKC5	1.00	DIV 19 TIMER TSD CONTACTS 3A&3B FAIL TO CLOSE ON DEMAND
1ESCN18TS03ABKC7	1.00	DIV 18 TIMER TSD CONTACTS 3A&3B FAIL TO CLOSE ON DEMAND
1DCCBF117---UE1	1.00	FD. BRKR. F1-17 FROM DC BUS 112 TRANSFERS OPEN
1AFCV00690068DCC	1.00	COMMON CAUSE FAILURE OF CV 1FW0069 AND 1FW0068
1AFCV00690067DCC	1.00	COMMON CAUSE FAILURE OF CV 1FW0069 AND 1FW0067
1AFCV00690066DCC	1.00	COMMON CAUSE FAILURE OF CV 1FW0069 AND 1FW0066
1AFCV00680067DCC	1.00	COMMON CAUSE FAILURE OF CV 1FW0068 AND 1FW0067
1AFCV00680066DCC	1.00	COMMON CAUSE FAILURE OF CV 1FW0068 AND 1FW0066
1AFCV00670066DCC	1.00	COMMON CAUSE FAILURE OF CV 1FW0067 AND 0066
1ESCN19R71112KC5	1.00	DIV 19 RELAY R7 CONTACTS 11&12 FAIL TO CLOSE ON DEMAND
BSWPM1A182B---XCC	1.00	PUMPS 1A, 1B & 2B FAIL TO RUN DUE TO CC
1ESCN18R71&2-KC7	1.00	DIV 18 RELAY R7 CONTACTS 1&2 FAIL TO CLOSE ON DEMAND
1CCXV9485B---KZZ	1.00	RANDOM FAILURE TO CLOSE VALVE CC-9485B

1CCXV9485A---KZZ	1.00	RANDOM FAILURE OF VALVE CC-9485A, FAILS TO CLOSE
1CCXV0367---DZZ	1.00	RANDOM FAILURE TO OPEN DRAIN ISOL. VALVE CC0367
1CCXV0362---DZZ	1.00	RANDOM FAILURE TO OPEN DRAIN ISOL. VALVE CC0362
1CCXV0358---DZZ	1.00	RANDOM FAILURE TO OPEN DRAIN ISOL. VALVE CC0358
1CCXV0355---DZZ	1.00	RANDOM FAILURE TO OPEN DRAIN ISOL. VALVE CC0355
1ESRE1BR1----FC7	1.00	DIV 18 RELAY R1 FAILS DURING OPERATION
1ACDPMCC1391-MC5	1.00	MCC 1391 IS UNAVAILABLE DUE TO MAINTENANCE
1ACDPMCC1391-FC5	1.00	MCC 1391 FAILS
1ESCN19TSD2ABKC5	1.00	
2ESCN28R61&2-KC8	1.00	
1ESCN19R1C2-KC5	1.00	
1ACBS13B-----FC7	1.00	480V ESF BUS 13B FAILS
2SWFL004-----PR1	1.00	SW STRAINER 2A RANDOMLY FAILS (PLUGS)
1VCPM007-----XK4	1.00	CHARGING PUMP 1B FAILS TO RUN
1VCPM006-----XZZ	1.00	CHARGING PUMP 1A RANDOMLY FAILS TO RUN
1ESHEPHASE-A-HB1	1.00	OPERATOR FAILS TO MANUALLY INITIATE PHASE A ISOLATION
10CFU14-----BE1	1.00	15 AMP FUSE 14 FROM DISTR. CAB. BUS 114 FAILS
10CCBC116---UE3	1.00	FD. BRKR. C1-16 FROM DC BUS 011-1 TRANSFERS OPEN
BSWPM1B2B---ACC	1.00	PUMPS 1B & 2B FAIL TO START DUE TO CC
2ESCN28TSD2ABKC8	1.00	
1ACDPMCC1381BMC7	1.00	MCC 1381B IS UNAVAILABLE DUE TO MAINTENANCE
1MSSV01020304KCC	1.00	CCF OF STOP VALVES SV0001, SV0002, SV0003 & SV0004 TO CLOSE
1MSGV01020304KCC	1.00	CCF OF GOV. VALVES GV0001, GV0002, GV0003, GV0004 TO CLOSE
1ACDPMCC1381BFC7	1.00	MCC 1381B FAILS
2SWFL005-----PR1	1.00	SW STRAINER 2B FAILS RANDOMLY (PLUGS)
1MSAV018019--DCC	1.00	CCF TO OPEN OF ARV MS0018 AND MS0019
1MSAV017019--DCC	1.00	CCF TO OPEN OF ARV MS0017 AND MS0019
1MSAV017018--DCC	1.00	CCF TO OPEN OF ARV MS0017 AND MS0018
1AFTKSC001---RO1	1.00	FAULT PRIOR TO INPUT OF SEG. V CST 1SC001 FAILS OR LARGE LEA
2ESCN29TSD2ABKC6	1.00	
2ESCN29R61&2-KC6	1.00	
1ACBS147-----MC5	1.00	BUS 147 UNAVAILABLE DUE TO MAINTENANCE
1S1MV8807B---DZZ	1.00	MOTOR OPERATED VALVE 1S18807B FAILS TO OPEN
1ACBS147-----FC5	1.00	BUS 147 FAILS
2DCBY212-----FE2	1.00	BATTERY 212 FAILS
1ESCN1X482&6KE1	1.00	NO SIGNAL TO 1LCV-VC112E, SIX4-B CTS 2&6 FTC ON DEMAND
1CCXV9485B---MZZ	1.00	MAINTENANCE UNAVAILABILITY OF VALVE CC-9485B
1ESCN18TR13&4OC7	1.00	TEST RELAY TR1/18 CONTACTS 3&4 SPURIOUSLY OPEN
1ACDPMCC1393CMC5	1.00	MCC 1393C IS UNAVAILABLE DUE TO MAINTENANCE
BSWHTSTBYMANLHB1	1.00	FAILURE TO PLACE UNAFFECTED UNIT IN HOT SHTDN PER AOP 4.2
1CCXV0367---MZZ	1.00	MAINTENANCE UNAVAILABILITY OF VALVE CC0367
1ACDPMCC1393FC5	1.00	MCC 1393C FAILS
1CCXV0362---MZZ	1.00	MAINTENANCE UNAVAILABILITY OF VALVE CC0362
1CCXV0358---MZZ	1.00	MAINTENANCE UNAVAILABILITY OF VALVE CC0358
1CCXV0355---MZZ	1.00	MAINTENANCE UNAVAILABILITY OF VALVE CC0355
1CCPM007-----XK1	1.00	PUMP 0E RANDOMLY FAILS TO CONTINUE TO RUN
1ACDPMCC1393AMD1	1.00	MCC 1393A IS UNAVAILABLE DUE TO MAINTENANCE
1CCPM006-----AK1	1.00	PUMP 0D RANDOMLY FAILS TO START

1CCPM005-----AK1	1.00	PUMP OC RANDOMLY FAILS TO START
1ACDPMCC1393AFD1	1.00	MCC 1393A FAILS
BSWPM182B----XCC	1.00	PUMPS 1B & 2B FAIL TO RUN DUE TO CC
BSWCV1121----DCC	1.00	
1ESCNSIX48182KE1	1.00	NO SIGNAL TO 1MOV-S18801B, SIX4-B CTS 18&22 FTC ON DEMAND
1ESCNSIX4A2&6KE1	1.00	NO SIGNAL TO 1LCV-VC112D, SIX4-A CTS 2&6 FTC ON DEMAND
1ESCNSIX4A182KE1	1.00	NO SIGNAL TO 1MOV-S18801A, SIX4-A CTS 18&22 FTC ON DEMAND
2DCCBRE134---UE7	1.00	FD. BRKR. RE1-34 FROM DC BUS 211 TRANSFERS OPEN
2DCCB211B2---UE2	1.00	CIRCUIT BREAKER 211B2 FROM BATT- ERY 211 TRANSFERS OPEN
2DCBY212-----FE5	1.00	BATTERY 212 RANDOMLY FAILS
1ACDPMCC1372-MD1	1.00	MCC 1372 IS UNAVAILABLE DUE TO MAINTENANCE
1ESCN17TR13&40D1	1.00	TEST RELAY TR1/17 CONTACTS 3&4 SPURIOUSLY OPEN
2ACCB434444--UCC	1.00	FD. BREAKER 2434 AND 2444 TRANS- FER OPEN DUE TO COMMON CAUS
1WDAV17B-----KZZ	1.00	FAILURE OF VALVE FCV-WD17B TO CLOSE ON DEMAND
1WDAV17A17B--KCC	1.00	CCF OF FCV-WD17A AND FCV-WD17B TO CLOSE
1WDAV17A-----KZZ	1.00	FAILURE OF VALVE FCV-WD17A TO CLOSE ON DEMAND
1ESCN15A11B11OC7	1.00	TEST SWITCH #15 N-T CONTACTS A11&B11 SPURIOUSLY OPEN
1ESCN14A11B11OD1	1.00	TEST SWITCH #14 N-T CONTACTS A11&B11 SPURIOUSLY OPEN
1VCCV8481A---DZZ	1.00	CHECK VALVE 1VC8481A RANDOMLY FAILS TO OPEN
1ACBS137-----MD1	1.00	480V ESF BUS 137 IS UNAVAILABLE DUE TO MAINTENANCE
1ACCB4748494-UCC	1.00	CB 1474, 1484 AND 1494 TRANS- FERS OPEN DUE TO A COMMON CAUS
1DCCB16E13F13UCC	1.00	CB CI-6, E1-13, AND F1-13 TRANS- FER OPEN DUE TO COMMON CAUS
1SICV8900D---DZZ	1.00	CHECK VALVE 1S18900D RANDOMLY FAILS TO OPEN
1SICV8900C---DZZ	1.00	CHECK VALVE 1S18900C RANDOMLY FAILS TO OPEN
1SICV8900B---DZZ	1.00	CHECK VALVE 1S18900B RANDOMLY FAILS TO OPEN
1ACCB471491--UCC	1.00	FD. BREAKER 1471 AND 1491 TRANS- FER OPEN DUE TO COMMON CAUS
1SICV8900A---DZZ	1.00	CHECK VALVE 1S18900A RANDOMLY FAILS TO OPEN
1AFCV00320033DCC	1.00	COMMON CAUSE FAILURE CV 1FW0032 AND 1FW0033
1ACCB424444--UCC	1.00	FD. BREAKER 1424 AND 1444 TRANS- FER OPEN DUE TO COMMON CAUS
1ACCB383A393AUCC	1.00	CB 1383A AND 1393A TRANSFER OPEN DUE TO A COMMON CAUSE
1MSSV020304--KCC	1.00	CCF OF STOP VALVES SV0002, SV0003,SV0004 TO CLOSE
1MSSV0104----KCC	1.00	CCF OF STOP VALVES SV0001, SV0004 TO CLOSE
1MSSV010304--KCC	1.00	CCF OF STOP VALVES SV0001, SV0003,SV0004 TO CLOSE
1MSSV010204--KCC	1.00	CCF OF STOP VALVES SV0001,SV0002 SV0004 TO CLOSE
1MSSV010203--KCC	1.00	CCF OF STOP VALVES SV0001, SV002 SV0003 TO CLOSE
2DCCB182212B1UCC	1.00	
1MSGV010304--KCC	1.00	CCF OF GOV. VALVES GV0001, . GV0003,GV0004
1MSGV010204--KCC	1.00	CCF OF GOV. VALVES GV0001, GV0002,GV0004 TO CLOSE
1ACBS142-----FD3	1.00	BUS 142 FAILS
1MSGV010203--KCC	1.00	CCF OF GOV. VALVES GV0001,GV0002 GV0003 TO CLOSE
2DCCBE114---UE2	1.00	FD BREAKER E1-14 FROM DC BUS 211 TRANSFERS OPEN
1ACTR138139--QCC	1.00	4160-480V TRANS- FORMERS 138, 139 FAIL DUE TO COMMON CAUSE
BCCPM003007--XCC	1.00	PUMPS 0A & 0E FAIL TO CONTINUE TO RUN DUE TO CC
1MSAV171819--DCC	1.00	CCF TO OPEN OF ARV MS0017, MS0018 AND MS0019
2ACCB481491--UCC	1.00	FD. BREAKER 2481 AND 2491 TRANS- FER OPEN DUE TO COMMON CAUS
1ACCB1382D---UC7	1.00	CIRCUIT BREAKER 1382D FROM 480V ESF BUS 138 TRANSFERS OPEN
1CSCV0301109-DCC	1.00	CHECK VALVES 3,11,9 FAIL TO OPEN DUE TO CC
1CSCV0090013-KCC	1.00	CCF OF CHECK VALVES CS005, CS009 AND CS0013 TO CLOSE

1CSCV005009--KCC	1.00	CCF OF CHECK VALVES CS005 AND CS009 TO CLOSE
1CSCV0050013-KCC	1.00	CCF OF CHECK VALVES CS005 AND CS0013 TO CLOSE
1ACTR13713839QCC	1.00	TRANSFORMER 137, 138 AND 139 FAIL DUE TO A COMMON CAUSE
1CSCV0013009-KCC	1.00	CCF OF CHECK VALVES CS0013 AND CS009 TO CLOSE
1ESSW290-----FB1	1.00	MANUAL PHASE A ISOLATION SWITCH #290 FAILS
1ESSW131290--FCC	1.00	MANUAL PHASE A ISOLATION SWITCH 131 AND 290 FAIL COMMON CAUS
1ESSW131-----FB1	1.00	MANUAL PHASE A ISOLATION SWITCH #131 FAILS
1ESRETR1TR2--FCC	1.00	RELAY COILS CIAX2/TR2 AND CIAX1/TR1 FAIL COMMON CAUSE
1ESRERS4B----FD1	1.00	RELAY RS4B/17-2 COIL FAILS DURING OPERATION
1ESRERS172181FCC	1.00	RELAY COILS RS9/17-2 AND RS9/18-1 FAIL COMMON CAUSE
1ESRERB172181FCC	1.00	RELAY COILS RS4B/17-2 AND RS4B/18-1 FAIL COMMON CAUSE
1ESRECV11CV12FCC	1.00	RELAY COILS CV11/TR1 AND CV12/TR2 FAIL COMMON CAUSE
1ESRECIA2---FE1	1.00	RELAY CIAX2/TR2 COIL FAILS DURING OPERATION
1ESRECIA2----FE1	1.00	RELAY CIA2/TR2 COIL FAILS DURING OPERATION
1ESRECIA1CIA2FCC	1.00	RELAY COILS CIA2/TR2 AND CIA1/TR1 FAIL COMMON CAUSE
1ESRECIA1----FE1	1.00	RELAY CIAX1/TR1 COIL FAILS DURING OPERATION
1ESREBS4B---FC7	1.00	RELAY RS4B/18-1 COIL FAILS DURING OPERATION
1ACDPMCC1393BMK1	1.00	MCC 1393B IS UNAVAILABLE DUE TO MAINTENANCE
1ESRE19R6----FC5	1.00	DIV 19 RELAY R6 RANDOMLY FAILS DURING OPERATION
1ESRE19R5----FC5	1.00	DIV 19 RELAY R5 FAILS DURING OPERATION
1ACDPMCC1393BFK1	1.00	MCC 1393B FAILS
1ACCB1374A---UD1	1.00	CIRCUIT BREAKER 1374A FROM 480V ESF BUS 137 TRANSFERS OPEN
1ESRE19R11717FCC	1.00	DIV 19 RELAY R1, DIV 17 RELAY R1 & DIV 17 RELAY R2 FAIL CC
1ESRE1917R5--FCC	1.00	DIV 19 AND 17 RELAY R5 FAILS DURING OPERATION DUE TO CC
1ESRE1917R218FCC	1.00	DIV 19 RELAY R1, DIV 17 RELAY R2 & DIV 18 RELAY R1 FAIL CC
1ESRE191718R1FCC	1.00	DIV 19 RELAY R1, DIV 17 RELAY R1 & DIV 18 RELAY R1 FAIL CC
1ACDPMCC1393AMK1	1.00	MCC 1393A IS UNAVAILABLE DUE TO MAINTENANCE
1ESRE18R6----FC7	1.00	DIV 18 RELAY R6 RANDOMLY FAILS DURING OPERATION
1CCPM006-----XK1	1.00	PUMP OD RANDOMLY FAILS TO RUN
1ESRE18R5----FC7	1.00	DIV 18 RELAY R5 FAILS DURING OPERATION
1CCPM005-----XK1	1.00	PUMP OC RANDOMLY FAILS TO RUN
1ACDPMCC1393AMC5	1.00	MCC 1393A IS UNAVAILABLE DUE TO MAINTENANCE
1ESRE1819R5--FCC	1.00	DIV 18 AND 19 RELAY R5 FAILS DURING OPERATION DUE TO CC
1ESRE1817R5--FCC	1.00	DIV 18 AND 17 RELAY R5 FAILS DURING OPERATION DUE TO CC
1ACDPMCC1393AFK1	1.00	MCC 1393A FAILS
YHR_SB2	1.00	POWER RECOV FAILURE PROB AT 24 HRS/NO RECOVERY AT 2 HRS
1ESRE17R117R2FCC	1.00	DIV 17 RELAY R1 AND DIV 17 RELAY R2 FAIL DUE TO COMMON CAUSE
1CCCV9464----DK1	1.00	CHECK VALVE OCC9464 RANDOMLY FAILS TO OPEN
DS_LOC	1.00	1/4 ARV OR 1/3 STM DMP - LOCAS
1ACDPMCC1393AFC5	1.00	MCC 1393A FAILS
1ESRE171718R1FCC	1.00	DIV 17 RELAY R1 AND RELAY R2 AND DIV 18 RELAY R1 FAIL DUE TO
1ESRE171182--FCC	1.00	RELAY COIL RCV/17-1 AND RCV/18-2 FAIL COMMON CAUSE
1CCCV9463B---DK1	1.00	CHECK VALVE 1CC9463B RANDOMLY FAILS TO OPEN
BSWPM1A2B----XCC	1.00	PUMPS 1A & 2B FAIL TO RUN DUE TO CC
BSWPM1A1B----XCC	1.00	
BSWPM010202--XCC	1.00	PUMPS 1A, 1B & 2B FAIL TO RUN DUE TO CC
BSWPM010201--XCC	1.00	PUMPS 1A, 1B & 2A FAIL TO RUN DUE TO CC
1ESCNTRIAS5&6UD1	1.00	TEST RELAY TRIAS/TR2 CONTACTS 5&6 SPURIOUSLY OPEN

1ESCNTR1A55&6UC7	1.00	TEST RELAY TRIA51/TR1 CONTACTS 5&6 SPURIOUSLY OPEN
1ESCNTR1A25&6UE1	1.00	TEST RELAY TRIAM/TR2 CONTACTS 5&6 SPURIOUSLY OPEN
1ESCNTR1A23&4UE1	1.00	RELAY TRIAM/TR2 CONTACTS 3&4 SPURIOUSLY OPEN
BESCN191817--FCC	1.00	DIVS 19, 18 & 17 RELAYS FAIL DURING OPERATION DUE TO CC
1ESCNTR1A15&6UE1	1.00	TEST RELAY TRIAM/TR1 CONTACTS 5&6 SPURIOUSLY OPEN
BSWPM010102--XCC	1.00	PUMPS 1A, 2A & 2B FAIL TO RUN DUE TO CC
1ESCNTR1A13&4UE1	1.00	RELAY TRIAM/TR1 CONTACTS 3&4 SPURIOUSLY OPEN
BCCPS004-----FK1	1.00	FAILURE OF LOW DISCHARGE PRESSURE START SIGNAL
BCCPM040506--XCC	1.00	PUMPS 0B, 0C & 0D FAIL TO RUN DUE TO CC
BCCPM040506--ACC	1.00	PUMPS 0B, 0C & 0D FAIL TO START DUE TO CC
BCCCV6386463B0CC	1.00	CHECK VALVES 2CC9463B, 0CC9464 & 1CC9463B FAIL TO OPEN DUE CC
1ESCN501&2---UC7	1.00	TEST SWITCH #50 CONTACTS 1&2 SPURIOUSLY OPEN
1ESCN453&4---UD1	1.00	TEST SWITCH #45 CONTACTS 3&4 SPURIOUSLY OPEN
ZSWPS003-----FR1	1.00	FAILURE OF LOW DISCHARGE PRESSURE START SIGNAL
1ESCN219E&F--UE1	1.00	RESET SWITCH #219 CONTACTS E&F SPURIOUSLY OPEN
1ACDPMCC1383AMK1	1.00	MCC 1383A IS UNAVAILABLE DUE TO MAINTENANCE
1ACCB14742474UCC	1.00	FD BREAKER 1474 AND 2474 TRANS- FER OPEN DUE TO COMMON CAUSE
ZSWPM001-----XR1	1.00	SW PUMP 2A RANDOMLY FAILS TO CONTINUE TO RUN
1ESCN19TR17&8OC5	1.00	TEST RELAY TR1/19 CONTACTS 7&8 SPURIOUSLY OPEN
1ACDPMCC1383AMC7	1.00	MCC 1383A IS UNAVAILABLE DUE TO MAINTENANCE
1ACCB14741494UCC	1.00	1474 AND 1494 TRANSFERS OPEN DUE TO A COMMON CAUSE
ZSWCV0001----DR1	1.00	CHECK VALVE ZSW0001 RANDOMLY FAILS TO OPEN
1ESCN19SIX5&6KC5	1.00	DIV 9 RELAY SIX CONTACTS 5&6 FAIL TO CLOSE ON DEMAND
1ACDPMCC1383AFK1	1.00	MCC 1383A FAILS
1ACBS149-----MC5	1.00	BUS 149 UNAVAILABLE DUE TO MAINTENANCE
1ACDPMCC1383AFC7	1.00	MCC 1383A FAILS
1ESCN18TR1A56OC7	1.00	TEST RELAY TR1A/18 CONTACTS 5&6 SPURIOUSLY OPEN
2DGBS2LP0-9--FG5	1.00	LOCAL DC BUS IN DG 2A PANEL 2LP09 FAILS
2DCCBRF132---UE5	1.00	
1ESCN18SIX5&6KC7	1.00	DIV 18 RELAY SIX CONTACTS 5&6 FAIL TO CLOSE ON DEMAND
1ACCB14741484UCC	1.00	CB 1474 AND 1484 TRANSFERS OPEN DUE TO A COMMON CAUSE
2DCCBE114F112UCC	1.00	CB E1-14 AND F1-12 TRANSFER OPEN DUE TO COMMON CAUSE
2DCCB212C1---UE2	1.00	CIRCUIT BREAKER 212C1 FROM DC BUS 212 TRANSFERS OPEN
1ESCN18SIX1&2KC7	1.00	DIV 18 RELAY SIX CONTACTS 1&2 FAIL TO CLOSE ON DEMAND
2DCCB212B1---UE2	1.00	CIRCUIT BREAKER 212B1 FROM BATT 212 TRANSFERS OPEN
2DCCB211C2---UE2	1.00	CIRCUIT BREAKER 211C2 FROM DC BUS 211 TRANSFERS OPEN
2DCCB211C1---UE2	1.00	CIRCUIT BREAKER 211C1 FROM DC BUS 211 TRANSFERS OPEN
2DCCB011A1---UE3	1.00	CIRCUIT BREAKER 011A1 FROM BATT CHARGER 011 TRANSFERS OPEN
1ESCN18R11&2-KC7	1.00	DIV 18 RELAY R1 CONTACTS 1&2 FAIL TO CLOSE ON DEMAND
2DCBY211212--FCC	1.00	BATTERY 211 AND 212 FAIL DUE TO COMMON CAUSE
2DCBS248-----FCB	1.00	LOCAL DC BUS IN BUS 248 FAILS
1ACBS149-----FC5	1.00	BUS 149 FAILS
2DCBC011-----FE3	1.00	BATTERY CHARGER 011 FAILS
1ESCN17TR15&6OD1	1.00	TEST RELAY TR1/17 CONTACTS 5&6 SPURIOUSLY OPEN
1ESCN17SIX3&4KD1	1.00	DIV 17 RELAY SIX CONTACTS 3&4 FAIL TO CLOSE ON DEMAND
1ACDPMCC1372-FD1	1.00	MCC 1372 FAILS
BSWPM020102--XCC	1.00	PUMPS 1B, 2A & 2B FAIL TO RUN DUE TO CC
1ESCN17SIX1&2KD1	1.00	DIV 17 RELAY SIX CONTACTS 1&2 FAIL TO CLOSE ON DEMAND

