7 CORE DAMAGE FREQUENCY QUANTIFICATION

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7 CORE DAMAGE FREQUENCY QUANTIFICATION

7.1 INTRODUCTION AND SCOPE

The purpose of this section is to document the calculation of the core damage frequency (CDF) due to events that occur when the plant is operating at full power. It covers internal events only. Sections 12 through 15 describe the CDF due to external events.

The ESBWR PRA model consists of event trees and fault trees that are quantified using a fault tree linking process. The event trees are described in Section 3, while the fault trees are described in Section 4.

The calculation of the CDF is performed as single top gate. This gate includes all sequences, but uses a sequence marker to keep all the non-minimal cutsets for that specific sequence. The sequence logic is also set up to exclude any combinations associated with the success branches in the specific sequence. The individual sequence results can then be combined as necessary for reporting, analyzing, or to be used as input for the containment performance portion of the PRA.

Section 7.2 presents the results of the quantification.

Section 7.3 is provided to further describe the details of the quantification process.

7.2 PRA RESULTS

The total core damage frequency (CDF) resulting from accident sequences is 1.22-08/year.

7.2.1 Initiating Event Contribution

Table 7.2-1 shows the detailed contribution of initiating events to CDF. Figure 7.2-1 shows a summary contribution in the form of a pie chart.

The initiating events that have the largest contributors to CDF are identified to provide a perspective on the results.

Transients contribute approximately 85% to CDF. The most significant groups of initiators are the inadvertent stuck open relief valve (%T-IORV), general transients (%T-GEN, and %T-IA), loss of feedwater transient (%T-FDW), and initial loss of offsite power (all under gate T-LOPP) which represent 36.5%, 20.39%, 16.70% and 11.54% of the total CDF, respectively.

LOCAs inside containment contribute approximately 8.66%. The most significant LOCA initiator relative to CDF contribution is the large steam break in feedwater line B (%LL-S-FDWB), which represents 4.35% of the overall CDF, thus becoming the fifth most important initiating event.

Lastly, breaks outside containment (BOC) represent altogether 2.50% of the total value of the CDF.

7.2.2 Accident Class Contribution

An additional perspective on the Level 1 PRA results is provided by examining the relative contributions to the CDF of the accident classes used to define the Level 1 end states of the event trees.

Table 7.2-2 shows the CDF contribution of each of these accident classes.

Figure 7.2-2 illustrates the CDF contribution of each accident class in the form of a pie chart.

The largest accident class contributor is Class I, which involves core damage events occurring at low RPV pressures with the containment initially intact. The Class I accident sequences contribute 46.16% to CDF.

The second largest accident class contributor is Class III, which involves core damage events occurring at high RPV pressures with the containment initially intact. The Class III accident sequences contribute 37.02% to CDF.

The third largest accident class contributor is Class IV, which involves the failure to insert negative reactivity in ATWS conditions. The Class IV accident sequences contribute approximately 15.36% to CDF.

The fourth largest frequency contributing accident class is Class V, which involves the condition of the containment bypassed at the time of core damage. The Class V accident sequences contribute approximately 1.2% to CDF.

The lowest frequency contributing accident class is Class IIA, which involves loss of all decay heat removal leading to containment overpressure and failure prior to core damage. The Class IIA accident sequences contribute approximately 0.35% to CDF.

7.2.3 Accident Sequences

A total of 156 quantified accident sequences exceed the truncation value of 1E-15/year.

The sequence with the highest core damage frequency is the sequence number 63 of the IORV event tree. This sequence includes a stuck open relief valve initiator combined with failure of all high pressure injection, failure to manually depressurize using the SRV, followed by a successful automatic depressurization using the DPVs, and combined with failure of GDCS and the remaining low pressure systems (FAPCS and FPS). This Class I accident sequence has a frequency of 2.06E-9 per year, and represents 16.9% of total CDF.

Table 7.2-3 summarizes the 156 quantified accident sequences, the corresponding frequencies, and the resulting percentage contribution to CDF

Table 7.2-5 describes the top ten accident sequences from Level 1.

Figure 7.2-3 illustrates the CDF contribution for the top accident sequence (>1% CDF) in the form of a bar chart.

7.2.4 Top Cutsets Contributing to CDF

The quantified CDF results from 173,798 cutsets distributed by order of magnitude of their frequency, as follows:

Frequency (per yr)	Number. of minimal cutsets
≥ 1.00E-10	12
≥ 1.00E-11	103
≥ 1.00E-12	1131
≥ 1.00E-13	3028
≥ 1.00E-14	45,518
≥ 1.00E-15	173,798

Table 7.2-6 provides the top 200 contributing cutsets to CDF. These cutsets represent approximately 54.4% of the overall CDF

The following is a description of the top ten minimal cutsets (MCs) contributing to CDF. They represent 22.2% of the overall CDF.

The highest frequency minimal cutset (MCS) stems from a loss of feedwater transient with failure of the isolation condenser due to spurious isolation (spurious common cause software error), a successful automatic depressurization due to low level, combined with common cause failure of Gravity Driven Cooling System (GDCS) check valves, and failures of Control Rod Drive System (CRD) due to perceived low GDCS level (spurious

common cause software error), and operator failure to recognize the need to align Low Pressure Coolant Injection (LPCI) systems such Fuel and Auxiliary Cooling System(FAPCS), and Firewater Injection. This is a Class I accident type cutset, and represents 4.6% of the total CDF.

Cutset number two is a loss of feedwater transient with failure of the isolation condenser due to spurious isolation (spurious common cause software error), common cause of the Depressurization (DPV) squib valves, failure of CRD due to perceived low GDCS level (spurious common cause software error), and operator failure to recognize the need to align LPCI, and Firewater Injection. This is a Class III accident type cutset.

Cutset number three is nearly identical to cutset number one, but it involves common cause of GDCS squib valves.

Cutset number four involves a large break in the feedwater line B combined with common cause failure of GDCS check valves, and operator failure to recognize the need toa lign LPCI, and Firewater Injection.

Cutset number 5 through 8, are ATWS scenarios, where the rods fail to insert combined with Standby Liquid Control (SLC) check valve failures.

Cutset number 9 (T-IORV063) involves an inadvertently stuck open relief valve with failure of all feedwater due to a consequential loop, failure of CRD due to consequential loop and failure due to a mispositioned Condensate Storage Tank (CST) valve, failure to manually depressurize followed by automatic depressurization, common cause failure of GDCS check valves. LPCI and Firewater are considered failed since the operator fail to recognize the need to manually depressurize.

Cutset number 10 is similar to cutset number one, except that LPCI and Firewater fail due to misposition of a common valve F334

Tables 7.2-7 to 7.2-16 provide the top 25 contributing cutsets from the top ten Accident Sequences listed in Table 7.2-5.

7.2.5 Accident Subclasses Based on Lower Drywell Water Level

In order to fully describe the containment state for the Level 2 analysis, core damage classes events must be broken down further into subclasses based on the height of the water pool in the lower drywell at the time of vessel breach.

Section 21 (NEDO 33201 rev. 1) shows that the challenge to the containment structure and systems due to steam explosions is highly dependent upon any pre-existing water pool in the lower drywell at the time the core is deposited into the containment. If the water pool is less than 0.7 m deep, the challenge to the containment structure and to the ex-vessel cooling system (BiMAC) is negligible. If the water pool is more than 1.5 m deep and is sub-cooled, there is a possibility that the containment structure will be over-stressed due to a steam explosion shortly after vessel breach. If the water pool is in the intermediate range, there is a challenge to the containment, but it is well within the containment capacity (see Section 21).

The design of the ESBWR containment reflects this unique challenge. Liquid LOCAs provide the only means for depositing a large amount of water in the lower drywell. The

rules presented in Table 7.2-4 are used to bin the core damage sequences into these subclasses.

Table 7.2-5 contains the results of the top ten accident sequences and includes water level analysis for each of the core damage sequences. This was done by reviewing the cutsets for all of the sequences with a contribution to core damage sequences and using the rules presented in Table 7.2-4. The conditional probability for each subclass is as follows:

- Low LDW Water 70.09%
- Medium LDW Water 0.82%
- High LDW Water 5.00%

Table 7.2-1

CDF Contribution by Initiating Event

Initiating Event	CDF [/yr]	Contribution
%T-I0RV	4.45E-09	36.50%
%T-GEN	2.24E-09	18.40%
%T-FDW	2.04E-09	16.70%
%T-LOPP-GR	7.36E-10	6.03%
%LL-S-FDWB	5.31E-10	4.35%
%T- LOPP-SCPCS	3.70E-10	3.03%
%T-PCS	4.07E-10	3.34%
%T-IA	2.43E-10	1.99%
%T-LOPP-WR	1.87E-10	1.53%
%ML-L	1.67E-10	1.37%
%LL-S	1.18E-10	0.97%
%BOC-FDWAQ	1.12E-10	0.92%
%SL-S	1.46E-10	1.20%
%BOC-FDWB	1.09E-10	0.90%
%T-SW	8.83E-11	0.72%
%T-LOPP-PC	7.84E-11	0.64%
%BOC-RWCU	6.54E-11	0.54%
%LL-S-FDWA	4.82E-11	0.40%
%SL-L	2.98E-11	0.24%
%BOC-MS	1.82E-11	0.15%
%RVR	1.65E-11	0.14%
Total	1.22E-08	100%

Table 7.2-2

CDF Contribution by Accident Class

ACCIDENT CLASSES		CDF [/yr]	CONTRIBUTION
cdi	CD at low RPV pressure and containment intact	5.63E-9	46.16%
cdiii	CD at high RPV pressure with containment intact	4.52E-09	37.02%
cdiv	CD resulting from failure to insert negative reactivity in ATWS conditions	1.87E-09	15.36%
cdv	Containment bypassed at the beginning of the accident	1.47E-10	1.2%
cdiia	Loss of all DHR	4.23E-11	0.35%
cdiib	Loss of DHR-Vented	ε	ε
Total		1.22E-08	100.00%

Table 7.2-3

Sequences Resulting in CDF above Truncation Limit

Class	Initiation Event	Acc. Sequence	CDF(/yr)	% of Class	% of Total
cdi	AT-LOCA	AT-LOCA005	2.18E-11	0.39%	0.18%
cdi	AT-LOCA	AT-T-SW004	2.62E-11	0.47%	0.22%
cdi	%BOC-FDWA	BOC-FDWA020	3.75E-14	0.00%	0.00%
cdi	%BOC-FDWA	BOC-FDWA027	7.86E-11	1.40%	0.64%
cdi	%BOC-FDWB	BOC-FDWB019	5.54E-13	0.01%	0.00%
cdi	%BOC-FDWB	BOC-FDWB020	1.13E-11	0.20%	0.09%
cdi	%BOC-FDWB	BOC-FDWB036	4.26E-13	0.01%	0.00%
cdi	%BOC-FDWB	BOC-FDWB053	3.78E-11	0.67%	0.31%
cdi	LL-S	LL-S047	2.77E-11	0.49%	0.23%
cdi	LL-S	LL-S049	5.88E-12	0.10%	0.05%
cdi	%LL-S-FDWA	LL-S-FDWA013	4.67E-11	0.83%	0.38%
cdi	%LL-S-FDWA	LL-S-FDWA015	7.45E-14	0.00%	0.00%
cdi	%LL-S-FDWB	LL-S-FDWB029	1.62E-14	0.00%	0.00%
cdi	%LL-S-FDWB	LL-S-FDWB045	5.25E-10	9.32%	4.30%
cdi	%ML-L	ML-L011	5.81E-11	1.03%	0.48%
cdi	T-RVR	RVR-014	1.65E-11	0.29%	0.14%
cdi	T-RVR	RVR-015	1.51E-14	0.00%	0.00%
cdi	%SL-L	SL-L022	1.08E-11	0.19%	0.09%
cdi	%SL-L	SL-L068	8.55E-12	0.15%	0.07%
cdi	SL-S	SL-S017	5.53E-11	0.98%	0.45%
cdi	SL-S	SL-S063	4.31E-11	0.76%	0.35%
cdi	%T-FDW	T-FDW033	6.83E-13	0.01%	0.01%
cdi	%T-FDW	T-FDW050	1.14E-09	20.26%	9.35%
cdi	%T-FDW	T-FDW060	8.80E-11	1.56%	0.72%
cdi	T-GEN	T-GEN020	2.87E-13	0.01%	0.00%
cdi	T-GEN	T-GEN021	4.97E-11	0.88%	0.41%
cdi	T-GEN	T-GEN051	2.33E-13	0.00%	0.00%
cdi	T-GEN	T-GEN067	1.68E-10	2.99%	1.38%
cdi	MS-T-IORV	T-IORV016	4.75E-14	0.00%	0.00%
cdi	MS-T-IORV	T-IORV017	6.58E-10	11.68%	5.39%
cdi	MS-T-IORV	T-IORV047	4.49E-14	0.00%	0.00%
cdi	MS-T-IORV	T-IORV063	2.06E-09	36.61%	16.90%
cdi	T-LOPP	T-LOPP033	1.15E-12	0.02%	0.01%
cdi	T-LOPP	T-LOPP050	4.28E-10	7.60%	3.51%
cdi	T-LOPP	T-LOPP060	3.18E-11	0.57%	0.26%
cdi	%T-SW	T-SW009	3.16E-13	0.01%	0.00%
cdi	%T-SW	T-SW010	6.75E-12	0.12%	0.06%
cdi	%T-SW	T-SW029	2.44E-13	0.00%	0.00%
cdi	%T-SW	T-SW037	2.16E-11	0.38%	0.18%
cdii-a	AT-LOCA	AT-LOCA004	3.71E-14	0.09%	0.00%