2ACCB4718191-UCC	1.00	BREAKERS 2471, 2481, & 2491 TRANSF. OPEN DUE TO COMMON CAUSE
1ACDPMCC1371-MD1	1.00	MCC 1371 IS UNAVAILABLE DUE TO MAINTENANCE
2ACCB424344-UCC	1.00	BREAKERS 2424, 2434, & 2444 TRANSF. OPEN DUE TO COMMON CAUSE
2ACCB2491---UC6	1.00	FD. BREAKER 2491 TO BUS 249 TRANSFERS OPEN
BESRE1719----FCC	1.00	DIVS 17 & 19 RELAYS FAIL DURING OPERATION DUE TO CC
1ESCN17R21&2-KD1	1.00	DIV 17 RELAY R2 CONTACTS 1&2 FAIL TO CLOSE ON DEMAND
2ACCB2442---UD4	1.00	FD. BREAKER 2442 TO BUS 244 TRANSFERS OPEN
1ESCN17R11&2-KD1	1.00	DIV 17 RELAY R1 CONTACTS 1&2 FAIL TO CLOSE ON DEMAND
2ACCB2434---UD4	1.00	FD. BREAKER 2434 TO BUS 248 TRANSFERS OPEN
2ACCB2432---UD4	1.00	FD. BREAKER 2432 TO BUS 243 TRANSFERS OPEN
1ESCN16C5&D5-OC5	1.00	TEST SWITCH #16 N-T CONTACTS C5&D5 SPURIOUSLY OPEN
1ACDPMCC1371-FD1	1.00	MCC 1371 FAILS
1ACBS148-----MC7	1.00	BUS 148 UNAVAILABLE DUE TO MAINTENANCE
2ACBS248-----QD4	1.00	
2ACBS248-----MD4	1.00	
1ESCN15E11F11OC7	1.00	TEST SWITCH #15 N-T CONTACTS E11&F11 SPURIOUSLY OPEN
1ESCN14A5&B5-OD1	1.00	TEST SWITCH #14 N-T CONTACTS A5&B5 SPURIOUSLY OPEN
1VCPM007-----XZ2	1.00	CHARGING PUMP 1B RANDOMLY FAILS TO RUN
1ESCN139E&F--UE1	1.00	RESET SWITCH #139 CONTACTS E&F SPURIOUSLY OPEN
1VCPM006007--XCC	1.00	CHARGING PUMPS 1A AND 1B FAIL TO RUN DUE TO COMMON CAUSE
1ACBS148-----FC7	1.00	BUS 148 FAILS
1SWPS003-----FR1	1.00	FAILURE OF LOW DISCHARGE PRESSURE START SIGNAL
1SWPM001002--ACC	1.00	PUMPS 1A & 1B FAIL TO START DUE TO CC
1DGBS1LP07---FG6	1.00	LOCAL DC BUS IN DG 0 PANEL 1LP07 FAILS
1DGBS1LP07---FG6	1.00	LOCAL DC BUS IN DG 0 PANEL 1LP07 FAILS
1DGBS1LP0-9---FD3	1.00	LOCAL DC BUS IN DG 1A PANEL 1LP09 FAILS
1DGBS1B-----FG2	1.00	LOCAL DC BUS IN DG 1B CONTROL PANEL FAILS
1AFMVFW005051-CC	1.00	FAILURE OF AFW MOV FWO050 & 51 TO CLOSE DUE TO COMMON CAUSE
1DCFU600AFUSEBE1	1.00	600 AMP FUSE IN TIE LINE FAILS
1SIPM004-----M15	1.00	SI PUMP 1B UNAVAILABLE DUE TO MAINTENANCE
1ACCB4A2D2C--UCC	1.00	CB 1374A, 1382D AND 1392C TRANSFER OPEN DUE TO A COMMON CA
1ACBS147-----MD1	1.00	BUS 147 UNAVAILABLE DUE TO MAINTENANCE
BCCPS006-----FK1	1.00	FAILURE OF LOW DISCHARGE PRESSURE START SIGNAL
1DCFU25-----BD5	1.00	20 AMP FUSE 25 FROM DIST. CABINET BUS 113 FAILS
1ACCB484494--UCC	1.00	CB 1484 AND 1494 TRANSFER OPEN DUE TO A COMMON CAUSE
1SIPM003-----M15	1.00	SI PUMP 1A UNAVAILABLE DUE TO MAINTENANCE
1AFCVMS0007--DL2	1.00	CHECK VALVE 1MS0007 RANDOM FAILURE TO OPEN
1AFCVMS0006--DL2	1.00	CHECK VALVE 1MS0006 RANDOM FAILURE TO OPEN
1SICV9012DCB-DCC	1.00	CHECK VALVES 1S19012D, C, B FAIL TO OPEN DUE TO COMMON CAUSE
1SWCV0001----DR1	1.00	CHECK VALVE 1SW0001 RANDOMLY FAILS TO OPEN
1SICV9012DC--DCC	1.00	CHECK VALVES 1S19012D, C FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9012DB--DCC	1.00	CHECK VALVES 1S19012D, B FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9012D---DZZ	1.00	CHECK VALVE 1S19012D RANDOMLY FAILS TO OPEN
1SICV9012CD--DCC	1.00	CHECK VALVES 1S19012C, D FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9012CB--DCC	1.00	CHECK VALVES 1S19012C, B FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9012C---DZZ	1.00	CHECK VALVE 1S19012C RANDOMLY FAILS TO OPEN
1SICV9012BD--DCC	1.00	CHECK VALVES 1S19012B, D FAIL TO OPEN DUE TO COMMON CAUSE
1DCCBF14-----UE1	1.00	FD BREAKER F1-4 FROM DC BUS 112 TRANSFERS OPEN

1S1CV9012BC--DCC	1.00	CHECK VALVES 1S19012B, C FAIL TO OPEN DUE TO COMMON CAUSE
1S1CV9012B---DZZ	1.00	CHECK VALVE 1S19012B RANDOMLY FAILS TO OPEN
1DCCBF120----UE1	1.00	FD BREAKER F1-20 FROM DC BUS 112 TRANSFERS OPEN
1S1CV9012AD--DCC	1.00	CHECK VALVES 1S19012A, D FAIL TO OPEN DUE TO COMMON CAUSE
1S1CV9012AC--DCC	1.00	CHECK VALVES 1S19012A, C FAIL TO OPEN DUE TO COMMON CAUSE
BCCPS005-----FK1	1.00	FAILURE OF LOW DISCHARGE PRESSURE START SIGNAL
1DCCBE120F120UCC	1.00	CB E1-20 AND F1-20 TRANSFER OPEN DUE TO COMMON CAUSE
1S1CV9012AB--DCC	1.00	CHECK VALVES 1S19012A, B FAIL TO OPEN DUE TO COMMON CAUSE
1S1CV9012A---DZZ	1.00	CHECK VALVE 1S19012A RANDOMLY FAILS TO OPEN
1DCCBE120----UE1	1.00	FD BREAKER E1-20 FROM DC BUS 111 TRANSFERS OPEN
1ACBS137-----FD1	1.00	480V ESF BUS 137 FAILS
1DCCBC6E13F13UCC	1.00	CB F1-13, C1-6 AND E1-13 TRANS OPEN DUE TO COMMON CAUSE
1DCCBC18-----UE3	1.00	FD BREAKER C1-8 FROM DC BUS 011-1 TRANSFERS OPEN
1DCCBC16E113-UCC	1.00	CB C1-6 AND E1-13 TRANSFER OPEN DUE TO COMMON CAUSE
1DCCBC12F14---UCC	1.00	FD BREAKER C1-2 AND F1-4 OPEN DUE TO COMMON CAUSE
1ACBS147-----FD1	1.00	BUS 147 FAILS
1DCCB81-----UE1	1.00	CIRCUIT BREAKER 112B1 FROM BATT CHARGER 112 TRANSFERS OPEN
1DCCB1A2112B2UCC	1.00	CB 011A2 AND 112B2 TRANSFER OPEN DUE TO A COMMON CAUSE
1DCCB1A1111B1UCC	1.00	CB 011A1 AND 111B1 TRANSFER OPEN DUE TO A COMMON CAUSE
1DCCB18E12F12UCC	1.00	CB C1-8, E1-20, AND F1-20 TRANS- FER OPEN DUE TO COMMON CAUS
1DCCB11B112B1UCC	1.00	CB 111B1 AND 112B1 TRANSFER OPEN DUE TO A COMMON CAUSE
1ACCB4718191-UCC	1.00	BREAKERS 1471, 1481, & 1491 TRANSF. OPEN DUE TO COMMON CAUSE
BSWPM1C2C----XCC	1.00	
1DCCB112C1---UE1	1.00	CIRCUIT BREAKER 112C1 FROM DC BUS 112 TRANSFERS OPEN
1S1CV8919B---DZZ	1.00	CHECK VALVE 1S1CV8919B RANDOMLY FAILS TO OPEN
1S1CV8919AB--DCC	1.00	CHECK VALVES 1S1CV8919A & B FAIL DUE TO COMMON CAUSE
1S1CV8919A---DZZ	1.00	CHECK VALVE 1S1CV8919A RANDOMLY FAILS TO OPEN
1DCCB112B2---UE1	1.00	CIRCUIT BREAKER 112B2 FROM BATT- ERY 112 TRANS- FERS OPEN
1S1CV8900CD--DCC	1.00	CHECK VALVES 1S18900C, D FAIL TO OPEN DUE TO COMMON CAUSE
1DCCB111C1---UE1	1.00	CIRCUIT BREAKER 111C1 FROM DC BUS 111 TRANSFERS OPEN
1S1CV8900BD--DCC	1.00	CHECK VALVES 1S18900B, D FAIL TO OPEN DUE TO COMMON CAUSE
1S1CV8900BC--DCC	1.00	CHECK VALVES 1S18900B, C FAIL TO OPEN DUE TO COMMON CAUSE
1DCCB111B1---UE1	1.00	CIRCUIT BREAKER 111B1 FROM BATT CHARGER 111 TRANSFERS OPEN
1S1CV8900AD--DCC	1.00	CHECK VALVES 1S18900A, D FAIL TO OPEN DUE TO COMMON CAUSE
1S1CV8900AC--DCC	1.00	CHECK VALVES 1S18900A, C FAIL TO OPEN DUE TO COMMON CAUSE
1DCCB011101--UE3	1.00	CIRCUIT BREAKER 011101 FROM DC BUS 011-1 TRANSFERS OPEN
1S1CV8900AB--DCC	1.00	CHECK VALVES 1S18900A, B FAIL TO OPEN DUE TO COMMON CAUSE
1DCBY112112--ME1	1.00	BATTERY 112 AND CHARGER 112 ARE UNAVAILABLE DUE TO EQUALIZAT
1DCBY112-----FE1	1.00	BATTERY 112 FAILS
1DCBY111112--FCC	1.00	BATTERY 111 AND 112 FAIL DUE TO A COMMON CAUSE
1DCBY111-----FE1	1.00	BATTERY 111 FAILS
1DCBY011112--FCC	1.00	BATTERY 011 AND 112 FAIL DUE TO A COMMON CAUSE
1DCBY011112-FCC	1.00	BATTERY 011, 111 AND 112 FAIL DUE TO COMMON CAUSE
1RVMO1B1D1E--XCC	1.00	FAN 1B, 1D & 1E FAILS TO RUN IN LOW SPEED DUE TO CC
1RVMO1B1D1E--FCC	1.00	FANS 1B, 1D & 1E FAIL TO SWITCH TO LOW SPEED DUE TO CC
1RVMO1B-----FA5	1.00	1B FAN FAILS TO SWITCH TO LOW SPEED RANDOMLY
1ACCB471481--UCC	1.00	FD. BREAKER 1471 AND 1481 TRANS- FER OPEN DUE TO COMMON CAUS
1RVMO1A1D1E--XCC	1.00	FAN 1A, 1D & 1E FAILS TO RUN IN LOW SPEED DUE TO CC

1RVM01A1D1E--FCC	1.00	FANS 1A, 1D & 1E FAIL TO SWITCH TO LOW SPEED DUE TO CC
1DCBS149-----FC5	1.00	LOCAL DC BUS IN BUS 149 FAILS
1RVM01A1B1E--XCC	1.00	FAN 1A, 1B & 1E FAILS TO RUN IN LOW SPEED DUE TO CC
1RVM01A1B1E--FCC	1.00	FANS 1A, 1B & 1E FAIL TO SWITCH TO LOW SPEED DUE TO CC
1DCBS148-----FC7	1.00	LOCAL DC BUS IN BUS 148 FAILS
1RVMG1A1B1D1EXCC	1.00	FAN 1A,1B,1D,1E FAILS TO RUN IN LOW SPEED DUE TO CC
1RVM01A1B1D1EFCC	1.00	FANS 1A,1B,1D,1E FAIL TO SWITCH TO LOW SPEED DUE TO CC
1DCBS147-----FD3	1.00	LOCAL DC BUS IN BUS 147 FAILS
1RVM01A1B1D--XCC	1.00	FAN 1A, 1B & 1D FAILS TO RUN IN LOW SPEED DUE TO CC
1RVM01A1B1D--FCC	1.00	FANS 1A, 1B & 1D FAIL TO SWITCH TO LOW SPEED DUE TO CC
1DCBS147-----FD1	1.00	LOCAL DC BUS IN BUS 147 FAILS
1RVM01A-----FA5	1.00	1A FAN FAILS TO SWITCH TO LOW SPEED RANDOMLY
1RVM01E-----FA5	1.00	1E FAN FAILS TO SWITCH TO LOW SPEED RANDOMLY
1DCBS142-----FD3	1.00	LOCAL DC BUS IN BUS 142 FAILS
1RVM01D-----FA5	1.00	1D FAN FAILS TO SWITCH TO LOW SPEED RANDOMLY
1DCBS137-----FD1	1.00	LOCAL DC BUS IN BUS 137 FAILS
2ACCB2444----UD4	1.00	FD. BREAKER 2444 TO BUS 249 TRANSFERS OPEN
1ACBS144-----FD3	1.00	BUS 144 FAILS
2ACCB2481----UCB	1.00	FD. BREAKER 2481 TRANSFERS OPEN
1DCBS112-----FE1	1.00	DC BUS 112 FAILS
1DCBC112-----FE1	1.00	BATTERY CHARGER 112 FAILS
1DCBC111112--FCC	1.00	BATTERY CHARGER 111 AND 112 FAIL DUE TO A COMMON CAUSE
1DCBC111-----FE1	1.00	BATTERY CHARGER 111 FAILS
1DCBC011111--FCC	1.00	BATTERY CHARGER 011 AND 111 FAIL DUE TO COMMON CAUSE
1ACCB4243444--UCC	1.00	BREAKERS 1424, 1434, & 1444 TRANSF. OPEN DUE TO COMMON CAUSE
1MSSV0304----KCC	1.00	CCF OF STOP VALVES SV0003, SV0004 TO CLOSE
1MSSV0204----KCC	1.00	CCF STOP VALVES SV0002, SV0004 TO CLOSE
1ACCB1392C---UC5	1.00	CIRCUIT BREAKER 1392C FROM 480V ESF BUS 139 TRANSFERS OPEN
1ACBS143-----FD3	1.00	BUS 143 FAILS
1MSSV0203----KCC	1.00	CCF OF STOP VALVES SV0002 & SV0003 TO CLOSE
1MSSV0103----KCC	1.00	CCF OF STOP VALVES SV0001 & SV0003 TO CLOSE
1MSSV0102----KCC	1.00	CCF OF STOP VALVES SV0001 & SV0002 TO CLOSE
1ACCB382D392CUCC	1.00	CB 1382C AND 1392C TRANSFER OPEN DUE TO A COMMON CAUSE
1CSMV002004--DCC	1.00	1MOV-CS0002 AND 1MOV-CS0004 FAIL TO OPEN DUE TO CC
2DCBS211-----FE2	1.00	DC BUS 211 FAILS
1MSGV0304----KCC	1.00	CCF OF GOV. VALVES GV0003, GV0004 TO CLOSE
1MSGV0204----KCC	1.00	CCF OF GOV. VALVES GV0002, GV0004 TO CLOSE
1ACCB374B373AUCC	1.00	CB 1374B AND 1373A TRANSFER OPEN DUE TO A COMMON CAUSE
1MSGV0203----KCC	1.00	CCF OF GOV. VALVES GV0002 & GV0003 TO CLOSE
1MSGV0104----KCC	1.00	CCF OF GOV. VALVES GV0001, GV0004 TO CLOSE
1MSGV0103----KCC	1.00	CCF OF GOV. VALVES GV0001 & GV0003 TO CLOSE
1MSGV0102----KCC	1.00	CCF OF GOV. VALVES GV0001 & GV0002
1CSCV0509013-DCC	1.00	CHECK VALVES 5,9,13 FAIL TO OPEN DUE TO CC
1CSCV0507013-DCC	1.00	CHECK VALVES 5,7,13 FAIL TO OPEN DUE TO CC
1CSCV0507011-DCC	1.00	CHECK VALVES 5,7,11 FAIL TO OPEN DUE TO CC
1ACCB374A382DUCC	1.00	CB 1374A AND 1382D TRANSFER OPEN DUE TO A COMMON CAUSE
1CSCV0501109-DCC	1.00	CHECK VALVES 5,11,9 FAIL TO OPEN DUE TO CC
1CSCV0309013-DCC	1.00	CHECK VALVES 3,9,13 FAIL TO OPEN DUE TO CC

1CSCV0307013-DCC	1.00	CHECK VALVES 3,7,13 FAIL TO OPEN DUE TO CC
1CSCV0307011-DCC	1.00	CHECK VALVES 3,7,11 FAIL TO OPEN DUE TO CC
20CCBF112----UE2	1.00	FD BREAKER F1-12 FROM DC BUS 212 TRANSFERS OPEN
1EST11819TS1-FCC	1.00	DIV 18 & 19 MECH CAM TIMER TSI FAILS DURING OP. DUE TO CC
1EST11719TS1-FCC	1.00	DIV 17 & 19 MECH CAM TIMER TSI FAILS DURING OP. DUE TO CC
1ESRE17R2----FD1	1.00	DIV 17 RELAY R2 FAILS DURING OPERATION
1ESCNTR1BS234OC5	1.00	TEST RELAY TR1B2/TR1 CONTACTS 3&4 SPURIOUSLY OPEN
1ESCN19TR1B34OC5	1.00	TEST RELAY TR1B/19 CONTACTS 3&4 SPURIOUSLY OPEN
1ESCN16G10H10OC5	1.00	TEST SWITCH #16 N-TS CONTACTS G10&H10 SPURIOUSLY OPEN
1DCFU600A----BE1	1.00	600 AMP FUSE IN TIE LINE FAILS
1DCFU225A----BE3	1.00	225 AMP FUSE IN TIE LINE FAILS
1SICV9012BCD-DCC	1.00	CHECK VALVES 1S19012B, C, D FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9012ACD-DCC	1.00	CHECK VALVES 1S19012A, C, D FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9012ABD-DCC	1.00	CHECK VALVES 1S19022A, B, D FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9012ABC-DCC	1.00	CHECK VALVES 1S19012A, B, C FAIL TO OPEN DUE TO COMMON CAUSE
1DCBY111111--ME1	1.00	BATTERY 111 AND CHARGER 111 ARE UNAVAILABLE DUE TO EQUALIZAT
1DCBY011011--ME3	1.00	BATTERY 011 AND CHARGER 011 ARE UNAVAILABLE DUE TO EQUALIZAT
1DCBS111-----FE1	1.00	DC BUS 111 FAILS
1DCBS0111----FE3	1.00	DC BUS 011-1 FAILS
1CSKV0040----GJ5	1.00	COMPONENT FAULT IN SEGMENT G: VALVE 1CS0040 LEFT OPEN
1CSPM002B----AJ5	1.00	CS PUMP CS002-1B FAILS TO START RANDOMLY
1CSPM001B----MJ5	1.00	SEGMENT F (TRAIN B) UNAVAILABLE DUE TO MAINTENANCE
1CSMV004006--DCC	1.00	1MOV-CS0004 AND 1MOV-CS0006 FAIL TO OPEN DUE TO CC
1CSMV002006--DCC	1.00	1MOV-CS0002 AND 1MOV-CS0006 FAIL TO OPEN DUE TO CC
1CSMV0005----TZZ	1.00	COMP. FAULT IN SEGMENT H: 1MOV- CS0005 & TRAIN B TEST UNAVAI
1ESRE17R218R1FCC	1.00	DIV 17 RELAY R2 AND DIV 18 RELAY R1 FAIL DUE TO COMMON CAUSE
1ESCN17S1X5&6KD1	1.00	DIV 17 RELAY SIX CONTACTS 5&6 FAIL TO CLOSE ON DEMAND
1ESCN17R51&2-KD1	1.00	DIV 17 RELAY R5 CONTACTS 1&2 FAIL TO CLOSE ON DEMAND
1ACCB1472----KD1	1.00	FD. BRKR. 1472 TO ESF BUS 147 FAILS TO CLOSE
1SIPM003-----A15	1.00	SI PUMP 1A RANDOMLY FAILS TO START
1MSAV181920--DCC	1.00	CCF TO OPEN OF ARV MS0018, MS0019 AND MS0020
1MSAV171920--DCC	1.00	CCF TO OPEN OF ARV MS0017, MS0019 AND MS0020
1MSAV171820--DCC	1.00	CCF TO OPEN OF ARV MS0017, MS0018 AND MS0020
1SICV8922AB--DCC	1.00	CHECK VALVE 1S18922A AND B FAIL TO OPEN DUE TO COMMON CAUSE
1SICV8922A----DZZ	1.00	CHECK VALVE 1S18922A RANDOMLY FAILS TO OPEN
1CSPM01A01B--ACC	1.00	MOTOR DRIVEN PUMPS 1A AND 1B FAIL TO START DUE TO CC
1MSAV0017----MZZ	1.00	MAINTENANCE UNAVAILABILITY OF VALVE 1MOV-MS0017
1EST118TS1----FC7	1.00	DIV 18 MECHANICAL CAM TIMER TSI FAILS DURING OPERATION
1SICV9012ABCDCC	1.00	CHECK VALVES 1S19012A,B,C,D FAIL TO OPEN DUE TO COMMON CAUSE
1MSMV0019----MZZ	1.00	MAINTENANCE UNAVAILABILITY OF VALVE MOV-MS0019
1MSMV0018----MCC	1.00	MAINTENANCE UNAVAILABILITY OF VALVE MOV-MS0018
1MSAV019020--DCC	1.00	CCF TO OPEN OF ARV MS0019 AND MS0020
1MSAV018020--DCC	1.00	CCF TO OPEN OF ARV MS0018 AND MS0020
1MSAV017020--DCC	1.00	CCF TO OPEN OF ARV MS0017 AND MS0020
1ES--HIHICTPRFE1	1.00	CONTAINMENT HIGH-HIGH PRESSURE SIGNAL FAILS
1ACCB1491----UC5	1.00	FD. BREAKER 1491 TRANSFERS OPEN
1ESRE78R39R3BFCC	1.00	DIV 17 & 18 R3 & DIV 19 R3B RELAY FAILS DURING OPER. DUE TO
1ESRE78R39R3AFCC	1.00	DIV 17 & 18 R3 & DIV 19 R3A RELAY FAILS DURING OPER. DUE TO

1ACCB1481---UC7	1.00	FD. BREAKER 1481 TRANSFERS OPEN
1ACCB1444---UD3	1.00	FD. BREAKER 1444 TO BUS 149 TRANSFERS OPEN
1ACCB1434---UD3	1.00	FD. BREAKER 1434 TO BUS 148 TRANSFERS OPEN
1ACCB1432---UD3	1.00	FD. BREAKER 1432 TO BUS 143 TRANSFERS OPEN
1CSKV0043---GJ5	1.00	COMPONENT FAULT IN SEGMENT K: VALVE 1CS0043 LEFT OPEN
1MSAV17181920DCC	1.00	CCF TO OPEN OF ARV MS0017, MS0018 MS0019 & MS0020
1ESRE19R3B---FC5	1.00	DIV 19 RELAY R3B FAILS DURING OPERATION
1ESRE19R3A---FC5	1.00	DIV 19 RELAY R3A FAILS DURING OPERATION
1CSMV0004---DJ5	1.00	1MOV-CS0004 FAILS TO OPEN RANDOMLY
2DCBY011-----FE3	1.00	BATTERY 011 FAILS
1ESCN17TR1A56001	1.00	TEST RELAY TR1A/17 CONTACTS 5&6 SPURIOUSLY OPEN
1ESCN14E11F11001	1.00	TEST SWITCH #14 M-T CONTACTS E11&F11 SPURIOUSLY OPEN
1CSMV020406---DCC	1.00	1MOV-CS0002, -004 & -006 FAIL TO OPEN DUE TO CC
1MSMV0020---MZZ	1.00	MAINTENANCE UNAVAILABILITY OF VALVE MOV-MS0020
1EST117189TSIFCC	1.00	DIV 17, 18 & 19 MECH CAM TIMER TSI FAILS DURING OPER. DUE TO
1CSMV0007---7ZZ	1.00	COMP. FAULT IN SEGMENT L: 1MOV- CS0007 & TRAIN C TEST UNAVAI
1DCCB111B2---UE1	1.00	CIRCUIT BREAKER 111B2 FROM BATT- ERY 111 TRANS- FERS OPEN
1SIPM003004---ACC	1.00	SI PUMPS 1A AND 1B FAIL TO START DUE TO COMMON CAUSE
1DCCB011A2---UE3	1.00	CIRCUIT BREAKER 011A2 FROM BATT- ERY 011 TRANS- FERS OPEN
1RVMO1C-----XA5	1.00	1C FAN FAILS TO RUN IN LOW SPEED RANDOMLY
1EST119TSI---FC5	1.00	DIV 19 MECHANICAL CAM TIMER FAILS DURING OPERATION
1CSPM001C---MJ5	1.00	SEGMENT J (TRAIN C) UNAVAILABLE DUE TO MAINTENANCE
1SICV8926---D15	1.00	CHECK VALVE 1SIB926 RANDOMLY FAILS TO OPEN IN SEGMENT K
1CSMV0006---DJ5	1.00	1MOV-CS0006 FAILS TO OPEN RANDOMLY
1ESRE17R5---FD1	1.00	DIV 17 RELAY R5 FAILS DURING OPERATION
1MSAV0020AM---DZZ	1.00	ARV MOV-MS0020 VALVE STICKS OR FAILS TO OPEN (FAULT IN VALVE
1CSPM003C---AJ5	1.00	CS PUMP CS003-1C FAILS TO START RANDOMLY
1CSPM01A01B---XCC	1.00	MOTOR DRIVEN PUMPS 1A AND 1B FAIL TO RUN DUE TO CC
1CSPM003C---XJ5	1.00	CS PUMP CS003-1C FAILS TO RUN RANDOMLY
1CSPM002B---XJ5	1.00	CS PUMP CS002-1B FAILS TO RUN RANDOMLY
1RVMO1C-----AA5	1.00	1C FAN FAILS TO START IN LOW SPEED RANDOMLY
1SMV0009---DZZ	1.00	OUTLET VALVE 1MOV-SW0009 FAILS TO OPEN RANDOMLY
1RVHE003---MA5	1.00	SEGMENT C UNAVAILABLE DUE TO MAINTENANCE
SLO_2	.000	CONSEQUENTIAL SMALL LOCA (WITH SW OR CCW)
LDCPRT1	.000	SUCCESS EVENTS
1MSGV020304---KCC	.000	CCF OF GOV. VALVES GV0002, GV0003, GV0004 TO CLOSE