Table 7.2-3

Sequences Resulting in CDF above Truncation Limit

cdii-a	AT-T-FDW	AT-T-FDW012	6.31E-13	1.49%	0.01%
cdii-a	AT-T-GEN	AT-T-GEN007	4.44E-15	0.01%	0.00%
cdii-a	AT-T-GEN	AT-T-GEN016	8.93E-12	21.16%	0.07%
cdii-a	AT-T-GEN	AT-T-GEN020	1.81E-11	42.78%	0.15%
cdii-a	AT-T-IORV	AT-T-IORV004	1.84E-12	4.36%	0.02%
cdii-a	AT-T-IORV	AT-T-IORV008	2.96E-13	0.70%	0.00%
cdii-a	AT-T-LOPP	AT-T-LOPP012	1.40E-13	0.33%	0.00%
cdii-a	%BOC-FDWA	BOC-FDWA017	4.66E-15	0.01%	0.00%
cdii-a	LL-S	LL-S011	4.12E-14	0.10%	0.00%
cdii-a	LL-S	LL-S015	1.07E-14	0.03%	0.00%
cdii-a	%LL-S-FDWB	LL-S-FDWB009	2.66E-15	0.01%	0.00%
cdii-a	%LL-S-FDWB	LL-S-FDWB046	5.23E-12	12.40%	0.04%
cdii-a	%ML-L	ML-L007	1.11E-15	0.00%	0.00%
cdii-a	%SL-L	SL-L018	1.33E-15	0.00%	0.00%
cdii-a	%SL-L	SL-L032	1.33E-15	0.00%	0.00%
cdii-a	%SL-L	SL-S013	7.55E-15	0.02%	0.00%
cdii-a	%SL-L	SL-S015	3.33E-15	0.01%	0.00%
cdii-a	%SL-L	SL-S027	5.77E-15	0.01%	0.00%
cdii-a	%SL-L	SL-S031	3.33E-15	0.01%	0.00%
cdii-a	%T-FDW	T-FDW012	1.15E-14	0.03%	0.00%
cdii-a	%T-FDW	T-FDW016	6.66E-15	0.02%	0.00%
cdii-a	T-GEN	T-GEN004	3.99E-15	0.01%	0.00%
cdii-a	T-GEN	T-GEN017	1.09E-14	0.03%	0.00%
cdii-a	T-GEN	T-GEN031	6.88E-15	0.02%	0.00%
cdii-a	T-GEN	T-GEN068	3.01E-13	0.71%	0.00%
cdii-a	MS-T-IORV	T-IORV013	1.37E-12	3.24%	0.01%
cdii-a	MS-T-IORV	T-IORV015	4.42E-13	1.05%	0.00%
cdii-a	MS-T-IORV	T-IORV027	1.07E-12	2.55%	0.01%
cdii-a	MS-T-IORV	T-IORV031	3.59E-13	0.85%	0.00%
cdii-a	MS-T-IORV	T-IORV064	3.16E-12	7.49%	0.03%
cdii-a	T-LOPP	T-LOPP012	1.07E-13	0.25%	0.00%
cdii-a	T-LOPP	T-LOPP016	3.99E-15	0.01%	0.00%
cdii-a	%T-SW	T-SW002	4.36E-14	0.10%	0.00%
cdii-a	%T-SW	T-SW007	2.31E-14	0.05%	0.00%
cdii-a	%T-SW	T-SW008	9.32E-15	0.02%	0.00%
cdii-a	%T-SW	T-SW018	1.78E-14	0.04%	0.00%
cdii-a	%T-SW	T-SW021	9.32E-15	0.02%	0.00%
cdii-a	AT-LOCA	AT-LOCA004	3.71E-14	0.09%	0.00%
cdii-b	%LL-S-FDWB	LL-S-FDWB008	3.46E-14	9.13E-02	0.00%
cdii-b	%LL-S-FDWB	LL-S-FDWB012	1.73E-14	4.56E-02	0.00%
cdii-b	%T-FDW	T-FDW011	1.49E-13	3.92E-01	0.00%
cdii-b	%T-FDW	T-FDW015	7.19E-14	1.89E-01	0.00%
cdii-b	T-GEN	T-GEN030	2.66E-15	7.01E-03	0.00%
cdii-b	MS-T-IORV	T-IORV026	4.39E-14	1.16E-01	0.00%

Table 7.2-3

Sequences Resulting in CDF above Truncation Limit

cdii-b	MS-T-IORV	T-IORV030	1.33E-14	3.50E-02	0.00%
cdii-b	T-LOPP	T-LOPP011	3.77E-14	9.93E-02	0.00%
cdii-b	T-LOPP	T-LOPP015	9.32E-15	2.46E-02	0.00%
cdiii	AT-T-FDW	AT-T-FDW008	3.01E-12	6.67E-04	0.02%
cdiii	AT-T-FDW	AT-T-FDW013	3.66E-10	8.10E-02	3.00%
cdiii	AT-T-GEN	AT-T-GEN012	6.64E-12	1.47E-03	0.05%
cdiii	AT-T-GEN	AT-T-GEN021	8.78E-10	1.94E-01	7.20%
cdiii	AT-T-IORV	AT-T-IORV009	1.59E-10	3.51E-02	1.30%
cdiii	AT-T-LOPP	AT-T-LOPP008	8.97E-13	1.99E-04	0.01%
cdiii	AT-T-LOPP	AT-T-LOPP013	6.80E-10	1.50E-01	5.57%
cdiii	AT-T-SW	AT-T-SW003	2.42E-14	5.35E-06	0.00%
cdiii	%BOC-FDWA	BOC-FDWA029	2.64E-11	5.83E-03	0.22%
cdiii	%BOC-FDWB	BOC-FDWB021	1.65E-11	3.65E-03	0.14%
cdiii	%BOC-FDWB	BOC-FDWB054	3.49E-11	7.73E-03	0.29%
cdiii	%ML-L	ML-L012	1.93E-11	4.27E-03	0.16%
cdiii	%SL-L	SL-L023	3.44E-12	7.62E-04	0.03%
cdiii	%SL-L	SL-L070	2.73E-12	6.05E-04	0.02%
cdiii	%SL-L	SL-S018	1.78E-11	3.94E-03	0.15%
cdiii	%SL-L	SL-S065	1.40E-11	3.11E-03	0.12%
cdiii	%T-FDW	T-FDW061	3.25E-10	7.19E-02	2.66%
cdiii	T-GEN	T-GEN022	7.16E-11	1.59E-02	0.59%
cdiii	T-GEN	T-GEN069	7.43E-11	1.65E-02	0.61%
cdiii	MS-T-IORV	T-IORV018	9.02E-10	2.00E-01	7.39%
cdiii	MS-T-IORV	T-IORV065	6.95E-10	1.54E-01	5.70%
cdiii	T-LOPP	T-LOPP061	1.92E-10	4.24E-02	1.57%
cdiii	%T-SW	T-SW011	9.49E-12	2.10E-03	0.08%
cdiii	%T-SW	T-SW039	1.99E-11	4.40E-03	0.16%
cdiv	AT-LOCA	AT-LOCA012	7.11E-13	3.80E-04	0.01%
cdiv	AT-LOCA	AT-LOCA013	1.46E-14	7.81E-06	0.00%
cdiv	AT-LOCA	AT-LOCA015	1.22E-13	6.51E-05	0.00%
cdiv	AT-T-FDW	AT-T-FDW015	1.12E-10	5.98E-02	0.92%
cdiv	AT-T-FDW	AT-T-FDW016	3.03E-12	1.61E-03	0.02%
cdiv	AT-T-FDW	AT-T-FDW017	1.40E-14	7.49E-06	0.00%
cdiv	AT-T-GEN	AT-T-GEN023	1.31E-09	6.97E-01	10.70%
cdiv	AT-T-GEN	AT-T-GEN024	3.05E-11	1.63E-02	0.25%
cdiv	AT-T-GEN	AT-T-GEN025	1.66E-13	8.85E-05	0.00%
cdiv	AT-T-GEN	AT-T-GEN026	2.48E-10	1.32E-01	2.03%
cdiv	AT-T-IORV	AT-T-IORV011	2.64E-11	1.41E-02	0.22%
cdiv	AT-T-IORV	AT-T-IORV012	6.43E-13	3.43E-04	0.01%
cdiv	AT-T-IORV	AT-T-IORV013	3.33E-15	1.78E-06	0.00%
cdiv	AT-T-IORV	AT-T-IORV014	4.94E-12	2.64E-03	0.04%
cdiv	T-LOPP	AT-T-LOPP015	3.34E-11	1.78E-02	0.27%
cdiv	T-LOPP	AT-T-LOPP016	8.87E-13	4.73E-04	0.01%
cdiv	T-LOPP	AT-T-LOPP017	3.55E-15	1.89E-06	0.00%

Table 7.2-3

Sequences Resulting in CDF above Truncation Limit

cdiv	AT-T-SW	AT-T-SW006	8.99E-13	4.80E-04	0.01%
cdiv	AT-T-SW	AT-T-SW007	1.82E-14	9.70E-06	0.00%
cdiv	AT-T-SW	AT-T-SW009	1.79E-13	9.57E-05	0.00%
cdiv	%BOC-MS	BOC-MS067	4.38E-13	2.34E-04	0.00%
cdiv	LL-S	LL-S050	8.47E-11	4.52E-02	0.69%
cdiv	%LL-S-FDWA	LL-S-FDWA016	1.39E-12	7.42E-04	0.01%
cdiv	%LL-S-FDWB	LL-S-FDWB047	1.39E-12	7.42E-04	0.01%
cdiv	%ML-L	ML-L014	1.89E-11	1.01E-02	0.16%
Cdv	%BOC-FDWA	BOC-FDWA028	1.60E-13	1.09E-03	0.00%
cdv	%BOC-FDWA	BOC-FDWA047	1.89E-14	1.29E-04	0.00%
cdv	%BOC-FDWA	BOC-FDWA049	6.66E-15	4.53E-05	0.00%
cdv	%BOC-FDWB	BOC-FDWB103	4.47E-13	3.04E-03	0.00%
cdv	%BOC-FDWB	BOC-FDWB104	3.33E-15	2.27E-05	0.00%
cdv	%BOC-FDWB	BOC-FDWB105	7.37E-13	5.01E-03	0.01%
cdv	%BOC-MS	BOC-MS020	1.68E-14	1.15E-04	0.00%
cdv	%BOC-MS	BOC-MS021	3.77E-15	2.57E-05	0.00%
cdv	%BOC-MS	BOC-MS064	1.68E-14	1.15E-04	0.00%
cdv	%BOC-MS	BOC-MS066	3.77E-15	2.57E-05	0.00%
cdv	%BOC-RWCU	BOC-RWCU015	5.32E-12	3.62E-02	0.04%
cdv	%BOC-RWCU	BOC-RWCU046	6.39E-13	4.35E-03	0.01%
cdv	%BOC-RWCU	BOC-RWCU048	9.94E-14	6.77E-04	0.00%
cdv	%BOC-RWCU	BOC-RWCU049	9.61E-12	6.54E-02	0.08%
cdv	%BOC-RWCU	BOC-RWCU051	4.38E-11	2.98E-01	0.36%
cdv	%ML-L	ML-L013	7.11E-11	4.84E-01	0.58%
cdv	%SL-L	SL-L069	4.66E-15	3.17E-05	0.00%
cdv	%SL-L	SL-S064	3.33E-14	2.27E-04	0.00%
cdv	%T-FDW	T-FDW052	1.12E-11	7.61E-02	0.09%
cdv	T-LOPP	T-LOPP052	3.67E-12	2.50E-02	0.03%
cdv	%T-SW	T-SW038	2.98E-14	2.03E-04	0.00%

Table 7.2-4

LDW Water Level Subclass Rules

Break Location	Break Size	Injection Status	Lower Drywell Water Level
No Break			Low
Steam Line			Low
Drain Line			High
Feedwater Line			High
Outside Containment			Low
Other	Small		Medium
	Medium	No Injection	Medium
		Any Injection	High
	Large	No Injection	Medium
		Any Injection	High

Table 7.2-4a

LDW Water Level Subclass Results

Sequence	Class	DW Level	DW Level - Low	DW Level - Medium	DW Level - High
AT-LOCA005	cdi	Medium		2.18E-11	
AT-T-SW004	cdi	Low	2.62E-11		
BOC-FDWA020	cdi	Low	3.75E-14		
BOC-FDWA027	cdi	Low	7.86E-11		
BOC-FDWB019	cdi	Low	5.54E-13		
BOC-FDWB020	cdi	Low	1.13E-11		
BOC-FDWB036	cdi	Low	4.26E-13		
BOC-FDWB053	cdi	Low	3.78E-11		
LL-S047	cdi	Low	2.77E-11		
LL-S049	cdi	Low	5.88E-12		
LL-S-FDWA013	cdi	High			4.67E-11
LL-S-FDWA015	cdi	High			7.45E-14
LL-S-FDWB029	cdi	High			1.62E-14
LL-S-FDWB045	cdi	High			5.25E-10
ML-L011	cdi	Medium		5.81E-11	
RVR-014	cdi	High			1.65E-11
RVR-015	cdi	High			1.51E-14
SL-L022	cdi	Medium		1.08E-11	
SL-L068	cdi	Medium		8.55E-12	
SL-S017	cdi	Low	5.53E-11		
SL-S063	cdi	Low	4.31E-11		
T-FDW033	cdi	Low	6.83E-13		
T-FDW050	cdi	Low	1.14E-09		
T-FDW060	cdi	Low	8.80E-11		
T-GEN020	cdi	Low	2.87E-13		
T-GEN021	cdi	Low	4.97E-11		
T-GEN051	cdi	Low	2.33E-13		
T-GEN067	cdi	Low	1.68E-10		
T-IORV016	cdi	Low	4.75E-14		
T-IORV017	cdi	Low	6.58E-10		
T-IORV047	cdi	Low	4.49E-14		
T-IORV063	cdi	Low	2.06E-09		
T-LOPP033	cdi	Low	1.15E-12		
T-LOPP050	cdi	Low	4.28E-10		
T-LOPP060	cdi	Low	3.18E-11		
T-SW009	cdi	Low	3.16E-13		
T-SW010	cdi	Low	6.75E-12		
T-SW029	cdi	Low	2.44E-13		
T-SW037	cdi	Low	2.16E-11		
AT-LOCA004	cdii-a				
AT-T-FDW012	cdii-a				

Table 7.2-4a

LDW Water Level Subclass Results

Sequence	Class	DW Level	DW Level - Low	DW Level - Medium	DW Level - High
AT-T-GEN007	cdii-a				
AT-T-GEN016	cdii-a				
AT-T-GEN020	cdii-a				
AT-T-IORV004	cdii-a				
AT-T-IORV008	cdii-a				
AT-T-IORV013	cdii-a				
AT-T-LOPP012	cdii-a				
BOC-FDWA017	cdii-a				
LL-S011	cdii-a				
LL-S015	cdii-a				
LL-S-FDWB009	cdii-a				
LL-S-FDWB046	cdii-a				
ML-L007	cdii-a				
SL-L018	cdii-a				
SL-L032	cdii-a				
SL-S013	cdii-a				
SL-S015	cdii-a				
SL-S027	cdii-a				
SL-S031	cdii-a				
T-FDW012	cdii-a				
T-FDW016	cdii-a				
T-GEN004	cdii-a				
T-GEN017	cdii-a				
T-GEN031	cdii-a				
T-GEN068	cdii-a				
T-IORV015	cdii-a				
T-IORV027	cdii-a				
T-IORV031	cdii-a				
T-IORV064	cdii-a				
T-LOPP012	cdii-a				
T-LOPP016	cdii-a				
T-SW002	cdii-a				

Table 7.2-4a

LDW Water Level Subclass Results

Sequence	Class	DW Level	DW Level - Low	DW Level - Medium	DW Level - High
T-SW007	cdii-a				
T-SW008	cdii-a				
T-SW018	cdii-a				
T-SW021	cdii-a				
LL-S-FDWB008	cdii-b				
LL-S-FDWB012	cdii-b				
T-FDW011	cdii-b				
T-FDW015	cdii-b				
T-GEN030	cdii-b				
T-IORV026	cdii-b				
T-IORV030	cdii-b				
T-LOPP011	cdii-b				
T-LOPP015	cdii-b				
AT-T-FDW008	cdiii				
AT-T-FDW013	cdiii				
AT-T-GEN012	cdiii				
AT-T-GEN021	cdiii				
AT-T-IORV009	cdiii	Low	1.59E-10		
AT-T-LOPP008	cdiii				
AT-T-LOPP013	cdiii				
AT-T-SW003	cdiii				
BOC-FDWA029	cdiii				
BOC-FDWB021	cdiii				
BOC-FDWB054	cdiii				
ML-L012	cdiii				
SL-L023	cdiii				
SL-L070	cdiii				
SL-S018	cdiii				
SL-S065	cdiii				
T-FDW061	cdiii				
T-GEN022	cdiii				
T-GEN069	cdiii				