ATTACHMENT 3

Page 1
September 10, 1993

ZION STATION

Basic Event	R. Achievement Worth	Description	Comments	System
10CCBA21B22B2UCC	2.411E+04	CB 011A2, 111B2 AND 112B2 TRANS- FER OPEN DUE TO A COMMON CA	Battery feed to DC bus	DC2
1DCBY01111112FCC	1.102E+04	BATTERY 011,111, AND 112 FAIL DUE TO A COMMON CAUSE		DC1
10CCB1A2111B2UCC	2.449E+03	CS 011A2 AND 111B2 TRANSFER OPEN DUE TO A COMMON CAUSE	Battery feed to DC bus	DC2
10CCB1B2112B2UCC	2.233E+03	CB 111B2 AND 112B2 TRANSFER OPEN DUE TO A COMMON CAUSE	Battery feed to DC bus	DC2
1RHCV8730AB--DCC	720.	CHECK VALVES 1RH8730A, B FAIL DUE TO COMMON CAUSE	Pump discharge chk. vlv.	RH
1RHPM001002--ACC	720.	RHR PUMPS 1A & 1B FAIL TO START DUE TO COMMON CAUSE		RH
1ESRE18R219R2FCC	720.	DIV 18 RELAY R2 AND DIV 19 RELAY R2 FAIL DUE TO COMMON CAUSE	ESFAS actuation of RHR pp.	RH
1RHMV610611--DCC	644.	RHR MINIFLOW VALVES 1RHFCV610 & 1RHFCV611 FAIL DUE TO CC		RH
10SGD01A1B---FCC	284.	DGs 0, 1A, & 1B FAIL TO RUN DUE TO COMMON CAUSE		DG
1ACCB4718191-DCC	284.	BREAKERS 1471, 1481,& 1491 FAIL TO OPEN DUE TO COMMON CAUSE	Feed from service bus	AP1
1ACCB4738393-KCC	284.	CBs 1473, 1483, & 1493 FAIL TO CLOSE DUE TO COMMON CAUSE	D/G output bkr.	AP1
10GGD01A1B---ACC	284.	DGs 0, 1A, & 1B FAIL TO START DUE TO COMMON CAUSE		DG
10CCBE113F113UCC	177.	CB E1-13 AND F1-13 TRANSFER OPEN DUE TO COMMON CAUSE	DC feed bkr. to Bus 148, 149	DC2
1ACCB14R41494UCC	175.	CB 1484 AND 1494 TRANSFERS OPEN DUE TO A COMMON CAUSE	Feed to 480V bus	AP1
1ACCB383D395BUCC	175.	CB 1383D AND 1395B TRANSFER OPEN DUE TO A COMMON CAUSE	MCC feed	AP2
1RHPM001002--XCC	174.	RHR PUMPS 1A & 1B FAIL TO RUN DUE TO COMMON CAUSE		RH
1RHMV8700AB--KCC	174.	MOTOR OPERATED VALVE 1RH8700A & B FAIL TO CLOSE, C CAUSE	Suction from RWST, hot leg	RH
1RHLS8700AB--FCC	174.	STEM MOUNTED LIMIT SWITCHES ON 1RH8700A, B FAIL DUE TO CC	Interlock	RH
1S1MV8811AB--DCC	174.	MOTOR OPERATED VALVE 1S18811A & B FAIL TO OPEN COMMON CAUSE	Recirc. sump suction	RH
1DCBY011111--FCC	166.	BATTERY 011 AND 111 FAIL DUE TO A COMMON CAUSE		DC1
1S1CV8957AB--DCC	166.	CHECK VALVES 1S18957A, B FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1S1CV9002ABC-DCC	166.	CHECK VALVES 1S19002A, B, C FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1RHCV8958---DZZ	166.	CHECK VALVE 1S18958 RANDOMLY FAILS TO OPEN	RHR suction from RWST	RH
1S1CV9001ABC-DCC	166.	CHECK VALVES 1S19001A, B, C FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1S1CV9002ABCDCC	90.0	CHECK VALVES 1S19002A,B,C,D FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1S1CV9002BCD-DCC	90.0	CHECK VALVES 1S19002B, C, D FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1S1CV9002ABD-DCC	90.0	CHECK VALVES 1S19002A, B, D FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1S1CV9002ACD-DCC	90.0	CHECK VALVES 1S19002A, C, D FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1S1CV9001ABCDCC	89.9	CHECK VALVES 1S19001A,B,C,D FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1S1CV9001ACD-DCC	89.9	CHECK VALVES 1S19001A, C, D FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1S1CV9001BCD-DCC	89.9	CHECK VALVES 1S19001B, C, D FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1S1CV9001ABD-DCC	89.9	CHECK VALVES 1S19001A, B, D FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1S1CV9001AC--DCC	77.8	CHECK VALVES 1S19001A, C FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1S1CV9002AC--DCC	77.8	CHECK VALVES 1S19002A, C FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1S1CV9002BC--DCC	77.8	CHECK VALVES 1S19002B, C FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1S1CV9001BC--DCC	77.8	CHECK VALVES 1S19001B, C FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1S1CV9002AB--DCC	77.7	CHECK VALVES 1S19002A, B FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1S1CV9001AB--DCC	77.7	CHECK VALVES 1S19001A, B FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1S1CV8957A---DZZ	77.6	CHECK VALVE 1S18957A RANDOMLY FAILS TO OPEN	Cold leg injection chk. vlv.	RH
10GGD1A1B----FCC	75.2	DGs 1A AND 1B FAIL TO RUN DUE TO COMMON CAUSE		DG
1ACCB481491--DCC	75.2	FD. BREAKER 1481 AND 1491 FAIL TO OPEN DUE TO COMMON CAUSE	Feed from service bus	AP1
1ACCB483493--KCC	75.2	CIRC. BR. 1483 AND 1493 FAIL TO CLOSE DUE TO COMMON CAUSE	D/G output bkr.	AP1
10GGD1A1B----ACC	73.5	DGs 1A AND 1B FAIL TO START DUE TO COMMON CAUSE		DG
1AFVC69686766DCC	52.6	COMMON CAUSE FAILURE OF CV 1FW0069 AND 0068 AND 067 AND 066	AFW common injection chk. vlv.	AF
1AFAMSG1D----DCC	51.9	SG 1D SAFETY VALVES (5) FAIL TO OPEN DUE TO COMMON CAUSE		MS

1AFAMSG1A----DCC	51.9	SG 1A SAFETY VALVES (5) FAIL TO OPEN DUE TO COMMON CAUSE	MS
1AFAMSG1B----DCC	51.9	SG 1B SAFETY VALVES (5) FAIL TO OPEN DUE TO COMMON CAUSE	MS
1AFAMSG1C----DCC	51.9	SG 1C SAFETY VALVES (5) FAIL TO OPEN DUE TO COMMON CAUSE	MS
1AFTKSC001---R01	49.1	FAULT PRIOR TO INPUT OF SEG. V CST 1SC001 FAILS OR LARGE LEA	SC
BSWPM1A1B2B--ACC	44.3	PUMPS 1A, 1B & 2B FAIL TO START DUE TO CC	SW
BESRE171819--FCC	38.0	DIVS 17, 18 & 19 RELAYS FAIL DUE TO CC	SW
BSWPM01020102XCC	17.2	PUMPS 1A, 1B, 2A & 2B FAIL TO RUN DUE TO CC	SW
1DGDGO1A----FCC	17.1	DGs O AND 1A FAIL TO RUN DUE TO COMMON CAUSE	DG
1ACCB473483--KCC	17.0	CIRC. BR. 1473 AND 1483 FAIL TO CLOSE DUE TO COMMON CAUSE	AP1
1ACCB471481--DCC	17.0	FD. BREAKER 1471 AND 1481 FAIL TO OPEN DUE TO COMMON CAUSE	AP1
1DGDGO1B----FCC	15.5	DGs O AND 1B FAIL TO RUN DUE TO COMMON CAUSE	DG
1ACCB473493--KCC	15.5	CIRC. BR. 1473 AND 1493 FAIL TO CLOSE DUE TO COMMON CAUSE	AP1
1ACCB471491--DCC	15.5	FD. BREAKER 1471 AND 1491 FAIL TO OPEN DUE TO COMMON CAUSE	AP1
1DGDGO1A----ACC	15.4	DGs O AND 1A FAIL TO START DUE TO COMMON CAUSE	DG
1LOLOSGLV&OPACTN	14.0	FAILURE OF LO-LO SG LEVEL SIGNAL & OP. ACTION TO START PUMPS	AF
1DGDGO1B----ACC	13.8	DGs O AND 1B FAIL TO START DUE TO COMMON CAUSE	DG
BSWPM1A1B2B--XCC	13.5	PUMPS 1A, 1B & 2B FAIL TO RUN DUE TO CC	SW
1AFCVFW0067--DA5	11.0	FAULT IN SEG. C CHECK VALVE 1FW0067 FAILS TO OPEN	AF
1AFCVFW0069--DA5	11.0	FAULT IN SEG. A CHECK VALVE 1FW0069 FAILS TO OPEN	AF
1AFCVFW0068--DA5	11.0	FAULT IN SEG. B CHECK VALVE 1FW0068 FAILS TO OPEN	AF
1AFCVFW0066--DA5	11.0	FAULT IN SEG. D CHECK VALVE 1FW0066 FAILS TO OPEN	AF
1ESSILOLO5GLVFC5	10.9	FAILURE OF ACTUATION SIGNAL LO-LO SG LEVEL	AF
1AFCV00070006DL2	10.6	COMMON CAUSE FAILURE TO OPEN CV 1MS0007 AND CV 1MS0006	AF
1AFPTFW004---XL4	10.5	TO PUMP 1FW004 MECHANICAL FAILURE TO RUN	AF
1AFCVFW0031--DL4	10.4	CHECK VALVE 1FW0031 FAILS TO OPEN	AF
1AFPTFW004---AL4	10.4	TO PUMP 1FW004 MECHANICAL FAILURE TO START	AF
1AFVMS0057--DL4	10.4	AIR-OP FLOW CNTRL 1FCV-MS57 FAILS TO OPEN DUE TO LOCAL FLT	AF
1AFCV00696766DCC	10.3	COMMON CAUSE FAILURE OF CV 1FW0069 AND 0067 AND 0066	AF
1AFCV00696867DCC	10.3	COMMON CAUSE FAILURE OF CV 1FW0069 AND 0068 AND 0067	AF
1AFCV00696866DCC	10.3	COMMON CAUSE FAILURE OF CV 1FW0069 AND 0068 AND 0066	AF
1AFCV00686766DCC	10.3	COMMON CAUSE FAILURE OF CV 1FW0068 AND 0067 AND 0066	AF
1AFPTFW004---ML4	10.3	TO PUMP 1FW004 UNAVAILABLE DUE TO MAINTENANCE	AF
1AFCV00670066DCC	9.17	COMMON CAUSE FAILURE OF CV 1FW0067 AND 0066	AF
1AFCV00690068DCC	9.17	COMMON CAUSE FAILURE OF CV 1FW0069 AND 1FW0068	AF
1AFCV00690067DCC	9.17	COMMON CAUSE FAILURE OF CV 1FW0069 AND 1FW0067	AF
1AFCV00680066DCC	9.17	COMMON CAUSE FAILURE OF CV 1FW0068 AND 1FW0066	AF
1AFCV00680067DCC	9.17	COMMON CAUSE FAILURE OF CV 1FW0068 AND 1FW0067	AF
1AFCV00690066DCC	9.17	COMMON CAUSE FAILURE OF CV 1FW0069 AND 1FW0066	AF
1ACTR137139--QCC	8.82	4160-480V TRANS- FORMER 139 AND 137 FAIL DUE TO COMMON CAUSE	AP4
1ACTR139-----MC5	8.63	4160-480V TRANS- FORMER 139 IS UNAVAILABLE DUE TO MAINTENANCE	AP4
1DCCB16E13F13UCC	8.22	CB C1-6, E1-13, AND F1-13 TRANS- FER OPEN DUE TO COMMON CAUS	DC2
1ACCB4B73A95BUCC	7.95	CB 1374B, 1373A AND 1395B TRANS- FER OPEN DUE TO A COMMON CA	AP2
1SICV8900ACD-DCC	7.94	CHECK VALVES 1S18900A, C, D FAIL TO OPEN DUE TO COMMON CAUSE	SI
1SICV8900ABD-DCC	7.94	CHECK VALVES 1S18900A, B, D FAIL TO OPEN DUE TO COMMON CAUSE	SI
1SICV8900ABC-DCC	7.94	CHECK VALVES 1S18900A, B, C FAIL TO OPEN DUE TO COMMON CAUSE	SI
1SICV8900BCD-DCC	7.94	CHECK VALVES 1S18900B, C, D FAIL TO OPEN DUE TO COMMON CAUSE	SI
1VCMV8801AB--DCC	7.94	MOTOR OPERATED VALVE 1S18803A & B FAIL TO OPEN COMMON CAUSE	SI
1VCMVLCV112DEDCC	7.94	MOV VC LCV112D & E FAIL TO OPEN DUE TO COMMON CAUSE	SI
1VCCV9032----DZZ	7.93	CHECK VALVE 1S19032 RANDOMLY FAILS TO OPEN	SI
1VCCV8546----DZZ	7.93	CHECK VALVE 1V8546 RANDOMLY FAILS TO OPEN	SI
1SICV8900ABCDDCC	7.93	CHECK VALVES 1S18900A,B,C,D FAIL TO OPEN DUE TO COMMON CAUSE	SI
1ACCB373A395BUCC	7.87	CB 1373A AND 1395B TRANSFER OPEN DUE TO A COMMON CAUSE	AP2
		CST	
		ESFAS actuat. of SW pps. (R6)	
		D/G output breaker	
		Feed from service bus	
		D/G output breaker	
		Service bus feed	
		AFW actuation	
		AFW common injection chk. vlv.	
		AFW common injection chk. vlv.	
		AFW common injection chk. vlv.	
		AFW common injection chk. vlv.	
		AFW actuation	
		Steam to TDAFW Pp.	
		Turbine-driven AFW	
		TDAFW Pp. Discharge	
		Turbine-driven AFW	
		Steam to TDAFW Pp.	
		AFW common injection chk. vlv.	
		AFW common injection chk. vlv.	
		AFW common injection chk. vlv.	
		AFW common injection chk. vlv.	
		Turbine-driven AFW	
		AFW common injection chk. vlv.	
		AFW common injection chk. vlv.	
		AFW common injection chk. vlv.	
		AFW common injection chk. vlv.	
		AFW common injection chk. vlv.	
		480V bus feed	
		480V bus feed	
		DC feed bkr. to Bus 147, 8, 9	
		MCC feed	
		Chg. pp. cold leg injection	
		Chg. pp. cold leg injection	
		Chg. pp. cold leg injection	
		Chg. pp. cold leg injection	
		Chg. pp. cold leg injection	
		Chg. pp. suction from RWST	
		Chg. pp. cold leg injection	
		Chg. pp. suction from RWST	
		Chg. pp. cold leg injection	
		MCC feed	

1ACCB3748395BUCC	7.87	CB 13748 AND 13958 TRANSFER OPEN DUE TO A COMMON CAUSE	MCC feed	AP2
1ACCB1494---UC5	7.58	CIRCUIT BREAKER 1494 FROM 4160V ESF BUS 149 TRANSFERS OPEN	480V bus feed	AP1
1ACCB1395B---UC5	7.10	CIRCUIT BREAKER 1395B FROM 480V ESF BUS 139 TRANSFERS OPEN	MCC feed	AP2
1RHPM001-----AH5	6.56	RHR PUMP 1A RANDOMLY FAILS TO START		RH
1RHPM002-----AH7	6.49	RHR PUMP 1B RANDOMLY FAILS TO START		RH
1ACTR139-----QC5	6.44	4160-480V TRANS- FORMER 139 FAILS	480V bus feed	AP4
1ACTR137-----MD1	5.92	4160-480V TRANS- FORMER 137 IS UNAVAILABLE DUE TO MAINTENANC	480V bus feed	AP4
1ACTR137-----QD1	5.91	4160-480V TRANS- FORMER 137 FAILS	480V bus feed	AP4
1ACCB1373A---UD1	5.90	CIRCUIT BREAKER 1373A FROM 480V ESF BUS 137 TRANSFERS OPEN	MCC feed	AP2
1ACCB1474---UD1	5.89	CIRCUIT BREAKER 1474 FROM 4160V ESF BUS 147 TRANSFERS OPEN	480V bus feed	AP2
1ACCB434444---UCC	5.85	FD. BREAKER 1434 AND 1444 TRANS- FER OPEN DUE TO COMMON CAUS	Feed from service bus	AP1
BSWPM182B---KCC	5.83	PUMPS 1B & 2B FAIL TO RUN DUE TO CC		SW
1VCAVFCV121---VZ2	5.81	CHARGING PUMP FCV RANDOM FAIL. TO REMAIN OPEN FCV-VC-121		VC
1ACCB13748---UD1	5.80	CIRCUIT BREAKER 13748 FROM 480V ESF BUS 137 TRANSFERS OPEN	MCC feed	AP2
1VCPM006-----XK4	5.79	CHARGING PUMP 1A FAILS TO RUN 18HRS		VC
1VCAVFCV0111ADZ2	5.79	AIR OPERATED VALVE FTO VC-FCV-0111A	RWST refill	VC
1VCAVFCV0111BDZ2	5.79	MAKE-UP ISOL. VALVE TO VCT FTO (F.C.) FCV-VC-0111B	RWST refill	VC
1VCAVFCV01110BDZ2	5.79	MAKE-UP ISOL. VALVE TO VCT FTO (F.C.) FCV-VC-0110B	RWST refill	VC
1DCFU1CB3720ABE3	5.79	20A FUSE FROM DC DISTRIB. PANEL 1CB37 FAILS OPEN	DC feed to RWST refill AOV's	DC2
1DCFU1CB3820ABD7	5.79	20A FUSE FROM DC DISTRIB. PANEL 1CB38 FAILS OPEN	DC feed to RWST refill AOV's	DC2
1DCFU20AMP---BE3	5.79	20 AMP FUSE FROM DC DISTRIBUTION PANEL 1CB37 FAILS	DC feed to RWST refill AOV's	DC2
1VCFLO21-----PZ2	5.79	FILTER FAILS TO PASS COOLANT IN EMGY BORATION SYS SEGMENT L	Boric acid filter	VC
1VCPM006-----AK4	5.79	CHARGING PUMP 1A FAILS TO START		VC
1VCAVFCV0110ADZ2	5.79	AIR OPERATED VALVE FTO VC-FCV-0110A	RWST refill	VC
1VCCV8440---DZ2	5.79	VCT OUTLET CHECK VALVE FTO VC-8440	RWST refill	VC
1VXV8428---DZ2	5.79	MANUAL VALVE FTO VC-8428	Bldr. to VCT outlet (mistake)	VC
1VXV8434---DZ2	5.79	MANUAL VALVE FTO VC-8434	RWST refill	VC
1VXV8416---DZ2	5.79	MANUAL VALVE FTO VC-8416	VCT inlet (mistake)	VC
1VCCV8443---DZ2	5.79	CHECK VALVE FTO VC-8443	RWST refill	VC
1VXV8281---KZ2	5.79	MANUAL VALVE FTO VC-8281	RWST refill	VC
1VCCV8433---DZ2	5.79	CHECK VALVE FTO VC-8433	RWST refill	VC
1VXV8432---DZ2	5.79	MANUAL VALVE FTO VC-8432	RWST refill	VC
1VCCV8429---DZ2	5.79	CHECK VALVE FTO VC-8429	RWST refill	VC
1VCMVLCV112B-DZ2	5.79	MOTOR OPERATED VALVE VC LCV112B FAILS TO OPEN	RWST refill	VC
1VCMVS18801B-KZ2	5.79	MOTOR OPERATED VALVE 1S18803B FAILS TO CLOSE	RWST refill, normal charging	SI
1VCMVVCB106---DZ2	5.79	MOTOR OPERATED VALVE VC8106 FAILS TO OPEN	RWST refill, normal charging	VC
1VCMVLCV112C-DZ2	5.79	MOTOR OPERATED VALVE VC LCV112C FAILS TO OPEN	RWST refill, normal charging	VC
1VCMVVCB105---DZ2	5.79	MOTOR OPERATED VALVE VC8105 FAILS TO OPEN	RWST refill, normal charging	VC
1VCMVLCV112E-KZ2	5.79	MOV VC LCV112E RANDOMLY FAILS TO CLOSE	RWST refill, normal charging	SI
1VCMVLCV112D-KZ2	5.79	MOV VC LCV112D RANDOMLY FAILS TO CLOSE	RWST refill, normal charging	SI
1VCMVS18801A-KZ2	5.79	MOTOR OPERATED VALVE 1S18803A FAILS TO CLOSE	RWST refill, normal charging	SI
1DCCBRE17---UE1	5.76	FD BREAKER E1-7 FROM DC BUS 111 TO 1CB38 TRANS- FERS OPEN	DC feed to RWST refill AOV's	DC2
1DCCBC12---UE3	5.76	FD BREAKER C1-2 FROM DC BUS 011-1 TRANSFERS OPEN	DC feed to ESFAS slave relays	DC2
1DCCB011C12---UE1	5.76	FD BR. C1-2 FROM DC BUS 011-1 TO PANEL 1CB37 TRANSFERS OPEN	DC feed to RWST refill AOV's	DC2
ORT ALL	5.67	OP ACTION - REFILL THE RWST-2	N/A	N/A
1ACCB481491---UCC	5.45	FD. BREAKER 1481 AND 1491 TRANS- FER OPEN DUE TO COMMON CAUS	Feed from service bus	AP1
1DGDG1A-----AG4	4.74	DG 1A FAILS TO START ON DEMAND		DG
1DGDG1A-----XG4	4.72	DIESEL GENERATOR 1A FAILS TO RUN		DG
1DGC81483---KC7	4.69	DG CIRC. BREAKER 1483 FAILS TO CLOSE ON DEMAND	D/G output bkr.	AP1
1ACCB1481---DC7	4.69	MAIN FD. BREAKER 1481 FAILS TO OPEN ON DEMAND	Feed from service bus	AP1
1DGDG1B-----AG2	4.66	DG 1B FAILS TO START ON DEMAND		DG
1DGDG1B-----XG2	4.64	DIESEL GENERATOR 1B FAILS TO RUN		DG

1DGC1493----	KC5	4.60	DG CIRC. BREAKER 1493 FAILS TO CLOSE ON DEMAND	D/G output bkr.	AP1
1APCB1491----	DC5	4.60	MAIN FD. BREAKER 1491 FAILS TO OPEN ON DEMAND	Feed from service bus	AP1
1APCN148----	NC7	4.53	DG AUTO START SIGNAL (BUS UV) NOT AVAILABLE		AP1
1ACCN1483----	NC7	4.53	AUTO CLOSE SIG- NAL TO BREAKER 1483 CLOSE CIR- CUIT IS UNAVA	D/G output bkr.	AP1
1SWMV00160017GH3		4.47	DG HEAT EXCHAN- GER ISOL. VALVES NOT RESTORED AFTER TEST/MAI		DG
1ACCN1493----	NC5	4.44	AUTO CLOSE SIG- NAL TO BREAKER 1493 CLOSE CIR- CUIT IS UNAVA	D/G output bkr.	AP1
1ACCN149----	NC5	4.44	DG AUTO START SIGNAL (BUS UV) NOT AVAILABLE		AP1
1RHCV8730A----	DZZ	4.04	CHECK VALVE 1RH8730A RANDOMLY FAILS TO OPEN	Pump discharge chk. vlv.	RH
1RHCV8730B----	DZZ	4.04	CHECK VALVE 1RH8730B RANDOMLY FAILS TO OPEN	Pump discharge chk. vlv.	RH
1ESRE18R2----	FC7	4.03	DIV 18 RELAY R2 FAILS DURING OPERATION	ESFAS actuation of RHR pp.	RH
1ESRE19R2----	FC5	4.03	DIV 19 RELAY R2 FAILS DURING OPERATION	ESFAS actuation of RHR pp.	RH
1ESCN18TR15&6OC7		4.02	TEST RELAY TR1/18 CONTACTS 5&6 SPURIOUSLY OPEN	ESFAS actuation of RHR pp.	RH
1ESCN15A5&B5-OC7		4.02	TEST SWITCH #15 N-T CONTACTS A5&B5 SPURIOUSLY OPEN	ESFAS actuation of RHR pp.	RH
1ESCN19TR15&6OC5		4.02	TEST RELAY TR1/19 CONTACTS 5&6 SPURIOUSLY OPEN	ESFAS actuation of RHR pp.	RH
1ESCN16A5&B5-OC5		4.02	TEST SWITCH #16 N-T CONTACTS A5&B5 SPURIOUSLY OPEN	ESFAS actuation of RHR pp.	RH
2ACCB483493----	KCC	3.84	CIRC. BR. 2483 AND 2493 FAIL TO CLOSE DUE TO COMMON CAUSE	D/G output bkr.	AP1
2DGDG2A2B----	ACC	3.83	DGs 2A AND 2B FAIL TO START DUE TO COMMON CAUSE		DG
2ACCB481491----	DCC	3.83	FD. BREAKER 2481 AND 2491 FAIL TO OPEN DUE TO COMMON CAUSE	Feed from service bus	AP1
1ESCN19R21&2-KC5		3.83	DIV 19 RELAY R2 CONTACTS 1&2 FAIL TO CLOSE ON DEMAND	ESFAS actuation of RHR pp.	RH
1ESCN19S1X3&4KC5		3.83	DIV 19 RELAY SIX CONTACTS 3&4 FAIL TO CLOSE ON DEMAND	ESFAS actuation of RHR pp.	RH
1ESCN18S1X3&4KC7		3.83	DIV 18 RELAY SIX CONTACTS 3&4 FAIL TO CLOSE ON DEMAND	ESFAS actuation of RHR pp.	RH
1ESCN18R21&2-KC7		3.83	DIV 18 RELAY R2 CONTACTS 1&2 FAIL TO CLOSE ON DEMAND	ESFAS actuation of RHR pp.	RH
1RHPM001-----	XH5	3.74	RHR PUMP 1A FAILS TO RUN		RH
1RHMVFCV611----	DZZ	3.74	RHR MINIFLOW VALVE 1RHFCV611 FAILS TO OPEN		RH
1RHMVFCV610----	DZZ	3.74	RHR MINIFLOW VALVE 1RHFCV610 FAILS TO OPEN		RH
1RHMV8700A----	KZZ	3.74	MOTOR OPERATED VALVE 1RH8700A FAILS TO CLOSE	Suction from RWST, hot leg	RH
1SIMV8811A----	DZZ	3.74	MOTOR OPERATED VALVE 1S18811A FAILS TO OPEN	Recirc. sump suction	RH
1RHLS8700ASTMFZZ		3.74	STEM-MOUNTED LIMIT SWITCH ON 1RH8700A FAILS DURING OPERATION	Interlock	RH
1ACTR138-----	MC7	3.71	4160-480V TRANS- FORMER 138 IS UNAVAILABLE DUE TO MAINTENANC	480V bus feed	AP4
1RHPM002-----	XH7	3.61	RHR PUMP 1B FAILS TO RUN		RH
1RHLS8700BSTMFZZ		3.60	STEM-MOUNTED LIMIT SWITCH ON 1RH8700B FAILS DURING OPERATION	Interlock	RH
1RHMV8700B----	KZZ	3.60	MOTOR OPERATED VALVE 1RH8700B FAILS TO CLOSE IN RHR SYS SEG	Suction from RWST, hot leg	RH
1SIMV8811B----	DZZ	3.60	MOTOR OPERATED VALVE 1S18811B RANDOMLY FAILS TO OPEN	Recirc. sump suction	RH
1DGDG1A-----	MG4	3.53	DIESEL GENERATOR 1A UNAVAILABLE DUE TO MAINTENANCE		DG
1DGDG1B-----	MG2	3.47	DIESEL GENERATOR 1B UNAVAILABLE DUE TO MAINTENANCE		DG
2DGDG2A2B----	XCC	3.35	DGs 2A AND 2B FAIL TO RUN DUE TO COMMON CAUSE		DG
1DCCBE113----	UE1	3.24	FD BREAKER E1-13 FROM DC BUS 111 TRANSFERS OPEN	DC feed to Bus 148	DC2
1DCCBF113----	UE1	3.24	FD BREAKER F1-13 FROM DC BUS 112 TRANSFERS OPEN	DC feed to Bus 149	DC2
1RHPM002-----	MH5	3.16	RHR PUMP 1B UNAVAILABLE DUE TO MAINTENANCE		RH
1RHPM001-----	MH5	3.16	RHR PUMP 1A UNAVAILABLE DUE TO MAINTENANCE		RH
1DCCBRE134----	UE1	3.09	FD. BRKR. RE1-34 FROM DC BUS 111 TRANSFERS OPEN	DC feed to 1A d/g	DC2
1DCCBRF132----	UE1	3.02	FD. BRKR. RF1-32 FROM DC BUS 112 TRANSFERS OPEN	DC feed to 1B d/g	DC2
BESRE1819----	FCC	2.80	DIVS 18 & 19 RELAYS FAIL DURING OPERATION DUE TO CC	ESFAS actuat. of SW pps. (R6)	SW
BESRE1718----	FCC	2.70	DIVS 17 & 18 RELAYS FAIL DUE TO CC	ESFAS actuat. of SW pps. (R6)	SW
BSWPM1B2B----	ACC	2.66	PUMPS 1B & 2B FAIL TO START DUE TO CC	Service water	SW
2ESRE2829R6----	FCC	2.66	DIV 28 & 29 RELAYS FAIL DURING OPERATION DUE TO CC	ESFAS actuat. of SW pps. (R6)	SW
1ACCB1484----	UC7	2.66	CIRCUIT BREAKER 1484 FROM 4160V ESF BUS 148 TRANSFERS OPEN	4LJV bus feed	AP2
1ACBS139----	MC5	2.58	480V ESF BUS 139 IS UNAVAILABLE DUE TO MAINTENANCE		AP2
1ACBS138----	MC7	2.44	480V ESF BUS 138 IS UNAVAILABLE DUE TO MAINTENANCE		AP2
ORE_SBO		2.29	OP ACTION - RESTORE EQUIP&SUPPORT SYSTEMS	N/A	N/A
XCC_S24		2.29	CORE UNCOVERED PRIOR TO POWER RECOVERY AT 24 HRS (SEALLOCA)	N/A	N/A
1ACCB1383D----	UC7	2.17	CIRCUIT BREAKER 1383D FROM 480V ESF BUS 138 TRANSFERS OPEN		AP2

1SICV8957B---DZZ	1.98	CHECK VALVE 1S18957B RANDOMLY FAILS TO OPEN	Cold leg injection chk. vlv.	RH
1DGDGO-----XG6	1.94	DIESEL GENERATOR 0 FAILS TO RUN		DG
1DGDGO-----AG6	1.92	DG 0 FAILS TO START ON DEMAND		DG
1RCAPVCV455C-DCC	1.89	COMMON CAUSE FAILURE OF PORVS PCV-455C AND PCV-456		RC
1ACDPMCC1393CMK1	1.86	MCC 1393C IS UNAVAILABLE DUE TO MAINTENANCE		AP3
1ACDPMCC1383BMK1	1.86	MCC 1383B IS UNAVAILABLE DUE TO MAINTENANCE		AP3
1DGC81473---KD1	1.85	DG CIRC. BREAKER 1473 FAILS TO CLOSE ON DEMAND	D/G output bkr.	AP1
1ACCB1471---DD1	1.85	MAIN FD. BREAKER 1471 FAILS TO OPEN ON DEMAND	Feed from service bus	AP1
2DCC8182212B1UCC	1.72	CB 211B2 AND 212B1 TRANSFER OPEN DUE TO A COMMON CAUSE	Battery feed to DC bus	DC2
BSWPM1C2C----ACC	1.72	PUMPS 1C & 2C FAIL TO START DUE TO CC	Service water	SW
1SICV9002AD--DCC	1.69	CHECK VALVES 1S19002A, D FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1SICV9002BD--DCC	1.69	CHECK VALVES 1S19002B, D FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1SICV9001AD--DCC	1.69	CHECK VALVES 1S19001A, D FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1SICV9001BD--DCC	1.69	CHECK VALVES 1S19001B, D FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1ACCN147-----ND1	1.69	DG AUTO START SIGNAL (BUS UV) NOT AVAILABLE		AP1
1ACCN1473---ND1	1.69	AUTO CLOSE SIG- NAL TO BREAKER 1473 CLOSE CIR- CUIT IS UNAVA	D/G output bkr.	AP1
1AFMVTHROTLCCDCC	1.65	AFW THROTTLE VALVES (B) FAIL DUE TO COMMON CAUSE		AF
1AFOPACTION--HZZ	1.65	OPERATOR FAILS TO OPEN AFW THROTTLE VALVES	N/A	N/A
BCCPM003007--XCC	1.64	PUMPS 0A & 0E FAIL TO CONTINUE TO RUN DUE TO CC	Component cooling	CC
1ACBS139-----FC5	1.64	480V ESF BUS 139 FAILS		AP2
1AFAMSG18305-DCC	1.64	SG 1B SAFETY VALVES (3/5) FTO DUE TO C.C. (10 PAIRS)		MS
1AFAMSG1D305-DCC	1.64	SG 1D SAFETY VALVES (3/5) FTO DUE TO C.C. (10 PAIRS)		MS
1AFAMSG1C305-DCC	1.64	SG 1C SAFETY VALVES (3/5) FTO DUE TO C.C. (10 PAIRS)		MS
1AFAMSG1A305-DCC	1.64	SG 1A SAFETY VALVES (3/5) FTO DUE TO C.C. (10 PAIRS)		MS
1AFAMSG1A505-DCC	1.64	SG 1A SAFETY VALVES (5/5) FTO DUE TO C.C.		MS
1AFAMSG1B405-DCC	1.64	SG 1B SAFETY VALVES (4/5) FTO DUE TO C.C. (5 PAIRS)		MS
1AFAMSG1D505-DCC	1.64	SG 1D SAFETY VALVES (5/5) FTO DUE TO C.C.		MS
1AFAMSG1D405-DCC	1.64	SG 1D SAFETY VALVES (4/5) FTO DUE TO C.C. (5 PAIRS)		MS
1AFAMSG1C505-DCC	1.64	SG 1C SAFETY VALVES (5/5) FTO DUE TO C.C.		MS
1AFAMSG1C405-DCC	1.64	SG 1C SAFETY VALVES (4/5) FTO DUE TO C.C. (5 PAIRS)		MS
1AFAMSG1B505-DCC	1.64	SG 1B SAFETY VALVES (5/5) FTO DUE TO C.C.		MS
1AFAMSG1A405-DCC	1.64	SG 1A SAFETY VALVES (4/5) FTO DUE TO C.C. (5 PAIRS)		MS
1AFAMSG1B205-DCC	1.64	SG 1B SAFETY VALVES (2/5) FTO DUE TO C.C. (10 PAIRS)		MS
1AFAMSG1A205-DCC	1.64	SG 1A SAFETY VALVES (2/5) FTO DUE TO C.C. (10 PAIRS)		MS
1AFAMSG1D205-DCC	1.64	SG 1D SAFETY VALVES (2/5) FTO DUE TO C.C. (10 PAIRS)		MS
1AFAMSG1C205-DCC	1.64	SG 1C SAFETY VALVES (2/5) FTO DUE TO C.C. (10 PAIRS)		MS
1SICV9002B---DZZ	1.62	CHECK VALVE 1S19002B RANDOMLY FAILS TO OPEN	Cold leg injection chk. vlv.	RH
1SICV9001B---DZZ	1.62	CHECK VALVE 1S19001B RANDOMLY FAILS TO OPEN	Cold leg injection chk. vlv.	RH
1SICV9002A---DZZ	1.62	CHECK VALVE 1S19002A RANDOMLY FAILS TO OPEN	Cold leg injection chk. vlv.	RH
1SICV9001A---DZZ	1.62	CHECK VALVE 1S19001A RANDOMLY FAILS TO OPEN	Cold leg injection chk. vlv.	RH
1DGDGO-----MG6	1.59	DIESEL GENERATOR 0 UNAVAILABLE DUE TO MAINTENANCE		DG
1SICV9002CD--DCC	1.58	CHECK VALVES 1S19002C, D FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1SICV9001CD--DCC	1.58	CHECK VALVES 1S19001C, D FAIL TO OPEN DUE TO COMMON CAUSE	Cold leg injection chk. vlv.	RH
1ACTR138139--QCC	1.57	4160-480V TRANS- FORMERS 138, 139 FAIL DUE TO COMMON CAUSE		AP4
1AFCV00320033DCC	1.54	COMMON CAUSE FAILURE CV 1FW0032 AND 1FW0033	HDAFW pp. disch. chk. vlv.	AF
BSWCV1121----DCC	1.54	CHECK VALVES 1SW0001 & 2SW0001 FAIL TO OPEN DUE TO CC		SW
1ESRE19171718FCC	1.53	DIV 19 RELAY R1, DIV 17 RELAY R1 & R2 & DIV 18 RELAY R1 FAIL	ESFAS actuation of chg. pp.	VC
1SICV9001C---DZZ	1.52	CHECK VALVE 1S19001C RANDOMLY FAILS TO OPEN	Cold leg injection chk. vlv.	RH
1ACTR138-----QC7	1.51	4160-480V TRANS- FORMER 138 FAILS		AP4
0ESRE29R828R8FCC	1.51	DIVS 29 & 28 RELAYS FAIL DURING OPERATION DUE TO CC	ESFAS actuation of CC pp.	CC
2DGDG2A2B---XCC	1.50	DGs 2A AND 2B FAIL TO RUN DUE TO COMMON CAUSE		DG
1ACCB1383A---UC7	1.49	CIRCUIT BREAKER 1383A FROM 480V ESF BUS 138 TRANSFERS OPEN		

1ACCB1393A---UC5	1.49	CIRCUIT BREAKER 1393A FROM 480V ESF BUS 139 TRANSFERS OPEN
1CCMV9412B---DZZ	1.49	CCW VALVE 1CC9412B TO RHR HX 1B FAILS TO OPEN
1CCMV9412A---DZZ	1.49	CCW VALVE 1CC9412A TO RHR HX 1A FAILS TO OPEN
1CCMV9412AB---DCC	1.48	MOVS 1CC9412A,B FAIL TO OPEN DUE TO COMMON CAUSE
1ACDPMCC1391-FC5	1.48	MCC 1391 FAILS
1ACBS138-----FC7	1.48	480V ESF BUS 138 FAILS
1ACDPMCC1381BFC7	1.48	MCC 1381B FAILS
1AFPM005006---ACC	1.45	COMMON CAUSE FAILURE TO START MDPS 1FW005 AND 1FW006
1AFPM005006---XCC	1.45	COMMON CAUSE FAILURE TO RUN MDPS 1FW005 AND 1FW006
BACTRSAT242---HZZ	1.44	OPERATOR FAILS TO RESTORE DEAD ESF BUS VIA THE SAT 242 TIE
2ACCB2412---KD4	1.43	FD. BRKR. 2412 FROM BUS 241 FAILS TO CLOSE
1ACDPMCC1391-MC5	1.43	MCC 1391 IS UNAVAILABLE DUE TO MAINTENANCE
1ACDPMCC1381BMC7	1.43	MCC 1381B IS UNAVAILABLE DUE TO MAINTENANCE
1ACCB471491---UCC	1.40	FD. BREAKER 1471 AND 1491 TRANS- FER OPEN DUE TO COMMON CAUS
1ACCB383A393AUCC	1.40	CB 1383A AND 1393A TRANSFER OPEN DUE TO A COMMON CAUSE
1ACCB42444---UCC	1.40	FD. BREAKER 1424 AND 1444 TRANS- FER OPEN DUE TO COMMON CAUS
1RHCV9002C---DZZ	1.40	CHECK VALVE 1SI9002C RANDOMLY FAILS TO OPEN
1DCCBRF123---UE1	1.36	FD BREAKER RFI- 23 FROM DC BUS 11? TRANSFERS OPEN
1DCCBC16-----UE3	1.36	FD BREAKER C1-6 FROM DC BUS 011-1 TRANSFERS OPEN
1ACTR134-----Q03	1.36	4160-480V TRANS- FORMER 134 FAILS
1SFFLSTRAINER PZ2	1.36	SPENT FUEL PIT PUMP SUCTION PIPING STRAINER (AT TANK) PLUGS
1SFFL006-----PZZ	1.36	SPENT FUEL PIT FILTER PLUGS SF-006
1SFXV8762A/B-KCC	1.36	COMMON CAUSE FAILURE OF SF-8762B AND SF8762A
1SFP003-----XZZ	1.36	SPENT FUEL PIT PUMP RANDOM FTR 1SF-0003
1SIXV8927---DZZ	1.36	RWST-U1 BLOCK VALVE (N.C.) FTO 1SI-8927
2SIXV8927---DZZ	1.36	RWST-U2 BLOCK VALVE (N.C.) FTO 2SI-8927
1SFXV8758---DZZ	1.36	RWST-U1 REFU. WTR PUR. PUMP BLOCK VALVE N.C. FTO 1SF-87
1SIXV8931---DZZ	1.36	MANUAL BLOCK VLV TO RWS1 FTO SI-8931
1SFXV8788---DZZ	1.36	MANUAL ISOLATION VALVE SPENT FUEL PIT FLOW TO RWST FTO SF-87
1SFXV8774---DZZ	1.36	SPENT FUEL FLTR BLOCK VLV FTO SF-8774
1SFXV8765---KZS	1.36	SPENT FUEL PUMP PIT RETURN BLOCK VALVE FTC 1SF8765
1SFCV8766---DZZ	1.36	SPENT FUEL PIT FLOW TO RWST CHK VLV FTO SF-8766
2SFXV8758---DZZ	1.36	RWST-U2 REFU. WTR PUR. PUMP BLOCK VLV (N.C.) FTO 2SF-87
1SFCV8793---DZZ	1.36	SPENT FUEL PIT PUMP DISCHARGE CHECK VALVE FTO SF-8793
1SFP003-----AZZ	1.36	SPENT FUEL PIT PUMP RANDOM FTS 1SF-003
1ACTR134---MO3	1.36	4160-480V TRANS- FORMER 134 IS UNAVAILABLE DUE TO MAINTENANC
1ACCB1443---UD3	1.36	CIRCUIT BREAKER 1443 FROM 480V BUS 144 TRANSFERS OPEN
1ACCB1341---U03	1.36	FD. BREAKER 1341 TO BUS 134 TRANSFERS OPEN
1ACCB1442---UD3	1.33	FD. BREAKER 1442 TO BUS 144 TRANSFERS OPEN
1SWPM001---AR1	1.33	SW PUMP 1A RANDOMLY FAILS TO START
1ACBS147-----FC5	1.32	BUS 147 FAILS
1ESRED19018R7XCC	1.29	RELAY R7 DIV 19 & DIV 18 FAILS DURING OPER. DUE TO COMMON CA
2DGDG2A-----XG5	1.29	DIESEL GENERATOR 2A FAILS TO RUN
1DCCBF117---UE1	1.29	FD. BRKR. F1-17 FROM DC BUS 112 TRANSFERS OPEN
2DGDG2A-----AG5	1.29	DG 2A FAILS TO START ON DEMAND
0ESSQSSDSEQ28FC6	1.29	SAFE SHUTDOWN SEQUENCER 28 FAILS
1ACBS147-----MC5	1.29	BUS 147 UNAVAILABLE DUE TO MAINTENANCE
2DGC82483---KC8	1.28	DG CIRC. BREAKER 2483 FAILS TO CLOSE ON DEMAND
2ACCB2481---DC8	1.28	MAIN FD. BREAKER 2481 FAILS TO OPEN ON DEMAND
1SWPM002---AR1	1.26	SW PUMP 1B RANDOMLY FAILS TO START
2ACTR242---QXX	1.26	OUTPUT FROM SYSTEM AUXILIARY TRANSFORMER 242 FAILS
RTKFACTOR	1.25	FACTOR USED IN RTK_LOC HAND CALC

1ESRE17R6----	FD1	1.25	DIV 17 RELAY R6 RANDOMLY FAILS DURING OPERATION
1SIMV8804AB--	DCC	1.25	MOTOR OPERATED VALVE 1S18804A & B FAIL TO OPEN DUE TO C. CAU
2SWPM002-----	AR1	1.25	SW PUMP 2B RANDOMLY FAILS TO START
2DGGG2A-----	MG5	1.24	DIESEL GENERATOR 2A UNAVAILABLE DUE TO MAINTENANCE
1ESRE18R6----	FD1	1.24	DIV 18 RELAY R6 RANDOMLY FAILS DURING OPERATION
1SWPM003-----	MR1	1.23	SW PUMP 1C (1SW003) UNAVAILABLE DUE TO MAINTENANCE
1ACCB14821492	KCC	1.22	FD. BRKR. 1482 & 1492 FAIL TO CLOSE DUE TO COMMON CAUSE
10CCBC116----	UE3	1.22	FD. BRKR. C1-16 FROM DC BUS 011-1 TRANSFERS OPEN
2ESRE28R6----	FD1	1.21	DIV 28 RELAY R6 RANDOMLY FAILS DURING OPERATION
2DGGG2B-----	XG3	1.21	DIESEL GENERATOR 2B FAILS TO RUN
2DGGG2B-----	AG3	1.21	DG 2B FAILS TO START ON DEMAND
0ESSQSS3SEQ29	FC6	1.21	SAFE SHUTDOWN SEQUENCER 29 FAILS
1SWPM002-----	XR1	1.21	SW PUMP 1B RANDOMLY FAILS TO CONTINUE TO RUN
2DGC82493----	KC6	1.20	DG CIRC. BREAKER 2493 FAILS TO CLOSE ON DEMAND
2ACCB2491----	DC6	1.20	MAIN FD. BREAKER 2491 FAILS TO OPEN ON DEMAND
1SWPM003-----	AR1	1.20	SW PUMP 1C RANDOMLY FAILS TO START
1SIMV8811AB--	DCC	1.19	MOTOR OPERATED VALVE 1S18811A & B FAIL TO OPEN COMMON CAUSE
1ACCB1424----	UD3	1.19	FD. BREAKER 1424 TO BUS 147 TRANSFERS OPEN
1ACCB1422----	UD3	1.19	FD. BREAKER 1422 TO BUS 142 TRANSFERS OPEN (GIVEN CLOSED)
1ACCB1422----	KD3	1.18	CIRCUIT BREAKER 1422 FAILS TO CLOSE AUTOMATICALLY
1ACCB1421----	DD3	1.18	CIRCUIT BREAKER 1421 FAILS TO OPEN AUTOMATICALLY
1ACCBUATSAT--	ND3	1.18	AUTO BUS TRANSFER SIGNAL IS UNAVAILABLE
1ACCB1471----	UC5	1.17	FD. BREAKER 1471 TO BUS 147 TRANSFERS OPEN
1SWPM001-----	XR1	1.17	SW PUMP 1A RANDOMLY FAILS TO CONTINUE TO RUN
1ACCB474B494--	UCC	1.17	CB 1474, 1484 AND 1494 TRANSFERS OPEN DUE TO A COMMON CAUS
2DGGG2B-----	MG3	1.17	DIESEL GENERATOR 2B UNAVAILABLE DUE TO MAINTENANCE
2SWPM003-----	MR1	1.16	SW PUMP 2C (2SW003) UNAVAILABLE DUE TO MAINTENANCE
1ACDPMCC1393C	FC5	1.16	MCC 1393C FAILS
1ACDPMCC1393A	FD1	1.16	MCC 1393A FAILS
1ACBS142-----	FD3	1.16	BUS 142 FAILS
2SWPM003-----	AR1	1.15	SW PUMP 2C RANDOMLY FAILS TO START
1ACDPMCC1372--	MD1	1.14	MCC 1372 IS UNAVAILABLE DUE TO MAINTENANCE
1ACDPMCC1393C	MC5	1.14	MCC 1393C IS UNAVAILABLE DUE TO MAINTENANCE
1ACDPMCC1393A	MD1	1.14	MCC 1393A IS UNAVAILABLE DUE TO MAINTENANCE
1ACBS137-----	MD1	1.14	480V ESF BUS 137 IS UNAVAILABLE DUE TO MAINTENANCE
1ESRE171819R5	FCC	1.14	DIV 17,18 & 19 RELAY R5 FAILS DURING OPERATION DUE TO CC
1ESRE19R6----	FD1	1.13	DIV 19 RELAY R6 RANDOMLY FAILS DURING OPERATION
2SWPM002-----	XR1	1.13	SW PUMP 2B RANDOMLY FAILS TO CONTINUE TO RUN
2ACCB481491--	UCC	1.12	FD. BREAKER 2481 AND 2491 TRANSFER OPEN DUE TO COMMON CAUS
2ACCB434444--	UCC	1.12	FD. BREAKER 2434 AND 2444 TRANSFER OPEN DUE TO COMMON CAUS
1SICV9002D----	DZZ	1.12	CHECK VALVE 1S19002D RANDOMLY FAILS TO OPEN
1SICV9002C----	DZZ	1.12	CHECK VALVE 1S19002C RANDOMLY FAILS TO OPEN
1SICV9001D----	DZZ	1.12	CHECK VALVE 1S19001D RANDOMLY FAILS TO OPEN
2ESRE29R6----	FD1	1.12	DIV 29 RELAY R6 RANDOMLY FAILS DURING OPERATION
1ESCTR18S3&4	OD1	1.12	TEST RELAY TR18S/TR1 CONTACTS 3&4 SPURIOUSLY OPEN
1ESCN17TR17&8	OD1	1.12	TEST RELAY TR17/17 CONTACTS 7&8 SPURIOUSLY OPEN
1ESCN14C4&D4--	OD1	1.12	TEST SWITCH #14 N-Y CONTACTS C4&D4 SPURIOUSLY OPEN
1ESRE17R3----	FD1	1.12	DIV 17 RELAY R3 FAILS DURING OPERATION
1CSMV0003-----	TZZ	1.12	COMP. FAULT IN SEGMENT D: 1MOV- CS0003 & TRAIN A TEST UNAVAI
1CSPM001A----	AJ5	1.12	CS PUMP CS001-1A FAILS TO START RANDOMLY
1CSPM001A----	MJ5	1.12	SEGMENT B (TRAIN A) UNAVAILABLE DUE TO MAINTENANCE
1CSXV0037----	GJ5	1.12	COMPONENT FAULT IN SEGMENT C: VALVE 1CS0037 LEFT OPEN

1EST117TS1---FD1	1.12	DIV 17 MECHANICAL CAM TIMER TSI FAILS DURING OF
1CSCV0005----DJ5	1.11	CHECK VALVE 1CS0005 FAILS TO OPEN RANDOMLY
1CSCV0003----DJ5	1.11	CHECK VALVE 1CS0003 FAILS TO OPEN RANDOMLY
1ACCB14728292KCC	1.11	FD. BRKR. 1472 & 1482 & 1492 FAIL TO CLOSE DUE TO COMMON CAU
1CSMV0002----DJ5	1.11	1MOV-CS0002 FAILS TO OPEN RANDOMLY
1ESCN18TSD2A8KC7	1.11	DIV 18 TIMER TSD CONTACTS 2A&2B FAIL TO CLOSE ON DEMAND
1ESCN17R33&4-KD1	1.11	DIV 17 RELAY R3 CONTACTS 3&4 FAIL TO CLOSE ON DEMAND
1ESCN17R31&2-KD1	1.11	DIV 17 RELAY R3 CONTACTS 1&2 FAIL TO CLOSE ON DEMAND
1ESCN18R61&2-KC7	1.11	DIV 18 RELAY R6 CONTACTS 1&2 FAIL TO CLOSE ON DEMAND
1CSPM001A----XJ5	1.10	CS PUMP CS001-1A FAILS TO RUN RANDOMLY
1AFPMFW006---AL4	1.08	MOTOR-DRIVEN PUMP 1FW006 RANDOM FAILURE TO START
1AFPMFW006---XL4	1.08	MOTOR-DRIVEN PUMP 1FW006 RANDOM FAILURE TO RUN
1AFPMFW005---AL4	1.07	MOTOR-DRIVEN PUMP 1FW005 RANDOM FAILURE TO START
1AFPMFW005---XL4	1.07	MOTOR-DRIVEN PUMP 1FW005 RANDOM FAILURE TO RUN
1AFCVFW0033---DL4	1.07	CHECK VALVE 1FW0033 FAILS TO OPEN
0ESRE17R7----FD1	1.07	DIV 17 RELAY R7 RANDOMLY FAILS DURING OPEKATION
BCCPM007-----AK1	1.07	PUMP 0E RANDOMLY FAILS TO START
2DCCS211B2---UE2	1.07	CIRCUIT BREAKER 211B2 FROM BATT- ERY 211 TRANSFERS OPEN
2DCCBE114----UE2	1.07	FD BREAKER E1-14 FROM DC BUS 211 TRANSFERS OPEN
2DCCBRE134---UE7	1.07	FD. BRKR. RE1-34 FROM DC BUS 211 TRANSFERS OPEN
2DCBY211-----FE2	1.07	BATTERY 211 FAILS
1SWPM003-----XR1	1.07	SW PUMP 1C RANDOMLY FAILS TO RUN
1AFCVFW0032---DL4	1.07	CHECK VALVE 1FW0032 FAILS TO OPEN
BCCPM007-----XK1	1.07	PUMP 0E RANDOMLY FAILS TO RUN
1SWCV11-----DR1	1.07	CHECK VALVE 1SW0001 RANDOMLY FAILS TO OPEN
1SIPM003004---XCC	1.06	SI PUMPS 1A AND 1B FAIL TO RUN DUE TO COMMON CAUSE
1ESRE18R7----FC7	1.06	DIV 18 RELAY R7 FAILS DURING OPERATION
2SWPM003-----XR1	1.06	SW PUMP 2C RANDOMLY FAILS TO RUN
1ESRE19R7----FC5	1.06	DIV 19 RELAY R7 FAILS DURING OPERATION
1ESCN19R71112KC5	1.05	DIV 19 RELAY R7 CONTACTS 11&12 FAIL TO CLOSE ON DEMAND
1ESCN19TSD3ABKC5	1.05	DIV 19 TIMER TSD CONTACTS 3A&3B FAIL TO CLOSE ON DEMAND
1ESCN18TSD3ABKC7	1.05	DIV 18 TIMER TSD CONTACTS 3A&3B FAIL TO CLOSE ON DEMAND
1ESCN18R71&2-KC7	1.05	DIV 18 RELAY R7 CONTACTS 1&2 FAIL TO CLOSE ON DEMAND
1MSAV171819--DCC	1.05	CCF TO OPEN OF ARV MS0017, MS0018 AND MS0019
2SWCV21-----DR1	1.05	CHECK VALVE 2SW0001 RANDOMLY FAILS TO OPEN
0ESRE29R8----FC6	1.05	DIV 29 RELAY R8 RANDOMLY FAILS DURING OPERATION
2CCPM003-----AK1	1.05	PUMP 0A RANDOMLY FAILS TO START
1FPCVFP0002--DZZ	1.05	RANDOM FAILURE OF CHECK VALVE FP0002 TO OPEN
1FPXVH24-----MZZ	1.04	MAINTENANCE UNAVAILABILITY OF FIRE PLUG VALVE H-24
2CCPM003-----XK1	1.04	PUMP 0A RANDOMLY FAILS TO CONTINUE TO RUN
0EC_LSC	1.04	OP ACTION - FIREWATER TO CCP OIL COOLER
1FPXVH24-----DZZ	1.04	RANDOM FAILURE OF FIRE PLUG VALVE AT COLUMN H-24 TO OPEN
1FPPD0007----MZZ	1.04	DIESEL DRIVEN PUMP FP0007 MAINTENANCE UNAVAILABILITY
1CCXV9485AB--FCC	1.04	COMMON CAUSE FAILURE OF ISOL. VALVES FOR CCW TO CHG. PUMPS
1CCXV358367--DCC	1.04	CCF OF VALVES 0358, 0367 TO OPEN
1CCXV358362--DCC	1.04	CCF OF VALVES 0358, 0362 TO OPEN
1CCXV355367--DCC	1.04	CCF OF VALVES 0355, 0367 TO OPEN
1CCXV355362--DCC	1.04	CCF OF VALVES 0355, 0362 TO OPEN
1FPPD0007----XZZ	1.04	DIESEL DRIVEN PUMP FP0007 FAILS TO RUN
1FPPD0007----AZZ	1.04	DIESEL DRIVEN PUMP FP0007 FAILS TO START
1ESCN19TSD2ABKC5	1.04	
1ESCN19R61&2-KC5	1.04	