Table 7.2-4a

LDW Water Level Subclass Results

Sequence	Class	DW Level	DW Level - Low	DW Level - Medium	DW Level - High
T-IORV018	cdiii	Low	9.02E-10		
T-IORV065	cdiii	Low	6.95E-10		
T-LOPP061	cdiii				
T-SW011	cdiii				
T-SW039	cdiii				
AT-LOCA012	cdiv	Medium		7.11E-13	
AT-LOCA013	cdiv	Medium		1.46E-14	
AT-LOCA015	cdiv	High			1.22E-13
AT-T-FDW015	cdiv	Low	1.12E-10		
AT-T-FDW016	cdiv	Low	3.03E-12		
AT-T-FDW017	cdiv	Low	1.40E-14		
AT-T-GEN023	cdiv	Low	1.31E-09		
AT-T-GEN024	cdiv	Low	3.05E-11		
AT-T-GEN025	cdiv	Low	1.66E-13		
AT-T-GEN026	cdiv	Low	2.48E-10		
AT-T-IORV011	cdiv	Low	2.64E-11		
AT-T-IORV012	cdiv	Low	6.43E-13		
AT-T-IORV014	cdiv	Low	4.94E-12		
AT-T-LOPP015	cdiv	Low	3.34E-11		
AT-T-LOPP016	cdiv	Low	8.87E-13		
AT-T-LOPP017	cdiv	Low	3.55E-15		
AT-T-SW006	cdiv	Low	8.99E-13		
AT-T-SW007	cdiv	Low	1.82E-14		
AT-T-SW009	cdiv	Low	1.79E-13		
BOC-MS067	cdiv	Low	4.38E-13		

Table 7.2-4a

LDW Water Level Subclass Results

Sequence	Class	DW Level	DW Level - Low	DW Level - Medium	DW Level - High
LL-S050	cdiv	Low	8.47E-11		
LL-S-FDWA016	cdiv	High			1.39E-12
LL-S-FDWB047	cdiv	High			1.39E-12
ML-L014	cdiv	Medium			1.89E-11
T-SW038	cdv				
		Total	8.62E-09	1.19E-10	5.91E-10
		%	70.09%	0.82%	5.00%

Table 7.2-5

Top Ten Level 1 Accident Sequences

Sequence	T-IORV063- Sequence No. 1	
CDF		2.06E-09
% of Class I CDF		36.61%
% of total CDF		16.90%
Initiating event	Inadvertent Open Relief Valve	
Scram is successful		
Feedwater Injection Fails		
2 CRD Pumps fail to restore level		
Failure to Manually Depressurize with SRVs		
ADS Depressurization with DPVs is successful		
DW/WW vacuum breakers suppress containment pressure		
Low Pressure Injection with GDCS, FAPCS, and Firewater fail		
Vessel fails at low pressure		
Lower drywell water level is LOW		

Sequence	AT-T-GEN023– Sequence No. 2	
CDF		1.3E-09
% of Class IV CDF		69.66%
% of total CDF		10.70%
Initiating event	General Transient (e.g. turbine trip)	
Scram fails		
Feedwater Runback is successful		
SRVs lift and overpressure protection is successful		
ADS Inhibit is successful		
One of two trains of SLC fails		
Vessel fails at low pressure		
Lower drywell water level is LOW		

Sequence	T-FDW050– Sequence No. 3	
CDF		1.14E-09
% of Class I CDF		20.26%
% of total CDF		9.35%
Initiating event	Loss of Feedwater	

Scram is successful
Isolation Condensers fail to provide overpressure protection
SRVs lift – overpressure protection is successful
All SRVs reclose
ADS is successful using DPVs
DW/WW vacuum breakers are successful - pressure suppression is successful
GDCS fails
Low pressure injection using FAPCS, Firewater and CRD fail
Vessel fails at low pressure
Lower drywell water level is LOW

Sequence	T-IORV018– Sequence No. 4	
CDF		9.02E-10
% of Class III CDF		19.98%
% of total CDF		7.39%
Initiating event	Inadvertent Open Relief Valve	
Scram success		
Feedwater injection fails		
2 CRD fail to restore level		
Manual Depressurization using SRVs is successful		
Low pressure injection with FAPCS and Firewater fail		
ADS fails to depressurize using DPS		
Lower drywell water level is LOW		

Sequence	AT-T-GEN021– Sequence No. 5	
CDF		8.78E-10
% of Class III CDF		19.46%
% of total CDF		7.20%
Initiating event	General Transient (e.g. turbine trip)	

Scram fails
Feedwater runback success
SRVs lift – overpressure protection is successful, but one or more SRVs sticks open
ADS Inhibit is successful
SLC is successful
Feedwater and CRD fail to maintain reduced level
Lower drywell water level is LOW

Sequence	T-IORV065– Sequence No. 6	
CDF		6.95E-10
% of Class III CDF		15.40%
% of total CDF		5.70%
Initiating event	Inadvertent Open Relief Valve	
Scram is Successful		
High Pressure injection fails		
Manual and ADS Depressurization fails		
Core damage starts at high pressure		
Vessel fails at low pressure		
Lower drywell water level is LOW		

Sequence	AT-T-LOPP013– Sequence No. 7	
CDF		6.8E-10
% of Class III CDF		15.05%
% of total CDF		5.57%
Initiating event	Loss of Offsite power	
Scram fails		
SRVs lift – successful overpressure protection, but one or more SRV sticks open		
ADS inhibit is successful		
SLC is successful		
CRD pumps fail to maintain level (both required)		
Lower drywell water level is LOW		

Sequence	T-IORV017– Sequence No. 8	
CDF		6.58E-10
% of Class I CDF		11.68%
% of total CDF		5.39%
Initiating event	Inadvertent Open Relief Valve	
Scram is successful		
Feedwater Injection fails		
CRD pumps fail to restore level		
Manual Depressurization using SRVs is successful		
Low pressure injection using FAPCS and Firewater fail		
ADS depressurization using DPVs is successful		
GDCS fails		
Lower drywell water level is LOW		

Sequence	LL-S-FDWB045– Sequence No. 9	
CDF		5.25E-10
% of Class I CDF		9.32%
% of CDF		4.30%
Initiating event	Large LOCA in Feedwater Line B	
Scram is successful		
LOCA depressurizes		
DW/WW vacuum breakers are successful – pressure suppression is successful		
GDCS fails		
Low pressure injection using FAPCS and Firewater fail		
Lower drywell water level is HIGH		

Sequence	T-LOPP050 – Sequence No. 10	
CDF		4.28E-10
% of Class I		7.60%
% of CDF		3.51%
Initiating event	Loss of Offsite Power	

Scram is successful
Isolation Condensers fail to provide overpressure protection
SRVs lift – overpressure protection is successful
All SRVs reclose
ADS is successful using DPVs
DW/WW vacuum breakers are successful - pressure suppression is successful
GDCS fails
Low pressure injection using FAPCS, Firewater and CRD fail
Lower drywell water level is LOW

Table 7.2-6

Top 200 Cutsets Contributing to CDF

#	Cutset Prob	Sequence	Event	Event Prob	Description
1	5.66E-10	T-FDW050	%T-FDW	1.17E-01	LOSS OF FEEDWATER
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
2	2.83E-10	T-FDW061	%T-FDW	1.17E-01	LOSS OF FEEDWATER
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
3	2.83E-10	T-FDW050	%T-FDW	1.17E-01	LOSS OF FEEDWATER
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
4	2.69E-10	LL-S-FDWB045	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

5	2.36E-10	AT-T-GEN023	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-UV_-CC-F004A	7.99E-04	CHECK VALVE F004A FAILS TO OPEN
6	2.36E-10	AT-T-GEN023	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-UV_-CC-F004B	7.99E-04	CHECK VALVE F004B FAILS TO OPEN
7	2.36E-10	AT-T-GEN023	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-UV_-CC-F005A	7.99E-04	CHECK VALVE F005A FAILS TO OPEN
8	2.36E-10	AT-T-GEN023	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-UV_-CC-F005B	7.99E-04	CHECK VALVE F005B FAILS TO OPEN
9	1.99E-10	T-IORV063	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

10	1.70E-10	T-FDW050	%T-FDW	1.17E-01	LOSS OF FEEDWATER
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
11	1.37E-10	T-IORV063	%T-IORV	2.83E-02	IORV
			C62-CCFSOFTWARE	1.00E-04	Common cause failure of software
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
12	1.34E-10	LL-S-FDWB045	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
13	9.92E-11	T-IORV018	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
14	9.92E-11	T-IORV065	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

15	9.92E-11	T-IORV063	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
16	9.00E-11	T-LOPP050	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
17	8.49E-11	T-FDW060	%T-FDW	1.17E-01	LOSS OF FEEDWATER
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
18	8.49E-11	T-FDW050	%T-FDW	1.17E-01	LOSS OF FEEDWATER
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
19	8.47E-11	LL-S050	%LL-S	3.39E-04	LARGE STEAM LOCA (NO FW LINE BREAK)
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
20	8.07E-11	LL-S-FDWB045	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
21	6.83E-11	T-IORV018	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C62-CCFSOFTWARE	1.00E-04	Common cause failure of software
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

22	6.83E-11	T-IORV065	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C62-CCFSOFTWARE	1.00E-04	Common cause failure of software
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
23	6.83E-11	T-IORV063	%T-IORV	2.83E-02	IORV
			C62-CCFSOFTWARE	1.00E-04	Common cause failure of software
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
24	6.63E-11	T-IORV063	%T-IORV	2.83E-02	IORV
			BOPCWS-SYS-FAILS	1.00E-03	BALANCE OF PLANT CHILLED WATER SYSTEM FAILS
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
25	5.98E-11	T-IORV017	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
26	5.31E-11	AT-T-GEN026	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C72-LDD-FC-FWRB1	1.80E-04	LOAD DRIVER FAILS TO ENERGIZE FWRB CIRCUIT
27	5.31E-11	AT-T-GEN026	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C72-LDD-FC-FWRB2	1.80E-04	LOAD DRIVER FAILS TO ENERGIZE FWRB CIRCUIT

28	5.11E-11	BOC-FDWA027	%BOC-FDWA	1.70E-03	FEEDWATER LINE A BREAK OUTSIDE CONTAINMENT
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
29	5.03E-11	T-LOPP050	%T-LOPP-SC	1.04E-02	SWITCHYARD CENTERED LOSS OF PREFERRED POWER
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
30	4.93E-11	T-GEN067	%T-IA	1.02E-02	COMPLETE LOSS OF AIR SYSTEMS
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
31	4.49E-11	T-LOPP061	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
32	4.49E-11	T-LOPP050	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
33	4.42E-11	AT-T-GEN023	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-SQV-CC_ALL	1.50E-04	CCF of all components in group 'C41-SQV-CC'
34	4.12E-11	T-IORV017	%T-IORV	2.83E-02	IORV
			C62-CCFSOFTWARE	1.00E-04	Common cause failure of software
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334

35	4.03E-11	LL-S-FDWB045	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
36	3.95E-11	ML-L013	%ML-L	7.55E-05	MEDIUM LIQUID LOCA (NO RWCU BREAK)
			T10-UV_-CC-VBISVS_1_2_3	5.23E-07	CCF of three components: T10-UV_-CC-ISV1 & T10-UV_-CC-ISV2 & T10-UV_-CC-ISV3
37	3.94E-11	AT-T-GEN023	%T-PCS	1.97E-01	TRANSIENT WITH PCS UNAVAILABLE
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-UV_-CC-F004A	7.99E-04	CHECK VALVE F004A FAILS TO OPEN
38	3.94E-11	AT-T-GEN023	%T-PCS	1.97E-01	TRANSIENT WITH PCS UNAVAILABLE
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-UV_-CC-F004B	7.99E-04	CHECK VALVE F004B FAILS TO OPEN
39	3.94E-11	AT-T-GEN023	%T-PCS	1.97E-01	TRANSIENT WITH PCS UNAVAILABLE
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-UV_-CC-F005A	7.99E-04	CHECK VALVE F005A FAILS TO OPEN
40	3.94E-11	AT-T-GEN023	%T-PCS	1.97E-01	TRANSIENT WITH PCS UNAVAILABLE
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-UV_-CC-F005B	7.99E-04	CHECK VALVE F005B FAILS TO OPEN
41	3.40E-11	BOC-RWCU051	%BOC-RWCU	3.40E-03	RWCU LINE BREAK OUTSIDE CONTAINMENT
			C63-CCFSOFTWARE	1.00E-04	Common cause failure of software
			C72-CCFSOFTWARE	1.00E-04	COMMON CAUSE FAILURE OF DPS PROCESSORS
42	3.31E-11	T-IORV063	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			R16-BDC-TM-R16A3	5.00E-04	DC BUS R16-A3 IN MAINTENANCE
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

43	3.31E-11	T-IORV063	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			R16-BT_-TM-R16BTA3	5.00E-04	BATTERY R16-BTA3 IN TEST AND MAINTENANCE
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
44	3.31E-11	T-IORV018	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			BOPCWS-SYS-FAILS	1.00E-03	BALANCE OF PLANT CHILLED WATER SYSTEM FAILS
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
45	3.31E-11	T-IORV065	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			BOPCWS-SYS-FAILS	1.00E-03	BALANCE OF PLANT CHILLED WATER SYSTEM FAILS
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
46	3.31E-11	T-IORV063	%T-IORV	2.83E-02	IORV
			BOPCWS-SYS-FAILS	1.00E-03	BALANCE OF PLANT CHILLED WATER SYSTEM FAILS
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
47	3.17E-11	ML-L013	%ML-L	7.55E-05	MEDIUM LIQUID LOCA (NO RWCU BREAK)
			T10-VB_-CC_1_2_3	4.19E-07	CCF of three components: T10-VB_-CC-VB1 & T10-VB_-CC-VB2 & T10-VB_-CC-VB3

48	2.98E-11	T-IORV018	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
49	2.98E-11	T-IORV017	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
50	2.95E-11	AT-T-GEN023	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C63-CCFSOFTWARE	1.00E-04	Common cause failure of software
51	2.95E-11	AT-T-GEN026	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C72-CCFSOFTWARE	1.00E-04	COMMON CAUSE FAILURE OF DPS PROCESSORS
52	2.95E-11	AT-T-GEN026	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C74-CCFATSOFTWARE	1.00E-04	COMMON CAUSE FAILURE OF ATWS/SLC LOGIC PROCESSORS
53	2.71E-11	T-LOPP050	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
54	2.55E-11	BOC-FDWA029	%BOC-FDWA	1.70E-03	FEEDWATER LINE A BREAK OUTSIDE CONTAINMENT
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious

55	2.55E-11	BOC-FDWA027	%BOC-FDWA	1.70E-03	FEEDWATER LINE A BREAK OUTSIDE CONTAINMENT
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
56	2.51E-11	T-LOPP061	%T-LOPP-SC	1.04E-02	SWITCHYARD CENTERED LOSS OF PREFERRED POWER
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
57	2.51E-11	T-LOPP050	%T-LOPP-SC	1.04E-02	SWITCHYARD CENTERED LOSS OF PREFERRED POWER
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
58	2.46E-11	T-GEN022	%T-IA	1.02E-02	COMPLETE LOSS OF AIR SYSTEMS
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
59	2.46E-11	T-GEN069	%T-IA	1.02E-02	COMPLETE LOSS OF AIR SYSTEMS
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
60	2.46E-11	T-GEN067	%T-IA	1.02E-02	COMPLETE LOSS OF AIR SYSTEMS
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
61	2.34E-11	AT-T-FDW015	%T-FDW	1.17E-01	LOSS OF FEEDWATER
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-UV_-CC-F004A	7.99E-04	CHECK VALVE F004A FAILS TO OPEN

62	2.34E-11	AT-T-FDW015	%T-FDW	1.17E-01	LOSS OF FEEDWATER
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-UV_-CC-F004B	7.99E-04	CHECK VALVE F004B FAILS TO OPEN
63	2.34E-11	AT-T-FDW015	%T-FDW	1.17E-01	LOSS OF FEEDWATER
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-UV_-CC-F005A	7.99E-04	CHECK VALVE F005A FAILS TO OPEN
64	2.34E-11	AT-T-FDW015	%T-FDW	1.17E-01	LOSS OF FEEDWATER
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-UV_-CC-F005B	7.99E-04	CHECK VALVE F005B FAILS TO OPEN
65	2.34E-11	T-LOPP050	%T-LOPP-WR	4.83E-03	WEATHER RELATED LOSS OF PREFERRED POWER
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
66	2.05E-11	T-IORV018	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C62-CCFSOFTWARE	1.00E-04	Common cause failure of software
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
67	2.05E-11	T-IORV017	%T-IORV	2.83E-02	IORV
			C62-CCFSOFTWARE	1.00E-04	Common cause failure of software
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
68	1.99E-11	T-IORV017	%T-IORV	2.83E-02	IORV
			BOPCWS-SYS-FAILS	1.00E-03	BALANCE OF PLANT CHILLED WATER SYSTEM FAILS
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
69	1.89E-11	ML-L014	%ML-L	7.55E-05	MEDIUM LIQUID LOCA (NO RWCU BREAK)
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT

70	1.86E-11	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			R21-DG_-FR-CCF_1_2	4.54E-03	CCF of two components: R21-DG_-FR-DGA & R21-DG_-FR-DGB
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
71	1.71E-11	T-GEN067	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
72	1.70E-11	BOC-FDWB054	%BOC-FDWB	1.70E-03	FEEDWATER LINE B BREAK OUTSIDE CONTAINMENT
			C63-CCFSOFTWARE	1.00E-04	Common cause failure of software
			C72-CCFSOFTWARE	1.00E-04	COMMON CAUSE FAILURE OF DPS PROCESSORS
73	1.65E-11	T-IORV018	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			R16-BDC-TM-R16A3	5.00E-04	DC BUS R16-A3 IN MAINTENANCE
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
74	1.65E-11	T-IORV018	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			R16-BT_-TM-R16BTA3	5.00E-04	BATTERY R16-BTA3 IN TEST AND MAINTENANCE
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

75	1.65E-11	T-IORV065	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			R16-BDC-TM-R16A3	5.00E-04	DC BUS R16-A3 IN MAINTENANCE
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
76	1.65E-11	T-IORV065	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			R16-BT_-TM-R16BTA3	5.00E-04	BATTERY R16-BTA3 IN TEST AND MAINTENANCE
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
77	1.65E-11	T-IORV063	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			R16-BDC-TM-R16A3	5.00E-04	DC BUS R16-A3 IN MAINTENANCE
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
78	1.65E-11	T-IORV063	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			R16-BT_-TM-R16BTA3	5.00E-04	BATTERY R16-BTA3 IN TEST AND MAINTENANCE
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
79	1.64E-11	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			P41-FAN-FR_ALL	1.20E-05	CCF of all components in group 'P41-FAN-FR'
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

80	1.64E-11	AT-T-GEN023	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-SQV-CC_1_3	5.56E-05	CCF of two components: C41-SQV-CC-F003A & C41-SQV-CC-F003C
81	1.64E-11	AT-T-GEN023	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-SQV-CC_2_4	5.56E-05	CCF of two components: C41-SQV-CC-F003B & C41-SQV-CC-F003D
82	1.51E-11	T-LOPP050	%T-LOPP-SC	1.04E-02	SWITCHYARD CENTERED LOSS OF PREFERRED POWER
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
83	1.51E-11	AT-T-IORV009	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F021A	1.21E-02	MISPOSITION OF VALVE F021A
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
84	1.51E-11	AT-T-IORV009	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F021B	1.21E-02	MISPOSITION OF VALVE F021B
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
85	1.51E-11	AT-T-IORV009	%T-IORV	2.83E-02	IORV
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
			P21-BV_-RE-F049A	1.21E-02	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER

86	1.51E-11	AT-T-IORV009	%T-IORV	2.83E-02	IORV
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
			P21-BV_-RE-F049B	1.21E-02	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
87	1.51E-11	AT-T-IORV009	%T-IORV	2.83E-02	IORV
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
			P21-BV_-RE-F050A	1.21E-02	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
88	1.51E-11	AT-T-IORV009	%T-IORV	2.83E-02	IORV
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
			P21-BV_-RE-F050B	1.21E-02	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
89	1.48E-11	T-GEN021	%T-IA	1.02E-02	COMPLETE LOSS OF AIR SYSTEMS
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
90	1.36E-11	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
			R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

91	1.35E-11	T-LOPP060	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
92	1.35E-11	T-LOPP050	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
93	1.33E-11	AT-T-GEN024	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C71-SLU-FC-N_ALL	4.50E-05	CCF of all components in group 'C71-SLU-FC-N'
94	1.33E-11	AT-T-GEN026	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C71-SLU-FC-S_ALL	4.50E-05	CCF of all components in group 'C71-SLU-FC-S'
95	1.17E-11	T-LOPP061	%T-LOPP-WR	4.83E-03	WEATHER RELATED LOSS OF PREFERRED POWER
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
96	1.17E-11	T-LOPP050	%T-LOPP-WR	4.83E-03	WEATHER RELATED LOSS OF PREFERRED POWER
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
97	1.14E-11	T-GEN067	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			N21-ACV-CC-F0016	2.00E-03	AIR OPERATED VALVE F0016 FAILS TO OPEN
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

98	1.10E-11	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			P41-SYS-FC-HVACPSW-A	1.00E-03	PSW-A ROOM COOLING FAILURE
			P41-TRN-RE-PUMP2B	8.07E-03	FAILURE TO RESTORE PSW PUMP 2B
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
99	1.10E-11	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			P41-SYS-FC-HVACPSW-B	1.00E-03	PSW-B ROOM COOLING FAILURE
			P41-TRN-RE-PUMP2A	8.07E-03	FAILURE TO RESTORE PSW PUMP 2A
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
100	1.10E-11	ML-L011	%ML-L	7.55E-05	MEDIUM LIQUID LOCA (NO RWCU BREAK)
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
101	1.09E-11	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
			R21-DG_-TM-DGB	4.60E-02	STANDBY DIESEL GENERATOR "B" IN MAINTENANCE
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

102	1.09E-11	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
			R21-DG_-TM-DGA	4.60E-02	STANDBY DIESEL GENERATOR "A" IN MAINTENANCE
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
103	1.00E-11	T-LOPP050	%T-LOPP-PC	2.07E-03	PLANT CENTERED LOSS OF PREFERRED POWER
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
104	9.96E-12	T-IORV017	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
			R16-BDC-TM-R16A3	5.00E-04	DC BUS R16-A3 IN MAINTENANCE
105	9.96E-12	T-IORV017	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
			R16-BT_-TM-R16BTA3	5.00E-04	BATTERY R16-BTA3 IN TEST AND MAINTENANCE
106	9.94E-12	T-IORV018	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			BOPCWS-SYS-FAILS	1.00E-03	BALANCE OF PLANT CHILLED WATER SYSTEM FAILS
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334

107	9.94E-12	T-IORV017	%T-IORV	2.83E-02	IORV
			BOPCWS-SYS-FAILS	1.00E-03	BALANCE OF PLANT CHILLED WATER SYSTEM FAILS
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
108	9.70E-12	T-SW039	%T-SW	9.70E-04	COMPLETE LOSS OF PSWS
			C63-CCFSOFTWARE	1.00E-04	Common cause failure of software
			C72-CCFSOFTWARE	1.00E-04	COMMON CAUSE FAILURE OF DPS PROCESSORS
109	9.62E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A
			C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
110	9.62E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A
			C12-BV_-RE-F015B	4.84E-02	MISPOSITION OF VALVE F015B
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

111	9.62E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B
			C12-BV_-RE-F015A	4.84E-02	MISPOSITION OF VALVE F015A
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
112	9.62E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F015A	4.84E-02	MISPOSITION OF VALVE F015A
			C12-BV_-RE-F015B	4.84E-02	MISPOSITION OF VALVE F015B
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
113	9.30E-12	T-IORV018	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			R21-DG_-FR-CCF_1_2	4.54E-03	CCF of two components: R21-DG_-FR-DGA & R21-DG_-FR-DGB
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
114	9.30E-12	T-IORV065	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			R21-DG_-FR-CCF_1_2	4.54E-03	CCF of two components: R21-DG_-FR-DGA & R21-DG_-FR-DGB
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

115	9.30E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			R21-DG_-FR-CCF_1_2	4.54E-03	CCF of two components: R21-DG_-FR-DGA & R21-DG_-FR-DGB
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
116	9.00E-12	T-LOPP061	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			C63-CCFSOFTWARE	1.00E-04	Common cause failure of software
			C72-CCFSOFTWARE	1.00E-04	COMMON CAUSE FAILURE OF DPS PROCESSORS
117	8.86E-12	AT-T-GEN026	%T-PCS	1.97E-01	TRANSIENT WITH PCS UNAVAILABLE
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C72-LDD-FC-FWRB1	1.80E-04	LOAD DRIVER FAILS TO ENERGIZE FWRB CIRCUIT
118	8.86E-12	AT-T-GEN026	%T-PCS	1.97E-01	TRANSIENT WITH PCS UNAVAILABLE
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C72-LDD-FC-FWRB2	1.80E-04	LOAD DRIVER FAILS TO ENERGIZE FWRB CIRCUIT
119	8.85E-12	AT-T-GEN024	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C71-DTM-FC-R_ALL	3.00E-05	CCF of all components in group 'C71-DTM-FC-R'
120	8.55E-12	T-GEN022	%T-GEN	1.18E+00	GENERAL TRANSIENT
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

121	8.55E-12	T-GEN069	%T-GEN	1.18E+00	GENERAL TRANSIENT
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
122	8.55E-12	T-GEN067	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
123	8.22E-12	BOC-FDWB053	%BOC-FDWB	1.70E-03	FEEDWATER LINE B BREAK OUTSIDE CONTAINMENT
			B32-NONCONDENSE	1.00E+00	Non condensable gasses form in ICS sufficiently to require venting
			C63-CCFSOFTWARE	1.00E-04	Common cause failure of software
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
124	8.22E-12	BOC-FDWB053	%BOC-FDWB	1.70E-03	FEEDWATER LINE B BREAK OUTSIDE CONTAINMENT
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

125	8.22E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			P21-ACV-OO-F0004	2.00E-03	AIR OPERATED VALVE F0004 FAILS TO CLOSE
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
126	8.22E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			P21-ACV-OO-F0007	2.00E-03	AIR OPERATED VALVE F0007 FAILS TO CLOSE
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
127	8.22E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			P21-ACV-OO-F0020	2.00E-03	AIR OPERATED VALVE F0020 FAILS TO CLOSE
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
128	8.22E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			P21-ACV-OO-F0027	2.00E-03	AIR OPERATED VALVE F0027 FAILS TO CLOSE
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

129	8.22E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			P21-ACV-OO-F0061	2.00E-03	AIR OPERATED VALVE F0061 FAILS TO CLOSE
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
130	8.20E-12	T-IORV018	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			P41-FAN-FR_ALL	1.20E-05	CCF of all components in group 'P41-FAN-FR'
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
131	8.20E-12	T-IORV065	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			P41-FAN-FR_ALL	1.20E-05	CCF of all components in group 'P41-FAN-FR'
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
132	8.20E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			P41-FAN-FR_ALL	1.20E-05	CCF of all components in group 'P41-FAN-FR'
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
133	7.78E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			P41-STR-PG_ALL	5.68E-06	CCF of all components in group 'P41-STR-PG'
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
134	7.55E-12	T-LOPP060	%T-LOPP-SC	1.04E-02	SWITCHYARD CENTERED LOSS OF PREFERRED POWER
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334

135	7.55E-12	T-LOPP050	%T-LOPP-SC	1.04E-02	SWITCHYARD CENTERED LOSS OF PREFERRED POWER
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
136	7.41E-12	T-GEN022	%T-IA	1.02E-02	COMPLETE LOSS OF AIR SYSTEMS
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
137	7.41E-12	T-GEN021	%T-IA	1.02E-02	COMPLETE LOSS OF AIR SYSTEMS
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
138	7.39E-12	AT-T-GEN023	%T-PCS	1.97E-01	TRANSIENT WITH PCS UNAVAILABLE
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-SQV-CC_ALL	1.50E-04	CCF of all components in group 'C41-SQV-CC'
139	7.31E-12	ML-L011	%ML-L	7.55E-05	MEDIUM LIQUID LOCA (NO RWCU BREAK)
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			N21-ACV-CC-F0016	2.00E-03	AIR OPERATED VALVE F0016 FAILS TO OPEN
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
140	7.08E-12	AT-T-GEN023	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-ACV-OC-F002A	2.40E-05	AIR OPERATED VALVE F002A FAILS TO REMAIN OPEN
141	7.08E-12	AT-T-GEN023	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-ACV-OC-F002B	2.40E-05	AIR OPERATED VALVE F002B FAILS TO REMAIN OPEN
142	7.08E-12	AT-T-GEN023	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-ACV-OC-F002C	2.40E-05	AIR OPERATED VALVE F002C FAILS TO REMAIN OPEN

143	7.08E-12	AT-T-GEN023	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-ACV-OC-F002D	2.40E-05	AIR OPERATED VALVE FAILS TO REMAIN OPEN
144	7.02E-12	T-LOPP050	%T-LOPP-WR	4.83E-03	WEATHER RELATED LOSS OF PREFERRED POWER
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
145	6.80E-12	T-IORV018	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
			R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
146	6.80E-12	T-IORV065	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
			R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
147	6.80E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
			R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

148	6.57E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			R11-BAC-LP-100B3	4.80E-06	6.9 KV AC PIP-A LOADS BUS 1000B3 FAILS DURING OPERATION
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
149	6.57E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			R11-BAC-TM-100B3	4.80E-06	6.9 KV AC PIP-A LOADS BUS 1000B3 IN MAINTENANCE
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
150	6.41E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A
			C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			N21-ACV-CC-F0016	2.00E-03	AIR OPERATED VALVE F0016 FAILS TO OPEN
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
151	6.41E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A
			C12-BV_-RE-F015B	4.84E-02	MISPOSITION OF VALVE F015B
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			N21-ACV-CC-F0016	2.00E-03	AIR OPERATED VALVE F0016 FAILS TO OPEN
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
152	6.41E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B
			C12-BV_-RE-F015A	4.84E-02	MISPOSITION OF VALVE F015A
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			N21-ACV-CC-F0016	2.00E-03	AIR OPERATED VALVE F0016 FAILS TO OPEN
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

153	6.41E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F015A	4.84E-02	MISPOSITION OF VALVE F015A
			C12-BV_-RE-F015B	4.84E-02	MISPOSITION OF VALVE F015B
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			N21-ACV-CC-F0016	2.00E-03	AIR OPERATED VALVE F0016 FAILS TO OPEN
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
154	6.41E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F064	4.84E-02	MISPOSITION OF VALVE F064
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			N21-ACV-CC-F0016	2.00E-03	AIR OPERATED VALVE F0016 FAILS TO OPEN
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
155	6.12E-12	T-FDW052	%T-FDW	1.17E-01	LOSS OF FEEDWATER
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			T10-UV_-CC-VBISVS_1_2_3	5.23E-07	CCF of three components: T10-UV_-CC-ISV1 & T10-UV_-CC-ISV2 & T10-UV_-CC-ISV3
156	6.08E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			P41-FAN-FR_1_2	4.44E-06	CCF of two components: P41-FAN-FR-0001A & P41-FAN-FR-0001B
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
157	6.08E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			P41-FAN-FR_1_4	4.44E-06	CCF of two components: P41-FAN-FR-0001A & P41-FAN-FR-0002B
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

158	6.08E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			P41-FAN-FR_2_3	4.44E-06	CCF of two components: P41-FAN-FR-0001B & P41-FAN-FR-0002A
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
159	6.08E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			P41-FAN-FR_3_4	4.44E-06	CCF of two components: P41-FAN-FR-0002A & P41-FAN-FR-0002B
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
160	5.71E-12	T-GEN067	%T-GEN	1.18E+00	GENERAL TRANSIENT
			BOPCWS-SYS-FAILS	1.00E-03	BALANCE OF PLANT CHILLED WATER SYSTEM FAILS
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
161	5.70E-12	T-GEN022	%T-GEN	1.18E+00	GENERAL TRANSIENT
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			N21-ACV-CC-F0016	2.00E-03	AIR OPERATED VALVE F0016 FAILS TO OPEN
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
162	5.70E-12	T-GEN069	%T-GEN	1.18E+00	GENERAL TRANSIENT
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			N21-ACV-CC-F0016	2.00E-03	AIR OPERATED VALVE F0016 FAILS TO OPEN
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

163	5.70E-12	T-GEN067	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			N21-ACV-CC-F0016	2.00E-03	AIR OPERATED VALVE F0016 FAILS TO OPEN
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
164	5.65E-12	AT-T-IORV011	%T-IORV	2.83E-02	IORV
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-UV_-CC-F004A	7.99E-04	CHECK VALVE F004A FAILS TO OPEN
165	5.65E-12	AT-T-IORV011	%T-IORV	2.83E-02	IORV
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-UV_-CC-F004B	7.99E-04	CHECK VALVE F004B_FAILS TO OPEN
166	5.65E-12	AT-T-IORV011	%T-IORV	2.83E-02	IORV
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-UV_-CC-F005A	7.99E-04	CHECK VALVE F005A FAILS TO OPEN
167	5.65E-12	AT-T-IORV011	%T-IORV	2.83E-02	IORV
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C41-UV_-CC-F005B	7.99E-04	CHECK VALVE F005B FAILS TO OPEN
168	5.60E-12	T-IORV017	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			R21-DG_-FR-CCF_1_2	4.54E-03	CCF of two components: R21-DG_-FR-DGA & R21-DG_-FR-DGB
169	5.52E-12	T-IORV018	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			P41-SYS-FC-HVACPSW-A	1.00E-03	PSW-A ROOM COOLING FAILURE
			P41-TRN-RE-PUMP2B	8.07E-03	FAILURE TO RESTORE PSW PUMP 2B
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

170	5.52E-12	T-IORV018	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			P41-SYS-FC-HVACPSW-B	1.00E-03	PSW-B ROOM COOLING FAILURE
			P41-TRN-RE-PUMP2A	8.07E-03	FAILURE TO RESTORE PSW PUMP 2A
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
171	5.52E-12	T-IORV065	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			P41-SYS-FC-HVACPSW-A	1.00E-03	PSW-A ROOM COOLING FAILURE
			P41-TRN-RE-PUMP2B	8.07E-03	FAILURE TO RESTORE PSW PUMP 2B
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
172	5.52E-12	T-IORV065	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			P41-SYS-FC-HVACPSW-B	1.00E-03	PSW-B ROOM COOLING FAILURE
			P41-TRN-RE-PUMP2A	8.07E-03	FAILURE TO RESTORE PSW PUMP 2A
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
173	5.52E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			P41-SYS-FC-HVACPSW-A	1.00E-03	PSW-A ROOM COOLING FAILURE
			P41-TRN-RE-PUMP2B	8.07E-03	FAILURE TO RESTORE PSW PUMP 2B
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
174	5.52E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			P41-SYS-FC-HVACPSW-B	1.00E-03	PSW-B ROOM COOLING FAILURE
			P41-TRN-RE-PUMP2A	8.07E-03	FAILURE TO RESTORE PSW PUMP 2A
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

175	5.48E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			P41-MOV-CC-PMPF004A	4.00E-03	MOTOR OPERATED VALVE MV-F004A FAILS TO OPEN
			P41-SYS-FC-HVACPSW-B	1.00E-03	PSW-B ROOM COOLING FAILURE
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
176	5.48E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			P41-MOV-CC-PMPF004B	4.00E-03	MOTOR OPERATED VALVE F004B FAILS TO OPEN
			P41-SYS-FC-HVACPSW-A	1.00E-03	PSW-A ROOM COOLING FAILURE
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
177	5.48E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			R10-SYS-FF-500KV	1.00E-03	500KV SWITCHYARD FAILS DURING OPERATION
			R11-MCB-CC-B3UATBY	4.00E-03	MEDIUM VOLTAGE CIRCUIT BREAKER FOR UAT B Y-WINDING FAILS TO OPEN
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
178	5.47E-12	ML-L012	%ML-L	7.55E-05	MEDIUM LIQUID LOCA (NO RWCU BREAK)
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
179	5.47E-12	ML-L011	%ML-L	7.55E-05	MEDIUM LIQUID LOCA (NO RWCU BREAK)
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

180	5.43E-12	T-IORV018	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
			R21-DG_-TM-DGB	4.60E-02	STANDBY DIESEL GENERATOR "B" IN MAINTENANCE
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
181	5.43E-12	T-IORV018	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
			R21-DG_-TM-DGA	4.60E-02	STANDBY DIESEL GENERATOR "A" IN MAINTENANCE
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
182	5.43E-12	T-IORV065	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
			R21-DG_-TM-DGB	4.60E-02	STANDBY DIESEL GENERATOR "B" IN MAINTENANCE
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
183	5.43E-12	T-IORV065	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
			R21-DG_-TM-DGA	4.60E-02	STANDBY DIESEL GENERATOR "A" IN MAINTENANCE
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

184	5.43E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
			R21-DG_-TM-DGB	4.60E-02	STANDBY DIESEL GENERATOR "B" IN MAINTENANCE
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
185	5.43E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
			R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
			R21-DG_-TM-DGA	4.60E-02	STANDBY DIESEL GENERATOR "A" IN MAINTENANCE
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
186	5.19E-12	AT-T-GEN012	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
187	5.15E-12	T-GEN021	%T-GEN	1.18E+00	GENERAL TRANSIENT
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
			R10-LOSP-EPRI	3.00E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
188	5.03E-12	T-LOPP061	%T-LOPP-SC	1.04E-02	SWITCHYARD CENTERED LOSS OF PREFERRED POWER
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			C63-CCFSOFTWARE	1.00E-04	Common cause failure of software
			C72-CCFSOFTWARE	1.00E-04	COMMON CAUSE FAILURE OF DPS PROCESSORS

189	5.00E-12	T-LOPP061	%T-LOPP-PC	2.07E-03	PLANT CENTERED LOSS OF PREFERRED POWER
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
190	5.00E-12	T-LOPP050	%T-LOPP-PC	2.07E-03	PLANT CENTERED LOSS OF PREFERRED POWER
			C63-CCFSOFTWARE_S	1.00E-04	Common cause failure of software, for spurious
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
191	4.98E-12	AT-T-IORV009	%T-IORV	2.83E-02	IORV
			C12-MOV-CC-F020A	4.00E-03	MOTOR OPER. VALVE F020A FAILS TO OPEN
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
192	4.98E-12	AT-T-IORV009	%T-IORV	2.83E-02	IORV
			C12-MOV-CC-F020B	4.00E-03	MOTOR OPER. VALVE F020B FAILS TO OPEN
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
193	4.97E-12	T-IORV018	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
			R16-BDC-TM-R16A3	5.00E-04	DC BUS R16-A3 IN MAINTENANCE
194	4.97E-12	T-IORV018	%T-IORV	2.83E-02	IORV
			B21-SQV-CC_ALL	1.50E-04	CCF of all components in group 'B21-SQV-CC'
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
			R16-BT_-TM-R16BTA3	5.00E-04	BATTERY R16-BTA3 IN TEST AND MAINTENANCE

195	4.97E-12	T-IORV017	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
			R16-BDC-TM-R16A3	5.00E-04	DC BUS R16-A3 IN MAINTENANCE
196	4.97E-12	-IORV017	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			E50-SQV-CC_ALL	1.50E-04	CCF of all components in group 'E50-SQV-CC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
			R16-BT_-TM-R16BTA3	5.00E-04	BATTERY R16-BTA3 IN TEST AND MAINTENANCE
197	4.97E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			P22-NSC-TM-HXS	7.50E-05	MULTIPLE TCCW HXS OUT FOR TESTING/ MAINTENANCE
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
198	4.97E-12	T-IORV063	%T-IORV	2.83E-02	IORV
			C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			P22-NSC-TM-PUMPS	7.50E-05	MULTIPLE TCCW PUMPS OUT FOR TESTING/ MAINTENANCE
			XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
199	4.94E-12	T-IORV017	%T-IORV	2.83E-02	IORV
			E50-UV_OC_ALL	3.00E-04	CCF of all components in group 'E50-UV_OC'
			G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
			P41-FAN-FR_ALL	1.20E-05	CCF of all components in group 'P41-FAN-FR'
200	4.92E-12	AT-T-GEN023	%T-PCS	1.97E-01	TRANSIENT WITH PCS UNAVAILABLE
			C12-ROD-CF-SCRAM	2.50E-07	CCF OF CONTROL RODS TO INSERT
			C63-CCFSOFTWARE	1.00E-04	Common cause failure of software

Table 7.2-7

Sequence 1 - Inadvertent Open Relief Valve (T-IORV063)

#	Probability	Event	Probability	Description
1	1.99E-10	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
2	1.37E-10	%T-IORV	2.83E-02	IORV
		C62-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
3	9.92E-11	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
4	6.83E-11	%T-IORV	2.83E-02	IORV
		C62-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

5	6.63E-11	%T-IORV	2.83E-02	IORV
		BOPCWS-SYS-FAILS	1.E-03	BALANCE OF PLANT CHILLED WATER SYSTEM FAILS
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
6	3.31E-11	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		R16-BDC-TM-R16A3	5.E-04	DC BUS R16-A3 IN MAINTENANCE
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
7	3.31E-11	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		R16-BT_-TM-R16BTA3	5.E-04	BATTERY R16-BTA3 IN TEST AND MAINTENANCE
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
8	3.31E-11	%T-IORV	2.83E-02	IORV
		BOPCWS-SYS-FAILS	1.E-03	BALANCE OF PLANT CHILLED WATER SYSTEM FAILS
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
9	1.86E-11	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		R21-DG_-FR-CCF_1_2	4.54E-03	CCF of two components: R21-DG_-FR-DGA & R21-DG_-FR-DGB
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

10	1.65E-11	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		R16-BDC-TM-R16A3	5.E-04	DC BUS R16-A3 IN MAINTENANCE
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
11	1.65E-11	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		R16-BT_-TM-R16BTA3	5.E-04	BATTERY R16-BTA3 IN TEST AND MAINTENANCE
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
12	1.64E-11	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		P41-FAN-FR_ALL	1.2E-05	CCF of all components in group 'P41-FAN-FR'
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
13	1.36E-11	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
14	1.1E-11	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		P41-SYS-FC-HVACPSW-A	1.E-03	PSW-A ROOM COOLING FAILURE
		P41-TRN-RE-PUMP2B	8.07E-03	FAILURE TO RESTORE PSW PUMP 2B
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

15	1.1E-11	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		P41-SYS-FC-HVACPSW-B	1.E-03	PSW-B ROOM COOLING FAILURE
		P41-TRN-RE-PUMP2A	8.07E-03	FAILURE TO RESTORE PSW PUMP 2A
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
16	1.09E-11	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
		R21-DG_-TM-DGB	4.6E-02	STANDBY DIESEL GENERATOR "B" IN MAINTENANCE
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
17	1.09E-11	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
		R21-DG_-TM-DGA	4.6E-02	STANDBY DIESEL GENERATOR "A" IN MAINTENANCE
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
18	9.62E-12	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A
		C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

19	9.62E-12	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A
		C12-BV_-RE-F015B	4.84E-02	MISPOSITION OF VALVE F015B
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
20	9.62E-12	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B
		C12-BV_-RE-F015A	4.84E-02	MISPOSITION OF VALVE F015A
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
21	9.62E-12	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F015A	4.84E-02	MISPOSITION OF VALVE F015A
		C12-BV_-RE-F015B	4.84E-02	MISPOSITION OF VALVE F015B
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
22	9.3E-12	%T-IORV	2.83E-02	IORV
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		R21-DG_-FR-CCF_1_2	4.54E-03	CCF of two components: R21-DG_-FR-DGA & R21-DG_-FR-DGB
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

23	8.22E-12	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		P21-ACV-OO-F0004	2.E-03	AIR OPERATED VALVE F0004 FAILS TO CLOSE
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
24	8.22E-12	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		P21-ACV-OO-F0007	2.E-03	AIR OPERATED VALVE F0007 FAILS TO CLOSE
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
25	8.22E-12	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		P21-ACV-OO-F0020	2.E-03	AIR OPERATED VALVE F0020 FAILS TO CLOSE
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

Table 7.2-8

Sequence 2 - General Transient ATWS (AT-T-GEN023)

#	Probability	Event	Probability	Description
1	2.36E-10	%T-GEN	1.18E+00	GENERAL TRANSIENT
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-UV_-CC-F004A	7.99E-04	CHECK VALVE F004A FAILS TO OPEN
2	2.36E-10	%T-GEN	1.18E+00	GENERAL TRANSIENT
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-UV_-CC-F004B	7.99E-04	CHECK VALVE F004B FAILS TO OPEN
3	2.36E-10	%T-GEN	1.18E+00	GENERAL TRANSIENT
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-UV_-CC-F005A	7.99E-04	CHECK VALVE F005A FAILS TO OPEN
4	2.36E-10	%T-GEN	1.18E+00	GENERAL TRANSIENT
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-UV_-CC-F005B	7.99E-04	CHECK VALVE F005B FAILS TO OPEN
5	4.43E-11	%T-GEN	1.18E+00	GENERAL TRANSIENT
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-SQV-CC_ALL	1.5E-04	CCF of all components in group 'C41-SQV-CC'
6	3.94E-11	%T-PCS	1.97E-01	TRANSIENT WITH PCS UNAVAILABLE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-UV_-CC-F004A	7.99E-04	CHECK VALVE F004A FAILS TO OPEN
7	3.94E-11	%T-PCS	1.97E-01	TRANSIENT WITH PCS UNAVAILABLE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-UV_-CC-F004B	7.99E-04	CHECK VALVE F004B FAILS TO OPEN
8	3.94E-11	%T-PCS	1.97E-01	TRANSIENT WITH PCS UNAVAILABLE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-UV_-CC-F005A	7.99E-04	CHECK VALVE F005A FAILS TO OPEN
9	3.94E-11	%T-PCS	1.97E-01	TRANSIENT WITH PCS UNAVAILABLE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-UV_-CC-F005B	7.99E-04	CHECK VALVE F005B FAILS TO OPEN
10	2.95E-11	%T-GEN	1.18E+00	GENERAL TRANSIENT
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
11	1.64E-11	%T-GEN	1.18E+00	GENERAL TRANSIENT
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT

Table 7.2-8

Sequence 2 - General Transient ATWS (AT-T-GEN023)

#	Probability	Event	Probability	Description
		C41-SQV-CC_1_3	5.56E-05	CCF of two components: C41-SQV-CC-F003A & C41-SQV-CC-F003C
12	1.64E-11	%T-GEN	1.18E+00	GENERAL TRANSIENT
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-SQV-CC_2_4	5.56E-05	CCF of two components: C41-SQV-CC-F003B & C41-SQV-CC-F003D
13	7.39E-12	%T-PCS	1.97E-01	TRANSIENT WITH PCS UNAVAILABLE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-SQV-CC_ALL	1.5E-04	CCF of all components in group 'C41-SQV-CC'
14	7.08E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-ACV-OC-F002A	2.4E-05	AIR OPERATED VALVE F002A FAILS TO REMAIN OPEN
15	7.08E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-ACV-OC-F002B	2.4E-05	AIR OPERATED VALVE F002B FAILS TO REMAIN OPEN
16	7.08E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-ACV-OC-F002C	2.4E-05	AIR OPERATED VALVE F002C FAILS TO REMAIN OPEN
17	7.08E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-ACV-OC-F002D	2.4E-05	AIR OPERATED VALVE FAILS TO REMAIN OPEN
18	4.93E-12	%T-PCS	1.97E-01	TRANSIENT WITH PCS UNAVAILABLE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
19	4.05E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-UV_-CC_ALL	1.37E-05	CCF of all components in group 'C41-UV_-CC'
20	2.74E-12	%T-PCS	1.97E-01	TRANSIENT WITH PCS UNAVAILABLE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-SQV-CC_1_3	5.56E-05	CCF of two components: C41-SQV-CC-F003A & C41-SQV-CC-F003C