2ESCN28R61&2-KCB	1.04	
2ESCN28TSD2ABKCB	1.04	
OPWPM002-----XZZ	1.04	PRIMARY WATER MAKE-UP PUMP OB RANDOM FTR OPW002
OPWPM002-----MZZ	1.04	PRIMARY WATER PUMP OB UNAVAILABLE DUE TO MAINTENANCE
1MSXXMS21BFK-DCC	1.04	COMMON CAUSE FAILURE OF SDV 1PCV-MS21B,MS21F MS21K
1MSAV01B019--DCC	1.03	CCF TO OPEN OF ARV MS0018 AND MS0019
1MSAV017019--DCC	1.03	CCF TO OPEN OF ARV MS0017 AND MS0019
1MSAV017018--DCC	1.03	CCF TO OPEN OF ARV MS0017 AND MS0018
1AFPMFW006---ML4	1.03	MDP 1FW006 UNAVAILABLE DUE TO MAINTENANCE
1AFPMFW005---ML4	1.03	MDP 1FW005 UNAVAILABLE DUE TO MAINTENANCE
1VCPM023-----XZZ	1.03	B A TRANSFER PUMP 1A RANDOMLY FAILS TO RUN
2DCBY212-----FE2	1.03	BATTERY 212 FAILS
1DCFU14-----BE1	1.03	15 AMP FUSE 14 FROM DISTR. CAB. BUS 114 FAILS
1SIMVB804B---DZZ	1.03	MOTOR OPERATED VALVE 1S18804B RANDOMLY FAILS TO OPEN
1SIMVB804A---DZZ	1.03	MOTOR OPERATED VALVE 1S18804A FAILS TO OPEN IN SEGMENT NR
6CCPM004-----MK1	1.03	PUMP OB UNAVAILABLE DUE TO MAINTENANCE
2ESCN29TSD2ABKCB	1.03	
2ESCN29R61&2-KCB	1.03	
2CCPM004-----AK1	1.03	PUMP OB RANDOMLY FAILS TO START
0ESRE28RB----FCB	1.03	DIV 28 RELAY RB RANDOMLY FAILS DURING OPERATION
1MSXXMS21F21KDZZ	1.03	COMMON CAUSE FAILURE OF SDV 1PCV-MS21F AND 1PCV-MS21K
1MSXXMS21B21KDCC	1.03	COMMON CAUSE FAILURE OF SDV 1PCV-MS21B AND 1PCV-MS21K
1MSXXMS21B21FDCC	1.03	COMMON CAUSE FAILURE OF SDV 1PCV-MS21B AND 1PCV-MS21F
1MSCCMS21B---FZZ	1.02	CONTROL CIRCUIT FAILURE FOR STEAM DUMP VALVES
2CCPM004-----XK1	1.02	PUMP OB RANDOMLY FAILS TO RUN
1SWFL004-----PR1	1.02	SW STRAINER 1A RANDOMLY FAILS (PLUGS)
1SWFL005-----PR1	1.02	SW STRAINER 1B RANDOMLY FAILS (PLUGS)
1MSPHMS21B---FZZ	1.02	CIRCULATING WATER PUMP FAILURE
1VCPM0006-----XK2	1.02	FAILURE OF CHARGING PUMP 1A TO CONTINUE RUNNING
2ACCB2422----KD4	1.02	CIRCUIT BREAKER 2422 FAILS TO CLOSE AUTOMAT-ICALLY
2ACCB2421----DD4	1.02	CIRCUIT BREAKER 2421 FAILS TO OPEN AUTOMAT-ICALLY
OPWPM001-----XZZ	1.02	PRIMARY WATER MAKE-UP PUMP OA RANDOM FTR OPW-001
2CCCV9463B---DK1	1.02	CHECK VALVE 2CC9463B RANDOMLY FAILS TO OPEN
2DCBY212-----FE5	1.01	BATTERY 212 RANDOMLY FAILS
1ESCNSIX4A182KE1	1.01	NO SIGNAL TO 1MOV-S18801A, SIX4-A CTS 18&22 FTC ON DEMAND
1ESCNSIX4A2&6KE1	1.01	NO SIGNAL TO 1LCV-VC112D, SIX4-A CTS 2&6 FTC ON DEMAND
1ESCNSIX4B2&6KE1	1.01	NO SIGNAL TO 1LCV-VC112E, SIX4-B CTS 2&6 FTC ON DEMAND
1ESCNSIX4B182KE1	1.01	NO SIGNAL TO 1MOV-S18801B, SIX4-B CTS 18&22 FTC ON DEMAND
1VCPM024-----XZZ	1.01	B A TRANSFER PUMP 1B RANDOMLY FAILS TO RUN
1VCPM024-----MZZ	1.01	B A TRANSFER PUMP 1B UNAVAILABLE DUE TO MAINTENANCE
1VCPM024-----AZZ	1.01	B A TRANSFER PUMP FAILS TO START (HIGH SPEED)
1AFMVFW0056--DZZ	1.01	MOTOR OPERATED VALVE FWO056 RANDOMLY FAILS TO OPEN
1AFMVFW0054--DZZ	1.01	MOTOR OPERATED VALVE FWO054 RANDOMLY FAILS TO OPEN
1AFMVFW0052--DZZ	1.01	MOTOR OPERATED VALVE FWO052 RANDOMLY FAILS TO OPEN
1AFMVFW0050--DZZ	1.01	MOTOR OPERATED VALVE FWO050 RANDOMLY FAILS TO OPEN
1VCMVLCV112E-DZZ	1.01	MOV VC LCV112E RANDOMLY FAILS TO OPEN
1VCMVB801B---DZZ	1.01	MOTOR OPERATED VALVE 1S18801B FAILS TO OPEN
1VCMVLCV112D-DZZ	1.01	MOV-VC-112D RANDOMLY FAILS TO OPEN
1VCMVB801A---DZZ	1.01	MOTOR OPERATED VALVE 1S18801A FAILS TO OPEN
1AFMVFW0057--DZZ	1.01	MOTOR OPERATED VALVE FWO057 RANDOMLY FAILS TO OPEN
1AFMVFW0055--DZZ	1.01	MOTOR OPERATED VALVE FWO055 RANDOMLY FAILS TO OPEN
1AFMVFW0053--DZZ	1.01	MOTOR OPERATED VALVE FWO053 RANDOMLY FAILS TO OPEN

1AFMVFW0051--DZZ	1.01	ACTOR OPERATED VALVE FW0051 RANDOMLY FAILS TO OPEN
1VCXVB432----KZZ	1.01	ISOLATION VALVE BLENDER TO RWST FTC VC-B432
1VCXVB434----KZZ	1.01	BLOCK VALVE BLENDER TO RWST FTC VC-B434
1SIPM004-----X17	1.00	SI PUMP 1B FAILS TO RUN
1SIPM003-----X15	1.00	SI PUMP 1A FAILS TO RUN
1MSSV020304--KCC	1.00	CCF OF STOP VALVES SV0002, SV0003,SV0004 TO CLOSE
1MSSV0104----KCC	1.00	CCF OF STOP VALVES SV0001, SV0004 TO CLOSE
1MSSV010304--KCC	1.00	CCF OF STOP VALVES SV0001, SV0003,SV0004 TO CLOSE
1MSSV010204--KCC	1.00	CCF OF STOP VALVES SV0001,SV0002 SV0004 TO CLOSE
1MSSV010203--KCC	1.00	CCF OF STOP VALVES SV0001, SV0002 SV0003 TO CLOSE
1MSGV010304--KCC	1.00	CCF OF GOV. VALVES GV0001, GV0003,GV0004
1MSGV010204--KCC	1.00	CCF OF GOV. VALVES GV0001, GV0002,GV0004 TO CLOSE
1MSGV010203--KCC	1.00	CCF OF GOV. VALVES GV0001,GV0002 GV0003 TO CLOSE
1MSSV01020304KCC	1.00	CCF OF STOP VALVES SV0001, SV0002,SV0003 & SV0004 TO CLOSE
1MSGV01020304KCC	1.00	CCF OF GOV. VALVES GV0001, GV0002,GV0003, GV0004 TO CLOSE
1RCVPCV456--DZZ	1.00	RANDOM FAILURE OF PORV PCV-456 TO OPEN
1RCVPCV455C-DZZ	1.00	RANDOM FAILURE OF PORV PCV-455C TO OPEN
1RCMVRC8000B-CZZ	1.00	PORV FLOW PATH INOPERABLE DUE TO BLOCK VALVE RC8000B CLOSURE
1RCMVRC8000A-CZZ	1.00	PORV FLOW PATH INOPERABLE DUE TO BLOCK VALVE RC8000A CLOSURE
1AFRVMS0032--DZZ	1.00	SG 1B SAFETY VALVE 1MS0032 RANDOMLY FAILS TO OPEN
1AFRVMS0031--DZZ	1.00	SG 1B SAFETY VALVE 1MS0031 RANDOMLY FAILS TO OPEN
1AFRVMS0029--DZZ	1.00	SG 1B SAFETY VALVE 1MS0029 RANDOMLY FAILS TO OPEN
1AFRVMS0026--DZZ	1.00	SG 1D SAFETY VALVE 1MS0026 RANDOMLY FAILS TO OPEN
1AFRVMS0024--DZZ	1.00	SG 1D SAFETY VALVE 1MS0024 RANDOMLY FAILS TO OPEN
1AFRVMS0023--DZZ	1.00	SG 1C SAFETY VALVE 1MS0023 RANDOMLY FAILS TO OPEN
1AFRVMS0022--DZZ	1.00	SG 1C SAFETY VALVE 1MS0022 RANDOMLY FAILS TO OPEN
1AFRVMS0021--DZZ	1.00	SG 1C SAFETY VALVE 1MS0021 RANDOMLY FAILS TO OPEN
1AFRVMS0020--DZZ	1.00	SG 1C SAFETY VALVE 1MS0020 RANDOMLY FAILS TO OPEN
1AFRVMS0019--DZZ	1.00	SG 1C SAFETY VALVE 1MS0019 RANDOMLY FAILS TO OPEN
1AFRVMS0017--DZZ	1.00	SG 1A SAFETY VALVE 1MS0017 RANDOMLY FAILS TO OPEN
1AFRVMS0016--DZZ	1.00	SG 1A SAFETY VALVE 1MS0016 RANDOMLY FAILS TO OPEN
1AFRVMS0015--DZZ	1.00	SG 1A SAFETY VALVE 1MS0015 RANDOMLY FAILS TO OPEN
1AFRVMS0030--DZZ	1.00	SG 1B SAFETY VALVE 1MS0030 RANDOMLY FAILS TO OPEN
1AFRVMS0027--DZZ	1.00	SG 1D SAFETY VALVE 1MS0027 RANDOMLY FAILS TO OPEN
1AFRVMS0033--DZZ	1.00	SG 1B SAFETY VALVE 1MS0033 RANDOMLY FAILS TO OPEN
1AFRVMS0028--DZZ	1.00	SG 1D SAFETY VALVE 1MS0028 RANDOMLY FAILS TO OPEN
1AFRVMS0025--DZZ	1.00	SG 1D SAFETY VALVE 1MS0025 RANDOMLY FAILS TO OPEN
1AFRVMS0014--DZZ	1.00	SG 1A SAFETY VALVE 1MS0014 RANDOMLY FAILS TO OPEN
1AFRVMS0018--DZZ	1.00	SG 1A SAFETY VALVE 1MS0018 RANDOMLY FAILS TO OPEN
PL ATW	1.00	POWER LEVEL GREATER THAN 60 PERCENT
1ESRE17R1----FD1	1.00	DIV 17 RELAY R1 FAILS DURING OPERATION
1VCPM006-----XZZ	1.00	CHARGING PUMP 1A RANDOMLY FAILS TO RUN
1VCPM007-----XK4	1.00	CHARGING PUMP 1B FAILS TO RUN
1VCPM007-----MK4	1.00	CHARGING PUMP 1B UNAVAILABLE DUE TO MAINTENANCE
1VCCVB481A---DZZ	1.00	CHECK VALVE 1VCB481A RANDOMLY FAILS TO OPEN
1VCPM007-----AK4	1.00	CHARGING PUMP 1B FAILS TO START
1ESCN17TR13&40D1	1.00	TEST RELAY TR1/17 CONTACTS 3&4 SPURIOUSLY OPEN
1ESCN18TR13&40C7	1.00	TEST RELAY TR1/18 CONTACTS 3&4 SPURIOUSLY OPEN
1ESCN15A11B110C7	1.00	TEST SWITCH #15 N-1 CONTACTS A11&B11 SPURIOUSLY OPEN
1ESCN14A11B110D1	1.00	TEST SWITCH #14 N-1 CONTACTS A11&B11 SPURIOUSLY OPEN
1MSAVMS21K---DZZ	1.00	SC VALVE 1PCV-MS21K RANDOM FAILURE TO OPEN
1MSAVMS21F---DZZ	1.00	SO VALVE 1PCV-MS21F RANDOM FAILURE TO OPEN

1MSAVMS21B---DZZ	1.00	SD VALVE 1PCV-MS21B RANDOM FAILURE TO OPEN
1AFMVFW0051--KA2	1.00	FAILURE OF AFW MOV FW0051 TO CLOSE DUE TO HARDWARE
1AFMVFW0050--KB2	1.00	FAILURE OF AFW MOV FW0050 TO CLOSE DUE TO HARDWARE
1CSCVC09----KZZ	1.00	RANDOM FAILURE OF CHECK VALVE CS009 TO CLOSE
1CSCV005----KZZ	1.00	RANDOM FAILURE OF CHECK VALVE CS005 TO CLOSE
1CSCV0013----KZZ	1.00	RANDOM FAILURE OF CHECK VALVE CS0013 TO CLOSE
1MSSV0004----KZZ	1.00	RANDOM FAILURE TO CLOSE STOP VALVE 4
1MSSV0003----KZZ	1.00	RANDOM FAILURE TO CLOSE STOP VALVE 3
1MSSV0002----KZZ	1.00	RANDOM FAILURE TO CLOSE STOP VALVE 2
1MSSV0001----KZZ	1.00	RANDOM FAILURE TO CLOSE STOP VALVE 1
1MSGV0004----KZZ	1.00	RANDOM FAILURE TO CLOSE GOV. VALVE 4
1MSGV0003----KZZ	1.00	RANDOM FAILURE TO CLOSE GOV. VALVE 3
1MSGV0002----KZZ	1.00	RANDOM FAILURE TO CLOSE GOV. VALVE 2
1MSGV0001----KZZ	1.00	RANDOM FAILURE TO CLOSE GOV. VALVE 1
1SIPM004-----A17	1.00	SI PUMP 1B RANDOMLY FAILS TO START
1WDAV17A17B--KCC	1.00	CCF OF FCV-WD17A AND FCV-WD17B TO CLOSE
1CCPM007-----XK1	1.00	PUMP 0E RANDOMLY FAILS TO CONTINUE TO RUN
1SICV8922B---DZZ	1.00	CHECK VALVE 1S18922B RANDOMLY FAILS TO OPEN
1ESRE18R1----FC7	1.00	DIV 18 RELAY R1 FAILS DURING OPERATION
1MSAV0019AM--DZZ	1.00	ARV MOV-MS0019 VALVE STICKS OR FAILS TO OPEN (FAULT IN VALVE
1MSAV0018AM--DZZ	1.00	ARV MOV-MS0018 VALVE STICKS OR FAILS TO OPEN (FAULT IN VALVE
1MSAV0017AM--DZZ	1.00	ARV MOV-MS0017 VALVE STICKS OR FAILS TO OPEN (FAULT IN VALVE
1ESHEPHASE-A-HB1	1.00	OPERATOR FAILS TO MANUALLY INITIATE PHASE A ISOLATION
2SWFL005-----PR1	1.00	SW STRAINER 2B FAILS RANDOMLY (PLUGS)
2SWFL004-----PR1	1.00	SW STRAINER 2A RANDOMLY FAILS (PLUGS)
1SFV8762B---KZZ	1.00	SPENT FUEL PIT HEAT EXCHANGER OUTLET BLOCK VLV FTC SF-8762B
1SFV8762A---KZZ	1.00	SPENT FUEL PIT HEAT EXCHANGER INLET BLOCK VLV FTC SF-8762A
1ACCB1492---KC5	1.00	FD. BRKR. 1492 TO ESF BUS 149 FAILS TO CLOSE
1ACCB1482---KC7	1.00	FD. BRKR. 1482 TO ESF BUS 148 FAILS TO CLOSE
BSWHTSTBYMANLHB1	1.00	FAILURE TO PLACE UNAFFECTED UNIT IN HOT SHUTDOWN PER AOP 4.2
1CCXV9485B---KZZ	1.00	RANDOM FAILURE TO CLOSE VALVE CC-9485B
1CCXV9485A---KZZ	1.00	RANDOM FAILURE OF VALVE CC-9485A, FAILS TO CLOSE
1CCXV0367---DZZ	1.00	RANDOM FAILURE TO OPEN DRAIN ISOL. VALVE CC0367
1CCXV0362---DZZ	1.00	RANDOM FAILURE TO OPEN DRAIN ISOL. VALVE CC0362
1CCXV0358---DZZ	1.00	RANDOM FAILURE TO OPEN DRAIN ISOL. VALVE CC0358
1CCXV0355---DZZ	1.00	RANDOM FAILURE TO OPEN DRAIN ISOL. VALVE CC0355
MF_ATW	1.00	FRACTION OF TRANSIENTS MAIN FEED UNAVAILABLE UNTIL TURBINE TRIP
1SIMV8807B---DZZ	1.00	MOTOR OPERATED VALVE 1S18807B FAILS TO OPEN
1CCXV9485B---MZZ	1.00	MAINTENANCE UNAVAILABILITY OF VALVE CC-9485B
1CCXV0367---MZZ	1.00	MAINTENANCE UNAVAILABILITY OF VALVE CC0367
1CCXV0362---MZZ	1.00	MAINTENANCE UNAVAILABILITY OF VALVE CC0362
1CCXV0358---MZZ	1.00	MAINTENANCE UNAVAILABILITY OF VALVE CC0358
1CCXV0355---MZZ	1.00	MAINTENANCE UNAVAILABILITY OF VALVE CC0355
1CCPM006-----AK1	1.00	PUMP 0D RANDOMLY FAILS TO START
1CCPM005-----AK1	1.00	PUMP 0C RANDOMLY FAILS TO START
1SICV8900B---DZZ	1.00	CHECK VALVE 1S18900B RANDOMLY FAILS TO OPEN
1SICV8900C---DZZ	1.00	CHECK VALVE 1S18900C RANDOMLY FAILS TO OPEN
1SICV8900A---DZZ	1.00	CHECK VALVE 1S18900A RANDOMLY FAILS TO OPEN
BCCPM006-----MK1	1.00	PUMP 0D UNAVAILABLE DUE TO MAINTENANCE
BCCPM005-----MK1	1.00	PUMP 0C UNAVAILABLE DUE TO MAINTENANCE
1WDAV17B-----KZZ	1.00	FAILURE OF VALVE FCV-WD17B TO CLOSE ON DEMAND

1WDAV17A-----KZZ	1.00	FAILURE OF VALVE FCV-WD17A TO CLOSE ON DEMAND
1CSCV0301109-DCC	1.00	CHECK VALVES 3,11,9 FAIL TO OPEN DUE TO CC
1ACCB1382D---UC7	1.00	CIRCUIT BREAKER 1382D FROM 480V ESF BUS 138 TRANSFERS OPEN
1CSCV0090013-KCC	1.00	CCF OF CHECK VALVES CS005, CS009 AND CS0013 TO CLOSE
1CSCV005009--KCC	1.00	CCF OF CHECK VALVES CS005 AND CS009 TO CLOSE
1CSCV0050013-KCC	1.00	CCF OF CHECK VALVES CS005 AND CS0013 TO CLOSE
1ACTR13713839QCC	1.00	TRANSFORMER 137, 138 AND 139 FAIL DUE TO A COMMON CAUSE
1CSCV0013009-KCC	1.00	CCF OF CHECK VALVES CS0013 AND CS009 TO CLOSE
BSWPM010102--XCC	1.00	PUMPS 1A, 2A & 2B FAIL TO RUN DUE TO CC
BCCPS005-----FK1	1.00	FAILURE OF LOW DISCHARGE PRESSURE START SIGNAL
1ESSW290-----FB1	1.00	MANUAL PHASE A ISOLATION SWITCH #290 FAILS
1ESSW131290--FCC	1.00	MANUAL PHASE A ISOLATION SWITCH 131 AND 290 FAIL COMMON CAUS
1ESSW131-----FB1	1.00	MANUAL PHASE A ISOLATION SWITCH #131 FAILS
1ESRETR1TR2--FCC	1.00	RELAY COILS CIAX2/TR2 AND CIAX1/TR1 FAIL COMMON CAUSE
1ESRERS4B----FD1	1.00	RELAY RS4B/17-2 COIL FAILS DURING OPERATION
1ESRERS172181FCC	1.00	RELAY COILS RS9/17-2 AND RS9/16-1 FAIL COMMON CAUSE
1ESRERB172181FCC	1.00	RELAY COILS RS4B/17-2 AND RS4B/18-1 FAIL COMMON CAUSE
1ESRECV11CV12FCC	1.00	RELAY COILS CV11/TR1 AND CV12/TR2 FAIL COMMON CAUSE
1ESRECIAX2---FE1	1.00	RELAY CIAX2/TR2 COIL FAILS DURING OPERATION
1ESRECIAX2---FE1	1.00	RELAY CIA2/TR2 COIL FAILS DURING OPERATION
1ESRECIAX1CIA2FCC	1.00	RELAY COILS CIA2/TR2 AND CIA1/TR1 FAIL COMMON CAUSE
1ESRECIAX1---FE1	1.00	RELAY CIAX1/TR1 COIL FAILS DURING OPERATION
1ESRE8RS4B---FC7	1.00	RELAY RS4B/18-1 COIL FAILS DURING OPERATION
1ACDPMCC1393BKK1	1.00	MCC 1393B IS UNAVAILABLE DUE TO MAINTENANCE
1ESRE19R6----FC5	1.00	DIV 19 RELAY R6 RANDOMLY FAILS DURING OPERATION
1ESRE19R5----FC5	1.00	DIV 19 RELAY R5 FAILS DURING OPERATION
1ACCB1374A---UD1	1.00	CIRCUIT BREAKER 1374A FROM 480V ESF BUS 137 TRANSFERS OPEN
1ACDPMCC1393BKK1	1.00	MCC 1393B FAILS
1ESRE19R11717FCC	1.00	DIV 19 RELAY R1, DIV 17 RELAY R1 & DIV 17 RELAY R2 FAIL CC
1ESRE1917R5--FCC	1.00	DIV 19 AND 17 RELAY R5 FAILS DURING OPERATION DUE TO CC
1ESRE1917R218FCC	1.00	DIV 19 RELAY R1, DIV 17 RELAY R2 & DIV 18 RELAY R1 FAIL CC
1ESRE191718R1FCC	1.00	DIV 19 RELAY R1, DIV 17 RELAY R1 & DIV 18 RELAY R1 FAIL CC
1ACDPMCC1393AMK1	1.00	MCC 1393A IS UNAVAILABLE DUE TO MAINTENANCE
1ESRE18R6----FC7	1.00	DIV 18 RELAY R6 RANDOMLY FAILS DURING OPERATION
1CCPM006-----XK1	1.00	PUMP 0D RANDOMLY FAILS TO RUN
1ESRE18R5----FC7	1.00	DIV 18 RELAY R5 FAILS DURING OPERATION
1CCPM005-----XK1	1.00	PUMP 0C RANDOMLY FAILS TO RUN
1ACDPMCC1393AMC5	1.00	MCC 1393A IS UNAVAILABLE DUE TO MAINTENANCE
1ESRE1819R5--FCC	1.00	DIV 18 AND 19 RELAY R5 FAILS DURING OPERATION DUE TO CC
1ESRE1817R5--FCC	1.00	DIV 18 AND 17 RELAY R5 FAILS DURING OPERATION DUE TO CC
1ACDPMCC1393AFK1	1.00	MCC 1393A FAILS
YHP_SB2	1.00	POWER RECOV FAILURE PROB AT 24 HRS/NO RECOVERY AT 2 HRS
1ESRE17R117R2FCC	1.00	DIV 17 RELAY R1 AND DIV 17 RELAY R2 FAIL DUE TO COMMON CAUSE
1CCCV9464----DK1	1.00	CHECK VALVE OCC9464 RANDOMLY FAILS TO OPEN
DS_LOC	1.00	1/4 ARV OR 1/3 STM DMP - LOCAS
1ACDPMCC1393AFC5	1.00	MCC 1393A FAILS
1ESRE1717181FCC	1.00	DIV 17 RELAY R1 AND RELAY R2 AND DIV 18 RELAY R1 FAIL DUE TO
1ESRE171182--FCC	1.00	RELAY COIL RCV/17-1 AND RCV/18-2 FAIL COMMON CAUSE
1CCCV9463B---DK1	1.00	CHECK VALVE 1CC9463B RANDOMLY FAILS TO OPEN
BSWPM1A2B----XCC	1.00	PUMPS 1A & 2B FAIL TO RUN DUE TO CC
BSWPM1A1B----XCC	1.00	
BSWPM010202--XCC	1.00	PUMPS 1A, 1B & 2B FAIL TO RUN DUE TO CC