Table 7.2-8

Sequence 2 - General Transient ATWS (AT-T-GEN023)

#	Probability	Event	Probability	Description
21	2.74E-12	%T-PCS	1.97E-01	TRANSIENT WITH PCS UNAVAILABLE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-SQV-CC_2_4	5.56E-05	CCF of two components: C41-SQV-CC-F003B & C41-SQV-CC-F003D
22	2.66E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-SQV-CC-F003A	3.E-03	EXPLOSIVE VALVE F003A FAILS TO OPERATE
		C41-SQV-CC-F003C	3.E-03	EXPLOSIVE VALVE F003C FAILS TO OPERATE
23	2.66E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-SQV-CC-F003B	3.E-03	EXPLOSIVE VALVE F003B FAILS TO OPERATE
		C41-SQV-CC-F003D	3.E-03	EXPLOSIVE VALVE F003D FAILS TO OPERATE
24	2.04E-12	%T-IA	1.02E-02	COMPLETE LOSS OF AIR SYSTEMS
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-UV_-CC-F004A	7.99E-04	CHECK VALVE F004A FAILS TO OPEN
25	2.04E-12	%T-IA	1.02E-02	COMPLETE LOSS OF AIR SYSTEMS
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		C41-UV_-CC-F004B	7.99E-04	CHECK VALVE F004B FAILS TO OPEN

Table 7.2-9

Sequence 3 - Loss of Feedwater (T-FDW050)

#	Probability	Event	Probability	Description
1	5.66E-10	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
2	2.83E-10	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
3	1.7E-10	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
4	8.49E-11	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
5	1.33E-12	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A
		C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
6	1.33E-12	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A

Table 7.2-9

Sequence 3 - Loss of Feedwater (T-FDW050)

#	Probability	Event	Probability	Description
		C12-BV_-RE-F015B	4.84E-02	MISPOSITION OF VALVE F015B
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
7	1.33E-12	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B
		C12-BV_-RE-F015A	4.84E-02	MISPOSITION OF VALVE F015A
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
8	1.33E-12	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F015A	4.84E-02	MISPOSITION OF VALVE F015A
		C12-BV_-RE-F015B	4.84E-02	MISPOSITION OF VALVE F015B
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
9	1.33E-12	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F064	4.84E-02	MISPOSITION OF VALVE F064
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

Table 7.2-9

Sequence 3 - Loss of Feedwater (T-FDW050)

#	Probability	Event	Probability	Description
10	6.62E-13	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A
		C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
11	6.62E-13	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A
		C12-BV_-RE-F015B	4.84E-02	MISPOSITION OF VALVE F015B
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
12	6.62E-13	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B
		C12-BV_-RE-F015A	4.84E-02	MISPOSITION OF VALVE F015A
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
13	6.62E-13	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F015A	4.84E-02	MISPOSITION OF VALVE F015A

Table 7.2-9

Sequence 3 - Loss of Feedwater (T-FDW050)

#	Probability	Event	Probability	Description
		C12-BV_-RE-F015B	4.84E-02	MISPOSITION OF VALVE F015B
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
14	6.62E-13	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F064	4.84E-02	MISPOSITION OF VALVE F064
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
15	3.99E-13	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A
		C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
16	3.99E-13	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A
		C12-BV_-RE-F015B	4.84E-02	MISPOSITION OF VALVE F015B
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
17	3.99E-13	%T-FDW	1.17E-01	LOSS OF FEEDWATER

Table 7.2-9

Sequence 3 - Loss of Feedwater (T-FDW050)

#	Probability	Event	Probability	Description
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B
		C12-BV_-RE-F015A	4.84E-02	MISPOSITION OF VALVE F015A
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
18	3.99E-13	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F015A	4.84E-02	MISPOSITION OF VALVE F015A
		C12-BV_-RE-F015B	4.84E-02	MISPOSITION OF VALVE F015B
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
19	3.99E-13	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F064	4.84E-02	MISPOSITION OF VALVE F064
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
20	3.52E-13	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B21-UV_-CC-F102A	1.E-04	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
21	3.52E-13	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B21-UV_-CC-F103A	1.E-04	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'

Table 7.2-9

Sequence 3 - Loss of Feedwater (T-FDW050)

#	Probability	Event	Probability	Description
22	3.32E-13	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F003A	1.21E-02	MISPOSITION OF VALVE FOO3A
		C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
23	3.32E-13	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F003A	1.21E-02	MISPOSITION OF VALVE FOO3A
		C12-BV_-RE-F015B	4.84E-02	MISPOSITION OF VALVE F015B
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
24	3.32E-13	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F003B	1.21E-02	MISPOSITION OF VALVE F003B
		C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
25	3.32E-13	%T-FDW	1.17E-01	LOSS OF FEEDWATER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F003B	1.21E-02	MISPOSITION OF VALVE F003B
		C12-BV_-RE-F015A	4.84E-02	MISPOSITION OF VALVE F015A
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software

Table 7.2-9

Sequence 3 - Loss of Feedwater (T-FDW050)

#	Probability	Event	Probability	Description
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

Table 7.2-10

Sequence 4 - Inadvertent Open Relief Valve (T-IORV018)

#	Probability	Event	Probability	Description
1	9.92E-11	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
2	6.83E-11	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C62-CCFSOFTWARE	1.E-04	Common cause failure of software
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
3	3.31E-11	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		BOPCWS-SYS-FAILS	1.E-03	BALANCE OF PLANT CHILLED WATER SYSTEM FAILS
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
4	2.98E-11	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
5	2.05E-11	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C62-CCFSOFTWARE	1.E-04	Common cause failure of software
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
6	1.65E-11	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		R16-BDC-TM-R16A3	5.E-04	DC BUS R16-A3 IN MAINTENANCE

Table 7.2-10

Sequence 4 - Inadvertent Open Relief Valve (T-IORV018)

#	Probability	Event	Probability	Description
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
7	1.65E-11	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		R16-BT_-TM-R16BTA3	5.E-04	BATTERY R16-BTA3 IN TEST AND MAINTENANCE
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
8	9.94E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		BOPCWS-SYS-FAILS	1.E-03	BALANCE OF PLANT CHILLED WATER SYSTEM FAILS
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
9	9.3E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		R21-DG_-FR-CCF_1_2	4.54E-03	CCF of two components: R21-DG_-FR-DGA & R21-DG_-FR-DGB
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
10	8.2E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		P41-FAN-FR_ALL	1.2E-05	CCF of all components in group 'P41-FAN-FR'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
11	6.8E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START

Table 7.2-10

Sequence 4 - Inadvertent Open Relief Valve (T-IORV018)

#	Probability	Event	Probability	Description
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
12	5.52E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		P41-SYS-FC-HVACPSW-A	1.E-03	PSW-A ROOM COOLING FAILURE
		P41-TRN-RE-PUMP2B	8.07E-03	FAILURE TO RESTORE PSW PUMP 2B
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
13	5.52E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		P41-SYS-FC-HVACPSW-B	1.E-03	PSW-B ROOM COOLING FAILURE
		P41-TRN-RE-PUMP2A	8.07E-03	FAILURE TO RESTORE PSW PUMP 2A
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
14	5.43E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
		R21-DG_-TM-DGB	4.6E-02	STANDBY DIESEL GENERATOR "B" IN MAINTENANCE
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
15	5.43E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
		R21-DG_-TM-DGA	4.6E-02	STANDBY DIESEL GENERATOR "A" IN MAINTENANCE
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
16	4.97E-12	%T-IORV	2.83E-02	IORV

Table 7.2-10

Sequence 4 - Inadvertent Open Relief Valve (T-IORV018)

#	Probability	Event	Probability	Description
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		R16-BDC-TM-R16A3	5.E-04	DC BUS R16-A3 IN MAINTENANCE
17	4.97E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		R16-BT_-TM-R16BTA3	5.E-04	BATTERY R16-BTA3 IN TEST AND MAINTENANCE
18	4.8E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A
		C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
19	4.8E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A
		C12-BV_-RE-F015B	4.84E-02	MISPOSITION OF VALVE F015B
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
20	4.8E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B
		C12-BV_-RE-F015A	4.84E-02	MISPOSITION OF VALVE F015A
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
21	4.8E-12	%T-IORV	2.83E-02	IORV

Table 7.2-10

Sequence 4 - Inadvertent Open Relief Valve (T-IORV018)

#	Probability	Event	Probability	Description
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C12-BV_-RE-F015A	4.84E-02	MISPOSITION OF VALVE F015A
		C12-BV_-RE-F015B	4.84E-02	MISPOSITION OF VALVE F015B
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
22	4.1E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		P21-ACV-OO-F0004	2.E-03	AIR OPERATED VALVE F0004 FAILS TO CLOSE
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
23	4.1E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		P21-ACV-OO-F0007	2.E-03	AIR OPERATED VALVE F0007 FAILS TO CLOSE
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
24	4.1E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		P21-ACV-OO-F0020	2.E-03	AIR OPERATED VALVE F0020 FAILS TO CLOSE
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
25	4.1E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		P21-ACV-OO-F0027	2.E-03	AIR OPERATED VALVE F0027 FAILS TO CLOSE
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT

Table 7.2-10

Sequence 4 - Inadvertent Open Relief Valve (T-IORV018)

#	Probability	Event	Probability	Description
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

Table 7.2-11

Sequence 5 - General Transient ATWS (AT-T-GEN021)

#	Probability	Event	Probability	Description
1	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV1	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-BV_-RE-F021A	1.21E-02	MISPOSITION OF VALVE F021A
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
2	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV1	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-BV_-RE-F021B	1.21E-02	MISPOSITION OF VALVE F021B
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
3	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV1	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
		P21-BV_-RE-F049A	1.21E-02	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
4	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV1	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
		P21-BV_-RE-F049B	1.21E-02	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
5	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV1	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE

Table 7.2-11

Sequence 5 - General Transient ATWS (AT-T-GEN021)

#	Probability	Event	Probability	Description
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
		P21-BV_-RE-F050A	1.21E-02	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
6	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV1	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
		P21-BV_-RE-F050B	1.21E-02	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
7	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV10	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-BV_-RE-F021A	1.21E-02	MISPOSITION OF VALVE F021A
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
8	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV10	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-BV_-RE-F021B	1.21E-02	MISPOSITION OF VALVE F021B
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
9	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV10	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS

Table 7.2-11

Sequence 5 - General Transient ATWS (AT-T-GEN021)

#	Probability	Event	Probability	Description
		P21-BV_-RE-F049A	1.21E-02	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
10	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV10	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
		P21-BV_-RE-F049B	1.21E-02	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
11	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV10	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
		P21-BV_-RE-F050A	1.21E-02	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
12	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV10	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
		P21-BV_-RE-F050B	1.21E-02	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
13	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV11	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-BV_-RE-F021A	1.21E-02	MISPOSITION OF VALVE F021A
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
14	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT

Table 7.2-11

Sequence 5 - General Transient ATWS (AT-T-GEN021)

#	Probability	Event	Probability	Description
		B21-SRV-OO-ANYSRV11	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-BV_-RE-F021B	1.21E-02	MISPOSITION OF VALVE F021B
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
15	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV11	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
		P21-BV_-RE-F049A	1.21E-02	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
16	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV11	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
		P21-BV_-RE-F049B	1.21E-02	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
17	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV11	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
		P21-BV_-RE-F050A	1.21E-02	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
18	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV11	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE

Table 7.2-11

Sequence 5 - General Transient ATWS (AT-T-GEN021)

#	Probability	Event	Probability	Description
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
		P21-BV_-RE-F050B	1.21E-02	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
19	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV12	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-BV_-RE-F021A	1.21E-02	MISPOSITION OF VALVE F021A
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
20	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV12	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-BV_-RE-F021B	1.21E-02	MISPOSITION OF VALVE F021B
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
21	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV12	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
		P21-BV_-RE-F049A	1.21E-02	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
22	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV12	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS

Table 7.2-11

Sequence 5 - General Transient ATWS (AT-T-GEN021)

#	Probability	Event	Probability	Description
		P21-BV_-RE-F049B	1.21E-02	MISPOSITION OF RCCW INLET TO CRD HEAT EXCHANGER
23	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV12	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
		P21-BV_-RE-F050A	1.21E-02	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
24	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV12	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS
		P21-BV_-RE-F050B	1.21E-02	MISPOSITION OF RCCW OUTLET FROM CRD HEAT EXCHANGER
25	3.77E-12	%T-GEN	1.18E+00	GENERAL TRANSIENT
		B21-SRV-OO-ANYSRV13	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-BV_-RE-F021A	1.21E-02	MISPOSITION OF VALVE F021A
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		N21-XHE-FO-FWRERUN	1.76E-01	OPERATOR FAILS TO RESTART FDW AFTER RUNBACK - ATWS

Table 7.2-12

Sequence 6 - Inadvertent Open Relief Valve (T-IORV065)

#	Probability	Event	Probability	Description
1	9.92E-11	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
2	6.83E-11	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C62-CCFSOFTWARE	1.E-04	Common cause failure of software
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
3	3.31E-11	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		BOPCWS-SYS-FAILS	1.E-03	BALANCE OF PLANT CHILLED WATER SYSTEM FAILS
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
4	1.65E-11	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		R16-BDC-TM-R16A3	5.E-04	DC BUS R16-A3 IN MAINTENANCE
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
5	1.65E-11	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		R16-BT_-TM-R16BTA3	5.E-04	BATTERY R16-BTA3 IN TEST AND MAINTENANCE
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
6	9.3E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'

Table 7.2-12

Sequence 6 - Inadvertent Open Relief Valve (T-IORV065)

#	Probability	Event	Probability	Description
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		R21-DG_-FR-CCF_1_2	4.54E-03	CCF of two components: R21-DG_-FR-DGA & R21-DG_-FR-DGB
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
7	8.2E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		P41-FAN-FR_ALL	1.2E-05	CCF of all components in group 'P41-FAN-FR'
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
8	6.8E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
9	5.52E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		P41-SYS-FC-HVACPSW-A	1.E-03	PSW-A ROOM COOLING FAILURE
		P41-TRN-RE-PUMP2B	8.07E-03	FAILURE TO RESTORE PSW PUMP 2B
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
10	5.52E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		P41-SYS-FC-HVACPSW-B	1.E-03	PSW-B ROOM COOLING FAILURE
		P41-TRN-RE-PUMP2A	8.07E-03	FAILURE TO RESTORE PSW PUMP 2A
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
11	5.43E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'

Table 7.2-12

Sequence 6 - Inadvertent Open Relief Valve (T-IORV065)

#	Probability	Event	Probability	Description
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
		R21-DG_-TM-DGB	4.6E-02	STANDBY DIESEL GENERATOR "B" IN MAINTENANCE
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
12	5.43E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
		R21-DG_-TM-DGA	4.6E-02	STANDBY DIESEL GENERATOR "A" IN MAINTENANCE
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
13	4.8E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A
		C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
14	4.8E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A
		C12-BV_-RE-F015B	4.84E-02	MISPOSITION OF VALVE F015B
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
15	4.8E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B