BSWPM010201--XCC	1.00	PUMPS 1A, 1B & 2A FAIL TO RUN DUE TO CC
1ESCNTR1A55&6UD1	1.00	TEST RELAY TRIAS/TR2 CONTACTS 5&6 SPURIOUSLY OPEN
1ESCNTR1A55&6UC7	1.00	TEST RELAY TRIAS1/TR1 CONTACTS 5&6 SPURIOUSLY OPEN
1ESCNTR1A25&6UE1	1.00	TEST RELAY TRIAM/TR2 CONTACTS 5&6 SPURIOUSLY OPEN
BESRE1719----FCC	1.00	DIVS 17 & 19 RELAYS FAIL DURING OPERATION DUE TO CC
1ESCNTR1A23&4UE1	1.00	RELAY TRIAM/TR2 CONTACTS 3&4 SPURIOUSLY OPEN
BESCN191817--FCC	1.00	DIVS 19, 18 & 17 RELAYS FAIL DURING OPERATION DUE TO CC
1ESCNTR1A15&6UE1	1.00	TEST RELAY TRIAM/TR1 CONTACTS 5&6 SPURIOUSLY OPEN
1ESCNTR1A13&4UE1	1.00	RELAY TRIAM/TR1 CONTACTS 3&4 SPURIOUSLY OPEN
BCCPS004-----FK1	1.00	FAILURE OF LOW DISCHARGE PRESSURE START SIGNAL
BCCPM040506--XCC	1.00	PUMPS 0B, 0C & 0D FAIL TO RUN DUE TO CC
BCCPM040506--ACC	1.00	PUMPS 0B, 0C & 0D FAIL TO START DUE TO CC
BCCCVL386463BDC	1.00	CHECK VALVES 2CC9463B, 0CC9463B & 1CC9463B FAIL TO OPEN DUE CC
1ESCN501&2---UC7	1.00	TEST SWITCH #50 CONTACTS 1&2 SPURIOUSLY OPEN
1ESCN453&4---UD1	1.00	TEST SWITCH #45 CONTACTS 3&4 SPURIOUSLY OPEN
2SWPS003-----FR1	1.00	FAILURE OF LOW DISCHARGE PRESSURE START SIGNAL
1ESCN219E&F--UE1	1.00	RESET SWITCH #219 CONTACTS E&F SPURIOUSLY OPEN
1ACDPMCC1383AMK1	1.00	MCC 1383A IS UNAVAILABLE DUE TO MAINTENANCE
1ACCB14742474UCC	1.00	FD BREAKER 1474 AND 2474 TRANSFER OPEN DUE TO COMMON CAUSE
2SWPM001-----XR1	1.00	SW PUMP 2A RANDOMLY FAILS TO CONTINUE TO RUN
1ESCN19TR17&8OC5	1.00	TEST RELAY TR1/19 CONTACTS 7&8 SPURIOUSLY OPEN
1ACDPMCC1383AMC7	1.00	MCC 1383A IS UNAVAILABLE DUE TO MAINTENANCE
1ACCB14741494UCC	1.00	CB 1474 AND 1494 TRANSFERS OPEN DUE TO A COMMON CAUSE
2SWCV0001----DR1	1.00	CHECK VALVE 2SW0001 RANDOMLY FAILS TO OPEN
1ESCN19SIX5&6KC5	1.00	DIV 19 RELAY SIX CONTACTS 5&6 FAIL TO CLOSE ON DEMAND
1ACDPMCC1383AFK1	1.00	MCC 1383A FAILS
1ACBS149-----MC5	1.00	BUS 149 UNAVAILABLE DUE TO MAINTENANCE
1ACDPMCC1383AFC7	1.00	MCC 1383A FAILS
1ESCN18TR1A56OC7	1.00	TEST RELAY TR1A/18 CONTACTS 5&6 SPURIOUSLY OPEN
2DGBS2LPO-9--FG5	1.00	LOCAL DC BUS IN DG 2A PANEL 2LPO9 FAILS
2DCCBRF132---UE5	1.00	
1ESCN18SIX5&6KC7	1.00	DIV 18 RELAY SIX CONTACTS 5&6 FAIL TO CLOSE ON DEMAND
1ACCB14741484UCC	1.00	CB 1474 AND 1484 TRANSFERS OPEN DUE TO A COMMON CAUSE
2DCCBE114F112UCC	1.00	CB E1-14 AND F1-12 TRANSFER OPEN DUE TO COMMON CAUSE
2DCCB212C1---UE2	1.00	CIRCUIT BREAKER 212C1 FROM DC BUS 212 TRANSFERS OPEN
1ESCN18SIX1&2KC7	1.00	DIV 18 RELAY SIX CONTACTS 1&2 FAIL TO CLOSE ON DEMAND
2DCCB212B1---UE2	1.00	CIRCUIT BREAKER 212B1 FROM BATT 212 TRANSFERS OPEN
2DCCB211C2---UE2	1.00	CIRCUIT BREAKER 211C2 FROM DC BUS 211 TRANSFERS OPEN
2DCCB211C1---UE2	1.00	CIRCUIT BREAKER 211C1 FROM DC BUS 211 TRANSFERS OPEN
2DCCB011A1---UE3	1.00	CIRCUIT BREAKER 011A1 FROM BATT CHARGER 011 TRANSFERS OPEN
1ESCN18R11&2-KC7	1.00	DIV 18 RELAY R1 CONTACTS 1&2 FAIL TO CLOSE ON DEMAND
2DCBY211212--FCC	1.00	BATTERY 211 AND 212 FAIL DUE TO COMMON CAUSE
2DCBS248-----FC8	1.00	LOCAL DC BUS IN BUS 248 FAILS
1ACBS149-----FC5	1.00	BUS 149 FAILS
2DCBC011-----FE3	1.00	BATTERY CHARGER 011 FAILS
1ESCN17TR15&6OD1	1.00	TEST RELAY TR1/17 CONTACTS 5&6 SPURIOUSLY OPEN
1ESCN17SIX3&4KD1	1.00	DIV 17 RELAY SIX CONTACTS 3&4 FAIL TO CLOSE ON DEMAND
1ACDPMCC1372-FD1	1.00	MCC 1372 FAILS
1ACBS148-----MC7	1.00	BUS 148 UNAVAILABLE DUE TO MAINTENANCE
1ESCN17SIX1&2KD1	1.00	DIV 17 RELAY SIX CONTACTS 1&2 FAIL TO CLOSE ON DEMAND
2ACCB4718191-UCC	1.00	BREAKERS 2471, 2481, & 2491 TRANSF. OPEN DUE TO COMMON CAUSE
1ACDPMCC1371-MD1	1.00	MCC 1371 IS UNAVAILABLE DUE TO MAINTENANCE

2ACCB4243444-UCC	1.00	BREAKERS 2424, 2434, & 2444 TRANSF. OPEN DUE TO COMMON CAUSE
2ACCB2491----UC6	1.00	FD. BREAKER 2491 TO BUS 249 TRANSFERS OPEN
1ESCN17R21&2-KD1	1.00	DIV 17 RELAY R2 CONTACTS 1&2 FAIL TO CLOSE ON DEMAND
2ACCB2442----UD4	1.00	FD. BREAKER 2442 TO BUS 244 TRANSFERS OPEN
1ESCN17R11&2-KD1	1.00	DIV 17 RELAY R1 CONTACTS 1&2 FAIL TO CLOSE ON DEMAND
2ACCB2434----UD4	1.00	FD. BREAKER 2434 TO BUS 248 TRANSFERS OPEN
2ACCB2432----UD4	1.00	FD. BREAKER 2432 TO BUS 243 TRANSFERS OPEN
1ESCN16C5&D5-OC5	1.00	TEST SWITCH #16 N-T CONTACTS C5&D5 SPURIOUSLY OPEN
1ACDPMCC1371-FD1	1.00	MCC 1371 FAILS
2ACBS248-----QD4	1.00	
2ACBS248-----MD4	1.00	
1ESCN15E11F11OC7	1.00	TEST SWITCH #15 N-T CONTACTS E11&F11 SPURIOUSLY OPEN
BCCPS006-----FK1	1.00	FAILURE OF LOW DISCHARGE PRESSURE START SIGNAL
1ESCN14A5&B5-OD1	1.00	TEST SWITCH #14 N-T CONTACTS A5&B5 SPURIOUSLY OPEN
1VCPM007-----XZ2	1.00	CHARGING PUMP 1B RANDOMLY FAILS TO RUN
1ESCN139E&F--UE1	1.00	RESET SWITCH #139 CONTACTS E&F SPURIOUSLY OPEN
1VCPM006007--XCC	1.00	CHARGING PUMPS 1A AND 1B FAIL TO RUN DUE TO COMMON CAUSE
1ACBS148-----FC7	1.00	BUS 148 FAILS
1SWPS003-----FR1	1.00	FAILURE OF LOW DISCHARGE PRESSURE START SIGNAL
1ACBS147-----MD1	1.00	BUS 147 UNAVAILABLE DUE TO MAINTENANCE
1SWPM001002--ACC	1.00	PUMPS 1A & 1B FAIL TO START DUE TO CC
1DGBS1LP07---FG6	1.00	LOCAL DC BUS IN DG D PANEL 1LP07 FAILS
1DGBS1LP07---FG6	1.00	LOCAL DC BUS IN DG O PANEL 1LP07 FAILS
1DGBS1LP0-9--FD3	1.00	LOCAL DC BUS IN DG 1A PANEL 1LP09 FAILS
1SWCV0001----DR1	1.00	CHECK VALVE 1SW0001 RANDOMLY FAILS TO OPEN
1DGBS1B-----FG2	1.00	LOCAL DC BUS IN DG 1B CONTROL PANEL FAILS
1AFMWFW005051-CC	1.00	FAILURE OF AFW MOV FWD050 & 51 TO CLOSE DUE TO COMMON CAUSE
1DCFU600AFUSEB1	1.00	600 AMP FUSE IN TIE LINE FAILS
1SIPM004-----M15	1.00	SI PUMP 1B UNAVAILABLE DUE TO MAINTENANCE
1ACCB4A2D2C--UCC	1.00	CB 1374A, 1382D AND 1392C TRANS- FER OPEN DUE TO A COMMON CA
1DCFU25-----BD5	1.00	20 AMP FUSE 25 FROM DIST. CABINET BUS 113 FAILS
1ACCB4B4494--UCC	1.00	CB 1484 AND 1494 TRANSFER OPEN DUE TO A COMMON CAUSE
1SIPM003-----M15	1.00	SI PUMP 1A UNAVAILABLE DUE TO MAINTENANCE
1AFCVMS0007--DL2	1.00	CHECK VALVE 1MS0007 RANDOM FAILURE TO OPEN
1AFCVMS0006--DL2	1.00	CHECK VALVE 1MS0006 RANDOM FAILURE TO OPEN
1SICV9012DCB-DCC	1.00	CHECK VALVES 1S19012D, C, B FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9012DC--DCC	1.00	CHECK VALVES 1S19012D, C FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9012DB--DCC	1.00	CHECK VALVES 1S19012D, B FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9012D---DZZ	1.00	CHECK VALVE 1S19012D RANDOMLY FAILS TO OPEN
1SICV9012CD--DCC	1.00	CHECK VALVES 1S19012C, D FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9012CB--DCC	1.00	CHECK VALVES 1S19012C, B FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9012C---DZZ	1.00	CHECK VALVE 1S19012C RANDOMLY FAILS TO OPEN
1SICV9012BD--DCC	1.00	CHECK VALVES 1S19012B, D FAIL TO OPEN DUE TO COMMON CAUSE
1DCCBF14-----UE1	1.00	FD BREAKER F1-4 FROM DC BUS 112 TRANSFERS OPEN
1SICV9012BC--DCC	1.00	CHECK VALVES 1S19012B, C FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9012B---DZZ	1.00	CHECK VALVE 1S19012B RANDOMLY FAILS TO OPEN
1DCCBF120----UE1	1.00	FD BREAKER F1-20 FROM DC BUS 112 TRANSFERS OPEN
1SICV9012AD--DCC	1.00	CHECK VALVES 1S19012A, D FAIL TO OPEN DUE TO COMMON CAUSE
1ACBS137-----FD1	1.00	480V ESF BUS 137 FAILS
1SICV9012AC--DCC	1.00	CHECK VALVES 1S19012A, C FAIL TO OPEN DUE TO COMMON CAUSE
1DCCBE120F120UCC	1.00	CB E1-20 AND F1-20 TRANSFER OPEN DUE TO COMMON CAUSE
1SICV9012AB--DCC	1.00	CHECK VALVES 1S19012A, B FAIL TO OPEN DUE TO COMMON CAUSE

1S1CV9012A---DZZ	1.00	CHECK VALVE 1S19012A RANDOMLY FAILS TO OPEN
1DCCBE120---UE1	1.00	FD BREAKER E1-20 FROM DC BUS 111 TRANSFERS OPEN
1DCCBC6E13F13UCC	1.00	CB F1-13, C1-6 AND E1-13 TRANS OPEN DUE TO COMMON CAUSE
1DCCBC18---UE3	1.00	FD BREAKER C1-8 FROM DC BUS 011-1 TRANSFERS OPEN
1DCCBC16E113-UCC	1.00	CB C1-6 AND E1-13 TRANSFER OPEN DUE TO COMMON CAUSE
1DCCBC12F14--UCC	1.00	FD BREAKER C1-2 AND F1-4 OPEN DUE TO COMMON CAUSE
1ACBS147-----FD1	1.00	BUS 147 FAILS
1DCCBB1-----UE1	1.00	CIRCUIT BREAKER 112B1 FROM BATT CHARGER 112 TRANSFERS OPEN
1DCCB1A2112B2UCC	1.00	CB 011A2 AND 112B2 TRANSFER OPEN DUE TO A COMMON CAUSE
1DCCB1A1111B1UCC	1.00	CB 011A1 AND 111B1 TRANSFER OPEN DUE TO A COMMON CAUSE
1DCCB18E12F12UCC	1.00	CB C1-8, E1-20, AND F1-20 TRANSFER OPEN DUE TO COMMON CAUSE
BSWPM020102--XCC	1.00	PUMPS 1B, 2A & 2B FAIL TO RUN DUE TO CC
1DCCB11B112B1UCC	1.00	CB 111B1 AND 112B1 TRANSFER OPEN DUE TO A COMMON CAUSE
1ACCB471B191-UCC	1.00	BREAKERS 1471, 1481, & 1491 TRANSF. OPEN DUE TO COMMON CAUSE
1DCCB112C1---UE1	1.00	CIRCUIT BREAKER 112C1 FROM DC BUS 112 TRANSFERS OPEN
1S1CV8919B---DZZ	1.00	CHECK VALVE 1S1CV8919B RANDOMLY FAILS TO OPEN
1S1CV8919AB--DCC	1.00	CHECK VALVES 1S1CV8919A & B FAIL DUE TO COMMON CAUSE
1S1CV8919A---DZZ	1.00	CHECK VALVE 1S1CV8919A RANDOMLY FAILS TO OPEN
1DCCB112B2---UE1	1.00	CIRCUIT BREAKER 112B2 FROM BATTERY 112 TRANSFERS OPEN
1S1CV8900CD--DCC	1.00	CHECK VALVES 1S1B900C, D FAIL TO OPEN DUE TO COMMON CAUSE
1DCCB111C1---UE1	1.00	CIRCUIT BREAKER 111C1 FROM DC BUS 111 TRANSFERS OPEN
1S1CV8900BD--DCC	1.00	CHECK VALVES 1S1B900B, D FAIL TO OPEN DUE TO COMMON CAUSE
1S1CV8900BC--DCC	1.00	CHECK VALVES 1S1B900B, C FAIL TO OPEN DUE TO COMMON CAUSE
1DCCB111B1---UE1	1.00	CIRCUIT BREAKER 111B1 FROM BATT CHARGER 111 TRANSFERS OPEN
1S1CV8900AD--DCC	1.00	CHECK VALVES 1S1B900A, D FAIL TO OPEN DUE TO COMMON CAUSE
BSWPM1C2C---XCC	1.00	
1S1CV8900AC--DCC	1.00	CHECK VALVES 1S1B900A, C FAIL TO OPEN DUE TO COMMON CAUSE
1DCCB011101--UE3	1.00	CIRCUIT BREAKER 011101 FROM DC BUS 011-1 TRANSFERS OPEN
1S1CV8900AB--DCC	1.00	CHECK VALVES 1S1B900A, B FAIL TO OPEN DUE TO COMMON CAUSE
1DCBY112112--ME1	1.00	BATTERY 112 AND CHARGER 112 ARE UNAVAILABLE DUE TO EQUALIZAT
1DCBY112-----FE1	1.00	BATTERY 112 FAILS
1DCBY111112--FCC	1.00	BATTERY 111 AND 112 FAIL DUE TO A COMMON CAUSE
1DCBY111-----FE1	1.00	BATTERY 111 FAILS
1DCBY011112--FCC	1.00	BATTERY 011 AND 112 FAIL DUE TO A COMMON CAUSE
1DCBY011112--FCC	1.00	BATTERY 011, 111 AND 112 FAIL DUE TO COMMON CAUSE
1RVMO1B1D1E--XCC	1.00	FAN 1B, 1D & 1E FAILS TO RUN IN LOW SPEED DUE TO CC
1RVMO1B1D1E--FCC	1.00	FANS 1B, 1D & 1E FAIL TO SWITCH TO LOW SPEED DUE TO CC
1RVMO1B-----FA5	1.00	1B FAN FAILS TO SWITCH TO LOW SPEED RANDOMLY
1ACCB471481--UCC	1.00	FD. BREAKER 1471 AND 1481 TRANSFER OPEN DUE TO COMMON CAUSE
1RVMO1A1D1E--XCC	1.00	FAN 1A, 1D & 1E FAILS TO RUN IN LOW SPEED DUE TO CC
1RVMO1A1D1E--FCC	1.00	FANS 1A, 1D & 1E FAIL TO SWITCH TO LOW SPEED DUE TO CC
1DCBS149-----FC5	1.00	LOCAL DC BUS IN BUS 149 FAILS
1RVMO1A1B1E--XCC	1.00	FAN 1A, 1B & 1E FAILS TO RUN IN LOW SPEED DUE TO CC
1RVMO1A1B1E--FCC	1.00	FANS 1A, 1B & 1E FAIL TO SWITCH TO LOW SPEED DUE TO CC
1DCBS148-----FC7	1.00	LOCAL DC BUS IN BUS 148 FAILS
1RVMO1A1B1D1EXCC	1.00	FAN 1A, 1B, 1D, 1E FAILS TO RUN IN LOW SPEED DUE TO CC
1RVMO1A1B1D1EFCC	1.00	FANS 1A, 1B, 1D, 1E FAIL TO SWITCH TO LOW SPEED DUE TO CC
1DCBS147-----FD3	1.00	LOCAL DC BUS IN BUS 147 FAILS
1RVMO1A1B1D--XCC	1.00	FAN 1A, 1B & 1D FAILS TO RUN IN LOW SPEED DUE TO CC
1RVMO1A1B1D--FCC	1.00	FANS 1A, 1B & 1D FAIL TO SWITCH TO LOW SPEED DUE TO CC
1DCBS147-----FD1	1.00	LOCAL DC BUS IN BUS 147 FAILS
1RVMO1A-----FA5	1.00	1A FAN FAILS TO SWITCH TO LOW SPEED RANDOMLY

1RVMO1E-----FA5	1.00	1E FAN FAILS TO SWITCH TO LOW SPEED RANDOMLY
1DCBS142-----FD3	1.00	LOCAL DC BUS IN BUS 142 FAILS
1RVMO1D-----FA5	1.00	1D FAN FAILS TO SWITCH TO LOW SPEED RANDOMLY
1DCBS137-----FD1	1.00	LOCAL DC BUS IN BUS 137 FAILS
1DCBS112-----FE1	1.00	DC BUS 112 FAILS
2ACCB2444-----UD4	1.00	FD. BREAKER 2444 TO BUS 249 TRANSFERS OPEN
1ACBS144-----FD3	1.00	BUS 144 FAILS
2ACCB2481-----UCB	1.00	FD. BREAKER 2481 TRANSFERS OPEN
1DCBC112-----FE1	1.00	BATTERY CHARGER 112 FAILS
1DCBC111112---FCC	1.00	BATTERY CHARGER 111 AND 112 FAIL DUE TO A COMMON CAUSE
1DCBC111-----FE1	1.00	BATTERY CHARGER 111 FAILS
1DCBC011111---FCC	1.00	BATTERY CHARGER 011 AND 111 FAIL DUE TO COMMON CAUSE
1ACCB4243444---UCC	1.00	BREAKERS 1424, 1434, & 1444 TRANSF. OPEN DUE TO COMMON CAUSE
1ACBS143-----FD3	1.00	BUS 143 FAILS
1MSSV0304-----KCC	1.00	CCF OF STOP VALVES SV0003, SV0004 TO CLOSE
1MSSV0204-----KCC	1.00	CCF STOP VALVES SV0002, SV0004 TO CLOSE
1MSSV0203-----KCC	1.00	CCF OF STOP VALVES SV0002 & SV0003 TO CLOSE
1MSSV0103-----KCC	1.00	CCF OF STOP VALVES SV0001 & SV0003 TO CLOSE
1MSSV0102-----KCC	1.00	CCF OF STOP VALVES SV0001 & SV0002 TO CLOSE
1ACCB3820392CUC	1.00	CB 1382D AND 1392C TRANSFER OPEN DUE TO A COMMON CAUSE
1ACCB1392C---UC5	1.00	CIRCUIT BREAKER 1392C FROM 480V ESF BUS 139 TRANSFERS OPEN
1CSMV002004---DCC	1.00	1MOV-CS0002 AND 1MOV-CS0004 FAIL TO OPEN DUE TO CC
1MSGV0304-----KCC	1.00	CCF OF GOV. VALVES GV0003, GV0004 TO CLOSE
2DCBS211-----FE2	1.00	DC BUS 211 FAILS
1MSGV0204-----KCC	1.00	CCF OF GOV. VALVES GV0002, GV0004 TO CLOSE
1ACCB3748373AUC	1.00	CB 1374B AND 1373A TRANSFER OPEN DUE TO A COMMON CAUSE
1MSGV0203-----KCC	1.00	CCF OF GOV. VALVES GV0002 & GV0003 TO CLOSE
1MSGV0104-----KCC	1.00	CCF OF GOV. VALVES GV0001, GV0004 TO CLOSE
1MSGV0103-----KCC	1.00	CCF OF GOV. VALVES GV0001 & GV0003 TO CLOSE
1MSGV0102-----KCC	1.00	CCF OF GOV. VALVES GV0001 & GV0002
1CSCV0509013-DCC	1.00	CHECK VALVES 5,9,13 FAIL TO OPEN DUE TO CC
1CSCV0507013-DCC	1.00	CHECK VALVES 5,7,13 FAIL TO OPEN DUE TO CC
1CSCV0507011-DCC	1.00	CHECK VALVES 5,7,11 FAIL TO OPEN DUE TO CC
1ACCB374A382DUCC	1.00	CB 1374A AND 1382D TRANSFER OPEN DUE TO A COMMON CAUSE
1CSCV0501109-DCC	1.00	CHECK VALVES 5,11,9 FAIL TO OPEN DUE TO CC
1CSCV0309013-DCC	1.00	CHECK VALVES 3,9,13 FAIL TO OPEN DUE TO CC
1CSCV0307013-DCC	1.00	CHECK VALVES 3,7,13 FAIL TO OPEN DUE TO CC
1CSCV0307011-DCC	1.00	CHECK VALVES 3,7,11 FAIL TO OPEN DUE TO CC
2DCCBF112-----UE2	1.00	FD BREAKER F1-12 FROM DC BUS 212 TRANSFERS OPEN
1DCBY111111---ME1	1.00	BATTERY 111 AND CHARGER 111 ARE UNAVAILABLE DUE TO EQUALIZAT
1DCBY011011---ME3	1.00	BATTERY 011 AND CHARGER 011 ARE UNAVAILABLE DUE TO EQUALIZAT
AFWFACTOR	1.00	AFW 13 HOUR RUN FACTOR
1ACCB1472-----KD1	1.00	FD. BRKR. 1472 TO ESF BUS 147 FAILS TO CLOSE
1CSMV0005-----TZZ	1.00	COMP. FAULT IN SEGMENT H: 1MOV- CS0005 & TRAIN B TEST UNAVAI
1CSPM002B-----AJ5	1.00	CS PUMP CS002-1B FAILS TO START RANDOMLY
1CSPM001B-----MJ5	1.00	SEGMENT F (TRAIN B) UNAVAILABLE DUE TO MAINTENANCE
1EST118TSI---FC7	1.00	DIV 18 MECHANICAL CAM TIMER TSI FAILS DURING OPERATION
1ESRE17R2-----FD1	1.00	DIV 17 RELAY R2 FAILS DURING OPERATION
1SIPM003-----A15	1.00	SI PUMP 1A RANDOMLY FAILS TO START
1SICV8922A---DZ2	1.00	CHECK VALVE 1S18922A RANDOMLY FAILS TO OPEN
1CSKV0040---GJ5	1.00	COMPONENT FAULT IN SEGMENT G: VALVE 1CS0040 LEFT OPEN
1MSAV0017---MZZ	1.00	MAINTENANCE UNAVAILABILITY OF VALVE 1MOV-MS0017

1MSMV0019----	MZZ	1.00	MAINTENANCE UNAVAILABILITY OF VALVE MOV-MS0019
1MSNV0018----	MCC	1.00	MAINTENANCE UNAVAILABILITY OF VALVE MOV-MS0018
1CSPM002B----	XJ5	.999	CS PUMP CS002-1B FAILS TO RUN RANDOMLY
1CSMV0004----	DJ5	.999	1MOV-CS0004 FAILS TO OPEN RANDOMLY
1ESCNTR1BS234OC5		.999	TEST RELAY TR1BS2/TR1 CONTACTS 3&4 SPURIOUSLY OPEN
1ESCN19TR1B34OC5		.999	TEST RELAY TR1B/19 CONTACTS 3&4 SPURIOUSLY OPEN
1ESCN16G10H10OC5		.999	TEST SWITCH #16 M-TS CONTACTS G10&H10 SPURIOUSLY OPEN
1MSMV0020----	MZZ	.998	MAINTENANCE UNAVAILABILITY OF VALVE MOV-MS0020
1MSAV0020AM--	DZZ	.998	ARV MOV-MS0020 VALVE STICKS OR FAILS TO OPEN (FAULT IN VALVE COMPONENT FAULT IN SEGMENT K: VALVE 1CS0043 LEFT OPEN
1CSXV0043----	GJ5	.997	DIV 19 RELAY R3B FAILS DURING OPERATION
1ESRE19R3B---	FC5	.997	DIV 19 RELAY R3A FAILS DURING OPERATION
1ESRE19R3A---	FC5	.997	COMP. FAULT IN SEGMENT L: 1MOV- CS0007 & TRAIN C TEST UNAVAI
1CSMV0007----	TZZ	.997	CS PUMP CS003-1C FAILS TO RUN RANDOMLY
1CSPM003C----	XJ5	.997	DIV 19 MECHANICAL CAM TIMER FAILS DURING OPERATION
1EST119TSI---	FC5	.997	SEGMENT J (TRAIN C) UNAVAILABLE DUE TO MAINTENANCE
1CSPM001C----	MJ5	.997	CONTAINMENT HIGH-HIGH PRESSURE SIGNAL FAILS
1ES--HIHICTPRFE1		.997	1MOV-CS0006 FAILS TO OPEN RANDOMLY
1CSMV0006----	DJ5	.997	CS PUMP CS003-1C FAILS TO START RANDOMLY
1CSPM003C----	AJ5	.997	MOTOR DRIVEN PUMPS 1A AND 1B FAIL TO RUN DUE TO CC
1CSPM01A01B--	XCC	.995	MOTOR DRIVEN PUMPS 1A AND 1B FAIL TO START DUE TO CC
1CSPM01A01B--	ACC	.995	600 AMP FUSE IN TIE LINE FAILS
1DCFU600A----	BE1	.990	225 AMP FUSE IN TIE LINE FAILS
1DCFU225A----	BE3	.990	1MOV-CS0004 AND 1MOV-CS0006 FAIL TO OPEN DUE TO CC
1CSMV004006--	DCC	.990	1MOV-CS0002 AND 1MOV-CS0006 FAIL TO OPEN DUE TO CC
1CSMV002006--	DCC	.990	DIV 18 & 19 MECH CAM TIMER TSI FAILS DURING OP. DUE TO CC
1EST11819TSI--	FCC	.987	DIV 17 & 19 MECH CAM TIMER TSI FAILS DURING OP. DUE TO CC
1EST11719TSI--	FCC	.987	TEST RELAY TR1A/17 CONTACTS 5&6 SPURIOUSLY OPEN
1ESCN17TR1A56001		.978	TEST SWITCH #14 M-T CONTACTS E11&F11 SPURIOUSLY OPEN
1ESCN14E11F11001		.978	1C FAN FAILS TO RUN IN LOW SPEED RANDOMLY
1RVMO1C-----	XA5	.978	SEGMENT C UNAVAILABLE DUE TO MAINTENANCE
1RVHE003-----	MA5	.978	OUTLET VALVE 1MOV-SW0009 FAILS TO OPEN RANDOMLY
1SMV0009----	DZZ	.978	1C FAN FAILS TO START IN LOW SPEED RANDOMLY
1RVMO1C-----	AA5	.978	DIV 17 RELAY R5 FAILS DURING OPERATION
1ESRE17R5----	FD1	.978	DIV 17 RELAY SIX CONTACTS 5&6 FAIL TO CLOSE ON DEMAND
1ESCN17SIX5&6KD1		.973	DIV 17 RELAY R5 CONTACTS 1&2 FAIL TO CLOSE ON DEMAND
1ESCN17R51&2--	KD1	.973	FD. BREAKER 1491 TRANSFERS OPEN
1ACCB1491----	UC5	.971	FD. BREAKER 1471 TRANSFERS OPEN
1ACCB1481----	UC7	.971	FD. BREAKER 1414 TO BUS 149 TRANSFERS OPEN
1ACCB1444----	UD3	.971	FD. BREAKER 1411 TO BUS 148 TRANSFERS OPEN
1ACCB1434----	UD3	.971	FD. BREAKER 1432 TO BUS 143 TRANSFERS OPEN
1ACCB1432----	UD3	.971	CCF TO OPEN OF ARV MS0017, MS0018 MS0019 & MS0020
1MSAV17181920DCC		.919	CCF TO OPEN OF ARV MS0019 AND MS0020
1MSAV019020--	DCC	.918	CCF TO OPEN OF ARV MS0018 AND MS0020
1MSAV018020--	DCC	.918	CCF TO OPEN OF ARV MS0017 AND MS0020
1MSAV017020--	DCC	.918	CHECK VALVES 1S19012B, C, D FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9012BCD--	DCC	.912	CHECK VALVES 1S19012A, C, D FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9012ACD--	DCC	.912	CHECK VALVES 1S19022A, B, D FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9012ABD--	DCC	.912	CHECK VALVES 1S19012A, B, C FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9012ABC--	DCC	.912	CHECK VALVE 1S18922A AND B FAIL TO OPEN DUE TO COMMON CAUSE
1SICV8922AB--	DCC	.909	DIV 17 RELAY R2 AND DIV 18 RELAY R1 FAIL DUE TO COMMON CAUSE
1ESRE17R218R1FCC		.900	CHECK VALVES 1S19012A,B,C,D FAIL TO OPEN DUE TO COMMON CAUSE
1SICV9012ABCDCC		.897	

1SIPM003004--ACC	.896	SI PUMPS 1A AND 1B FAIL TO START DUE TO COMMON CAUSE
1SICV8926---D15	.896	CHECK VALVE 1S18926 RANDOMLY FAILS TO OPEN IN SEGMENT K
1MSAV181920--DCC	.895	CCF TO OPEN OF ARV MS0018, MS0019 AND MS0020
1MSAV171920--DCC	.895	CCF TO OPEN OF ARV MS0017, MS0019 AND MS0020
1MSAV171820--DCC	.895	CCF TO OPEN OF ARV MS0017, MS0018 AND MS0020
1EST117189TIFCC	.882	DIV 17, 18 & 19 MECH CAM TIMER TSI FAILS DURING OPER. DUE TO
1CSMV020406--DCC	.881	1MOV-CS0002, -004 & -006 FAIL TO OPEN DUE TO CC
1ESRE78R39R38FCC	.877	DIV 17 & 18 R3 & DIV 19 R3B RELAY FAIL? DURING OPER. DUE TO
1ESRE78R39R3AFCC	.877	DIV 17 & 18 R3 & DIV 19 R3A RELAY FAILS DURING OPER. DUE TO
2DCBY011-----FE3	.755	BATTERY 011 FAILS
1DCCB111B2---UE1	.278	CIRCUIT BREAKER 111B2 FROM BATT- ERY 111 TRANS- FERS OPEN
1DCCB011A2---UE3	4.717E-02	CIRCUIT BREAKER 011A2 FROM BATT- ERY 011 TRANS- FERS OPEN
1DCBS111-----FE1	3.754E-02	DC BUS 111 FAILS
1DCBS0111----FE3	3.754E-02	DC BUS 011-1 FAILS
SLO 2	.000	CONSEQUENTIAL SMALL LOCA (WITH SW OR CCW)
LDCPRT1	.000	SUCCESS EVENTS
1MSGV020304--KCC	.000	CCF OF GOV. VALVES GV0002, GV0003, GV0004 TO CLOSE

ATTACHMENT 4

Page 1
August 17, 1993

ZION STATION

IMPORTANCE OF EACH PRT NODE QUANTIFICATION

Component	Risk Reduction Worth	Description
AC_LSC	1.00	ALIGN CHARGING PUMP SUCTION TO THE RWST
AFI_STR1	1.00	CLOSE MOV FWO050 & 051 ALL POWER AVAIL
AFW_AT	1.00	1/1 AUX FEED TDP OR 2/2 MDP TO 1/4 SGS (OPEN THRTL VALVES)
AFW_STR_5	1.00	1/3 AUX FEED PMPS TO 4/4 SG 147 AVAIL
AFW_LSP_4	1.00	1/3 AUX FEED PMPS TO 4/4 SG OR 1/4 SG W/OA 148 & 149 AVAIL
AFW_LSP_6	1.00	1/3 AUX FEED PMPS TO 4/4 SG OR 1/4 SG W/OA 148 AVAIL
AFW_LSP_7	1.00	1/3 AUX FEED PMPS TO 4/4 SG OR 1/4 SG W/OA 149 AVAIL
AFW_LSP_8	1.16	1/3 AUX FEED PMPS TO 4/4 SG NO POWER
AFW_SBOTD	1.00	1/1 AUX FEED TDP TO 4/4 SGS
AFW_TRA_1	1.00	1/3 AUX FEED PMPS TO 4/4 SG OR 1/4 SG W/OA ALL POWER
AFW_TRA_6	1.00	1/3 AUX FEED PMPS TO 4/4 SG OR 1/4 SG W/OA 148 AVAIL
AFW_TRA_7	1.00	1/3 AUX FEED PMPS TO 4/4 SG OR 1/4 SG W/OA 149 AVAIL
AFW_TRA_8	1.00	1/3 AUX FEED PMPS TO 4/4 SG NO POWER
ALT_MFW1	1.00	1/3 MFW TO 1/4 SGS & 1/4 CBPs - LOSS OF 011-1 OR LOSP
AM_ATW	1.00	ATWS MITIGATING SYSTEM ACTUATION CIRCUIT
BUS_LSP_1	1.00	AC POWER WITH LOSP 147,148,149 FAIL
BUS_LSP_4	1.00	AC POWER WITH LOSP 148,149 FAIL
BUS_DSP_1	1.09	AC POWER WITH DLOSP 147,148,149 FAIL
BUS_DSP_2	1.01	AC POWER WITH DLOSP 147,148 FAIL
BUS_DSP_3	1.00	AC POWER WITH DLOSP 147,149 FAIL
BUS_DSP_4	1.16	AC POWER WITH DLOSP 148,149 FAIL
BUS_DSP_5	1.00	AC POWER WITH DLOSP 147 FAILS
BUS_DSP_6	1.00	AC POWER WITH DLOSP 148 FAILS
BUS_DSP_7	1.00	AC POWER WITH DLOSP 149 FAILS
BUS_DSP_1	1.00	AC POWER WITH OFFSITE 147,148,149 FAIL
BUS_DSP_3	1.00	AC POWER WITH OFFSITE 147,149 FAIL
BUS_DSP_4	1.00	AC POWER WITH OFFSITE 148,149 FAIL
BUS_DSP_5	1.00	AC POWER WITH OFFSITE 147 FAILS
CB_1	1.00	1/4 COND BOOSTER PMPS TO 1/4 SGS - LOSS OF 011-1 OR LOSP
CCP_SLO_1	1.02	1/2 CCPs INJECTING TO 2/4 C LEGS ALL POWER
CCP_SLO_4	1.00	1/2 CCPs INJECTING TO 2/4 C LEGS 148 & 149 AVAIL
CCP_SLO_8	1.01	1/2 CCPs INJECTING TO 2/4 C LEGS NO POWER
CCW	1.00	LOSS OF COMPONENT COOLING WATER
CCW_DLP_7	1.00	COMPONENT COOLING WATER W/DLOSP-148&149 FAIL
CCW_LOC_1	1.00	COMPONENT COOLING WATER W/LOCA-ALL POWER
CCW_TRA_1	1.00	COMPONENT COOLING WATER W/TRAN-ALL POWER
CI_ALL	1.00	CONTAINMENT ISOLATION (ESFAS SUCCESS, SPRAY ACTUATED)
CI_3	1.00	CONTAINMENT ISOLATION (ESFAS FAILED, SPRAY ACTUATED)
CSI_1	1.00	1/3 CONTAINMENT SPRAY PUMPS ALL POWER
CSI_5	1.02	1/3 CONTAINMENT SPRAY PUMPS 147 AVAIL
CSI_8	1.02	1/3 CONTAINMENT SPRAY PUMPS NO POWER AVAIL
DCB_LSP_1	1.00	DC POWER WITH LOSP 011-1,111,112 FAIL
DCB_LSP_3	1.00	DC POWER WITH LOSP 011-1,112 FAIL
DCB_LSP_4	1.00	DC POWER WITH LOSP 111,112 FAIL
DCB_OSP1	1.00	DC POWER W/OS 011-1,111,112 FAIL-ALL POWER
DCB_OSP13	1.00	DC POWER W/OS 011-1,112 FAIL-147&149 AVAIL
DCB_OSP17	1.00	DC POWER W/OS 111,112 FAIL-148&149 AVAIL
DS_DC	1.00	1/4 ARV OR 1/12 STM DMP - LOSS DC
DS_LOC	1.00	1/4 ARV OR 1/3 STM DMP - LOCAS
DS_STR	1.00	2/3 ARV ON INTACT SGs OR 2/3 STM DMP
EC_LSC	1.00	1 FIREWATER PMP & VALVES TO OPERATING CCP - ALL POWER
ESF_WOA_1	1.02	ESFAS NO OPER ACTION-BOTH TRAINS FAIL
ESF_WOA_1	1.00	ESFAS W/OP ACTION-BOTH TRAINS FAIL
ESF_MAN_1	1.00	ESFAS MANUAL; HDW ONLY-BOTH TRAINS FAIL
FC11	1.00	1/5 FAN COOLERS ALL POWER
FC1X	1.00	1/5 FAN COOLERS ALL POWER WITH RESTORATION (FC11+ORE_SBO)
FC15	1.00	1/5 FAN COOLERS 147 AVAIL
FC18	1.01	1/5 FAN COOLERS NO POWER
FC21	1.00	2/5 FAN COOLERS ALL POWER
HPI_ATW	1.00	HIGH PRESSURE INJECTION ASSUMED TO FAIL - ATWS

HPI_LL_1	1.00	1/4 HIGH PRESSURE INJ PMPS TO 2/3 C LEGS ALL POWER (COND)
HPI_LL_8	1.02	1/4 HIGH PRESSURE INJ PMPS TO 2/3 C LEGS NO POWER
HPI_LSP_1	1.00	1/4 HIGH PRESSURE INJ PMPS TO 2/4 C LEGS ALL POWER
HPI_LSP_5	1.00	1/4 HIGH PRESSURE INJ PMPS TO 2/4 C LEGS 147 AVAIL
HPI_LSP_6	1.00	1/4 HIGH PRESSURE INJ PMPS TO 2/4 C LEGS 148 AVAIL
HPI_TRA_1	1.00	1/4 HIGH PRESSURE INJ PMPS TO 2/4 C LEGS ALL POWER
HPI_TRA_8	1.00	1/4 HIGH PRESSURE INJ PMPS TO 2/4 C LEGS NO POWER
HPR_LOC_1	1.00	1/4 HIGH PRESSURE RECIRC TO 2/3 C LEGS ALL POWER (COND)
HPR_SLOS1	1.00	1/2 SIPs RECIRC TO 2/4 C LEGS ALL POWER (COND)
HPR_SLOS8	1.00	1/2 SIPs RECIRC TO 2/4 C LEGS NO POWER
HPR_TRA_1	1.00	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS ALL POWER (COND)
HPR_LSP_1	1.00	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS ALL POWER (COND)
HPR_TRA_2	1.00	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS 147 & 148 AVAIL
HPR_TRA_3	1.00	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS 147 & 149 AVAIL
HPR_LDC_3	1.00	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS 147&149 AV (COND)
HPR_TRA_4	1.00	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS 148 & 149 AVAIL
HPR_TRA_6	1.00	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS 148 AVAIL
HPR_TRA_7	1.00	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS 149 AVAIL
HPR_TRA_8	1.14	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS NO POWER
HPR_SBO	1.00	1/2 CCPs RECIRC TO 2/4 C LEGS ALL POWER AVAILABLE (COND)
LPI_LL_1	1.12	1/2 LOW PRESSURE INJ PMPS TO 2/3 C LEGS ALL POWER
LPI_LL_2	1.00	1/2 LOW PRESSURE INJ PMPS TO 2/3 C LEGS 147 & 148 AVAIL
LPI_LL_3	1.00	1/2 LOW PRESSURE INJ PMPS TO 2/3 C LEGS 147 & 149 AVAIL
LPI_LL_8	1.02	1/2 LOW PRESSURE INJ PMPS TO 2/3 C LEGS NO POWER
LPI_ML_1	1.01	1/2 LOW PRESSURE INJ PMPS TO 2/4 C LEGS ALL POWER (COND)
LPI_ML_4	1.00	1/2 LOW PRESSURE INJ PMPS TO 2/4 C LEGS 148 & 149 AVAIL
LPI_ML_5	1.00	1/2 LOW PRESSURE INJ PMPS TO 2/4 C LEGS 147 AVAIL
LPI_ML_8	1.00	1/2 LOW PRESSURE INJ PMPS TO 2/4 C LEGS NO POWER
LPI_SLO_1	1.02	1/2 RHR PUMPS ON MINIFLOW ALL POWER
LPI_SLO_8	1.00	1/2 RHR PUMPS ON MINIFLOW NO POWER
LPR_LL_1	1.03	1/2 LOW PRESSURE RECIRC TO 1/3 C LEGS ALL POWER (COND)
LPR_LL_2	1.00	1/2 LOW PRESSURE RECIRC TO 1/3 C LEGS 149 AVAIL
LPR_LL_3	1.00	1/2 LOW PRESSURE RECIRC TO 1/3 C LEGS 148 AVAIL
LPR_ML_1	1.04	1/2 LOW PRESSURE RECIRC TO 2/4 C LEGS ALL POWER (COND)
LPR_SLO_1	1.00	1/2 LOW PRESSURE RECIRC TO 2/4 C LEGS ALL POWER (COND)
LPR_SLO_2	1.00	1/2 LOW PRESSURE RECIRC TO 2/4 C LEGS 149 AVAIL
MF_ATW	1.00	FRACTION OF TRANSIENTS MAIN FEED UNAVAIL UNTIL TURBINE TRIP
OAC_LSC	1.00	OP ACTION - ALIGN CHARGING SUCTION TO RWST
OCC_LCW	1.00	OP ACTION - RESTORE COMPONENT COOLING WATER
OAF_STR	1.00	OP ACTION - ISOLATE FEED TO RUPT SG
ODS_SLO	1.00	OP ACTION - SG DEPRES FOR PRIM COOLING (ODS1a)
ODS_MLO	1.00	OP ACTION - SG DEPRES FOR PRIM COOLING (ODS1b)
ODS_STR	1.21	OP ACTION - SG DEPRES FOR PRIM COOLING (ODS2)
ODS_ALL	1.00	OP ACTION - SG DEPRES FOR PRIM COOLING (ODS3)
DEC_LSC	1.00	OP ACTION - FIREWATER TO CCP OIL COOLER
OHX_ALL	1.00	OP ACTION - ESTAB CCW TO RHR HEAT EXCHANGER
OIB_ISL	1.00	OP ACTION - ISOLATE RHR BREACH
OIR_STR	1.14	OP ACTION - MINIMIZE ECCS FLOW
ONC_SLO	1.00	OP ACTION - ESTAB NORMAL CHARGING (ONC2)
OPR_ALL	1.00	OP ACTION - DEPRES PRIM WITH PRZR PORVS
ORC_HPR	1.00	OP ACTION - ESTAB HIGH PRESSURE ECC RECIRC
ORC_LPR	1.04	OP ACTION - ESTAB LOW PRESSURE ECC RECIRC
ORC_LLS	1.20	OP ACTION - ESTAB LOW PRESSURE ECC RECIRC (LLOCA W/SPRAY)
ORE_SBO	1.04	OP ACTION - RESTORE EQUIP&SUPPORT SYSTEMS
ORF_ALL	1.00	OP ACTION - RESTORE CB &/OR MFW
ORS_ALL	1.00	OP ACTION - RAPID SG DEPRES FOR CB INJ (ORS1)
ORS_SBO	1.00	OP ACTION - RAPID SG DEPRES FOR CB INJ (ORS2)
ORT_ALL	1.23	OP ACTION - REFILL THE RWST
ORT_LLO	1.17	RWST REFILL NOT POSSIBLE FOR LARGE LOCA WITH CURRENT EOPs
OSC_LCW	1.00	OP ACTION - STOP CCW PUMPS
OSI_ALL	1.00	OP ACTION - INITIATE SAFETY INJECTION
OSI_NOESF	1.00	OP ACTION - INITIATE SAFETY INJECTION (ESFAS HDW FAILED)
OSW_LSW	1.00	OP ACTION - RESTORE SW AND ALIGN CCW
OTT_ATW	1.00	OP ACTION - TURB TRIP OR CLOSE MSIVS
PL_ATW	1.00	POWER LEVEL GREATER THAN 60 PERCENT
PRV_1	1.00	1/2 PRZR PORVS - ALL POWER
RHX_ALL_2	1.00	1/2 RHR HEAT EXCHANGERS 148 FAILED (1/1)
RHX_ALL_3	1.00	1/2 RHR HEAT EXCHANGERS 149 FAILED (1/1)

RHX_ALL_5	1.00	2/2 RHR HEAT EXCHANGERS 148&149 AVAILABLE
RHX_SLO_5	1.00	2/2 RHR HEAT EXCHANGERS 148&149 AVAILABLE (COND)
RHX_ALL_6	1.02	2/2 RHR HEAT EXCHANGERS 148 OR 149 FAILED
RTK_ALL	1.00	EQUIPMENT TO REFILL THE RWST
RTK_STR	1.13	EQUIPMENT TO REFILL THE RWST (SGTR)
RTK_LOC	1.11	EQUIPMENT TO REFILL THE RWST FOR LOCAs (RTK_ALL+0.25)
RTK_FAIL	1.16	EQUIPMENT TO REFILL THE RWST (POWER UNAVAILABLE)
RXT_TRA	1.00	FAILURE OF REACTOR TRIP
SAC_OSP2	1.00	SAF ACT 17,18,19 FAIL-ONE ESFAS AVAIL
SAC_OSP7	1.00	SAF ACT 18,19 FAIL-BOTH ESFAS AVAIL (W/RESTORATION)
SAC_OSP8	1.00	SAF ACT 18,19 FAIL-ONE ESFAS AVAIL
SAC_OSP12	1.00	SAF ACT 18 FAILS-ONE ESFAS AVAIL
SAC_OSP14	1.00	SAF ACT 19 FAILS-ONE ESFAS AVAIL
SAC_MAN	1.00	MANUAL ACTUATION OF SAFEGUARDS EQUIPMENT (RE_SBO+ORE_SBO)
SAC_FAIL	1.02	MANUAL ACTUATION OF EQUIPMENT NOT MODELED FOR LARGE LOCA
SBO_1	1.12	LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT
SIP_SLO_1	1.00	1/2 SAFETY INJECTION PMPS TO 2/4 C LEGS ALL POWER
SIP_SLO_8	1.01	1/2 SAFETY INJECTION PMPS TO 2/4 C LEGS NO POWER
SLO_1	1.00	CONSEQUENTIAL SMALL LOCA NO SW/CCW (EC_LSCX+OEC_LSC+SLO_2)
SWS	1.00	LOSS OF SERVICE WATER
SWS_DLP_1	1.00	SERVICE WATER W/DLOSP-ALL POWER
SWS_DLP_2	1.00	SERVICE WATER W/DLOSP-147 FAILED
SWS_DLP_3	1.00	SERVICE WATER W/DLOSP-148 FAILED
SWS_DLP_4	1.00	SERVICE WATER W/DLOSP-149 FAILED
SWS_DLP_5	1.01	SERVICE WATER W/DLOSP-147&148 FAIL
SWS_DLP_6	1.00	SERVICE WATER W/DLOSP-147&149 FAIL
SWS_DLP_7	1.00	SERVICE WATER W/DLOSP-148&149 FAIL
SWS_LOC_1	1.00	SERVICE WATER W/LOCA-ALL POWER
SWS_LSP_1	1.00	SERVICE WATER W/DLOSP-ALL POWER
SWS_TRA_1	1.00	SERVICE WATER W/TRAN-ALL POWER
TT_1	1.00	CLOSE 4/4 STOP OR 4/4 GOV. VALVES FOR TURBINE TRIP
XCC_S2	1.00	CORE UNCOVERED PRIOR TO POWER RECOVERY AT 2 HRS (SEALLOCA)
XCC_S16	1.00	CORE UNCOVERED PRIOR TO POWER RECOVERY AT 16 HRS (SEALLOCA)
XCC_S24	1.06	CORE UNCOVERED PRIOR TO POWER RECOVERY AT 24 HRS (SEALLOCA)
XHR_S2	1.00	POWER RECOV FAILURE PROB AT 2 HRS (TD FAIL)
XHR_S24	1.00	POWER RECOV FAILURE PROB AT 24 HRS (TD & DS)
YHR_SB2	1.00	POWER RECOV FAILURE PROB AT 24 HRS/NO RECOVERY AT 2 HRS
DLOOP-SS1	1.00	SUCCESS EVENTS
TRAN-SS1	1.00	SUCCESS EVENTS
LOC-SS1	1.00	SUCCESS EVENTS
DLOOP-SWS-SS19B	1.00	SUCCESS EVENTS
DLOOPBUS-SS19B	1.00	SUCCESS EVENTS
LOOP-SS19B	1.00	SUCCESS EVENTS
DLOOP-SS200	1.00	SUCCESS EVENTS
LOOP-SS200	1.00	SUCCESS EVENTS
GTR-SS105	1.00	SUCCESS EVENTS
GTR-SS117	1.00	SUCCESS EVENTS
LDC-SS22	1.00	SUCCESS EVENTS
MLPRT1	1.00	SUCCESS EVENTS
MLPRT2	1.00	SUCCESS EVENTS
MLPRT3	1.00	SUCCESS EVENTS
SLPRT1	1.00	SUCCESS EVENTS
SLPRT3	1.00	SUCCESS EVENTS
SLPRT4	1.00	SUCCESS EVENTS
SLPRT5	1.00	SUCCESS EVENTS
SGTRPRT1	1.00	SUCCESS EVENTS
SGTRPRT3	1.00	SUCCESS EVENTS
SGTRPRT4	1.00	SUCCESS EVENTS
SGTRPRT8	1.00	SUCCESS EVENTS
DLOOPPRT2	1.00	SUCCESS EVENTS
DLOOPPRT6	1.00	SUCCESS EVENTS
DLOOPPRT7	.998	SUCCESS EVENTS
DLOOPPRT8	.998	SUCCESS EVENTS
DLOOPPRT10	.996	SUCCESS EVENTS
DLOOPPRT14	1.00	SUCCESS EVENTS
DLOOPPRT17	1.00	SUCCESS EVENTS
DLOOPPRT19	1.00	SUCCESS EVENTS
LOOPPRT2	1.00	SUCCESS EVENTS