Table 7.2-12

Sequence 6 - Inadvertent Open Relief Valve (T-IORV065)

#	Probability	Event	Probability	Description
		C12-BV_-RE-F015A	4.84E-02	MISPOSITION OF VALVE F015A
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
16	4.8E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C12-BV_-RE-F015A	4.84E-02	MISPOSITION OF VALVE F015A
		C12-BV_-RE-F015B	4.84E-02	MISPOSITION OF VALVE F015B
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
17	4.1E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		P21-ACV-OO-F0004	2.E-03	AIR OPERATED VALVE F0004 FAILS TO CLOSE
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
18	4.1E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		P21-ACV-OO-F0007	2.E-03	AIR OPERATED VALVE F0007 FAILS TO CLOSE
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
19	4.1E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		P21-ACV-OO-F0020	2.E-03	AIR OPERATED VALVE F0020 FAILS TO CLOSE
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

Table 7.2-12

Sequence 6 - Inadvertent Open Relief Valve (T-IORV065)

#	Probability	Event	Probability	Description
20	4.1E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		P21-ACV-OO-F0027	2.E-03	AIR OPERATED VALVE F0027 FAILS TO CLOSE
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
21	4.1E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		P21-ACV-OO-F0061	2.E-03	AIR OPERATED VALVE F0061 FAILS TO CLOSE
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
22	3.88E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		P41-STR-PG_ALL	5.68E-06	CCF of all components in group 'P41-STR-PG'
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
23	3.28E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		R11-BAC-LP-100B3	4.8E-06	6.9 KV AC PIP-A LOADS BUS 1000B3 FAILS DURING OPERATION
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
24	3.28E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		R11-BAC-TM-100B3	4.8E-06	6.9 KV AC PIP-A LOADS BUS 1000B3 IN MAINTENANCE
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION
25	3.2E-12	%T-IORV	2.83E-02	IORV
		B21-SQV-CC_ALL	1.5E-04	CCF of all components in group 'B21-SQV-CC'
		C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A

Table 7.2-12

Sequence 6 - Inadvertent Open Relief Valve (T-IORV065)

#	Probability	Event	Probability	Description
		C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B
		N21-ACV-CC-F0016	2.E-03	AIR OPERATED VALVE F0016 FAILS TO OPEN
		XXX-XHE-FO-DEPRESS	1.61E-01	OPERATOR FAILS TO RECOGNIZE NEED OF DEPRESSURIZATION

Table 7.2-13

Sequence 7 - Loss of Offsite Power ATWS (AT-T-LOPP013)

#	Probability	Event	Probability	Description
1	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV1	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
2	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV1	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
3	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV10	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
4	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV10	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
5	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV11	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
6	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER

Table 7.2-13

Sequence 7 - Loss of Offsite Power ATWS (AT-T-LOPP013)

#	Probability	Event	Probability	Description
		B21-SRV-OO-ANYSRV11	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
7	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV12	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
8	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV12	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
9	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV13	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
10	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV13	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
11	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV14	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT

Table 7.2-13

Sequence 7 - Loss of Offsite Power ATWS (AT-T-LOPP013)

#	Probability	Event	Probability	Description
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
12	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV14	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
13	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV15	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
14	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV15	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
15	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV16	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
16	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV16	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START

Table 7.2-13

Sequence 7 - Loss of Offsite Power ATWS (AT-T-LOPP013)

#	Probability	Event	Probability	Description
17	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV17	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
18	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV17	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
19	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV18	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
20	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV18	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
21	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV2	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
22	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER

Table 7.2-13

Sequence 7 - Loss of Offsite Power ATWS (AT-T-LOPP013)

#	Probability	Event	Probability	Description
		B21-SRV-OO-ANYSRV2	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
23	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV3	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
24	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV3	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
25	1.61E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B21-SRV-OO-ANYSRV4	6.E-03	SAFETY/RELIEF VALVE FAILS TO RE-CLOSE
		C12-ROD-CF-SCRAM	2.5E-07	CCF OF CONTROL RODS TO INSERT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START

Table 7.2-14

Sequence 8 - Inadvertent Open Relief Valve (T-IORV017)

#	Probability	Event	Probability	Description
1	5.98E-11	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
2	4.12E-11	%T-IORV	2.83E-02	IORV
		C62-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
3	2.98E-11	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
4	2.05E-11	%T-IORV	2.83E-02	IORV
		C62-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
5	1.99E-11	%T-IORV	2.83E-02	IORV
		BOPCWS-SYS-FAILS	1.E-03	BALANCE OF PLANT CHILLED WATER SYSTEM FAILS
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
6	9.96E-12	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		R16-BDC-TM-R16A3	5.E-04	DC BUS R16-A3 IN MAINTENANCE
7	9.96E-12	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065

Table 7.2-14

Sequence 8 - Inadvertent Open Relief Valve (T-IORV017)

#	Probability	Event	Probability	Description
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		R16-BT_-TM-R16BTA3	5.E-04	BATTERY R16-BTA3 IN TEST AND MAINTENANCE
8	9.94E-12	%T-IORV	2.83E-02	IORV
		BOPCWS-SYS-FAILS	1.E-03	BALANCE OF PLANT CHILLED WATER SYSTEM FAILS
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
9	5.6E-12	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		R21-DG_-FR-CCF_1_2	4.54E-03	CCF of two components: R21-DG_-FR-DGA & R21-DG_-FR-DGB
10	4.97E-12	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		R16-BDC-TM-R16A3	5.E-04	DC BUS R16-A3 IN MAINTENANCE
11	4.97E-12	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		R16-BT_-TM-R16BTA3	5.E-04	BATTERY R16-BTA3 IN TEST AND MAINTENANCE
12	4.94E-12	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		P41-FAN-FR_ALL	1.2E-05	CCF of all components in group 'P41-FAN-FR'
13	4.1E-12	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'

Table 7.2-14

Sequence 8 - Inadvertent Open Relief Valve (T-IORV017)

#	Probability	Event	Probability	Description
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START
14	3.32E-12	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		P41-SYS-FC-HVACPSW-A	1.E-03	PSW-A ROOM COOLING FAILURE
		P41-TRN-RE-PUMP2B	8.07E-03	FAILURE TO RESTORE PSW PUMP 2B
15	3.32E-12	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		P41-SYS-FC-HVACPSW-B	1.E-03	PSW-B ROOM COOLING FAILURE
		P41-TRN-RE-PUMP2A	8.07E-03	FAILURE TO RESTORE PSW PUMP 2A
16	3.27E-12	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
		R21-DG_-TM-DGB	4.6E-02	STANDBY DIESEL GENERATOR "B" IN MAINTENANCE
17	3.27E-12	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		R21-DG_-FR-DGB	5.76E-02	DIESEL GENERATOR "B" FAILS TO RUN GIVEN START

Table 7.2-14

Sequence 8 - Inadvertent Open Relief Valve (T-IORV017)

#	Probability	Event	Probability	Description
		R21-DG_-TM-DGA	4.6E-02	STANDBY DIESEL GENERATOR "A" IN MAINTENANCE
18	2.89E-12	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A
		C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
19	2.89E-12	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F013A	4.84E-02	MISPOSITION OF VALVE F013A
		C12-BV_-RE-F015B	4.84E-02	MISPOSITION OF VALVE F015B
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
20	2.89E-12	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F013B	4.84E-02	MISPOSITION OF VALVE F013B
		C12-BV_-RE-F015A	4.84E-02	MISPOSITION OF VALVE F015A
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
21	2.89E-12	%T-IORV	2.83E-02	IORV
		C12-BV_-RE-F015A	4.84E-02	MISPOSITION OF VALVE F015A
		C12-BV_-RE-F015B	4.84E-02	MISPOSITION OF VALVE F015B
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
22	2.8E-12	%T-IORV	2.83E-02	IORV
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334

Table 7.2-14

Sequence 8 - Inadvertent Open Relief Valve (T-IORV017)

#	Probability	Event	Probability	Description
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
		R21-DG_-FR-CCF_1_2	4.54E-03	CCF of two components: R21-DG_-FR-DGA & R21-DG_-FR-DGB
23	2.47E-12	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		P21-ACV-OO-F0004	2.E-03	AIR OPERATED VALVE F0004 FAILS TO CLOSE
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
24	2.47E-12	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		P21-ACV-OO-F0007	2.E-03	AIR OPERATED VALVE F0007 FAILS TO CLOSE
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT
25	2.47E-12	%T-IORV	2.83E-02	IORV
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
		P21-ACV-OO-F0020	2.E-03	AIR OPERATED VALVE F0020 FAILS TO CLOSE
		R10-LOSP-EPRI	3.E-03	CONSEQENTIAL LOSS OF PREFERRED OFFSITE POWER DUE TO A TRANSIENT

Table 7.2-15

Sequence 9 - Large Steam LOCA in Feedwater Line B (LL-S-FDWB045)

#	Probability	Event	Probability	Description
1	2.69E-10	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
2	1.34E-10	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
3	8.07E-11	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
4	4.03E-11	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
5	1.67E-13	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		B21-UV_-CC-F102A	1.E-04	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
6	1.67E-13	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		B21-UV_-CC-F103A	1.E-04	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
7	8.33E-14	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		B21-UV_-CC-F102A	1.E-04	CHECK VALVE F102A IN FEEDWATER LINE A FAILS TO OPEN
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
8	8.33E-14	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		B21-UV_-CC-F103A	1.E-04	CHECK VALVE F103A IN FEEDWATER LINE A FAILS TO OPEN
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
9	5.E-14	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-NMO_ALL	3.E-05	CCF of all components in group 'G21-NMO'
10	2.99E-14	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B

Table 7.2-15

Sequence 9 - Large Steam LOCA in Feedwater Line B (LL-S-FDWB045)

#	Probability	Event	Probability	Description
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-UV_-333_1_2	1.79E-05	CCF of two components: G21-UV_-CC-F333A & G21-UV_-CC-F333B
11	2.5E-14	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		G21-NMO_ALL	3.E-05	CCF of all components in group 'G21-NMO'
12	1.85E-14	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-NMO_3_4	1.11E-05	CCF of two components: G21-NMO-CC-F332A & G21-NMO-CC-F332B
13	1.49E-14	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		G21-UV_-333_1_2	1.79E-05	CCF of two components: G21-UV_-CC-F333A & G21-UV_-CC-F333B
14	9.25E-15	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		G21-NMO_3_4	1.11E-05	CCF of two components: G21-NMO-CC-F332A & G21-NMO-CC-F332B
15	8.94E-15	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		C72-CCFSOFTWARE	1.E-04	COMMON CAUSE FAILURE OF DPS PROCESSORS
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
16	4.32E-15	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-XHE-FO-LPCI	1.61E-03	OPERATOR FAILS TO ALIGN AND ACTUATE FAPCS IN LPCI MODE
		U43-XHE-FO-LPCI	1.61E-03	OPERATOR FAILS TO ACTUATE U43 IN LPCI MODE
17	3.75E-15	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-NSC-TM-F332A	1.5E-03	MAINTENANCE FOR VALVE F332A
		G21-NSC-TM-F332B	1.5E-03	MAINTENANCE FOR VALVE F332B
18	2.69E-15	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B

Table 7.2-15

Sequence 9 - Large Steam LOCA in Feedwater Line B (LL-S-FDWB045)

#	Probability	Event	Probability	Description
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		C72-CCFSOFTWARE	1.E-04	COMMON CAUSE FAILURE OF DPS PROCESSORS
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
19	2.33E-15	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-MOV-CC_ALL	8.68E-04	CCF of all components in group 'G21-MOV-CC'
		U43-XHE-FO-LPCI	1.61E-03	OPERATOR FAILS TO ACTUATE U43 IN LPCI MODE
20	2.16E-15	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		G21-XHE-FO-LPCI	1.61E-03	OPERATOR FAILS TO ALIGN AND ACTUATE FAPCS IN LPCI MODE
		U43-XHE-FO-LPCI	1.61E-03	OPERATOR FAILS TO ACTUATE U43 IN LPCI MODE
21	1.87E-15	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		G21-NSC-TM-F332A	1.5E-03	MAINTENANCE FOR VALVE F332A
		G21-NSC-TM-F332B	1.5E-03	MAINTENANCE FOR VALVE F332B
22	1.85E-15	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-NMO_1_3_4	1.11E-06	CCF of three components: G21-NMO-CC-F306A & G21-NMO-CC-F332A & G21-NMO-CC-F332B
23	1.85E-15	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-NMO_2_3_4	1.11E-06	CCF of three components: G21-NMO-CC-F306B & G21-NMO-CC-F332A & G21-NMO-CC-F332B
24	1.55E-15	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-MOV-CC-F011A	2.4E-02	MOTOR OPER. VALVE F011A FAILS TO OPEN
		G21-MOV-CC-F011B	2.4E-02	MOTOR OPER. VALVE F011B FAILS TO OPEN
		U43-XHE-FO-LPCI	1.61E-03	OPERATOR FAILS TO ACTUATE U43 IN LPCI MODE
25	1.55E-15	%LL-S-FDWB	5.55E-06	LARGE STEAM LOCA IN FW LINE B
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'

Table 7.2-15

Sequence 9 - Large Steam LOCA in Feedwater Line B (LL-S-FDWB045)

#	Probability	Event	Probability	Description
		G21-MOV-CC-F011A	2.4E-02	MOTOR OPER. VALVE F011A FAILS TO OPEN
		G21-MOV-CC-F013B	2.4E-02	MOTOR OPER. VALVE F013B FAILS TO OPEN
		U43-XHE-FO-LPCI	1.61E-03	OPERATOR FAILS TO ACTUATE U43 IN LPCI MODE

Table 7.2-16

Sequence 10 - Loss of Offsite Power (T-LOPP050)

#	Probability	Event	Probability	Description
1	9.E-11	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
2	5.03E-11	%T-LOPP-SC	1.04E-02	SWITCHYARD CENTERED LOSS OF PREFERRED POWER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
3	4.49E-11	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
4	2.71E-11	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
5	2.51E-11	%T-LOPP-SC	1.04E-02	SWITCHYARD CENTERED LOSS OF PREFERRED POWER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
6	2.34E-11	%T-LOPP-WR	4.83E-03	WEATHER RELATED LOSS OF PREFERRED POWER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious

Table 7.2-16

Sequence 10 - Loss of Offsite Power (T-LOPP050)

#	Probability	Event	Probability	Description
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
7	1.51E-11	%T-LOPP-SC	1.04E-02	SWITCHYARD CENTERED LOSS OF PREFERRED POWER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
8	1.35E-11	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
9	1.17E-11	%T-LOPP-WR	4.83E-03	WEATHER RELATED LOSS OF PREFERRED POWER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
10	1.E-11	%T-LOPP-PC	2.07E-03	PLANT CENTERED LOSS OF PREFERRED POWER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
11	7.55E-12	%T-LOPP-SC	1.04E-02	SWITCHYARD CENTERED LOSS OF PREFERRED POWER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
12	7.02E-12	%T-LOPP-WR	4.83E-03	WEATHER RELATED LOSS OF PREFERRED POWER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'

Table 7.2-16

Sequence 10 - Loss of Offsite Power (T-LOPP050)

#	Probability	Event	Probability	Description
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
13	5.E-12	%T-LOPP-PC	2.07E-03	PLANT CENTERED LOSS OF PREFERRED POWER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
14	4.36E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
15	3.51E-12	%T-LOPP-WR	4.83E-03	WEATHER RELATED LOSS OF PREFERRED POWER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
16	3.01E-12	%T-LOPP-PC	2.07E-03	PLANT CENTERED LOSS OF PREFERRED POWER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
17	2.44E-12	%T-LOPP-SC	1.04E-02	SWITCHYARD CENTERED LOSS OF PREFERRED POWER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'