LOOPPRT3	1.00	SUCCESS EVENTS
LOOPPRT4	1.00	SUCCESS EVENTS
LOOPPRT5	1.00	SUCCESS EVENTS
LOOPPRT6	1.00	SUCCESS EVENTS
GTRPPT1	1.00	SUCCESS EVENTS
GTRPP: 2	1.00	SUCCESS EVENTS
GTRPRT5	1.00	SUCCESS EVENTS
GTRPRT6	.999	SUCCESS EVENTS
GTRPRT7	1.00	SUCCESS EVENTS
LLPRT1	1.00	SUCCESS EVENTS
LLPRT2	1.00	SUCCESS EVENTS
LLPRT3	1.00	SUCCESS EVENTS
BUS_OSP_1	1.00	AC POWER WITH OFFSITE 147,148,149 FAIL
DS_LOC	1.00	1/4 ARV OR 1/3 STM DMP - LOCAS
LDCPRT1	.000	SUCCESS EVENTS
MF_ATW	1.00	FRACTION OF TRANSIENTS MAIN FEED UNAVAIL UNTIL TURBINE TRIP
OEC_LSC	1.00	OP ACTION - FIREWATER TO CCP OIL COOLER
ORE_SBO	1.04	OP ACTION - RESTORE EQUIP&SUPPORT SYSTEMS
ORT_ALL	1.23	OP ACTION - REFILL THE RWST
PL_ATW	1.00	POWER LEVEL GREATER THAN 60 PERCENT
XCC_S24	1.06	CORE UNCOVERED PRIOR TO POWER RECOVERY AT 24 HRS (SEALLOCA)
YHR_SB2	1.00	POWER RECOV FAILURE PROB AT 24 HRS/NO RECOVERY AT 2 HRS

ATTACHMENT 5

Page 1
August 17, 1993

ZION STATION

IMPORTANCE OF EACH PRT MODE QUANTIFICATION

Component	R. Achievement Worth	Description
AC_LSC	1.00	ALIGN CHARGING PUMP SUCTION TO THE RWST
AFI_STR1	1.00	CLOSE MOV FW0050 & 051 ALL POWER AVAIL
AFW_AT	1.64	1/1 AUX FEED TDP OR 2/2 MDP TO 1/4 SGS (OPEN THRTL VALVES)
AFW_STR_5	1.00	1/3 AUX FEED PMPS TO 4/4 SG 147 AVAIL
AFW_LSP_4	21.7	1/3 AUX FEED PMPS TO 4/4 SG OR 1/4 SG W/OA 148 & 149 AVAIL
AFW_LSP_6	5.24	1/3 AUX FEED PMPS TO 4/4 SG OR 1/4 SG W/OA 148 AVAIL
AFW_LSP_7	4.77	1/3 AUX FEED PMPS TO 4/4 SG OR 1/4 SG W/OA 149 AVAIL
AFW_LSP_8	10.2	1/3 AUX FEED PMPS TO 4/4 SG NO POWER
AFW_SBOTD	1.10	1/1 AUX FEED TDP TO 4/4 SGS
AFW_TRA_1	13.3	1/3 AUX FEED PMPS TO 4/4 SG OR 1/4 SG W/OA ALL POWER
AFW_TRA_6	1.04	1/3 AUX FEED PMPS TO 4/4 SG OR 1/4 SG W/OA 148 AVAIL
AFW_TRA_7	1.94	1/3 AUX FEED PMPS TO 4/4 SG OR 1/4 SG W/OA 149 AVAIL
AFW_TRA_8	1.09	1/3 AUX FEED PMPS TO 4/4 SG NO POWER
ALT_MFW1	1.00	1/3 MFW TO 1/4 SGS & 1/4 CBPs - LOSS OF 011-1 OR LOSP
AM_ATW	1.00	ATWS MITIGATING SYSTEM ACTUATION CIRCUIT
BUS_LSP_1	585.	AC POWER WITH LOSP 147,148,149 FAIL
BUS_LSP_4	117.	AC POWER WITH LOSP 148,149 FAIL
BUS_DSP_1	280.	AC POWER WITH DLOSP 147,148,149 FAIL
BUS_DSP_2	4.15	AC POWER WITH DLOSP 147,148 FAIL
BUS_DSP_3	2.59	AC POWER WITH DLOSP 147,149 FAIL
BUS_DSP_4	61.8	AC POWER WITH DLOSP 148,149 FAIL
BUS_DSP_5	1.07	AC POWER WITH DLOSP 147 FAILS
BUS_DSP_6	1.07	AC POWER WITH DLOSP 148 FAILS
BUS_DSP_7	1.02	AC POWER WITH DLOSP 149 FAILS
BUS_OSP_1	4.922E+04	AC POWER WITH OFFSITE 147,148,149 FAIL
BUS_OSP_3	189.	AC POWER WITH OFFSITE 147,149 FAIL
BUS_OSP_4	2.206E+03	AC POWER WITH OFFSITE 148,149 FAIL
BUS_OSP_5	5.57	AC POWER WITH OFFSITE 147 FAILS
CB_1	1.00	1/4 COND BOOSTER PMPS TO 1/4 SGS - LOSS OF 011-1 OR LOSP
CCP_SLO_1	8.16	1/2 CCPs INJECTING TO 2/4 C LEGS ALL POWER
CCP_SLO_4	1.00	1/2 CCPs INJECTING TO 2/4 C LEGS 148 & 149 AVAIL
CCP_SLO_8	1.00	1/2 CCPs INJECTING TO 2/4 C LEGS NO POWER
CCW	1.00	LOSS OF COMPONENT COOLING WATER
CCW_DLP_7	1.50	COMPONENT COOLING WATER W/DLOSP-148&149 FAIL
CCW_LOC_1	1.00	COMPONENT COOLING WATER W/LOCA-ALL POWER
CCW_TRA_1	81.9	COMPONENT COOLING WATER W/TRAN-ALL POWER
CI_ALL	1.00	CONTAINMENT ISOLATION (ESFAS SUCCESS, SPRAY ACTUATED)
CI_3	1.00	CONTAINMENT ISOLATION (ESFAS FAILED, SPRAY ACTUATED)
CSI_1	.882	1/3 CONTAINMENT SPRAY PUMPS ALL POWER
CSI_5	1.10	1/3 CONTAINMENT SPRAY PUMPS 147 AVAIL
CSI_8	1.00	1/3 CONTAINMENT SPRAY PUMPS NO POWER AVAIL
DCB_LSP_1	1.102E+04	DC POWER WITH LOSP 011-1,111,112 FAIL
DCB_LSP_3	192.	DC POWER WITH LOSP 011-1,112 FAIL
DCB_LSP_4	169.	DC POWER WITH LOSP 111,112 FAIL
DCB_OSP1	1.309E+04	DC POWER W/OS 011-1,111,112 FAIL-ALL POWER
DCB_OSP13	2.281E+03	DC POWER W/OS 011-1,112 FAIL-147&149 AVAIL
DCB_OSP17	2.233E+03	DC POWER W/OS 111,112 FAIL-148&149 AVAIL
DS_DC	1.01	1/4 ARV OR 1/12 STM DMP - LOSS DC
DS_LOC	1.00	1/4 ARV OR 1/3 STM DMP - LOCAS
DS_STR	152.	2/3 ARV ON INTACT SGs OR 2/3 STM DMP
EC_LSC	1.00	1 FIREWATER PMP & VALVES TO OPERATING CCP - ALL POWER
ESF_WOA_1	77.2	ESFAS NO OPER ACTION-BOTH TRAINS FAIL
ESF_WOA_1	63.2	ESFAS W/OP ACTION-BOTH TRAINS FAIL
ESF_MAN_1	1.19	ESFAS MANUAL; HDW ONLY-BOTH TRAINS FAIL
FC11	1.14	1/5 FAN COOLERS ALL POWER
FC1X	1.00	1/5 FAN COOLERS ALL POWER WITH RESTORATION (FC11+ORE_SBO)
FC15	.978	1/5 FAN COOLERS 147 AVAIL
FC18	1.00	1/5 FAN COOLERS NO POWER
FC21	1.00	2/5 FAN COOLERS ALL POWER
HPI_ATW	1.00	HIGH PRESSURE INJECTION ASSUMED TO FAIL - ATWS

HPI_LL_1	1.00	1/4 HIGH PRESSURE INJ PMPS TO 2/3 C LEGS ALL POWER (COND)
HPI_LL_8	1.00	1/4 HIGH PRESSURE INJ PMPS TO 2/3 C LEGS NO POWER
HPI_LSP_1	1.53	1/4 HIGH PRESSURE INJ PMPS TO 2/4 C LEGS ALL POWER
HPI_LSP_5	1.12	1/4 HIGH PRESSURE INJ PMPS TO 2/4 C LEGS 147 AVAIL
HPI_LSP_6	1.00	1/4 HIGH PRESSURE INJ PMPS TO 2/4 C LEGS 148 AVAIL
HPI_TRA_1	1.30	1/4 HIGH PRESSURE INJ PMPS TO 2/4 C LEGS ALL POWER
HPI_TRA_8	1.00	1/4 HIGH PRESSURE INJ PMPS TO 2/4 C LEGS NO POWER
HPR_LOC_1	1.05	1/4 HIGH PRESSURE RECIRC TO 2/3 C LEGS ALL POWER (COND)
HPR_SLOS1	1.06	1/2 SIPs RECIRC TO 2/4 C LEGS ALL POWER (COND)
HPR_SLOS8	1.00	1/2 SIPs RECIRC TO 2/4 C LEGS NO POWER
HPR_TRA_1	1.13	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS ALL POWER (COND)
HPR_LSP_1	1.04	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS ALL POWER (COND)
HPR_TRA_2	1.02	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS 147 & 148 AVAIL
HPR_TRA_3	1.02	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS 147 & 149 AVAIL
HPR_LDC_3	1.01	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS 147&149 AV (COND)
HPR_TRA_4	1.01	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS 148 & 149 AVAIL
HPR_TRA_6	1.00	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS 148 AVAIL
HPR_TRA_7	1.00	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS 149 AVAIL
HPR_TRA_8	1.00	1/4 HIGH PRESSURE RECIRC TO 2/4 C LEGS NO POWER
HPR_SBO	2.10	1/2 CCPs RECIRC TO 2/4 C LEGS ALL POWER AVAILABLE (COND)
LPI_LL_1	77.1	1/2 LOW PRESSURE INJ PMPS TO 2/3 C LEGS ALL POWER
LPI_LL_2	1.07	1/2 LOW PRESSURE INJ PMPS TO 2/3 C LEGS 147 & 148 AVAIL
LPI_LL_3	1.07	1/2 LOW PRESSURE INJ PMPS TO 2/3 C LEGS 147 & 149 AVAIL
LPI_LL_8	1.00	1/2 LOW PRESSURE INJ PMPS TO 2/3 C LEGS NO POWER
LPI_ML_1	90.0	1/2 LOW PRESSURE INJ PMPS TO 2/4 C LEGS ALL POWER (COND)
LPI_ML_4	1.00	1/2 LOW PRESSURE INJ PMPS TO 2/4 C LEGS 148 & 149 AVAIL
LPI_ML_5	1.00	1/2 LOW PRESSURE INJ PMPS TO 2/4 C LEGS 147 AVAIL
LPI_ML_8	1.00	1/2 LOW PRESSURE INJ PMPS TO 2/4 C LEGS NO POWER
LPI_SLO_1	555.	1/2 RHR PUMPS ON MINIFLOW ALL POWER
LPI_SLO_8	1.00	1/2 RHR PUMPS ON MINIFLOW NO POWER
LPR_LL_1	77.1	1/2 LOW PRESSURE RECIRC TO 1/3 C LEGS ALL POWER (COND)
LPR_LL_2	1.07	1/2 LOW PRESSURE RECIRC TO 1/3 C LEGS 149 AVAIL
LPR_LL_3	1.07	1/2 LOW PRESSURE RECIRC TO 1/3 C LEGS 148 AVAIL
LPR_ML_1	90.0	1/2 LOW PRESSURE RECIRC TO 2/4 C LEGS ALL POWER (COND)
LPR_SLO_1	8.52	1/2 LOW PRESSURE RECIRC TO 2/4 C LEGS ALL POWER (COND)
LPR_SLO_2	1.00	1/2 LOW PRESSURE RECIRC TO 2/4 C LEGS 149 AVAIL
MF_ATW	1.00	FRACTION OF TRANSIENTS MAIN FEED UNAVAIL UNTIL TURBINE TRIP
OAC_LSC	1.00	OP ACTION - ALIGN CHARGING SUCTION TO RWST
OCC_LCW	1.00	OP ACTION - RESTORE COMPONENT COOLING WATER
OAF_STR	1.00	OP ACTION - ISOLATE FEED TO RUPT SG
ODS_SLO	4.32	OP ACTION - SG DEPRES FOR PRIM COOLING (ODS1a)
ODS_MLO	1.04	OP ACTION - SG DEPRES FOR PRIM COOLING (ODS1b)
ODS_STR	152.	OP ACTION - SG DEPRES FOR PRIM COOLING (ODS2)
ODS_ALL	1.00	OP ACTION - SG DEPRES FOR PRIM COOLING (ODS3)
OEC_LSC	1.00	OP ACTION - FIREWATER TO CCP OIL COOLER
OHX_ALL	1.04	OP ACTION - ESTAB CCW TO RHR HEAT EXCHANGER
OIB_ISL	1.00	OP ACTION - ISOLATE RHR BREACH
OIR_STR	152.	OP ACTION - MINIMIZE ECCS FLOW
ONC_SLO	1.40	OP ACTION - ESTAB NORMAL CHARGING (ONC2)
OPR_ALL	1.85	OP ACTION - DEPRES PRIM WITH PRZR PORVS
ORC_HPR	2.25	OP ACTION - ESTAB HIGH PRESSURE ECC RECIRC
ORC_LPR	97.4	OP ACTION - ESTAB LOW PRESSURE ECC RECIRC
ORC_LLS	76.8	OP ACTION - ESTAB LOW PRESSURE ECC RECIRC (LLOCA W/SPRAY)
ORE_SBO	2.34	OP ACTION - RESTORE EQUIP&SUPPORT SYSTEMS
ORF_ALL	1.07	OP ACTION - RESTORE CB &/OR MFW
ORS_ALL	1.01	OP ACTION - RAPID SG DEPRES FOR CB INJ (ORS1)
ORS_SBO	1.05	OP ACTION - RAPID SG DEPRES FOR CB INJ (ORS2)
ORT_ALL	5.78	OP ACTION - REFILL THE RWST
ORT_LLO	1.00	RWST REFILL NOT POSSIBLE FOR LARGE LOCA WITH CURRENT EGP's
OSC_LCW	1.00	OP ACTION - STOP CCW PUMPS
OSI_ALL	2.87	OP ACTION - INITIATE SAFETY INJECTION
OSI_MOESF	1.00	OP ACTION - INITIATE SAFETY INJECTION (ESFAS HDW FAILED)
OSW_LSW	1.00	OP ACTION - RESTORE SW AND ALIGN CCW
OTT_ATW	1.34	OP ACTION - TURB TRIP OR CLOSE MSIVS
PL_ATW	1.00	POWER LEVEL GREATER THAN 60 PERCENT
PRV_1	2.01	1/2 PRZR PORVS - ALL POWER
RHX_ALL_2	1.02	1/2 RHR HEAT EXCHANGERS 148 FAILED (1/1)
RHX_ALL_3	1.02	1/2 RHR HEAT EXCHANGERS 149 FAILED (1/1)

RHX_ALL_5	1.07	2/2 RHR HEAT EXCHANGERS 148&149 AVAILABLE
RHX_SLO_5	1.42	2/2 RHR HEAT EXCHANGERS 148&149 AVAILABLE (COND)
RHX_ALL_6	1.00	2/2 RHR HEAT EXCHANGERS 148 OR 149 FAILED
RTK_ALL	1.02	EQUIPMENT TO REFILL THE RWST
RTK_STR	5.38	EQUIPMENT TO REFILL THE RWST (SGTR)
RTK_LOC	1.25	EQUIPMENT TO REFILL THE RWST FOR LOCAs (RTK_ALL+0.25)
RTK_FAIL	1.00	EQUIPMENT TO REFILL THE RWST (POWER UNAVAILABLE)
RXT_TRA	638.	FAILURE OF REACTOR TRIP
SAC_OSP2	77.2	SAF ACT 17,18,19 FAIL-ONE ESFAS AVAIL
SAC_OSP7	753.	SAF ACT 18,19 FAIL-BOTH ESFAS AVAIL (W/RESTORATION)
SAC_OSP8	77.2	SAF ACT 18,19 FAIL-ONE ESFAS AVAIL
SAC_OSP12	2.47	SAF ACT 18 FAILS-ONE ESFAS AVAIL
SAC_OSP14	2.40	SAF ACT 19 FAILS-ONE ESFAS AVAIL
SAC_MAN	1.13	MANUAL ACTUATION OF SAFEGUARDS EQUIPMENT (RE_SBO+ORE_SBO)
SAC_FAIL	1.00	MANUAL ACTUATION OF EQUIPMENT NOT MODELED FOR LARGE LOCA
SBO_1	1.00	LOSP, AC UNAVAILABLE, TRANSFER TO STATION BLACKOUT
SIP_SLO_1	1.02	1/2 SAFETY INJECTION PMPS TO 2/4 C LEGS ALL POWER
SIP_SLO_8	1.00	1/2 SAFETY INJECTION PMPS TO 2/4 C LEGS NO POWER
SLO_1	1.04	CONSEQUENTIAL SMALL LOCA NO SW/CCW (EC_LSCX+OEC_LSC+SLO_2)
SWS	1.00	LOSS OF SERVICE WATER
SWS_DLP_1	231.	SERVICE WATER W/DLOSP-ALL POWER
SWS_DLP_2	12.8	SERVICE WATER W/DLOSP-147 FAILED
SWS_DLP_3	13.2	SERVICE WATER W/DLOSP-148 FAILED
SWS_DLP_4	13.1	SERVICE WATER W/DLOSP-149 FAILED
SWS_DLP_5	1.59	SERVICE WATER W/DLOSP-147&148 FAIL
SWS_DLP_6	1.59	SERVICE WATER W/DLOSP-147&149 FAIL
SWS_DLP_7	1.60	SERVICE WATER W/DLOSP-148&149 FAIL
SWS_LOC_1	9.64	SERVICE WATER W/LOCA-ALL POWER
SWS_LSP_1	567.	SERVICE WATER W/LOSP-ALL POWER
SWS_TRA_1	173.	SERVICE WATER W/TRAN-ALL POWER
TT_1	1.06	CLOSE 4/4 STOP OR 4/4 GOV. VALVES FOR TURBINE TRIP
XCC_S2	1.02	CORE UNCOVERED PRIOR TO POWER RECOVERY AT 2 HRS (SEALLOCA)
XCC_S16	1.91	CORE UNCOVERED PRIOR TO POWER RECOVERY AT 16 HRS (SEALLOCA)
XCC_S24	2.33	CORE UNCOVERED PRIOR TO POWER RECOVERY AT 24 HRS (SEALLOCA)
XHR_S2	1.02	POWER RECOV FAILURE PROB AT 2 HRS (TD FAIL)
XHR_S24	2.10	POWER RECOV FAILURE PROB AT 24 HRS (TD & DS)
YHR_S2	1.00	POWER RECOV FAILURE PROB AT 24 HRS/NO RECOVERY AT 2 HRS
DLOOP-SS1	1.00	SUCCESS EVENTS
TRAN-SS1	.998	SUCCESS EVENTS
LOC-SS1	.270	SUCCESS EVENTS
DLOOPSW-SS198	1.00	SUCCESS EVENTS
DLOOPBUS-SS198	.758	SUCCESS EVENTS
LOOP-SS198	1.00	SUCCESS EVENTS
DLOOP-SS200	.999	SUCCESS EVENTS
LOOP-SS200	.998	SUCCESS EVENTS
GTR-SS105	1.00	SUCCESS EVENTS
GTR-SS117	1.00	SUCCESS EVENTS
LDC-SS22	1.00	SUCCESS EVENTS
MLPRT1	1.00	SUCCESS EVENTS
MLPRT2	.988	SUCCESS EVENTS
MLPRT3	.969	SUCCESS EVENTS
SLPRT1	.996	SUCCESS EVENTS
SLPRT3	1.00	SUCCESS EVENTS
SLPRT4	1.00	SUCCESS EVENTS
SLPRT5	.980	SUCCESS EVENTS
SGTRPRT1	.993	SUCCESS EVENTS
SGTRPRT3	.995	SUCCESS EVENTS
SGTRPRT4	.834	SUCCESS EVENTS
SGTRPRT8	.882	SUCCESS EVENTS
DLOOPPRT2	1.00	SUCCESS EVENTS
DLOOPPRT6	.997	SUCCESS EVENTS
DLOOPPRT7	.968	SUCCESS EVENTS
DLOOPPRT8	.956	SUCCESS EVENTS
DLOOPPRT10	.886	SUCCESS EVENTS
DLOOPPRT14	.999	SUCCESS EVENTS
DLOOPPRT17	1.00	SUCCESS EVENTS
DLOOPPRT19	1.00	SUCCESS EVENTS
LOOPPRT2	.999	SUCCESS EVENTS

LOOPRT3	1.00	SUCCESS EVENTS
LOOPRT4	1.00	SUCCESS EVENTS
LOOPRT5	1.00	SUCCESS EVENTS
LOOPRT6	1.00	SUCCESS EVENTS
GTRPRT1	1.00	SUCCESS EVENTS
GTRPRT2	1.00	SUCCESS EVENTS
GTRPRT5	1.00	SUCCESS EVENTS
GTRPRT6	.999	SUCCESS EVENTS
GTRPRT7	1.00	SUCCESS EVENTS
LLPRT1	1.00	SUCCESS EVENTS
LLPRT2	1.00	SUCCESS EVENTS
LLPRT3	.836	SUCCESS EVENTS
BUS_OSP_1	4.922E+04	AC POWER WITH OFFSITE 147,148,149 FAIL
DS_LOC	1.00	1/4 ARV OR 1/3 STM DMP - LOCAS
LDCPRT1	.000	SUCCESS EVENTS
MF_ATW	1.00	FRACTION OF TRANSIENTS MAIN FEED UNAVAIL UNTIL TURBINE TRIP
OEC_LSC	1.00	OP ACTION - FIREWATER TO CCP OIL COOLER
ORE_SBO	2.34	OP ACTION - RESTORE EQUIP&SUPPORT SYSTEMS
ORT_ALL	5.78	OP ACTION - REFILL THE RWST
PL_ATW	1.00	POWER LEVEL GREATER THAN 60 PERCENT
XCC_S24	2.33	CORE UNCOVERED PRIOR TO POWER RECOVERY AT 24 HRS (SEALLOCA)
YHR_SB2	1.00	POWER RECOV FAILURE PROB AT 24 HRS/NO RECOVERY AT 2 HRS

(2)

September 17, 1992

Mr. T. P. Joyce

SUBJECT: Zion IPE Interim Deployment Tool - Revision 1

Enclosed for your information and use is Revision 1 to the Zion Individual Plant Examination (IPE) Interim Deployment Tool. This revision incorporates comments received from Zion Station personnel on the original version of this tool.

The tool provides summary IPE results for use by station personnel in:

1. Maintenance prioritization while at power;
2. Maintenance prioritization during an outage;
3. Modification prioritization; and
4. Operator training prioritization.

Although the tool has been written to be self-explanatory and includes a number of examples on its use, a short training session on how to apply the tool could be provided upon request.

The Zion IPE can also be applied to other situations on an "upon request" basis. Attachment A contains a list of those applications.

Should you have any questions on this matter, please do not hesitate to contact Shannon Shaneyfelt (DG extension 7483) or me (DG extension 7489).


George T. Klopp
PRA/HF Group - NED

GTK/BFM

Enclosure
Attachment

cc: G.P. Wagner
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ATTACHMENT A

"UPON REQUEST" APPLICATIONS FOR ZION IPE

The Zion IPE can provide a risk perspective in the following situations on an "upon request" basis:

- TECH SPEC CHANGES, LCO EXEMPTIONS, AOT'S, LER'S
- GENERIC LICENSING ISSUES
- UNIQUE EQUIPMENT OUTAGES
- SAFETY SYSTEM AVAILABILITY GOALS (SETTING/DEVIATIONS)
- SPECIFIC MAINTENANCE RULE IMPLEMENTATION ISSUES
- MODIFICATION PRIORITIZATION
- ALLOWED COMBINATIONS OF UNAVAILABLE EQUIPMENT
- SIGNIFICANT CHANGES IN EQUIPMENT AVAILABILITY

Should a risk perspective be needed in these situations, please contact George T. Klopp, the PRA/HF Group Leader.