Table 7.2-16

Sequence 10 - Loss of Offsite Power (T-LOPP050)

#	Probability	Event	Probability	Description
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
18	2.17E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
19	1.5E-12	%T-LOPP-PC	2.07E-03	PLANT CENTERED LOSS OF PREFERRED POWER
		C63-CCFSOFTWARE_S	1.E-04	Common cause failure of software, for spurious
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
20	1.31E-12	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
21	1.22E-12	%T-LOPP-SC	1.04E-02	SWITCHYARD CENTERED LOSS OF PREFERRED POWER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'

Table 7.2-16

Sequence 10 - Loss of Offsite Power (T-LOPP050)

#	Probability	Event	Probability	Description
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
22	1.13E-12	%T-LOPP-WR	4.83E-03	WEATHER RELATED LOSS OF PREFERRED POWER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION
23	7.32E-13	%T-LOPP-SC	1.04E-02	SWITCHYARD CENTERED LOSS OF PREFERRED POWER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
24	6.54E-13	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		C12-BV_-RE-F065	4.84E-02	MISPOSITION OF LOCKED OPEN VALVE F065
		C63-CCFSOFTWARE	1.E-04	Common cause failure of software
		E50-SQV-CC_ALL	1.5E-04	CCF of all components in group 'E50-SQV-CC'
		G21-BV_-RE-F334	4.84E-02	MISPOSITION OF VALVE F334
25	5.89E-13	%T-LOPP-GR	1.86E-02	GRID RELATED LOSS OF PREFERRED POWER
		B32-NONCONDENSE	1.E+00	Non condensable gasses form in ICS sufficiently to require venting
		E50-UV_OC_ALL	3.01E-04	CCF of all components in group 'E50-UV_OC'

Table 7.2-16

Sequence 10 - Loss of Offsite Power (T-LOPP050)

#	Probability	Event	Probability	Description
		R13-INV-FC-CCFSR_ALL	1.14E-05	CCF of all components in group 'R13-INV-FC-CCFSR'
		R21-DG_-FR-DGA	5.76E-02	DIESEL GENERATOR "A" FAILS TO RUN GIVEN START
		XXX-XHE-FO-LPMAKEUP	1.61E-01	OP. FAILS TO RECOG. NEED FOR LOW PRESS. MAKEUP AFTER DEPRESSURIZATION

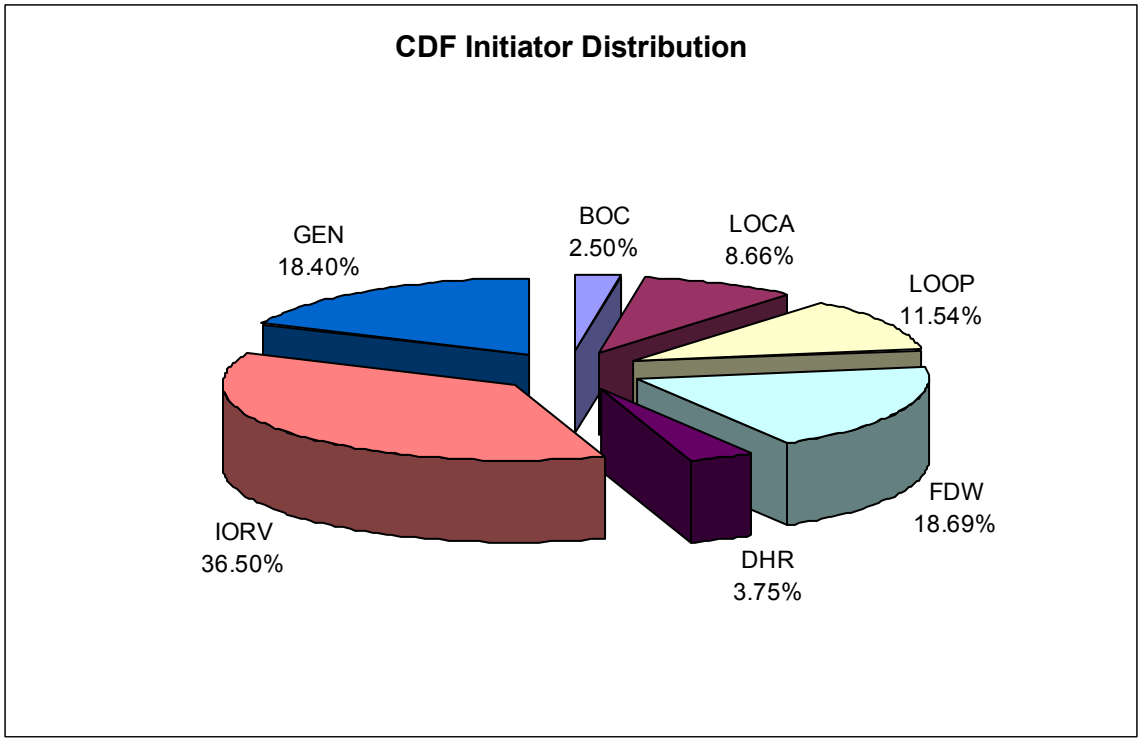

Figure 7.2-1.
Contribution to CDF by Initiating Event

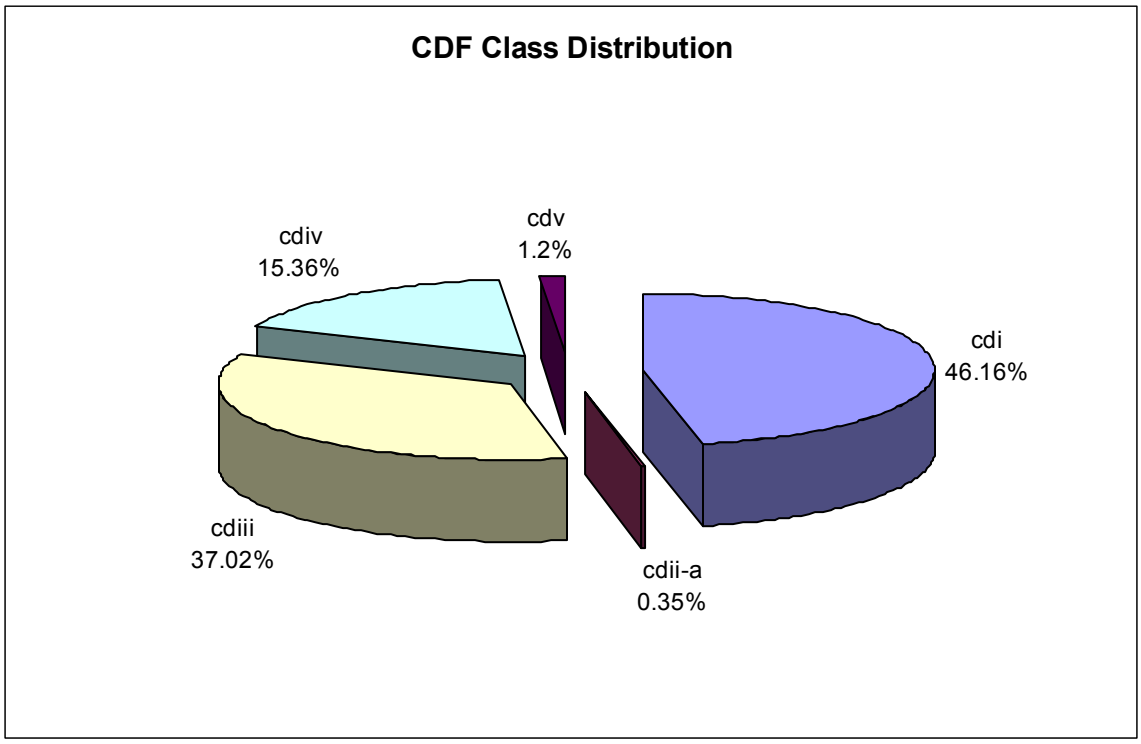

Figure 7.2-2.
Contribution to CDF by Accident Class

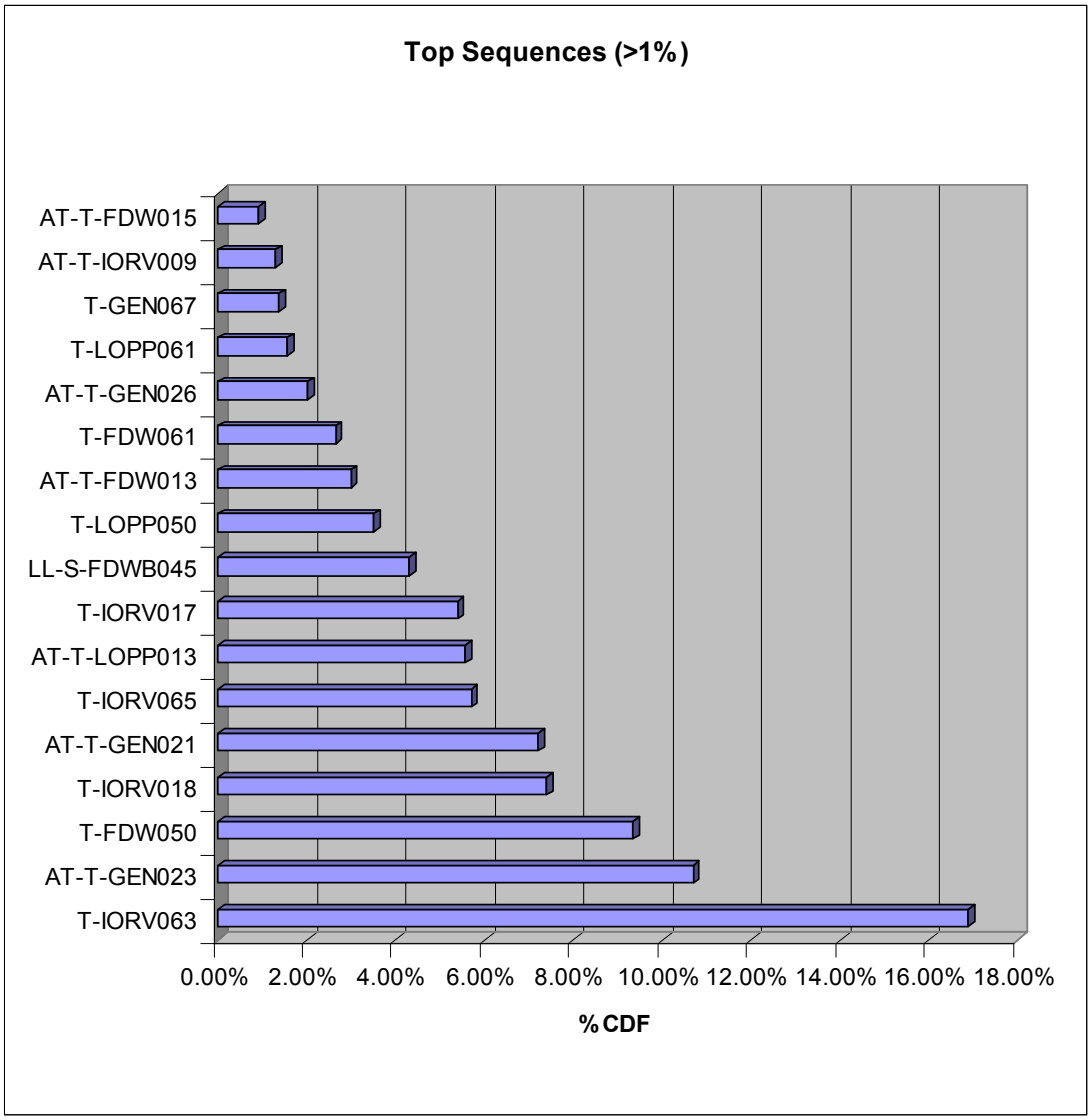

Figure 7.2-3.
Contribution to CDF by Accident Sequence

7.3 QUANTIFICATION PROCESS

The quantification process requires all the necessary information generated in the other PRA tasks.

7.3.1 Quantification Overview

The purpose of the core damage frequency quantification is to obtain the Boolean equation corresponding to the final event: "Core Damage". The quantification is developed in terms of minimal cutsets (MCS), which represent the minimal combinations of events that result in core damage.

The following key aspects characterize the core damage frequency quantification process:

a. Event trees to model plant response to each group of initiating events.

b. Fault trees to model the behavior of front-line and support systems.

c. Integration of event tree and fault tree structures into a single linked model.

d. Quantification of the linked Boolean model with the probabilistic database and boundary condition files (Flag files).

7.3.2 File Structure

Descriptions of the key model and quantification files are provided below.

7.3.2.1 Event Tree Files

These files contain the event tree structures for each group of initiating events. The core damage sequences of these models are converted into fault tree logic and integrated into the Master Fault Tree File along with the system fault tree logic.

7.3.2.2 Fault Tree File

A single fault tree file ("Seqmaster.caf") contains all the core damage sequences, with all the front-line and support systems linked. Each sequence subtree includes a top gate that combines the initiating event and the functional failures and successes of the sequence. In addition, logic was included for a single top of all individual subtrees combined with a sequence marker. This single top of individually marked sequences was developed to allow significant reduction in the time required for quantification of the entire model.

7.3.2.3 Database File

The database contains the probabilities and frequencies of each of the events associated with the fault tree.

7.3.2.4 Quantification File

These file contains the conditions for quantifying the different accident sequences, or a single top that combines all the sequences as described under the section 7.3.2.2. The quantification file identifies the following:

- Master fault tree file name,
- Database file name,
- Sequences to be quantified, or single top
- Quantification truncation limits for each sequence, or single top
- Flag files for each sequence, or a single master flag file (using selected configuration)
- Accident class for each sequence.
- Mutually Exclusive file
- Recovery file

7.3.2.5 "Flag" Files

"Flag" files contain boundary conditions (for example: type of initiating event, assumed plant configuration) used in the quantification of the accident sequences. Binary model elements (that have either "True" or "False" values) called "Flags" (also known as "house events") are used to identify boundary conditions in the model structure. Flag files identify the flag events and associated binary values used in the quantification of the different accident sequences. A single master flag file is used to select the equipment line-up configuration. These flags settings are provided in Section 4 under the corresponding system.

7.3.2.6 "Mutually Exclusive" Files

A cutset file is used to identify combinations that should be excluded from the results. These mutually exclusive combinations identify and delete:

- Combinations of maintenance actions in multiple trains not allowed by technical specifications.
- Combinations of failures modes for equipment that are not possible (e.g. a specific valve fails open combined with valve same fails closed)
- Eliminate cutsets that are not appropriate (e.g. human failures that are only applicable for some sequences, but not others)

7.3.2.7 "Recovery" Files

A text rule based recovery file is used to recover selected long-term decay heat removal sequences (class ii) that involve consequential loss of offsite power. Conservatively, a probability on non-recovery of loss of offsite power for 24 or more hours is applied to these sequences. In addition, the recovery file is used to update the human error probability (HEP) for long-term decay heat removal sequences associated with failure of late injection with firewater.

7.3.3 Quantification Output

Quantification of the model results in the following key outputs:

- Overall core damage frequency
- Core damage frequency as a function of:
  - Initiating event
  - Accident sequence
  - Accident class
- Importance characterization of individual events (in terms of industry standard risk importance measures, for example: Fussell-Vesely; Risk Achievement Worth, and so forth) relative to the core damage frequency.

7.3.4 Truncation Analysis

The model has been quantified at different truncations to evaluate convergence. The results indicate that the model converges as show below:

Truncation	CDF	% Change
1E-12	8.70E-09	-
1E-13	1.07E-08	23%
1E-14	1.18E-08	10.3%
1E-15	1.22E-08	3.39%

7.4 REFERENCES

None